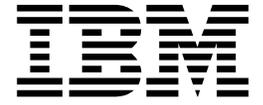


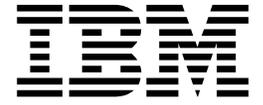
IBM Tivoli Workload Scheduler



Planning and Installation

Version 9 Release 1

IBM Tivoli Workload Scheduler



Planning and Installation

Version 9 Release 1

Note

Before using this information and the product it supports, read the information in "Notices" on page 417.

This edition applies to version 9, release 1, modification level 0 of Tivoli Workload Scheduler (program number 5698-WSH) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this publication

This IBM® Tivoli® Workload Scheduler Planning and Installation provides information for planning, installing, migrating, and configuring an IBM Tivoli Workload Scheduler network.

What is new in this release

For information about the new or changed functions in this release, see *Tivoli Workload Automation: Overview*, section *Summary of enhancements*.

For information about the APARs that this release addresses, see the Tivoli Workload Scheduler Release Notes at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038323> and the Dynamic Workload Console Release Notes at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038328>.

Who should read this publication

This guide is intended for the following audience:

- Tivoli Workload Scheduler IT administrators who plan for and install the network
- Dynamic Workload Console IT administrators who plan for and install the product
- Specialists who plan the network topology
- IT administrators who install the network
- System architects

Publications

Full details of Tivoli Workload Scheduler publications can be found in *Tivoli Workload Automation: Publications*. This document also contains information about the conventions used in the publications.

A glossary of terms used in the product can be found in *Tivoli Workload Automation: Glossary*.

Both of these are in the Information Center as separate publications.

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

For full information with respect to the Dynamic Workload Console, see the Accessibility Appendix in the *IBM Tivoli Workload Scheduler User's Guide and Reference*.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education website:

<http://www.ibm.com/software/tivoli/education>

Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

- Searching knowledge bases: You can search across a large collection of known problems and workarounds, Technotes, and other information.
- Obtaining fixes: You can locate the latest fixes that are already available for your product.
- Contacting IBM Software Support: If you still cannot solve your problem, and you need to work with someone from IBM, you can use a variety of ways to contact IBM Software Support.

For more information about these three ways of resolving problems, see the appendix on support information in *Tivoli Workload Scheduler: Troubleshooting Guide*.

Part 1. Planning

This part provides an overview of the IBM Tivoli Workload Automation environment and describes how to plan for the installation.

Chapter 1. Known problems and limitations

Before proceeding with your installation or upgrade, refer to the following Technote.

The following Technote with reference # 1700579, gathers important information about known issues and workarounds for Tivoli Workload Scheduler and the Dynamic Workload Console version 9.1: <http://www-01.ibm.com/support/docview.wss?uid=swg21700579>.

Chapter 2. Network planning

This section provides information to help you plan your Tivoli Workload Scheduler network.

Tivoli Workload Scheduler environment

A Tivoli Workload Scheduler network consists of a set of linked workstations on which you perform job processing. A network is composed of one or more domains, each having a *domain manager* workstation acting as a management hub, and one or more *agent* workstations.

Using Tivoli Workload Scheduler you can run your workload in one of the following ways:

Statically

To run existing job types, for example docommand and scripts on specific workstations of fault-tolerant agent or standard agent type.

Dynamically

To run existing job types and job types with advanced options, allowing the product to assign it to the workstation that best meets both the hardware and software requirements needed to run it.

Job types with advanced options are both those supplied with the product and the additional types implemented through the custom plug-ins. For example, those supplied with the product are DB2[®], file transfer, and web services. Those implemented through the custom plug-ins are the ones you developed using the Integration Workbench of the Software Development Kit (SDK).

Depending on how you want to run your workload you have to install and configure different components in your network.

Figure 1 on page 6 gives a graphical overview of a typical Tivoli Workload Scheduler environment to run static workload:

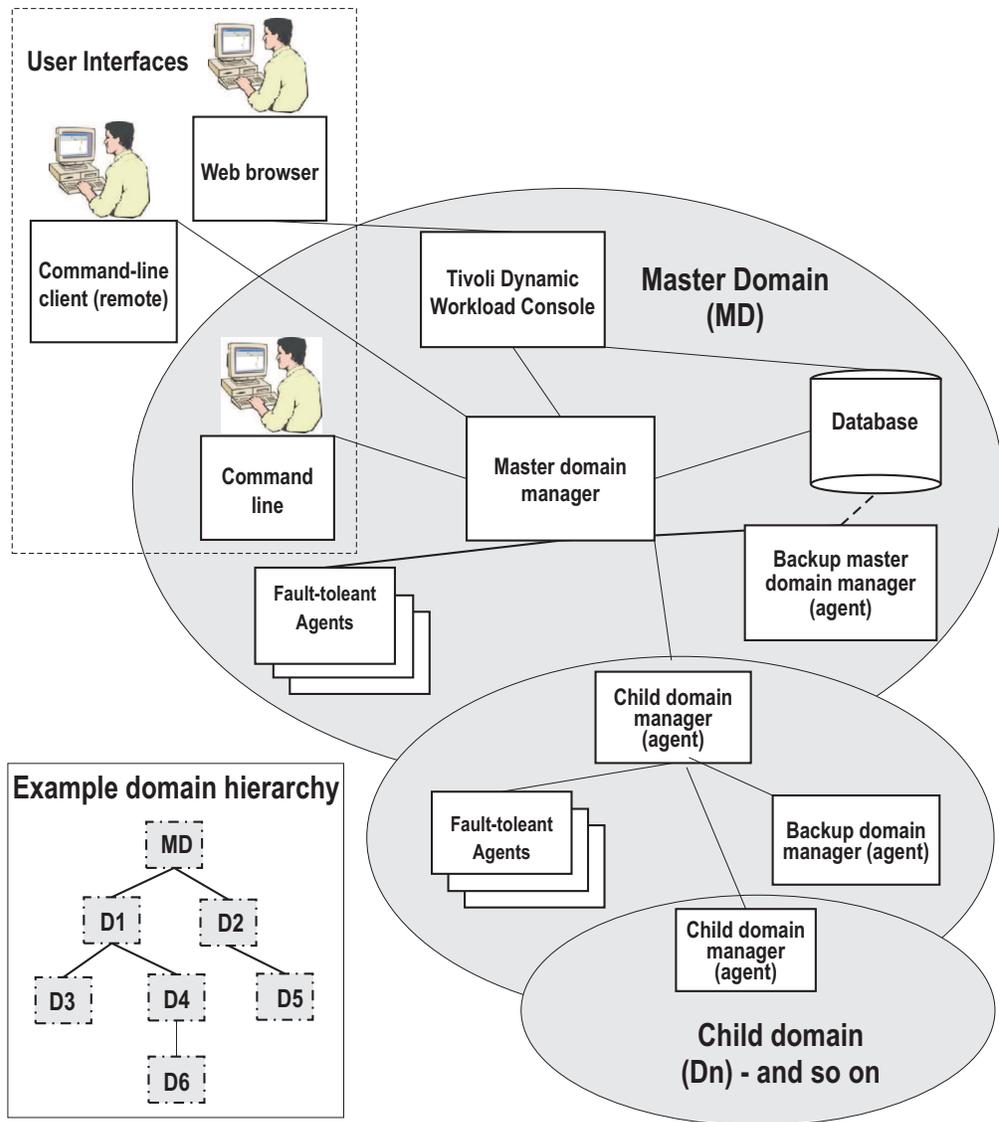


Figure 1. Graphical overview of Tivoli Workload Scheduler environment to run static workload

In Figure 1 the master domain is shown with the principle components to run workload statically, and two levels of subdomain. The available user interfaces are also indicated. An example is provided of the basic domain hierarchical structure, where each domain is named "D1", "D2", and so on. All of these concepts are explained in the following section:

To run your workload statically install the following components:

Master domain manager

The master domain manager is the highest level workstation of a Tivoli Workload Scheduler network. It contains or connects to the relational database that stores scheduling object definitions. It creates or updates a production file when the plan is created or extended and then distributes the file to the network. It performs all logging and reporting for the network. It can perform the role of event processing server for the event-driven workload automation feature.

Backup master domain manager

Define a backup master domain manager at installation to point to either the database being used by the master domain manager or to a mirror of that database. In this way the backup master domain manager has the latest data available to it at all times.

Domain manager

Install this component if you need a multi-domain network and you want to manage workload by assigning it to a predefined workstation that is to run your workload statically. In a multi-domain network all domains below the master domain have fault-tolerant agents configured to be a domain manager to manage the workstations in its domain. A domain manager can manage fault-tolerant, standard, and extended agents. Each domain manager is a fault-tolerant agent in the domain of the next higher level. To define a domain manager, install a fault-tolerant agent on your workstation and then define it as **manager** in the workstation definition.

Backup domain manager

Install this component if you want a backup to your domain manager. If your domain manager experiences problems, you can configure any fault-tolerant agent as the domain manager and switch to it with a simple procedure.

Agent An agent is a workstation in the network that runs the jobs which are controlled by the Tivoli Workload Scheduler master domain manager. Install agents by choosing the agent installation from the DVD or by downloading the eImage using the Passport Advantage® Online website. After installing the agent, you define its type by using the workstation definition.

Fault-tolerant agent

An fault-tolerant agent can resolve local dependencies and launch jobs in the absence of a domain manager. It has a copy of the production control file. This allows fault-tolerant agents to continue processing even if the dynamic domain manager or the network connection is down. With a simple reconfiguration, they can serve as subordinate *domain managers*. To define a fault-tolerant agent, install a fault-tolerant agent on your workstation and then define it as fault-tolerant in the workstation definition.

Standard agent

An agent that launches jobs only under the direction of its domain manager. It is not fault-tolerant. To define a standard agent, install a fault-tolerant agent on your workstation and then define it as a standard agent in the workstation definition.

Extended agent

Extended agents are logical definitions (hosted by a physical workstation) used to extend job processing to selected applications (SAP R/3, Oracle E-Business Suite, PeopleSoft, and z/OS®). For information about installing an extended agent, see *Tivoli Workload Scheduler for Applications: User's Guide*.

Note: All agents with special roles (master domain manager, backup master domain manager, domain manager, backup domain manager) can also work as fault-tolerant agents with jobs scheduled on them.

Figure 2 on page 8 gives a graphical overview of a typical Tivoli Workload Scheduler environment to run dynamic workload:

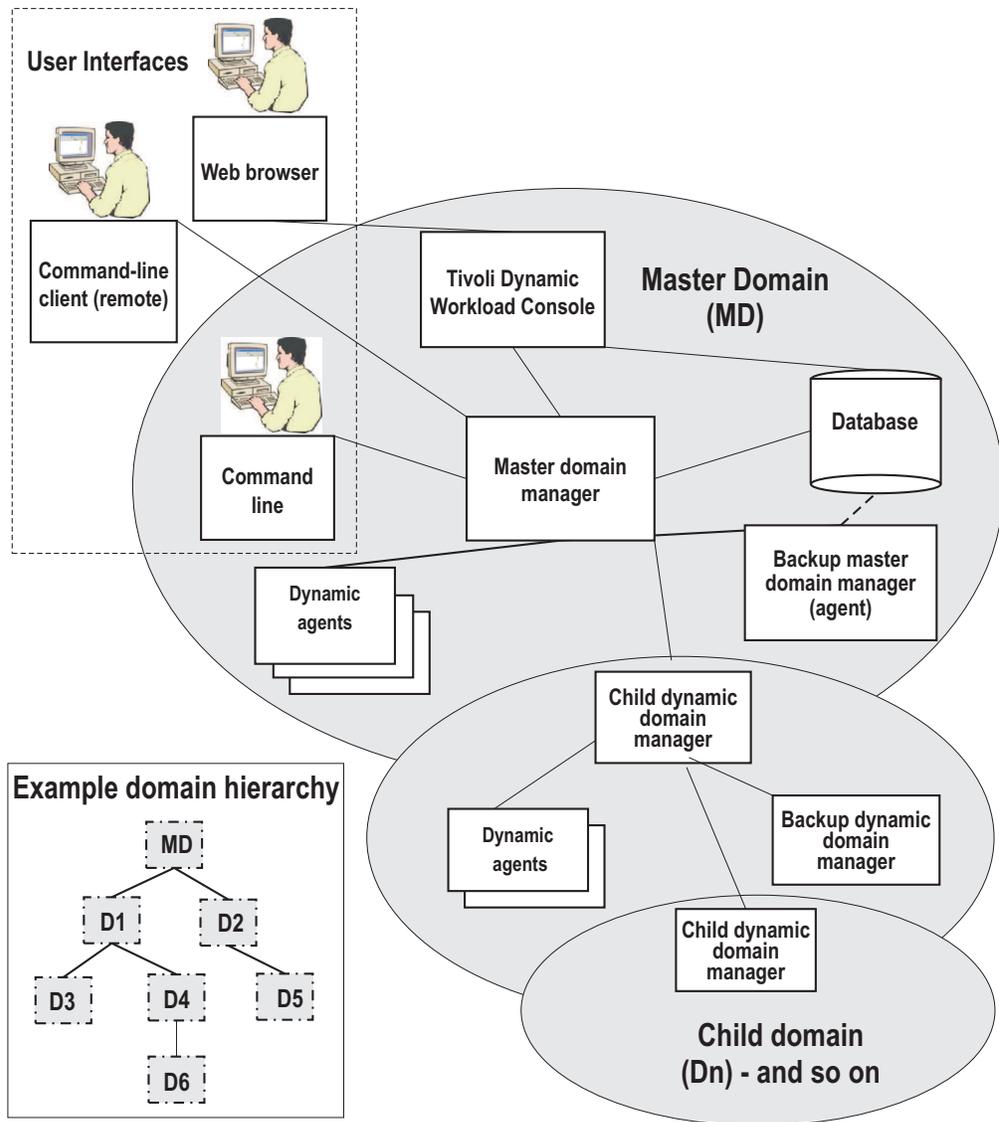


Figure 2. Graphical overview of Tivoli Workload Scheduler dynamic environment

In Figure 2 the master domain is shown with the principle components to run workload dynamically, and two levels of dynamic subdomain. The available user interfaces are also indicated. An example is provided of the basic domain hierarchical structure, where each domain is named "D1", "D2, and so on. All of these concepts are explained in the following section.

If you want to run your workload dynamically install the following components:

Master domain manager

The master domain manager is the highest level workstation of a Tivoli Workload Scheduler network. It contains or connects to the relational database that stores scheduling object definitions. It creates or updates a production file when the plan is created or extended and then distributes the file to the network. It performs all logging and reporting for the network. It can perform the role of event processing server for the event-driven workload automation feature.

Backup master domain manager

Define a backup master domain manager at installation to point to either the database being used by the master domain manager or to a mirror of that database. In this way the backup master domain manager has the latest data available to it at all times.

Dynamic Domain manager

Install this component if you need a multi-domain network and you want to manage your workload both statically that dynamically. All domains below the master domain have dynamic domain managers to manage the workstations in its domain. Each dynamic domain manager is an agent in the domain of the next higher level. To define a dynamic domain manager, install a dynamic domain manager and then perform the "Configuring a dynamic domain manager" on page 215 procedure.

Backup dynamic domain manager

Install this component if you want a backup to your dynamic domain manager. If your dynamic domain manager experiences problems, you can switch to it with a simple procedure.

Agent An agent is a workstation in the network that runs the jobs which are controlled by the Tivoli Workload Scheduler master domain manager. Install agents by choosing the agent installation from the DVD or by downloading the eImage using the Passport Advantage Online website.

Dynamic agent

An agent that has the following capabilities:

Run workload dynamically

It communicates with the server the status of its resources. In this way the product is able to dynamically run your workload to the best available resources by:

- Automatically discovering scheduling environment resources.
- Automatically following resource changes
- Requesting additional resources when needed
- Matching job requirements to available resources
- Controlling and optimizing use of resources

The characteristics listed above provides high availability and load balancing potentialities to your environment and well suite virtualized environments.

When a job is submitted, either as part of a job stream in the plan or through ad hoc submission, Tivoli Workload Scheduler checks the job requirements, the available resources and the related characteristics and submits the job to the resource that best meets the requirements to run it.

Run both existing job types and job types with advanced options

It can run:

- Existing job types. For example docommand and scripts.
- Job types with advanced options, both those supplied with the product and the additional types implemented through the custom plug-ins. For example, those supplied with the product are DB2, file transfer, and web services. Those implemented through the custom plug-ins are the ones you developed using the

Integration Workbench of the Software Development Kit (SDK). To run these job types you must also install the Java™ runtime.

Manage dynamic workload broker logical resource

It can remotely run, from the agent, the dynamic workload broker **resource** command on the server. To manage the **resource** command you must also install the Java runtime.

After installing the agent, you define its type by using “Configuring a dynamic agent” on page 217.

Note: Dynamic agents must be directly connected to the master domain manager or to the dynamic domain manager.

Extended agent

Extended agents are logical definitions (hosted by a physical workstation) used to extend job processing to selected applications (SAP R/3, Oracle E-Business Suite, PeopleSoft, and z/OS). For information about installing an extended agent, see *Tivoli Workload Scheduler for Applications Tivoli Workload Scheduler for Applications: User's Guide*.

Tivoli Workload Scheduler interfaces

The Tivoli Workload Scheduler has user interfaces from which you can manage your production environment.

You can manage your production environment from the following user interfaces:

Master domain manager command lines

The master domain manager command lines are installed automatically when you install the master domain manager. These command lines interface are run only from the workstation serving as the master domain manager. From the command lines, you can administer the master specific binaries and options. A backup master domain manager command lines also exist on the master domain manager configured as backup instance.

Dynamic Workload Console

The web-based interface for creating, modifying, monitoring, controlling, and deleting Tivoli Workload Scheduler objects. You can interface with the console from any system in the network where a supported web browser is installed. When you install a Dynamic Workload Console also the **z/OS Connector** is installed, which is a component that connects IBM Tivoli Workload Scheduler for z/OS and the Dynamic Workload Console. For more information, see *Tivoli Workload Scheduler for z/OS: Planning and Installation Guide*.

Command line client

A component of Tivoli Workload Scheduler installed only with a fault-tolerant agent that allows you to implement the following commands on the master domain manager from another workstation: The commands you can use are the following:

- Composer
- Optman
- Planman showinfo and unlock (the other planman commands must be run locally on the master domain manager)

Tivoli Tivoli dynamic workload broker command line

Installed and configured automatically when you install a master domain manager. It includes commands to directly submit and manage jobs for dynamic scheduling, manage job JSDL definitions and resources, and more. See *Tivoli Workload Scheduler: Scheduling Workload Dynamically* for reference.

Job Brokering Definition Console

A structured editing tool that you use to create and modify Job Submission Description Language (JSDL) files. These files are saved in the Job Repository as job definitions and become available for submission. The JSDL files adhere to the XML syntax and semantics as defined in the JSDL schema. For more information, see the *Tivoli Workload Scheduler: User's Guide and Reference, SC32-1274*.

For a more detailed description of the Tivoli Workload Scheduler components, see *Tivoli Workload Automation: Overview*.

Planning the environment

Typical installation scenarios for Tivoli Workload Automation products and components.

This section describes some of the typical installation scenarios for Tivoli Workload Automation products and components. These typical scenarios show how to deploy specific solutions on the minimum possible system resources.

Distributed workload environment with static scheduling capabilities

Use this configuration to run workload statically across your distributed network. Figure 3 on page 12 shows the system resources needed to install a fully-working Tivoli Workload Scheduler environment for managing your distributed workload.

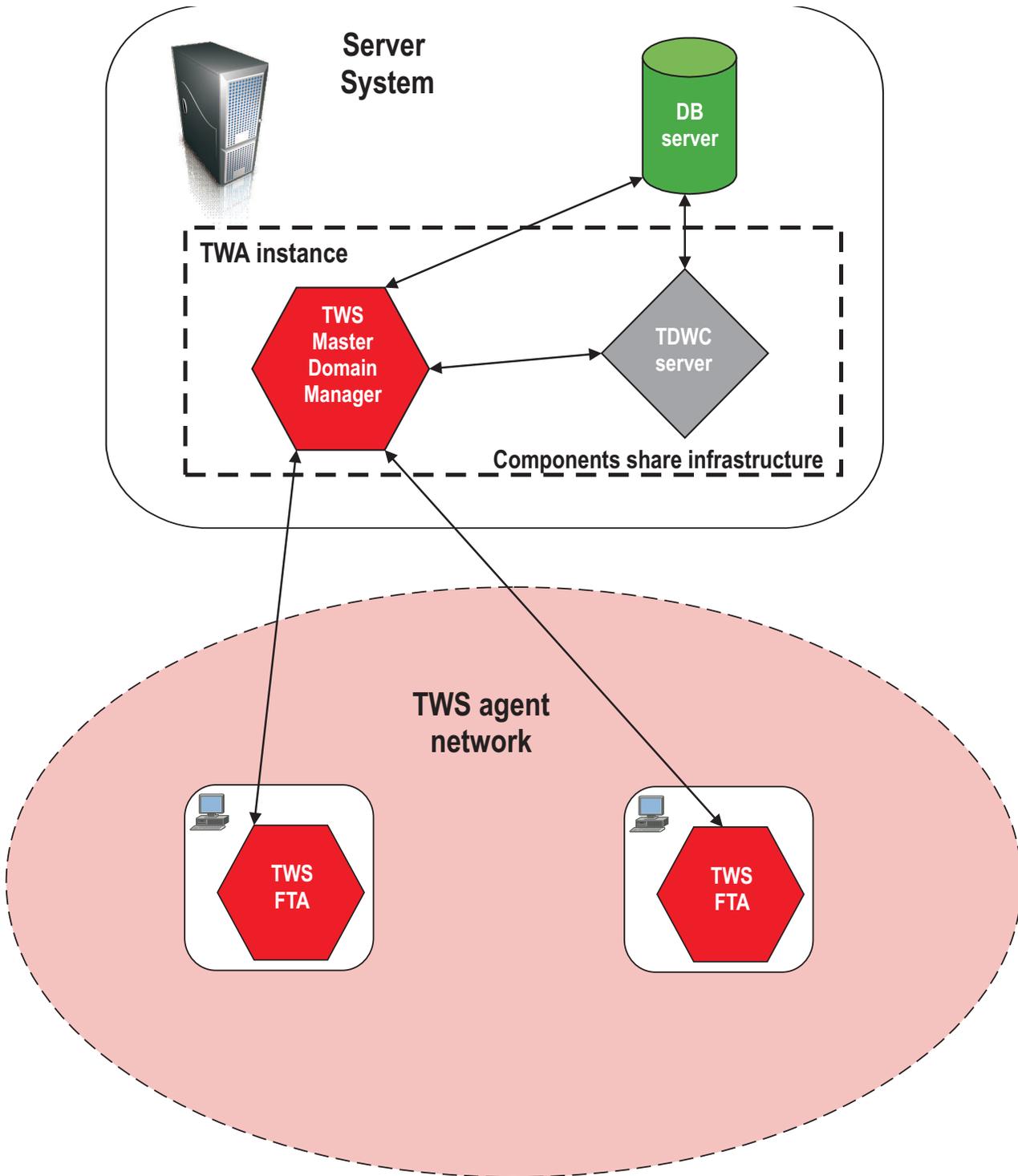


Figure 3. Distributed workload environment with static scheduling capabilities

Distributed workload environment with dynamic scheduling capabilities

In this configuration, you can choose whether or not to add the runtime environment for Java jobs to the agent. Use this configuration to run workload dynamically across your distributed network.

The runtime environment is used to:

- Run on the agent job types with advanced options, both those supplied with the product and the additional types implemented through the custom plug-ins.
- Enable the capability to remotely run, from the agent, the Tivoli dynamic workload broker resource command on the server.

For information about dynamic scheduling, how to run application job plug-ins and the dynamic workload broker resource command on the server, see *Tivoli Workload Scheduler: Scheduling Workload Dynamically*.

Figure 4 on page 14 shows the system resources required to install a fully working Tivoli Workload Scheduler environment for running your distributed workload dynamically.

Note: A dynamic agent can be directly connected to its master domain manager or through a dynamic domain manager as shown in “Distributed workload environment with static and dynamic scheduling capabilities” on page 15.

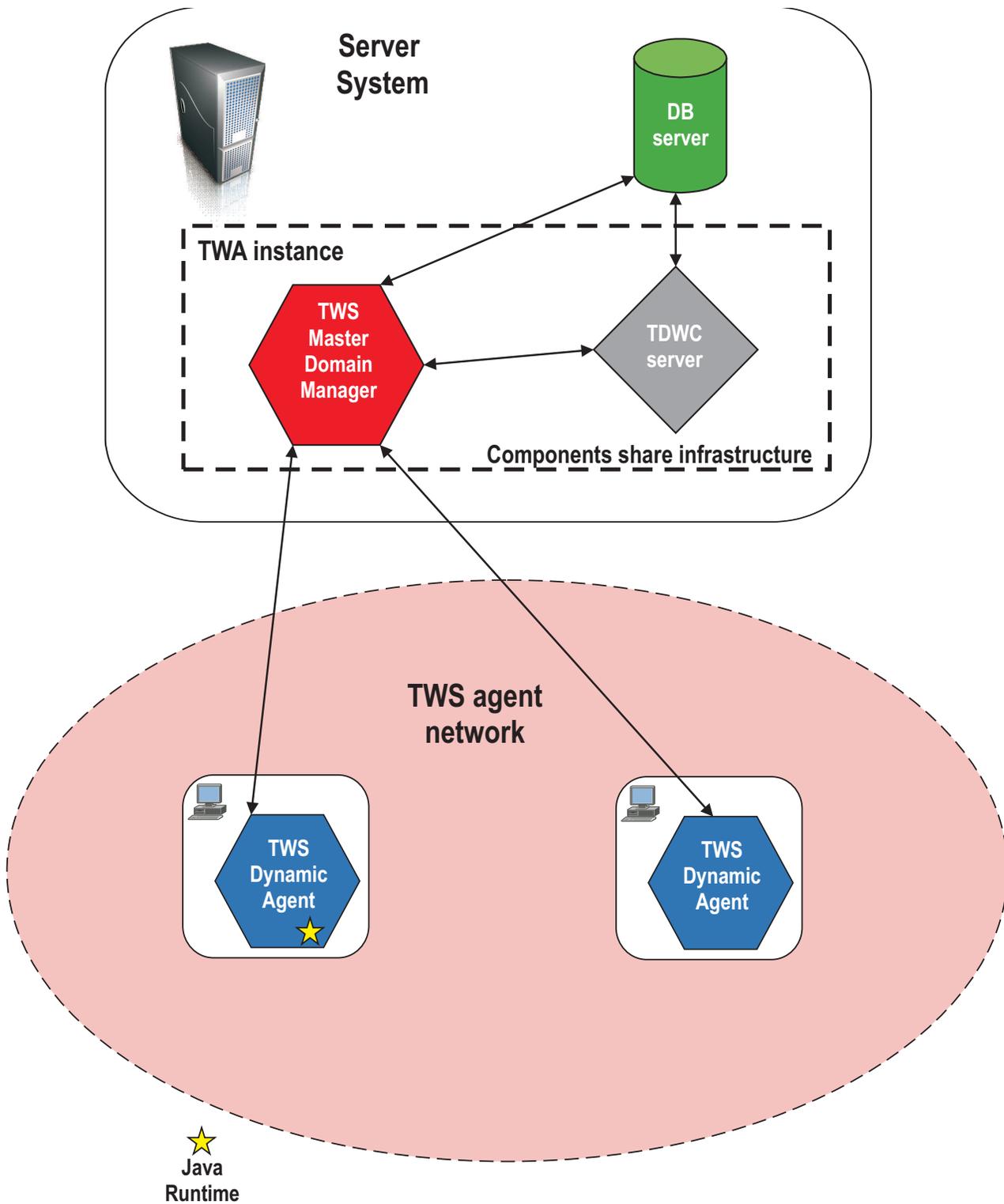


Figure 4. Distributed workload environment with dynamic scheduling capabilities

Dynamic scheduling supports most of the Tivoli Workload Scheduler features for static scheduling. The Table 1 on page 15 lists some features or properties that are partially or not supported.

Table 1. Features partially or not supported for dynamic scheduling

Feature	agent and Tivoli Workload Scheduler for z/OS agent
Event-driven workload automation. Note: For more details about the events type, see <i>Tivoli Workload Scheduler User's Guide and Reference: Appendixes - Event-driven workload automation event and action definitions</i>	TivoliWorkloadSchedulerObjectMonitor events supported. FileMonitor events supported, except for IBM i systems. TivoliWorkloadSchedulerApplicationMonitor events not supported.
File dependency	Not supported.
Utility commands (datecalc, jobinfo etc).	Not supported.

Distributed workload environment with static and dynamic scheduling capabilities

Use this configuration to run workload both statically and dynamically across your distributed network. In this configuration, you can choose whether or not to add the runtime environment for Java jobs to the agent.

The runtime environment is used to:

- Run on the agent job types with advanced options, both those supplied with the product and the additional types implemented through the custom plug-ins.
- Enable the capability to remotely run, from the agent, the Tivoli dynamic workload broker resource command on the server.

For information about dynamic scheduling, how to run application job plug-ins and the dynamic workload broker resource command on the server, see *Tivoli Workload Scheduler: Scheduling Workload Dynamically*.

Figure 5 on page 16 shows the system resources required to install a fully working Tivoli Workload Scheduler environment for running your distributed workload both statically and dynamically. Tivoli Workload Scheduler requires a fault-tolerant agent and a dynamic agent to be installed on every system where jobs are to be scheduled statically or dynamically.

Note: A dynamic agent can be directly connected to its master domain manager or through a dynamic domain manager as shown in Figure 5 on page 16.

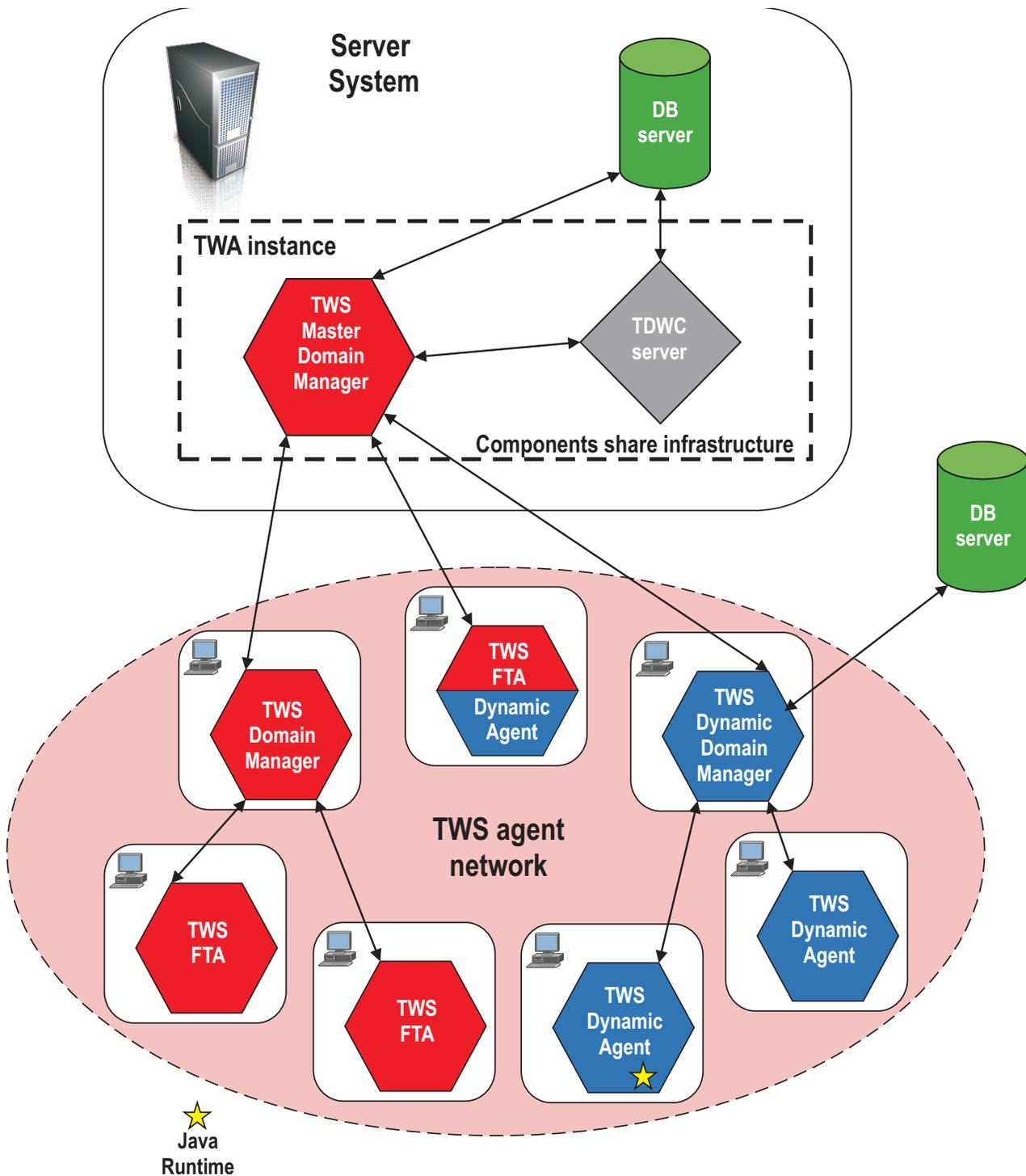


Figure 5. Distributed workload environment with static and dynamic scheduling capabilities

For a list of features partially or not supported in a mixed environment, see Table 1 on page 15.

End-to-end workload environment

In an End-to-end workload environment (agent connected to the z/OS system), you can define the types of configurations.

You can define the following types of configurations:

To run your workload statically:

Using fault-tolerant agents

Use the fault-tolerant end-to-end scheduling environment to schedule and control static workload from the mainframe to distributed systems. On the distributed system, you install fault-tolerant agents and connect them to the z/OS server. See *Tivoli Workload Scheduler for z/OS: Scheduling End-to-end with Fault Tolerance Capabilities* for more details.

Using Tivoli Workload Scheduler for z/OS agents (z-centric)

Use the z-centric end-to-end scheduling environment to schedule and control static workload from the mainframe to distributed systems with a low cost of ownership. On the distributed system, you install Tivoli Workload Scheduler for z/OS agents and connect them to the z/OS controller. For information about how to install it see *Tivoli Workload Scheduler for z/OS: Planning and Installation Guide* for information about how to use it see *Tivoli Workload Scheduler for z/OS: Scheduling End-to-end with z-centric Capabilities* for more details.

To run your workload dynamically:

Using Tivoli Workload Scheduler for z/OS agents (z-centric) with dynamic capabilities

Use the z-centric end-to-end scheduling environment to schedule and control dynamic workload from the mainframe to distributed systems with a low cost of ownership. On the distributed system, you install Tivoli Workload Scheduler for z/OS agents, add dynamic scheduling capabilities and connect them to a dynamic domain manager that must be connected to the z/OS controller. For information about how to:

- Install a dynamic domain manager see “Installing a dynamic domain manager or its backup” on page 90
- Install Tivoli Workload Scheduler for z/OS agents see *Tivoli Workload Scheduler for z/OS: Planning and Installation Guide*
- Use Tivoli Workload Scheduler for z/OS agents see *Tivoli Workload Scheduler for z/OS: Scheduling End-to-end with z-centric Capabilities* for more details.

Workload environment integrated with external systems

Use this configuration to extend Tivoli Workload Scheduler capabilities for scheduling on external applications, such as SAP R/3 and PeopleSoft using Tivoli Workload Scheduler.

Figure 6 on page 18 shows a sample environment including the agents needed to extend Tivoli Workload Scheduler scheduling capabilities on one or more external applications using Tivoli Workload Scheduler for Applications. You can install Tivoli Workload Scheduler for Applications on the master domain manager, on a fault-tolerant agents, on dynamic agents, and on Tivoli Workload Scheduler for z/OS agents.

For information about Tivoli Workload Scheduler for Applications, see the *Tivoli Workload Scheduler for Applications: User’s Guide* documentation.

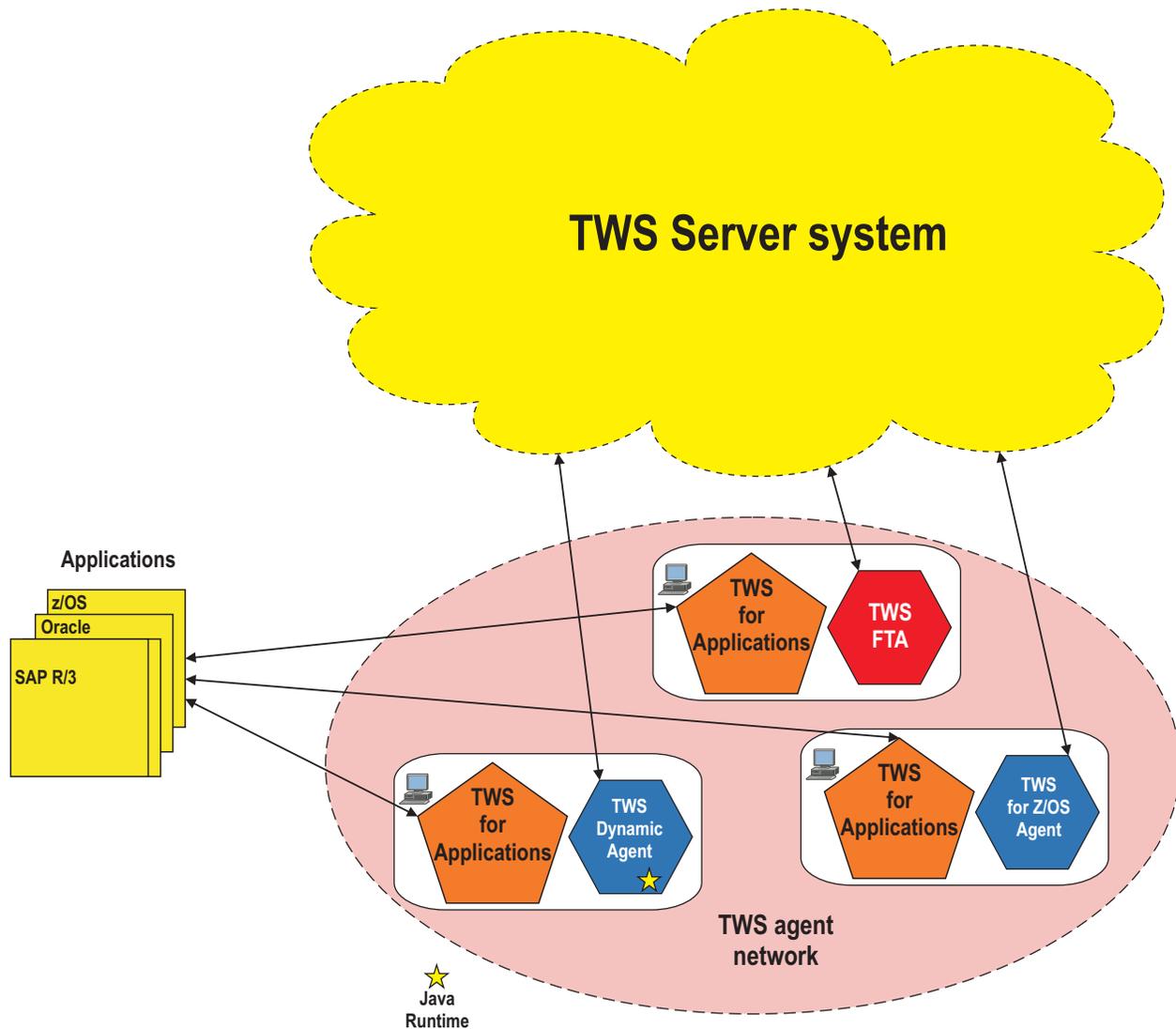


Figure 6. Workload environment integrated with external systems

Note: Installing Tivoli Workload Scheduler for Applications on an agent (master domain manager, domain manager, fault-tolerant agent, standard agent, dynamic agent, Tivoli Workload Scheduler for z/OS agent) is the correct deployment scenario in an end-to-end environment.

Distributed-driven workload environment for z/OS

Use this configuration to submit from the Tivoli Workload Scheduler (using the dynamic workload broker component installed with the master domain manager or the dynamic domain manager) workload to be processed by JES2, without having to define the workload on the z/OS system.

Figure 6 shows the minimum system resources needed to install a distributed-driven environment, where the Tivoli Workload Scheduler distributed-Agent for z/OS represents a lightweight end-to-end scheduling solution where you define and manage on the distributed side the workload that is to be processed by JES2.

For information about Tivoli Workload Scheduler distributed-Agent for z/OS, see the *Tivoli Workload Scheduler: Scheduling with the Agent for z/OS* documentation.

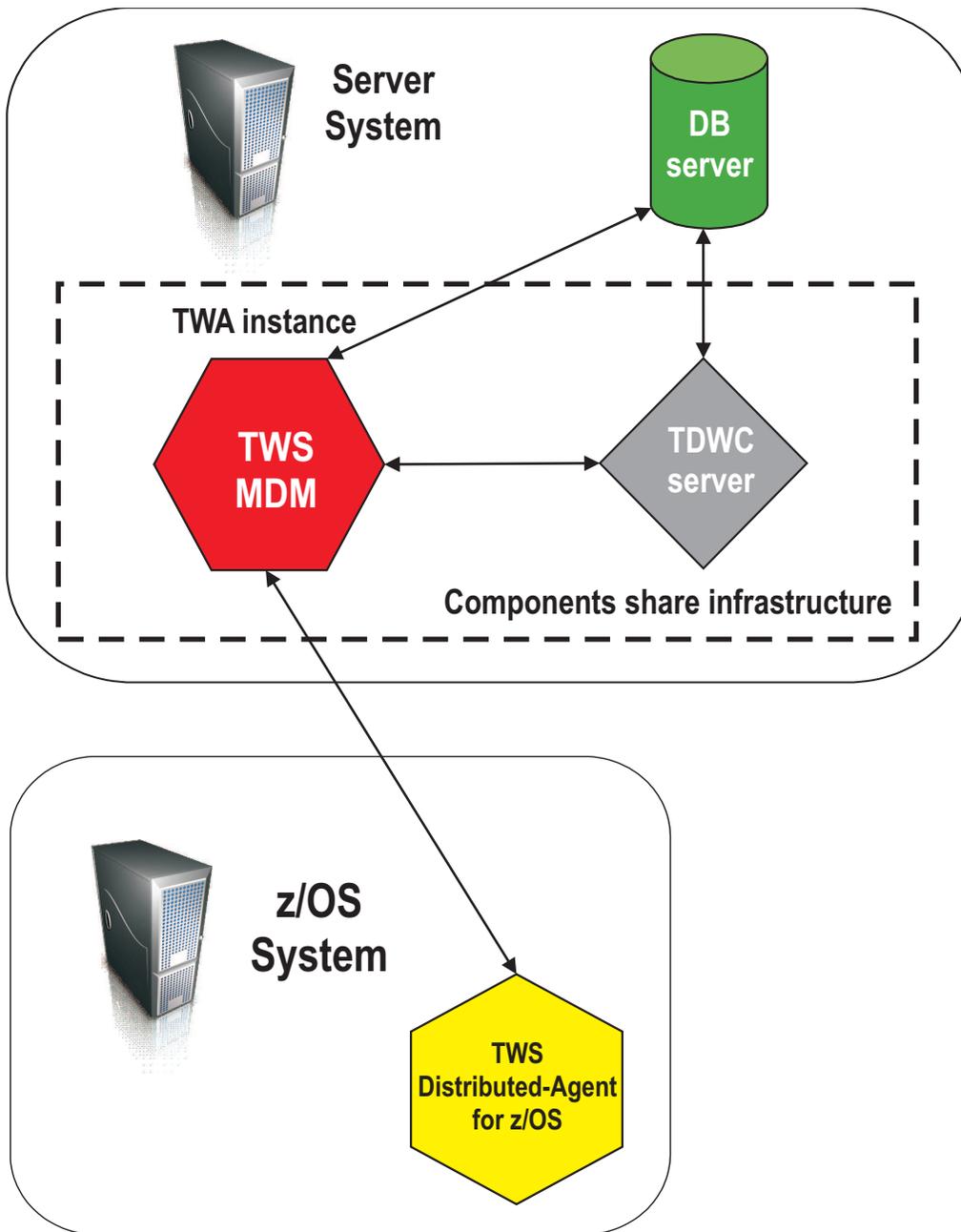


Figure 7. Distributed-driven workload environment for z/OS

Planning domains

A Tivoli Workload Scheduler network contains at least one master domain manager that acts as a management hub for the product. Additional domains can be used to divide a widely-distributed network into locally-managed groups of workstations.

In a single domain configuration, the master domain manager maintains communications with all of the workstations in the network.

In a multiple domain configuration, the master domain manager communicates with the workstations in its domain and all immediately subordinate domain managers. The subordinate domain managers communicate with the workstations in their domains and their immediately subordinate domain managers, and so on. Domain managers report all of the activities of the domain to the master. Using multiple domains reduces network traffic and the load on the master by reducing the number of direct communications between the master domain manager and workstations. Multiple domains also provide fault-tolerance by limiting the outage caused by losing a domain manager in a single domain. To limit the effects further, you can designate backup domain managers to take over if domain managers fail.

When you define a new domain, you must identify the parent domain and the domain manager. The parent domain is the domain directly above the new domain in the domain hierarchy. All communications to and from a domain are routed through the parent domain manager.

Localized processing in your domain

Localized processing is separating your scheduling needs based on a common set of characteristics, such as geographical locations, business functions, and application groupings. Group related processing can limit the amount of interdependency information that needs to be communicated between domains. The benefits of localized domains are:

Decreased network traffic

Keeping processing localized to domains eliminates the need for frequent inter-domain communication.

Tighter security and simplified administration

Security and administration can be defined at and limited to the domain level. Instead of network-wide or workstation-specific administration, you can have domain administration.

Optimized network and workstation fault-tolerance

In a multiple domain network, you can define backups for each domain manager so that problems in one domain do not disrupt operations in other domains.

Considerations in planning domains

In planning your Tivoli Workload Scheduler network, consider the following:

Number of workstations, applications, and jobs

Consider the number of workstations that comprise the network and the number of applications and jobs that the network runs. If you have a small number of workstations, or a small number of applications to control, you do not need multiple domains.

Number of geographic locations

Consider the number of geographic locations covered by your network and the reliability and efficiency of communication between the locations. Multiple geographic locations is one of the primary reasons for choosing a multiple domain architecture. One domain for each geographical location is a common configuration. A single domain architecture relies on the network maintaining continuous processing.

Time zones

When your network is spread across multiple geographic locations in different time zones, decide whether to activate the time zone feature. See “Time zone considerations” on page 25.

Centralized or decentralized management

You can manage single or multiple domain networks from a single master domain manager. If you want to manage multiple locations separately, you can consider the installation of a separate Tivoli Workload Scheduler network at each location. Some decentralized management is possible in a stand-alone Tivoli Workload Scheduler network by mounting or sharing file systems.

Types of applications

Consider the types of applications that are run by Tivoli Workload Scheduler. If you have multiple applications that are distinctly separate from each other, you might choose to put them in separate domains.

Windows network

When you have a Windows network, you might want your Tivoli Workload Scheduler domains to mirror your Windows domains.

System performance and other criteria

You can define multiple domains to localize systems based on performance or operating system type.

Amount of network traffic

If your network traffic is manageable, having multiple domains is less important.

Dependencies between jobs

Consider if you need to plan for job dependencies that cross system boundaries, geographical boundaries, or application boundaries. For example, does the start of Job1 on workstation1 depend on the completion of Job2 running on workstation2. The degree of interdependence between jobs is an important consideration when planning your network. If you use multiple domains, try to keep interdependent objects in the same domain, thereby decreasing network traffic and improving use of the domain architecture. See the *Tivoli Workload Scheduler: User's Guide and Reference*, SC32-1274.

Level of fault-tolerance required

A disadvantage of the single domain configuration is the reliance on a single domain manager. In a multi-domain network, the loss of a single domain manager affects only the agents in its domain.

Firewalls

When your network contains firewalls, plan the structure of your domains around the firewalls. See the *Tivoli Workload Scheduler: Administration Guide*.

Secure Sockets Layer (SSL) or IBM Global Security Kit (GSKit) encryption

If you want to use SSL or GSKit encryption in your network, plan your domains in accordance with the protocol.

Note: If you want to be compliant with Federal Information Processing Standards (FIPS), you must use GSKit. See the *Tivoli Workload Scheduler: Administration Guide*.

Single domain network

A single domain network consists of a master domain manager and any number of agents. Figure 8 shows an example of a single domain network. A single domain network is well-suited to companies that have few locations and business functions. All communication in the network is routed through the master domain manager. With a single location, you are concerned only with the reliability of your local network and the amount of traffic it can handle.

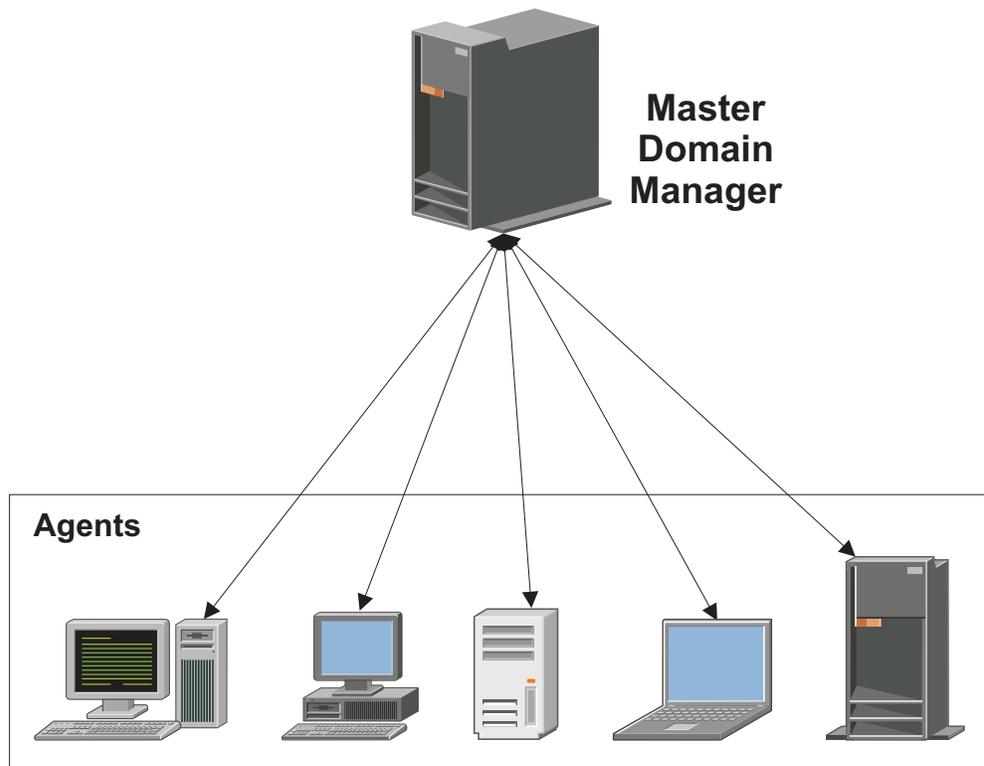
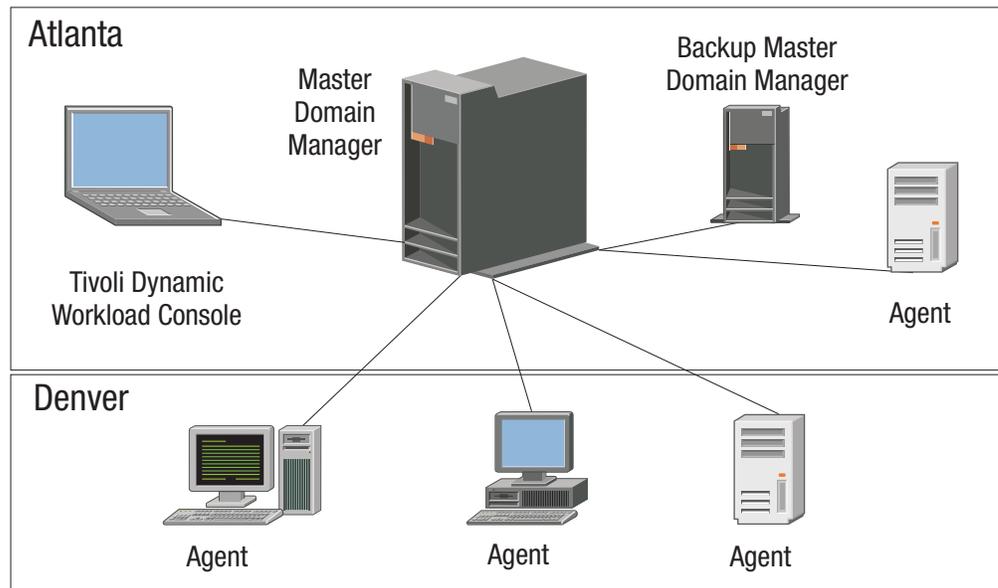


Figure 8. Single domain topology

Single domain networks can be combined with other networks, single or multiple domain, to meet multiple site requirements. Tivoli Workload Scheduler supports internetwork dependencies between jobs running on different networks.

Example 1



Or:

Example 2

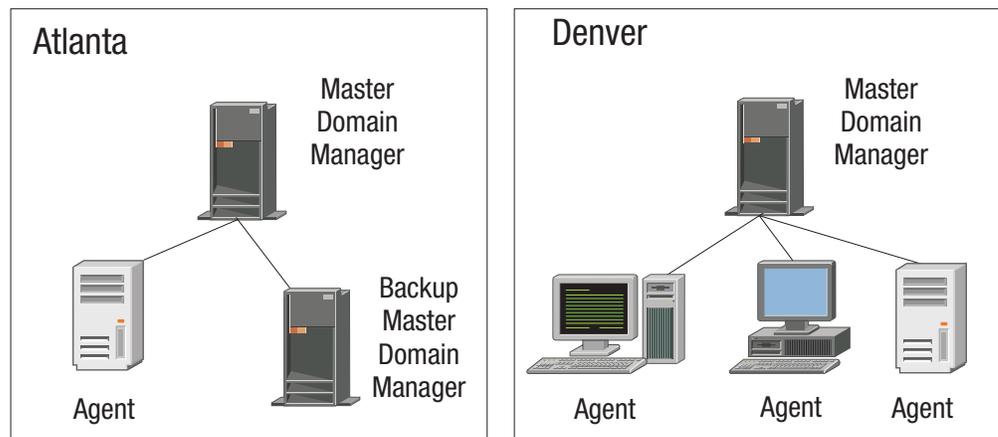


Figure 9. Single domain topology on multiple sites

Example 1 shows a single domain network. The master domain manager is located in Atlanta, along with several agents. There are also agents located in Denver. The agents in Denver depend on the master domain manager in Atlanta to resolve all interagent dependencies, even though the dependencies might be on jobs that run in Denver. An alternative would be to create separate single domain networks in Atlanta and Denver, as shown in example 2.

Multiple domain network

Multiple domain networks are especially suited to companies that span multiple locations, departments, or business functions. A multiple domain network consists of a master domain manager, any number of lower tier domain managers, and any number of agents in each domain. Agents communicate only with their domain

managers, and domain managers communicate with their parent domain managers. The hierarchy of domains can go down to any number of levels.

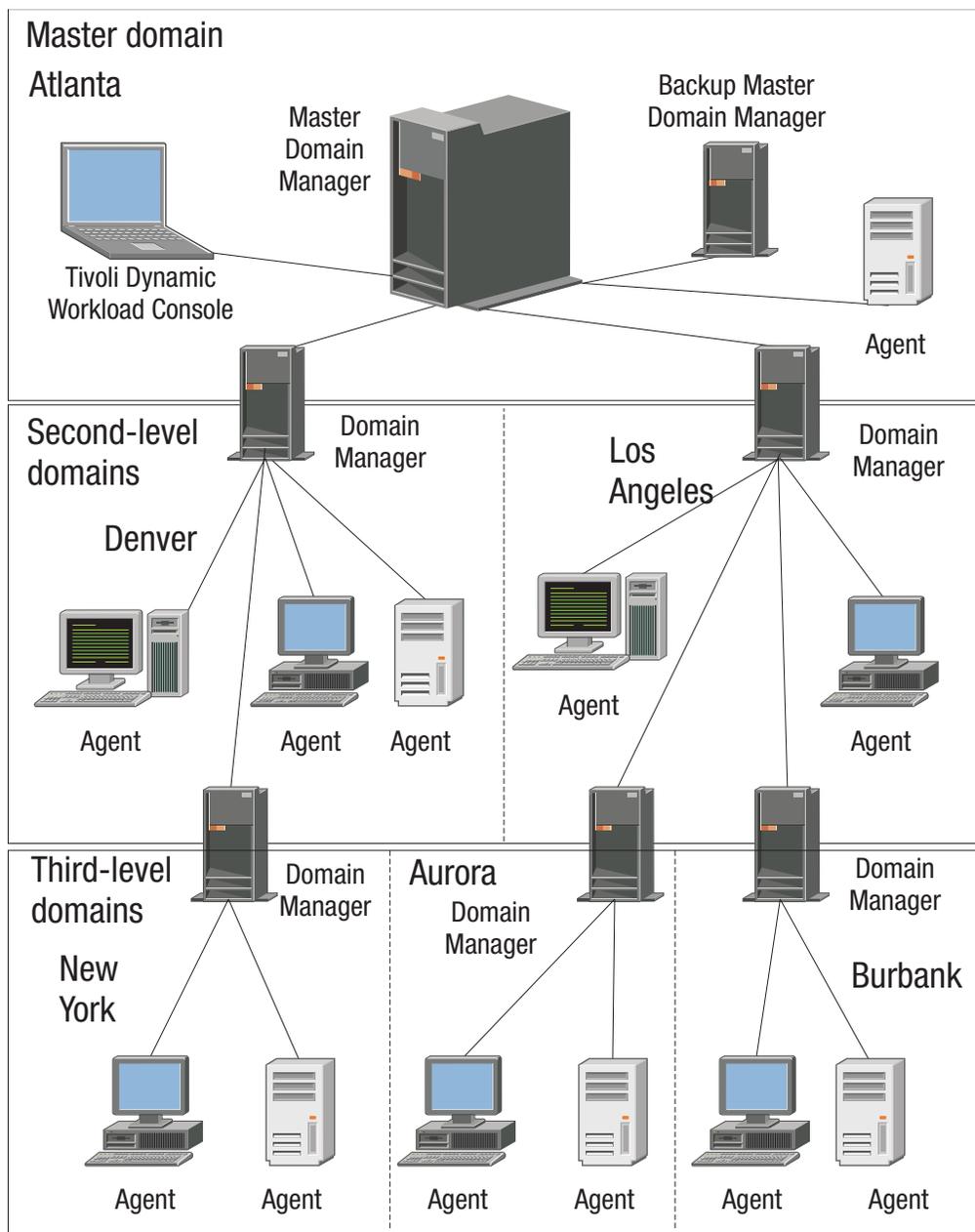


Figure 10. Multiple domain topology

As Figure 10 illustrates, the master domain manager is located in Atlanta. The master domain manager contains the database files used to document the scheduling objects, and distributes the Symphony file to its agents and the domain managers in Denver and Los Angeles. The Denver and Los Angeles domain managers then distribute the Symphony file to their agents and subordinate domain managers in New York, Aurora, and Burbank. The master domain manager in Atlanta is responsible for broadcasting inter-domain information throughout the network.

All communication to and from the New York domain manager is routed through its parent domain manager in Denver. If there are schedules or jobs in the New York domain that are dependent on schedules or jobs in the Aurora domain, those dependencies are resolved by the Denver domain manager. Most inter-agent dependencies are handled locally by the lower tier domain managers, greatly reducing traffic on the network.

Workstation classes

Workstations are organized into domains to make your network management easier and more efficient. However, the domain name is not one of the selection criteria when choosing where to run a job or job stream. If you want to group workstations together because they have similar job scheduling characteristics, use a workstation class.

Any number of workstations can be grouped in a class, and a workstation can be in many classes. Jobs and job streams can be assigned to run on a specific workstation class.

For example, you could set up workstation classes to group workstations according to:

- Your internal departmental structure, so that you could define a job that would be run on all the workstations in a department
- The software installed on them, so that you could define a job that would be run on all the workstations that had a particular application installed
- The role of the user, so that you could define a job that would be run on all the workstations belonging to, for example, managers

In this example, an individual workstation could be in one workstation class for its department, another for its user, and several others for the software installed on it.

Time zone considerations

Time zone support is an optional feature that is enabled by default. It allows you to manage workloads at a global level.

For information about how to set the time zone, see *Tivoli Workload Scheduler: Administration Guide*.

Time zone implementation also enables easy scheduling across multiple time zones. For a description of how the time zone works, see the *Tivoli Workload Scheduler: User's Guide and Reference*.

Part 2. Tivoli Workload Scheduler

This part describes how to create or upgrade the Tivoli Workload Scheduler database tables before installing or upgrading Tivoli Workload Scheduler, and how to install, upgrade, configure, and uninstall Tivoli Workload Scheduler. It also contains troubleshooting information.

Chapter 3. Preparing for installation

This chapter provides a brief overview of an installation and some specific environment considerations.

Installation overview

Steps to prepare your environment to install and configure Tivoli Workload Scheduler.

Perform the following steps to prepare your environment to install and configure Tivoli Workload Scheduler:

1. Plan your Tivoli Workload Scheduler network to determine what type of workstation you need to install. See Chapter 2, “Network planning,” on page 5.
2. Check the available installation media, see “Accessing the installation media” on page 31.
3. Check the installation prerequisites, see Chapter 4, “Prerequisites,” on page 37.
4. If you are installing a component that needs a Relational Database, decide if you want to use a DB2 database or an Oracle database and install it.
5. Optional, create or upgrade the Tivoli Workload Scheduler database tables before installing or upgrading, see Chapter 5, “Creating or upgrading the Tivoli Workload Scheduler database tables before installing or upgrading,” on page 45. The database administrator runs this procedure only if the IT administrator who installs the product does not know all the confidential information related to the database. If instead the IT administrator can provide the database administrator user ID and password during the installation, the database administrator does not need to run these procedures because the installation automatically creates and upgrades the database tables.
6. Choose the available method that you want to use for installing or upgrading. For information about the available installation methods, see “Installation method.”
7. Collect the information necessary to fill in the required fields during the installation.
8. Manage the Tivoli Workload Scheduler user for the instance that you are installing, see “Tivoli Workload Scheduler user” on page 39.
9. Install Tivoli Workload Scheduler by following the instructions provided in Chapter 6, “Installing,” on page 65.
10. Perform any configuration required for the workstation type that you installed, see Chapter 8, “Configuring,” on page 211.

Installation method

Installation methods

You can install Tivoli Workload Scheduler using several different methods.

Launchpad

The *launchpad* is the starting point for installing products that are part of Tivoli Workload Automation. The launchpad is included in your installation media.

Using the launchpad, you can:

- Run a prerequisite scan of Installation Manager.
- Install or upgrade the Tivoli Workload Scheduler master domain manager and dynamic domain manager
- Install or upgrade the Dynamic Workload Console.
- Access product information
- Keep you constantly and quickly informed about product news, updates, technotes, APARs, and fixes using the "News and Updates" feature. To use this feature you must be connected to the Internet.

The launchpad automatically accesses and runs the related installation setup file in interactive mode.

The launchpad requires some additional installation prerequisites. For more information, see the Tivoli Workload Scheduler System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&tuid=swg27038324>.

If you have autorun enabled, the launchpad starts automatically. If you want to start the launchpad from a mounted file system, ensure that you have write permission on it before starting the launchpad.

To access information about product installation prerequisites, click the different options in the left frame of the launchpad.

Installation wizard

Installation wizard method for master domain manager or its backup, dynamic domain manager or its backup.

Install Tivoli Workload Scheduler master domain manager or its backup, dynamic domain manager or its backup, by using the Installation Manager wizard for each supported platform.

You can use the installation wizard in interactive or silent mode. In interactive mode, the wizard guides you through the installation steps. In silent mode, a response file provides the information relevant to the installation process, which is run in background.

Silent mode

Silent method for master domain manager or its backup, dynamic domain manager or its backup..

Install Tivoli Workload Scheduler master domain manager or its backup, dynamic domain manager or its backup, and the Dynamic Workload Console by using a customized *response file* by adding all the configuration settings to be used during installation.

From the command line, run the Installation Manager command to install in silent mode. Using this method you can run the installation unattended and in the background. For more information, see "Performing a silent installation" on page 83.

The twsinst script for agents

The twsinst script to install agents.

To install Tivoli Workload Scheduler agents you can use only the **twsinst** script.

The **twinst** command is a very simple command that you can use both on UNIX and Windows operating systems. It saves disk space and RAM because it is not Java based.

For information about the **twinst** script, see “Installing agents” on page 104.

Accessing the installation media

Accessing the installation media

Access the installation media to download the installation files

Using DVDs

Choose the appropriate DVDs to use depending on what you want to install.

In this installation scenario, you have the DVDs that contain the installation files, and typically, you install the product on your computer.

Install Tivoli Workload Scheduler from DVDs by performing the following steps:

1. Choose the appropriate DVD depending on what you want to install.

Table 2. Tivoli Workload Scheduler bundles

Tivoli Workload Scheduler component to install	DVD to use
<ul style="list-style-type: none">• A dynamic agent• A fault-tolerant agent with remote command line	Agent DVD
<ul style="list-style-type: none">• A master domain manager or its backup• A dynamic domain manager or its backup	Tivoli Workload Scheduler Server DVD
Dynamic Workload Console	Tivoli Workload Scheduler Server DVD
Integration Workbench	Tivoli Workload Scheduler Server DVD
Batch reports	Tivoli Workload Scheduler Server DVD
Job Brokering Definition Console	Tivoli Workload Scheduler Server DVD

For a complete list of the installation media, see the Tivoli Workload Scheduler Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>.

2. Insert the product installation DVD into the drive.

For more information about the media structure, see “Installation media.”

Installation media

The content of the installation media depends on the image that you downloaded.

Agents DVD

Depending on the operating system, the installation DVD contains some or all of the following directories:

TWS Contains the files required to install a Tivoli Workload Scheduler dynamic agent or a fault-tolerant agent with remote command line.

JavaExtension

Contains the files to install Java extension or to add Java extension to an installed Tivoli Workload Scheduler instance.

Tivoli Workload Scheduler Server DVD

Depending on the operating system, the installation DVD contains some or all of the following directories:

dbtools

Contains the files required to create or update the Tivoli Workload Scheduler database before installing or upgrading the product. For more information about managing Tivoli Workload Scheduler database before the installation process, see Chapter 5, "Creating or upgrading the Tivoli Workload Scheduler database tables before installing or upgrading," on page 45.

FULL Contains the repository required to install the product by using Installation Manager.

iim Contains the files required to install Installation Manager by using the launchpad or manually.

Launchpad

Contains the launchpad code.

response_files

Contains the response files that install the Tivoli Workload Scheduler master domain manager, the backup master domain manager, the dynamic domain manager, the backup dynamic domain manager, or the Dynamic Workload Console.

DWC Contains the files required to install the Dynamic Workload Console.

TWS Contains the files required to install the Tivoli Workload Scheduler master domain manager or its backup, the dynamic domain manager or its backup.

Prerequisites

Contains the files needed to scan your system to verify that your environment has all the product system requirements necessary to perform a successful installation.

Integration Workbench

Contains the files required to install Tivoli Workload Scheduler Integration Workbench.

DB2 images

Contains the files required to install DB2.

WebSphere Application Server images

Contains the files required to install WebSphere Application Server.

Jazz for Service Management extension for WebSphere images

Contains the files required to install Jazz for Service Management extension for WebSphere.

Downloading eImages on your workstation

Steps on downloading eImages on your workstation

You can download eImages by performing the following steps:

1. Ensure that your workstation has sufficient space to store both the files you must download from IBM Passport Advantage® and the extracted installation image. For more information about Systems requirements, see System Requirements Document.
2. From IBM Passport Advantage, download all the required parts for the product image listed in Table 3 to a temporary directory.

Table 3. Required eImages

Tivoli Workload Scheduler components to install	eImages to download
<ul style="list-style-type: none"> • A dynamic agent • A fault-tolerant agent with remote command line 	Agent eImage.
<ul style="list-style-type: none"> • A master domain manager or its backup • A dynamic domain manager or its backup 	<ul style="list-style-type: none"> • Tivoli Workload Scheduler eImage. • WebSphere Application Server eImage. • DB2 eImage if you want to install and use the DB2 relational database.
Dynamic Workload Console	<ul style="list-style-type: none"> • Tivoli Workload Scheduler eImage. • WebSphere Application Server eImage.
Integration Workbench	Integration Workbench eImages.
Batch reports	Tivoli Workload Scheduler eImage.
Job Brokering Definition Console	Tivoli Workload Scheduler eImage.

3. Extract the installation image from the downloaded file and verify that the installation image is complete.

For more information about eImages, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>.

Creating a network repository

This scenario is valid only for master domain manager or dynamic domain manager and their backups, or Dynamic Workload Console that are installed by using the Installation Manager infrastructure.

Use the Installation Manager **Package Utility** to create the Tivoli Workload Scheduler DVDs or eImages in network repository format. For more information about the **Package Utility** wizard, see *Installation Manager > Installing > Managing packages with Packaging Utility* in the Installation Manager Information center <http://pic.dhe.ibm.com/infocenter/install/v1r6/index.jsp>.

After you use the **Packaging Utility** to create a repository from the ESD images, you can use the Installation Manager to define this location as a repository. You can save the repository on a UNC drive on Windows operating systems or on a web server to make the directories and files available over HTTP.

To create a Tivoli Workload Scheduler network repository, perform the following procedure:

1. Download the eImages as described in “Downloading eImages on your workstation” on page 32 or use the DVDs as described in “Using DVDs” on page 31.
2. Install Installation Manager on your workstation.

3. Install the **Package Utility** using Installation Manager on your workstation.
4. To create the ESD images in network format, run the following steps:
 - a. Start the **Package Utility**.
 - b. Click **Point to the ESD image**.
 - c. Run the wizard. For more information about the **Package Utility** wizard, see *Installation Manager > Installing > Managing packages with Packaging Utility*.

After you created a repository in network format, define this location as an Installation Manager repository. To add a repository, run the following steps:

1. Open the Installation Manager wizard.
2. Select **File > Preferences**. The Repositories page is displayed and shows available repositories, repository locations, and the connection status for the repositories.
3. Select **Add Repository**. The Add Repository page is displayed.
4. Enter the repository location or select **Browse**.
5. Go to the repository location where you saved the eImages or the DVD content in network format and select the URL related to the product that you want to install.
6. Click **OK**. If you provided an HTTPS or restricted FTP repository location, you are prompted to enter a user ID and password. The new repository location is added to the list. If the repository is not connected, a red box is shown in the Connection column.
7. Click **OK**.

After you defined an Installation Manager repository, install the product::

Tivoli Workload Scheduler

See “Installing main components” on page 65.

Dynamic Workload Console

See “Installing the Dynamic Workload Console” on page 323.

Installation considerations

Before you begin the installation using the installation wizard, consider the following items that might apply to your specific environment.

Installing on Windows operating systems

If you are installing on Windows, consider the following items.

- If you are using Windows Terminal Services, set the install user with the command: `change user /install`
- If <TWS_user> is a domain user, Microsoft Computer Browser Service must be active. This is required for IBM WebSphere Application Server authentication.
- If <TWS_user> is a domain user, the user performing the installation must be a domain administrator.

Choosing language settings and national characters

If you want to use characters of a specific language locale, the language you choose for the installation wizard must match the language locale settings of the workstation on which you are installing. You cannot use national characters in the installation path of a master domain manager or

backup master domain manager. Additionally, you cannot add a distributed connector to an agent that has national characters in its installation path.

Performing silent installations

When you install the latest version of Tivoli Workload Scheduler, you can create a response file based on the parameters of the initial installation. You can then use this customized response file to run silent installations using the same parameters. Before running the initial installation, you might want to consider this feature. For more information, see “Performing a silent installation” on page 83.

Mapped drives

When you copy the image of a specific operating system onto the workstation for installation using the wizard, you must copy the complete contents of the DVD to the drive from where you run your installation. When the drive is a UNC mapped drive, the remote path must be mapped to a drive on the installation workstation. For a complete list of the supported operating systems and their prerequisites, see the Tivoli Workload Scheduler System Requirements Document <http://www.ibm.com/support/docview.wss?rs=672&uid=swg27019747>.

Remote installation

You cannot install Tivoli Workload Scheduler on a Windows workstation from a remote Samba-mounted file system.

Installing for end-to-end scheduling

If you are installing Tivoli Workload Scheduler on a workstation used as a distributed agent (that is either a standard agent, fault-tolerant agent, or domain manager) for end-to-end scheduling, specify OPCMASTER as the name of the master domain manager during the installation process. For further information about installing for end-to-end scheduling, see *Tivoli Workload Scheduler Scheduling End-to-end*.

Create symbolic links

UNIX and Linux. The installation wizard installs all executable files in its own .bin directory. Before running any Tivoli Workload Scheduler commands, you run a script that sets the command-line environment to access these files. To avoid having to set the environment each time you want to run any of the commands from within a script, you can select an installation option to create symbolic links to those commands or utilities most frequently used from within scripts. Table 4 shows the binary paths and the symbolic links.

Table 4. Symbolic link options

TWS binary path	Symbolic link
<TWS_home>/bin/at	usr/bin/mat
<TWS_home>/bin/batch	usr/bin/mbatch
<TWS_home>/bin/datecalc	usr/bin/datecalc
<TWS_home>/bin/jobstdl	usr/bin/jobstdl
<TWS_home>/bin/maestro	usr/bin/maestro
<TWS_home>/bin/mdemon	usr/bin/mdemon
<TWS_home>/bin/morestdl	usr/bin/morestdl
<TWS_home>/bin/muser	usr/bin/muser
<TWS_home>/bin/parms	usr/bin/parms

Directories created outside of *TWA_home* at installation time

The following list shows the directories that are created outside of *TWA_home* when you install Tivoli Workload Scheduler.

Windows operating systems

```
%WINDIR%\TWA
%WINDIR%\TWS
%WINDIR%\system32\TWSRegistry.dat (32 bits)
%WINDIR%\sysWOW64\TWSRegistry.dat (32 bits on 64 bits)
%WINDIR%\TWSRegistry.dat (64 bits on 64 bits)
%WINDIR%\teb
%WINDIR%\cit
%ProgramFiles%\tivoli\cit (or the path specified by %WINDIR%\cit\cit.ini)
```

UNIX

```
/etc/TWA
/etc/TWS
/etc/teb
/etc/cit
/etc/init.d/tebclt-tws_cpa_agent_<instance_name>
/usr/Tivoli/TWS
/usr/ibm/tivoli/common/CIT/logs
/opt/tivoli/cit (or the path specified by /etc/tivoli/cit/cit.ini)
```

Windows services

An installation on Windows operating systems registers the following services on the Windows Service Control Manager:

- Tivoli Workload Scheduler (for <*TWS_user*>)
- Tivoli Netman (for <*TWS_user*>)
- Tivoli Token Service (for <*TWS_user*>) - includes the In-Flight Tracing facility service
- Tivoli Workload Scheduler SSM Agent (for <*TWS_user*>)
- WebSphere Application Server (for <*TWS_user*>)
- IBM Common Platform Agent: *tws_cpa_agent_* (for <*TWS_user*>)

Note: An existing service that has the same name as the new service will be overwritten during installation.

The Service Control Manager maintains its own user password database. If the <*TWS_user*> password is changed after installation, you must use the Services applet in the Control Panel to assign the new password for the Tivoli Token Service and Tivoli Workload Scheduler (for <*TWS_user*>). For more information, see the section about changing the password of the *TWS_User* in *Administration Guide*.

Chapter 4. Prerequisites

When installing a master domain manager or a dynamic domain manager consider the following prerequisites.

The master domain manager or a dynamic domain manager installation have the following prerequisites:

Relational Database

See "Relational database management systems."

WebSphere Application Server

If you do not have this product installed, the installation process automatically installs it.

WebSphere SDK Java Technology Edition

If you do not have this product installed, the installation process automatically installs it.

For a complete list of the correct versions to install, see the System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

Supported operating systems

To produce a dynamic report that lists the supported operating systems, perform the following actions:

1. Go to the web page: <http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/index.html>.
2. Click the "Operating systems for a specific product" report.
3. In the window "Operating systems for a specific product", fill in the field *Enter a full or partial product name* with the value **IBM Tivoli Workload Scheduler** and click *Search*.
4. In the *Select version* drop-down list, select version **9.1** and click *Submit to run the report*.

For a complete list of system requirements (disk spaces, temporary spaces and RAM usage), see System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

Relational database management systems

A relational database management system (RDBMS) is a prerequisite of the master domain manager and dynamic domain manager and its backups.

You must install the RDBMS before installing Tivoli Workload Scheduler.

The RDBMS can be one of the following:

DB2 For more information, see "Installing DB2" on page 38.

Oracle For more information, see "Installing Oracle" on page 38.

Installing DB2

Before installing a master domain manager or a dynamic domain manager you must install a database.

You can install DB2 in the following ways:

DB2 Enterprise Server Edition

A version of DB2 is bundled with the installation DVD. You can install DB2 in the following ways:

Server Install DB2 Server and the master domain manager on the same workstation.

Client Install DB2 Server on one workstation. DB2 client and the master domain manager or the dynamic domain manager on a different workstation. The advantage of this configuration is that you can easily switch between your master domain manager and its backup or switch between your dynamic domain manager or its backup, if necessary.

You can install DB2 manually or by using the Launchpad.

To install DB2 manually, run the DB2 server or client installation program on the product DVD. The setup files for DB2 are on the product DVDs as follows:

Table 5. DB2 Setup files

Operating System	Setup file
AIX®, HP-UX/IA64, SunOS/SPARC, SunOS/SPARC64, all Linux operating systems	DB2/server/db2setup
SunOS/AMD64	DB2/wse/db2setup
Windows/x86 and Windows/AMD64	DB2\SERVER\setup.exe

Installing Oracle

Before installing a master domain manager or a dynamic domain manager you must install a database.

You can install Oracle in the following ways:

Oracle Enterprise Edition

The advantage of choosing Oracle Enterprise Edition is that you can implement the Oracle Partitioning feature to improve the performance of event-driven workload automation. This improves rule management performance, in particular the following queries: **event_rule_instance**, **action_run**, and **operator_messages**. For information about event-driven workload automation, see *Overview*.

Oracle Standard Edition

Oracle Standard Edition does not include the Oracle Partitioning feature. Installing this edition does not improve the performance of event-driven workload automation.

For supported versions, see the Tivoli Workload Scheduler System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

Note:

- When installing the product on a 64-bit library operating system, use an Oracle database on a 64-bit library otherwise you receive a warning during the installation and you cannot use the product unless you run the procedure “Master domain manager or dynamic domain manager installation fails with warning AWSJIM976W” on page 255.
- When upgrading:
 - If you already have an RDBMS installed and you want to upgrade it, you must upgrade it **after** you upgrade Tivoli Workload Scheduler.
 - If you are performing a parallel upgrade, use an Oracle database on a 64-bit library when installing the product on a 64-bit library, otherwise you receive a warning during the installation and you cannot use the product unless you run the procedure “Master domain manager or dynamic domain manager installation fails with warning AWSJIM976W” on page 255.
 - If you are performing a direct upgrade, use an Oracle database on a 64-bit library operating system when upgrading the product on a 64-bit library operating system, otherwise you receive a warning during the upgrade and you cannot use the product unless you run the procedure “After upgrading a master domain manager or a dynamic domain manager you cannot perform any operation” on page 270.

For information about upgrading the RDBMS, see the data maintenance chapter in the *Tivoli Workload Scheduler: Administration Guide*.

Tivoli Workload Scheduler user

The Tivoli Workload Scheduler user management on UNIX and Windows operating systems

Consider the following constraints and properties for the Tivoli Workload Scheduler user:

On Windows operating systems:

The installation process automatically creates the Tivoli Workload Scheduler user. If your security policies do not allow user creation during the installation process, create the user and give it the necessary right as described in “Windows user domain rights and structure.”

On UNIX and Linux operating systems:

Regardless of the method of installation you choose, the Tivoli Workload Scheduler user must be created manually before running the installation. Use the appropriate UNIX and Linux operating system commands to create the user.

Note: Some operating systems require that for users with a password, the password must be changed at the first login. If this is your situation, for a successful installation, you will need to log in as the user and change the password for the first time.

Windows user domain rights and structure

If you install on Windows operating systems, consider the following information.

For the installation:

- You cannot have a local user and a domain user with the same name. For example, you cannot have **user1** as local user and at the same time **user1@domain1** and **domain\user1**

- The Windows user performing an agent installation must:
 - For a local Tivoli Workload Scheduler user, be a member of the local administrative group
 - For a domain Tivoli Workload Scheduler user, be a member of the domain "users" group in the domain controller and be a member of the local administrative group.

For Windows Tivoli Workload Scheduler users:

All Windows Tivoli Workload Scheduler users must have the following user permissions. They can be granted locally. Domain level policies always override local policies, so you might be required to grant the permissions from the domain:

- Act as part of the operating system
- Allow log on locally
- Impersonate a client after authentication
- Log on:
 - As a batch job
 - As a service
- Replace process level token
- Adjust memory quotas for a process (available on some configurations only)

Note: These rights are granted during the installation, but you can confirm them manually.

To run Tivoli Workload Scheduler command lines:

On Windows operating systems with UAC disabled:

In addition to standard Windows permissions, to log on to the machine, the user must have the "Impersonate a client after authentication" permission granted. By default, this is granted just to the "Administrators" group members. This permission is required to impersonate the TWS user and access the Tivoli Workload Scheduler Symphony and Mailbox.

On Windows operating systems with UAC enabled:

This is the default value. The "Impersonate a client after authentication" is not available to the user, unless the **cmd** shell is started with "start as administrator" permission. To run Tivoli Workload Scheduler command lines, the user must have "Impersonate a client after authentication" permission defined and then start the shell with the "start as administrator" permission authenticating with its own user ID.

For the Streamlogon user:

The user must have the "logon as batch" permission to allow Tivoli Workload Scheduler to create the job process. In addition, you must assign to the user "Read" and "Read & Execute" permission to **cmd.exe**. You can assign "Read" and "Read & Execute" permission to **cmd.exe** also to the BATCH built-in group instead of to a single user.

To manage Tivoli Workload Scheduler agents:

The user must be in the Administrators group or must be able to perform "Run as" as **twsuser** to reset the Tivoli Workload Scheduler files if a recovery is needed.

Considerations for Windows domain controllers running Microsoft Active Directory

If you want to install a Tivoli Workload Scheduler fault-tolerant agent on workstations where users who run jobs are domain users and the domain controller is running the Microsoft Active Directory, decide how to install the agents and configure the domain to have the **jobmon** process obtain the correct information to allow the users to run jobs.

Before running a job, **jobmon** retrieves information about the user running the job. If the user is a domain user and the domain controller is running Microsoft Active Directory, whether the user information can be retrieved depends on the information in the access control list (ACL) of that user. The main **jobmon** process that runs the job is started as the local system account (AUTHORITY\SYSTEM), but it immediately impersonates the `<TWS_user>` that owns the fault-tolerant agent. This means that for **jobmon** to successfully launch the job, the `<TWS_user>` must have an access control entry (ACE) in the ACL of the user for which it is trying to retrieve information.

Perform one of the following actions:

Enable the `<TWS_user>` to access a set of users that run jobs

On the domain server, edit the ACL of all users that run jobs on the workstation and add an ACE for each `<TWS_user>`. In this case, only specified users can run the jobs submitted by **jobmon**.

Allow all users to run jobs submitted by **jobmon by using the `TWS_BYPASS_DC=TRUE` system variable**

Create the `TWS_BYPASS_DC=TRUE` system variable, with a value not null, and reboot the workstation. In this case, **jobmon** obtains the user information without performing the security check for the ACE in the ACL of the user. All the local and domain users can run the jobs submitted by **jobmon**.

Allow all users to run jobs submitted by **jobmon by setting the `<TWS_user>` as a domain user**

Set up the `<TWS_user>` as a Windows domain user and install the instance of Tivoli Workload Scheduler using the `<TWS_user>`. In this case, all authenticated users on the domain controller can access the default ACL for a domain user. Jobs can then be launched by both local and the domain users. All the local and the domain users can run the jobs submitted by **jobmon**.

Exclude the workstation from the security check on users ACL

On the domain server, add the host name of the workstation where the fault-tolerant agent is installed to the Pre-Windows 2000-Compatible Access Group. In this way, from a security point of view, the domain controller interacts with this workstation as if it is in a Windows domain that does not support Active Directory. In this case, all the local and domain users can run the jobs submitted by **jobmon**. In addition, the domain controller does not prevent any local or domain users from running other processes that are not controlled by Tivoli Workload Scheduler.

Checking environment settings for Windows Vista users

Before you install Tivoli Workload Scheduler on a Windows Vista workstation that does not belong to a Windows domain, make sure that the workstation name and the domain name are both registered in uppercase in the Windows environment settings. When the workstation is not in a Windows domain, the

COMPUTERNAME and USERDOMAIN values are identical, but on Vista the USERDOMAIN value is sometimes in lowercase even if the COMPUTERNAME is in uppercase.

Perform the following actions:

1. Open a DOS command prompt shell.
2. Run the **set** command to display the Windows environment settings.
3. Check that the USERDOMAIN value is in uppercase. If not, follow this workaround to correct it:
4. Run the **set** command to change the value of COMPUTERNAME to a temporary host name of your choice:

```
set /p COMPUTERNAME=MYTEMPHOST
```
5. Restart the system.
6. Run the **set** command again as in step 4 replacing the temporary host name with the original one.
7. Restart the system.
8. Check that the USERDOMAIN value is now in uppercase.

Scanning system prerequisites for Tivoli Workload Scheduler

Before you install or upgrade the product, Tivoli Workload Scheduler automatically runs a scan on your system. Having an environment that meets the product system requirements ensures that an installation or upgrade succeeds without any delays or complications.

The scan verifies that:

- The operating system is supported for the product.
- On UNIX operating systems, the necessary product libraries are installed.
- There is enough permanent and temporary disk space to install both the product and its prerequisites.
- There is enough memory and virtual memory.

Note: The scan verifies only that the environment meets the requirements of Tivoli Workload Scheduler. It does not check the requirements for other components, such as DB2. To verify the requirements for Installation Manager use the procedure described in “Scanning system prerequisites for Installation Manager” on page 43.

If any of these checks fails, Tivoli Workload Scheduler performs the following action:

For all the components installed by using Installation Manager:

Displays a notification of the requirement that was not met. In this case, stop the installation or the upgrade, analyze the log files, solve the error, and rerun the installation or upgrade. If you are performing an interactive installation, the errors are displayed on the screen. If you are performing a silent installation, the errors are written in the Installation Manager log files. For more information about log files, see “Installation Manager wizard and silent installation and uninstallation log files” on page 237.

For agents

If you specified the **stoponcheckprereq** parameter, the **twinst** script does not proceed. In this case, analyze the log file, solve the error, and rerun the installation or upgrade. The log files are located:

On Windows operating systems:

`%TEMP%\TWA\tws91\result.txt`

On UNIX and Linux operating systems:

`$tmp/TWA/tws91/result.txt`

If you did not specify **stoponcheckprereq**, the **twinst** script proceeds. If a problem occurs, an error is displayed, the agent is installed or upgraded, but might not work.

For a detailed list of supported operating systems and product prerequisites, see the System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

Scanning system prerequisites for Installation Manager

Before you install or upgrade the Tivoli Workload Scheduler, if you have not installed Installation Manager, run a scan on your system to verify that your workstation has all the system requirements needed for a successful installation. Having an environment that meets the product system requirements ensures that an installation succeeds without any delays or complications.

You can run a prerequisite scan for Installation Manager by using:

“Launchpad” on page 29

From the DVD or from the eImage, launch it and select **Prerequisites Scan**.

checkPrereq

On Windows operating systems:

Run the following command:

`checkPrereq.bat`

On UNIX or Linux operating systems:

Run the following command:

`checkPrereq.sh`

Specify the **-silent** option if you are not interested in installing Installation Manager by using the wizard. If you use the **-silent** option, the program does not check that the graphical libraries exist. If the scan fails, the program displays a notification of the requirement that was not met. In this case, stop the installation, solve the error, and rerun the installation.

Chapter 5. Creating or upgrading the Tivoli Workload Scheduler database tables before installing or upgrading

Depending on the Tivoli Workload Scheduler component you installed, you must manage the following tables:

Master domain manager or backup master domain manager:

- Tivoli Workload Scheduler tables
- Dynamic workload broker tables.

Dynamic domain manager or backup dynamic domain manager:

Dynamic workload broker tables.

The procedure to create or upgrade the Tivoli Workload Scheduler and Dynamic workload broker is not mandatory for the installation or upgrade of the product.

The database administrator must run the procedure to create or upgrade the product database tables before the installation of the product only when the IT administrator who installs the product does not know the database administrator user ID and password. Otherwise, the IT administrator provides the database administrator user ID and password during the installation and the tables are automatically created and upgraded during the installation or the upgrade of the product.

Using this procedure, the database administrator creates or upgrades the database tables before the IT administrator installs or upgrades the product with a user different from the database administrator user. The procedure ensures that only the database administrator manages all the confidential information related to the database, such as the administrator user ID and password, and the IT administrator can install or upgrade the product without knowing any confidential database information.

This chapter describes the procedure to follow if you want to:

- Create and upgrade the Tivoli Workload Scheduler and the Tivoli dynamic workload broker database tables before installing or upgrading the product if you are using DB2. See “Creating or upgrading the database tables if you are using DB2” on page 46.
- Create and upgrade the Tivoli Workload Scheduler and the Tivoli dynamic workload broker database tables before installing or upgrading the product if you are using Oracle. See “Creating or upgrading the database tables if you are using Oracle” on page 55.

The IT administrator can perform:

- The installation, specifying as database administrator user name the user to be granted access, by the administrator of the DB2 server, to the Tivoli Workload Scheduler database.
- The upgrade, by using another user that has the same permissions as the user that installed the product.

Creating or upgrading the database tables if you are using DB2

To create or upgrade the Tivoli Workload Scheduler and the Tivoli dynamic workload broker database tables if you are using DB2, run the following procedures:

1. Customize the properties file. See “Customizing the properties file for DB2.”
2. Generate the SQL files. See “Generating the SQL files for DB2” on page 49.
3. Run the “Procedure to create the Tivoli Workload Scheduler SQL tables for DB2” on page 51.

Important:

- Run the procedure only if the database administrator manages all the confidential information that is related to the database, such as the database administrator user ID and password and the IT administrator who upgrades the product does not know them.
- After upgrading, to grant permissions to users on the updated database views, you must run the script:

On Windows operating systems

```
<TWA_home>/TWS/dbtools/DB2/scripts/dbgrant.bat  
<user_ID_to_be_granted> <database_name>  
[<database_admin_user> <password>]
```

On UNIX and Linux operating systems

```
/<TWA_home>/TWS/dbtools/DB2/scripts/dbgrant.sh  
<user_ID_to_be_granted> <database_name>  
[<database_admin_user> <password>]
```

Customizing the properties file for DB2

To customize the properties file, perform the following steps:

1. From the installation DVD or from the eImage containing the master domain manager or the dynamic domain manager, open the following properties file:

On Windows operating systems:

```
<images_dir>\dbtools\customizeWinDB2Sql.properties
```

On UNIX and Linux systems:

```
<images_dir>/dbtools/customizeUnixDB2Sql.properties
```

where *images_dir* specifies the directory where you extracted the product image.

2. Customize the SQL properties with the values appropriate for your needs:

TWSTEMPDIR

The directory where you want to store the SQL scripts to create or update the database tables. The default value is:

On Windows operating systems:

```
C:\DOCUME~1\ADMINI~1\LOCALS~1\Temp\TWA\tws91
```

On UNIX and Linux systems:

```
/tmp/TWA/tws91
```

DB_USER

If you are creating the database tables before installing the product:

Specify the user to be granted access by the administrator of the DB2 server to access the Tivoli Workload Scheduler database.

When the IT administrator installs the product, he must specify this value in the **DB2 server administrator user** field.

On Windows operating systems:

The default value is **db2admin**.

On UNIX and Linux operating systems:

The default value is **db2inst1**.

On UNIX, verify that you can switch to this user and that it can load the DB2 environment.

If you are upgrading the database tables before upgrading the product:

Specify the user that you used when you installed the version of the product you are upgrading. When you later upgrade the product, you can specify a user different from the one you specified in the *DB_USER* field, but it must have database access permissions.

TWS_USER

Specify the Tivoli Workload Scheduler user name.

It can contain alphanumeric, dash (-), and underscore (_) characters; it cannot contain national characters. The first character of the user name must be a letter.

When the IT administrator installs the product, he must specify this value in the **User name** field.

TWS_DB

The name of the DB2 database. The maximum length is five characters. The default value is **TWS**. If you are creating the SQL tables for a:

Master domain manager

Provide the name of a database that is not used by a dynamic domain manager.

Dynamic domain manager

Provide the name of a database that is not used by a master domain manager.

When the IT administrator installs the product, he must specify this value in the **Database name** field.

TWS_TS_NAME

The name of the DB2 instance table space. This table space is used to store scheduling objects and event rules. For information about DB2 table spaces, see the DB2 documentation. The default table space name is **TWS_DATA**.

When the IT administrator installs the product, he must specify this value in the **Table space name** field.

TWS_DATA_TS_PATH

The relative path of the DB2 table space. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path, the DB2 administrator user must have complete access rights to the directory where the table space is installed. The default table space path name is **TWS_DATA**. For UNIX and Linux operating systems, make sure that the DB2 administrator has write access to the directory above the table space directory.

When the IT administrator installs the product, he must specify this value in the **Table space path** field.

TWS_LOG_TS_NAME

Specify the name of the DB2 table space where Tivoli Workload Scheduler event logs are to be stored. These logs include data about event rule instances, triggered actions, and operator messages that are displayed by the Dynamic Workload Console. Data from the logs can be used to create reports. You can view report data by using the Dynamic Workload Console. The default name is **TWS_LOG**.

When the IT administrator installs the product, he must specify this value in the **Report tablespace name** field.

TWS_LOG_TS_PATH

Specify the path of the DB2 table space where Tivoli Workload Scheduler event logs are to be stored. The default path is **TWS_LOG**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path the DB2 administrator user must have complete access rights to the directory where the table space is installed. For more information, see Appendix E, “DB2 tablespace relative paths,” on page 415.

Note: The report table space path cannot be the same as the table space path.

When the IT administrator installs the product, he must specify this value in the **Report table space path** field.

TWS_PLAN_TS_NAME

Specify the name of the DB2 table space where Tivoli Workload Scheduler stores the Plan. The default name is **TWS_PLAN**.

When the IT administrator installs the product, he must specify this value in the **Plan table space name** field.

TWS_PLAN_TS_PATH

Specify the path of the DB2 table space where the Tivoli Workload Scheduler Plan is stored. The default path is **TWS_PLAN**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path the DB2 administrator user must have complete access rights to the directory where the table space is installed. For more information, see Appendix E, “DB2 tablespace relative paths,” on page 415.

Note: The plan table space path cannot be the same as the table space path or the report table space path.

When the IT administrator installs the product, he must specify this value in the **Plan table space path** field.

COMPANY_NAME

The name of the company. You can use spaces and the maximum field length is 40 characters. The default is **MYCOMPANY**.

When the IT administrator installs the product, he must specify this value in the **Company** field.

EIF_PORT

The port used by the event management processor to receive events. The default value is **31131**. The valid range is from 1 to 65535.

When the IT administrator installs the product, he must specify this value in the **Event Processor** field.

HOST_NAME

The fully qualified host name or IP address on which the dynamic domain manager is contacted by the dynamic agent.

When the IT administrator installs the product, he must specify this value in the dynamic agent configuration information **Host name or IP address** field.

WAS_SEC_PORT

The WebSphere Application Server HTTPS transport port. The port for the secure HTTP transport. It is used by the **composer** command line and the Dynamic workload broker when this protocol is selected. The dynamic agent uses it to connect to the Tivoli dynamic workload broker. The default value is **31116**. If you leave the field blank, it defaults to **0**. The valid range is from 1 to 65535.

When the IT administrator installs the product, he must specify this value in the WebSphere Application Server HTTPS transport port.

DB2LOCALADMINUSER

DB2 Server

Specify the user to be granted access by the administrator of the DB2 server to access the Tivoli Workload Scheduler database. The value must be the same as the *DB_USER* variable.

DB2 Client

Specify the local DB2 administrator user of the DB2 client instance.

DB2DIR

Specify the path of the DB2 installation.

Generating the SQL files for DB2

To generate the SQL files, you use the **customizeSQL** script which is located:

On Windows operating systems:

<images_dir>\dbtools\customizeSQL.bat

On UNIX and Linux operating systems:

<images_dir>/dbtools/customizeSQL.sh

Where *<images_dir>* is the directory where you stored the product images. If you want to use the eImage, download the one containing the master domain manager.

To show command usage, run:

```
customizeSQL -usage
```

The script has the following syntax:

On Windows operating systems:

```
customizeSQL.bat -propertyFile <property_file>
```

On UNIX and Linux operating systems:

```
customizeSQL.sh -propertyFile <property_file>
```

Where <property_file> is the absolute path of the directory where the property file is located.

On Windows operating systems:

If you store the properties file in the C:\Temp\ directory, run:
customizeSQL.bat
-propertyFile "C:\Temp\customizeDb2Sql.properties"

On UNIX and Linux operating systems:

If you store the properties file in the /tmp/ directory, run:
customizeSQL.sh /tmp/customizeDB2SQL.properties

Note: The SQL files are created in the directory that you specified in the TWSTEMPDIR property of the configuration file. For more information about how to customize the property file, see “Customizing the properties file for DB2” on page 46.

Running the script to create or upgrade the SQL tables for DB2

This section describes the command you run to create or upgrade the SQL tables. The command you run depends on the task you are doing:

Creating the SQL tables before installing:

Master domain manager or its backup:

1. Run “Procedure to create the Tivoli Workload Scheduler SQL tables for DB2” on page 51.
2. Run “Procedure to create the dynamic workload broker SQL tables for DB2” on page 52.

Dynamic domain manager or its backup:

Run “Procedure to create the dynamic workload broker SQL tables for DB2” on page 52.

Upgrading the SQL tables before upgrading the product:

Master domain manager and its backup:

1. Run “Procedure to upgrade the Tivoli Workload Scheduler SQL tables for DB2” on page 53.
2. Run:

Master domain manager and its backup V8.5 or V8.5.1

“Procedure to create the dynamic workload broker SQL tables for DB2” on page 52.

Master domain manager and its backup V8.6

“Procedure to upgrade the dynamic workload broker SQL tables for DB2” on page 54.

Dynamic domain manager and its backup

Run “Procedure to upgrade the dynamic workload broker SQL tables for DB2” on page 54.

..

Procedure to create the Tivoli Workload Scheduler SQL tables for DB2

To create the Tivoli Workload Scheduler database, perform the following steps:

1. Log on as Administrator on Windows operating systems and as root on UNIX and Linux operating systems.
2. Go to the following directory:

On Windows operating systems:

```
TWSTEMPDIR\TWS\dbtools\db2\scripts
```

On UNIX and Linux operating systems:

```
TWSTEMPDIR/TWS/dbtools/db2/scripts
```

Where *TWSTEMPDIR* is the directory you specified in the *TWSTEMPDIR* property of the configuration file. For more information about how to customize the property file, see “Customizing the properties file for DB2” on page 46.

3. Run the following command:

On Windows operating systems:

```
createdb_root.bat  
<TWS_DB> <TWS_CLIENT_INSTALLATION>  
<TWS_NODE_NAME> <TWS_HOST>  
<TWS_SRVC_PORT> <TWS_ADMIN_USER>  
<TWS_ADMIN_PW> <TWS_INSTANCE>  
<TWS_AGENT_TYPE> <IS_CHECK_ONLY>
```

On UNIX and Linux operating systems:

Log on as root and run:

```
createdb_root.sh  
<TWS_DB> <TWS_CLIENT_INSTALLATION>  
<TWS_NODE_NAME> <TWS_HOST>  
<TWS_SRVC_PORT> <TWS_ADMIN_USER>  
<TWS_ADMIN_PW> <TWS_INSTANCE>  
<TWS_AGENT_TYPE> <IS_CHECK_ONLY>
```

Where:

<TWS_DB>

The name of the DB2 database. The maximum length is five characters. You can use an existing DB2 database instance if its name does not exceed five characters. The default is TWS.

<TWS_CLIENT_INSTALLATION>

The DB2 you are using is client or server. Valid values are **true** for the client installation and **false** for the server installation. The default is **false**.

<TWS_NODE_NAME>

The name of the DB2 node. The node value is <TWS_DB>_ND. The default is TWS_ND.

<TWS_HOST>

The IP address or host name of the workstation where the DB2 server is installed.

<TWS_SRVC_PORT>

The TCP/IP port number that the remote DB2 server instance uses to communicate.

<TWS_ADMIN_USER>

The user name of the administrator of the DB2 server instance. This user can be any user having SYSADM or SYSCTRL authority on the

DB2 server. On UNIX systems, verify that you can switch to this user and that it can load the DB2 environment.

On Windows operating systems:

The default value is **db2admin**.

On UNIX and Linux operating systems:

The default value is **db2inst1**.

<TWS_ADMIN_PW>

The password of the DB2 server administrator user, or of the user with SYSADM or SYSCTRL authority.

<TWS_INSTANCE>

The DB2 instance name. The default is DB2.

<TWS_AGENT_TYPE>

The Tivoli Workload Scheduler agent type to specify:

Master domain manager:

MDM

Backup master domain manager:

BKM

<IS_CHECK_ONLY>

Always specify FALSE.

Procedure to create the dynamic workload broker SQL tables for DB2

To create the dynamic workload broker database, run the following command:

On Windows operating systems:

Log on as Administrator and run:

```
createdb_root.bat  
<TWS_DB> <TWS_CLIENT_INSTALLATION>  
<TWS_NODE_NAME> <TWS_HOST>  
<TWS_SRVC_PORT> <TWS_ADMIN_USER>  
<TWS_ADMIN_PW> <TWS_INSTANCE>  
<TWS_AGENT_TYPE> <IS_CHECK_ONLY>
```

On UNIX and Linux operating systems:

Log on as root and run:

```
createdb_root.sh  
<TWS_DB> <TWS_CLIENT_INSTALLATION>  
<TWS_NODE_NAME> <TWS_HOST>  
<TWS_SRVC_PORT> <TWS_ADMIN_USER>  
<TWS_ADMIN_PW> <TWS_INSTANCE>  
<TWS_AGENT_TYPE> <IS_CHECK_ONLY>
```

Where:

<TWS_DB>

The name of the DB2 database. The maximum length is five characters. You can use an existing DB2 database instance if its name does not exceed five characters. The default is TWS.

<TWS_CLIENT_INSTALLATION>

The DB2 you are using is client or server. Valid values are **true** for the client installation and **false** for the server installation. The default is **false**.

<TWS_NODE_NAME>

The name of the DB2 node. The node value is <TWS_DB>_ND. The default is TWS_ND.

<TWS_HOST>

The IP address or host name of the workstation where the DB2 server is installed.

<TWS_SRVC_PORT>

The TCP/IP port number that the remote DB2 server instance uses to communicate.

<TWS_ADMIN_USER>

The user name of the administrator of the DB2 server instance. This user can be any user having SYSADM or SYSCTRL authority on the DB2 server. On UNIX systems, verify that you can switch to this user and that it can load the DB2 environment.

On Windows operating systems:

The default value is **db2admin**.

On UNIX and Linux operating systems:

The default value is **db2inst1**.

<TWS_ADMIN_PW>

The password of the DB2 server administrator user, or of the user with SYSADM or SYSCTRL authority.

<TWS_INSTANCE>

The DB2 instance name. The default is DB2.

<TWS_AGENT_TYPE>

The Tivoli Workload Scheduler agent type to specify:

Master domain manager:

MDM

Backup master domain manager:

BKM

Dynamic domain manager:

DDM

Backup dynamic domain manager:

BDM

<IS_CHECK_ONLY>

Always specify FALSE.

Procedure to upgrade the Tivoli Workload Scheduler SQL tables for DB2

To upgrade the Tivoli Workload Scheduler database, perform the following steps:

1. Log on as Administrator on Windows operating systems and as root on UNIX and Linux operating systems.
2. Go to the following directory:

On Windows operating systems:

TWSTEMPDIR\TWS\dbtools\db2\scripts

On UNIX and Linux operating systems:

TWSTEMPDIR/TWS/dbtools/db2/scripts

Where *TWSTEMPDIR* is the directory that you specified in the *TWSTEMPDIR* property of the configuration file. For more information about how to customize the property file, see "Customizing the properties file for DB2" on page 46.

3. Run the following command:

On Windows operating systems:

Log on as Administrator and run:

```
migratedb_root.bat
<TWS_DB> <TWS_ADMIN_USER>
<TWS_ADMIN_PW>
```

On UNIX and Linux operating systems:

Log on as root and run:

```
migratedb_root.sh
<TWS_DB> <TWS_ADMIN_USER>
<TWS_ADMIN_PW>
```

Where:

<TWS_DB>

The name of the DB2 database. The maximum length is five characters. You can use an existing DB2 database instance if its name does not exceed five characters. The default is TWS.

<TWS_ADMIN_USER>

The user name of the administrator of the DB2 server instance. This user can be any user having SYSADM or SYSCTRL authority on the DB2 server. On UNIX systems, verify that you can switch to this user and that it can load the DB2 environment.

On Windows operating systems:

The default value is **db2admin**.

On UNIX and Linux operating systems:

The default value is **db2inst1**.

<TWS_ADMIN_PW>

The password of the DB2 server administrator user, or of the user with SYSADM or SYSCTRL authority.

Procedure to upgrade the dynamic workload broker SQL tables for DB2

To upgrade the dynamic workload broker database, run the following command:

On Windows operating systems:

Log on as Administrator and run:

```
migratedb_root.bat
<TWS_DB_ALIAS> <TWS_DB2ADMIN_USER>
<TWS_DB2ADMIN_PASSWORD> <TWS_IS_DDM>
<TWS_IS_BDM>
```

On UNIX and Linux operating systems:

Log on as root and run:

```
migratedb_root.sh
<TWS_DB_ALIAS> <TWS_DB2ADMIN_USER>
<TWS_DB2ADMIN_PASSWORD> <TWS_IS_DDM>
<TWS_IS_BDM>
```

Where:

<TWS_DB_ALIAS>

The name of the DB2 database. The maximum length is five characters. You can use an existing DB2 database instance if its name does not exceed five characters. The default is TWS.

<TWS_DB2ADMIN_USER>

The user name of the administrator of the DB2 server instance. This user

can be any user having SYSADM or SYSCTRL authority on the DB2 server. On UNIX operating systems, verify that you can switch to this user and that it can load the DB2 environment.

On Windows operating systems:

The default value is **db2admin**.

On UNIX and Linux operating systems:

The default value is **db2inst1**.

<TWS_DB2ADMIN_PASSWORD>

The password of the DB2 server administrator user, or of the user with SYSADM or SYSCTRL authority.

<TWS_IS_DDM>

Specify if the Tivoli Workload Scheduler agent is a dynamic domain manager. Possible values are TRUE or FALSE.

Note: If you are managing a master domain manager or a backup dynamic domain manager, set the value to FALSE.

<TWS_IS_BDM>

Specify if the Tivoli Workload Scheduler agent is a backup dynamic domain manager. Possible values are TRUE or FALSE.

Note: If you are managing a master domain manager or a dynamic domain manager, set the value to FALSE.

Creating or upgrading the database tables if you are using Oracle

To create or upgrade the Tivoli Workload Scheduler and the Tivoli dynamic workload broker database tables if you are using Oracle, run the following procedures:

1. Customize the properties file. See “Customizing the properties file for Oracle.”
2. Generate the SQL files. See “Generating the SQL files for Oracle” on page 57.
3. Run the “Procedure to create the Tivoli Workload Scheduler SQL tables for Oracle” on page 58.

Customizing the properties file for Oracle

To customize the properties file, perform the following steps:

1. From the installation DVD or from the eImage containing the master domain manager or the dynamic domain manager, open the following properties file:

On Windows operating systems:

`<images_dir>\dbtools\customizeWinOracleSql.properties`

On UNIX and Linux systems:

`<images_dir>/dbtools/customizeUnixOracleSql.properties`

where: `<images_dir>` specifies the directory where you extracted the product image.

2. Customize the SQL properties with the values appropriate for your needs:

TWSTEMPDIR

The directory where you want to store the SQL scripts to create the database tables. The default value is:

On Windows operating systems:

`C:\DOCUME~1\ADMINI~1\LOCALS~1\Temp\TWA\tws91`

On UNIX and Linux systems:
/tmp/TWA/tws91

MDL_USER

The database administrator user name (such as SYSTEM) that accesses the Tivoli Workload Scheduler and the dynamic workload broker database. It is a user that must be created on Oracle; it is not an operating system user.

When the IT administrator installs the product, he must specify this value in the **Oracle administrator user** field.

TWS_PASSWORD

The password of the *MDL_USER*.

When the IT administrator installs the product, he must specify this value in the **Oracle administrator user password** field.

TWS_USER

Specify the Tivoli Workload Scheduler user name.

It can contain alphanumeric, dash (-), and underscore (_) characters; it cannot contain national characters. The first character of the user name must be a letter.

When the IT administrator installs the product, he must specify this value in the **User_name** field.

TWS_TS_NAME

The name that identifies the Tivoli Workload Scheduler data table space. The default for this field is **USERS**.

When the IT administrator installs the product, he must specify this value in the **Tivoli Workload Scheduler data tablespace** field.

TWS_LOG_TS_NAME

The name that identifies the Tivoli Workload Scheduler table space where report data is to be stored. You can view the report data by using the Dynamic Workload Console. The default value for this field is **USERS**.

When the IT administrator installs the product, he must specify this value in the **Tivoli Workload Scheduler reports tablespace** field.

TWS_TS_TEMP_NAME

The name that identifies the Tivoli Workload Scheduler temporary table space. The default value for this field is **TEMP**.

When the IT administrator installs the product, he must specify this value in the **Tivoli Workload Scheduler temporary tablespace** field.

COMPANY_NAME

The name of the company. You can use spaces and the maximum field length is 40 characters. The default is **MYCOMPANY**.

When the IT administrator installs the product, he must specify this value in the **Company** field.

EIF_PORT

The port used by the event management processor to receive events. The valid range is from 1 to 65535. The default value is **31131**.

When the IT administrator installs the product, he must specify this value in the **Event Processor** field.

HOST_NAME

The fully qualified host name or IP address on which the dynamic domain manager is contacted by the dynamic agent.

When the IT administrator installs the product, he must specify this value in the dynamic agent configuration information **Host name or IP address** field.

WAS_SEC_PORT

The HTTPS port of the Tivoli dynamic workload broker. The dynamic agent uses it to connect to the Tivoli dynamic workload broker. The valid range is from 1 to 65535. The default value is **31116**. If you leave the field blank, it defaults to **0**.

When the IT administrator installs the product, he must specify this value in the **dynamic workload broker HTTPS port number** field.

ORACLE_HOME

Specify the path of the Oracle installation.

Generating the SQL files for Oracle

To generate the SQL tables, run the **customizeSQL** script as described in “Generating the SQL files for DB2” on page 49.

Running scripts to create or upgrade the SQL tables for Oracle

This section describes the command that you run to create or upgrade the SQL tables. The command that you run depends on the task you are doing:

Creating the SQL tables before installing:

Master domain manager and its backup:

1. Run “Procedure to create the Tivoli Workload Scheduler SQL tables for Oracle” on page 58.
2. Run “Procedure to create the Tivoli dynamic workload broker SQL tables for Oracle” on page 59.

Dynamic domain manager and its backup:

Run “Procedure to create the Tivoli dynamic workload broker SQL tables for Oracle” on page 59.

Upgrading the SQL tables before upgrading the product:

Master domain manager and its backup:

1. Run “Procedure to upgrade the Tivoli Workload Scheduler SQL tables for Oracle” on page 61.
2. Run:

Master domain manager and its backup V8.5 or V8.5.1:

“Procedure to create the dynamic workload broker SQL tables for DB2” on page 52.

Master domain manager and its backup V8.6:

“Procedure to upgrade the dynamic workload broker SQL tables for Oracle” on page 62.

Dynamic domain manager and its backup:

Run “Procedure to upgrade the dynamic workload broker SQL tables for Oracle” on page 62.

Procedure to create the Tivoli Workload Scheduler SQL tables for Oracle

To create the Tivoli Workload Scheduler database, perform the following steps:

1. Log on as Administrator on Windows operating systems and as root on UNIX and Linux operating systems.
2. Go to the following directory:

On Windows operating systems:

```
TWSTEMPDIR\TWS\dbtools\ora\scripts
```

On UNIX and Linux operating systems:

```
TWSTEMPDIR/TWS/dbtools/ora/scripts
```

Where *TWSTEMPDIR* is the directory you specified in the *TWSTEMPDIR* property of the configuration file. For more information about how to customize the property file, see “Customizing the properties file for Oracle” on page 55.

3. Run the following command:

On Windows operating systems:

Log on as Administrator and run:

```
createdb_root.bat  
<ORACLE_NETSERVICE_NAME> <ORACLE_ADMIN_USER>  
<ORACLE_ADMIN_PW> <TWS_DB_USER>  
<TWS_DB_PW> <TWS_AGENT_TYPE>  
<IS_PARTITIONED> <IS_CHECK_ONLY>
```

On UNIX and Linux operating systems:

Log on as root and run:

```
createdb_root.sh  
<ORACLE_NETSERVICE_NAME> <ORACLE_ADMIN_USER>  
<ORACLE_ADMIN_PW> <TWS_DB_USER>  
<TWS_DB_PW> <TWS_AGENT_TYPE>  
<IS_PARTITIONED> <IS_CHECK_ONLY>
```

Where:

<ORACLE_NETSERVICE_NAME>

The name used by clients to identify an Oracle Net server and the specific system identifier or database for the Oracle Net connection. A net service name is mapped to a port number and protocol. It is also known as a connect string, database alias, host string, or service name.

If your Oracle database is:

- Installed on the same system on which you are installing your master domain manager or a backup master domain manager, the net service name is the name of your Oracle database.
- Installed on the same system on which you are installing your dynamic domain manager or a backup dynamic domain manager, the net service name is the name of your Oracle database.
- Not installed on the system on which you are installing your master domain manager or a backup master domain manager, the net service name is the alias configured for the connection to the remote database.

- Not installed on the system on which you are installing your dynamic domain manager or a backup dynamic domain manager, the net service name is the alias configured for the connection to the remote database.

Contact your database administrator to obtain the correct net service name.

<ORACLE_ADMIN_USER>

The Oracle database administrator user name (such as SYSTEM) required to authenticate to the Oracle database. This account must already exist.

<ORACLE_ADMIN_PW>

The database administrator user password required to authenticate to the Oracle database.

<TWS_DB_USER>

The Tivoli Workload Scheduler Oracle user name that is the owner of the Tivoli Workload Scheduler schema.

<TWS_DB_PW>

The password for the Tivoli Workload Scheduler Oracle user. It must comply with the Oracle naming rules.

<TWS_AGENT_TYPE>

The Tivoli Workload Scheduler agent type to specify:

Master domain manager:

MDM

Backup master domain manager:

BKM

<IS_PARTITIONED>

If you are installing on Oracle Enterprise Edition, you can choose to implement the Oracle Partitioning option to improve the performance of event-driven workload automation. The possible values are false (Oracle Partitioning feature is not used when creating the Tivoli Workload Scheduler schema) or TRUE (Oracle Partitioning feature is used when creating the Tivoli Workload Scheduler schema). The default is TRUE.

<IS_CHECK_ONLY>

Always specify FALSE.

Procedure to create the Tivoli dynamic workload broker SQL tables for Oracle

To create the Tivoli dynamic workload broker database, run the following command:

On Windows operating systems:

Log on as Administrator and run:

```
createdb_root.bat
<ORACLE_NETSERVICE_NAME> <ORACLE_ADMIN_USER>
<ORACLE_ADMIN_PW> <TWS_DB_USER>
<TWS_DB_PW> <TWS_AGENT_TYPE>
<IS_PARTITIONED> <IS_CHECK_ONLY>
```

On UNIX and Linux operating systems:

Log on as root and run:

```
createdb_root.sh
<ORACLE_NETSERVICE_NAME> <TWS_ADMIN_USER>
<TWS_ADMIN_PW> <TWS_DB_USER>
<TWS_DB_PW> <TWS_AGENT_TYPE>
<IS_PARTITIONED> <IS_CHECK_ONLY>
```

Where:

<ORACLE_NETSERVICE_NAME>

The name used by clients to identify an Oracle Net server and the specific system identifier or database for the Oracle Net connection. A net service name is mapped to a port number and protocol. It is also known as a connect string, database alias, host string, or service name.

If your Oracle database is:

- Installed on the same system on which you are installing your master domain manager or a backup master domain manager, the net service name is the name of your Oracle database.
- Installed on the same system on which you are installing your dynamic domain manager or a backup dynamic domain manager, the net service name is the name of your Oracle database.
- Not installed on the system on which you are installing your master domain manager or a backup master domain manager, the net service name is the alias configured for the connection to the remote database.
- Not installed on the system on which you are installing your dynamic domain manager or a backup dynamic domain manager, the net service name is the alias configured for the connection to the remote database.

Contact your database administrator to obtain the correct net service name.

<ORACLE_ADMIN_USER>

The Oracle database administrator user name (such as SYSTEM) required to authenticate to the Oracle database. This account must already exist.

<ORACLE_ADMIN_PW>

The database administrator user password required to authenticate to the Oracle database.

<TWS_DB_USER>

The Tivoli Workload Scheduler Oracle user name that is the owner of the Tivoli Workload Scheduler schema.

<TWS_DB_PW>

The password for the Tivoli Workload Scheduler Oracle user. It must comply with the Oracle naming rules.

<TWS_AGENT_TYPE>

The Tivoli Workload Scheduler agent type to specify:

Master domain manager:

MDM

Backup master domain manager:

BKM

Dynamic domain manager:

DDM

Backup dynamic domain manager:

BDM

<IS_PARTITIONED>

If you are installing on Oracle Enterprise Edition, you can choose to implement the Oracle Partitioning option to improve the performance of event-driven workload automation. The possible values are false (Oracle Partitioning feature is not used when creating the Tivoli Workload Scheduler schema) or TRUE (Oracle Partitioning feature is used when creating the Tivoli Workload Scheduler schema). The default is TRUE.

<IS_CHECK_ONLY>

Always specify FALSE.

Procedure to upgrade the Tivoli Workload Scheduler SQL tables for Oracle

To upgrade the Tivoli Workload Scheduler database, perform the following steps:

1. Log on as Administrator on Windows operating systems and as root on UNIX and Linux operating systems.
2. Go to the following directory:

On Windows operating systems:

```
TWSTEMPDIR\TWS\dbtools\ora\scripts
```

On UNIX and Linux operating systems:

```
TWSTEMPDIR/TWS/dbtools/ora/scripts
```

Where *TWSTEMPDIR* is the directory you specified in the *TWSTEMPDIR* property of the configuration file. For more information about how to customize the property file, see “Customizing the properties file for Oracle” on page 55.

3. Run the following command:

On Windows operating systems:

Log on as Administrator and run:

```
migratedb_root.bat  
<TWS_DB> <TWS_USER>  
<TWS_USER_PW> <IS_PARTITIONED>
```

On UNIX and Linux operating systems:

Log on as root and run:

```
migratedb_root.sh  
<TWS_DB> <TWS_ADMIN_USER>  
<TWS_ADMIN_PW> <IS_PARTITIONED>
```

Where:

<ORACLE_NETSERVICE_NAME>

The name used by clients to identify an Oracle Net server and the specific system identifier or database for the Oracle Net connection. A net service name is mapped to a port number and protocol. It is also known as a connect string, database alias, host string, or service name.

If your Oracle database is:

- Installed on the same system on which you are installing your master domain manager or a backup master domain manager, the net service name is the name of your Oracle database.
- Installed on the same system on which you are installing your dynamic domain manager or a backup dynamic domain manager, the net service name is the name of your Oracle database.

- Not installed on the system on which you are installing your master domain manager or a backup master domain manager, the net service name is the alias configured for the connection to the remote database.
- Not installed on the system on which you are installing your dynamic domain manager or a backup dynamic domain manager, the net service name is the alias configured for the connection to the remote database.

Contact your database administrator to obtain the correct net service name.

<TWS_DB_USER>

The Tivoli Workload Scheduler Oracle user name that is the owner of the Tivoli Workload Scheduler schema.

<TWS_DB_PW>

The password for the Tivoli Workload Scheduler Oracle user. It must comply with the Oracle naming rules.

<IS_PARTITIONED>

If you are installing on Oracle Enterprise Edition, you can choose to implement the Oracle Partitioning option to improve the performance of event-driven workload automation. The possible values are false (Oracle Partitioning feature is not used when creating the Tivoli Workload Scheduler schema) or TRUE (Oracle Partitioning feature is used when creating the Tivoli Workload Scheduler schema). The default is TRUE.

Procedure to upgrade the dynamic workload broker SQL tables for Oracle

To upgrade the dynamic workload broker database, run the following command:

On Windows operating systems:

Log on as Administrator and run:

```
migratedb_root.bat
<ORACLE_NETSERVICE_NAME> <TWS_DB_USER>
<TWS_DB_PW> <TWS_IS_DDM>
<TWS_IS_BDM>
```

On UNIX and Linux operating systems:

Log on as root and run:

```
migratedb_root.sh
<ORACLE_NETSERVICE_NAME> <TWS_DB_USER>
<TWS_DB_PW> <TWS_IS_DDM>
<TWS_IS_BDM>
```

Where:

<ORACLE_NETSERVICE_NAME>

The name used by clients to identify an Oracle Net server and the specific system identifier or database for the Oracle Net connection. A net service name is mapped to a port number and protocol. It is also known as a connect string, database alias, host string, or service name.

If your Oracle database is:

- Installed on the same system on which you are installing your master domain manager or a backup master domain manager, the net service name is the name of your Oracle database.

- Installed on the same system on which you are installing your dynamic domain manager or a backup dynamic domain manager, the net service name is the name of your Oracle database.
- Not installed on the system on which you are installing your master domain manager or a backup master domain manager, the net service name is the alias configured for the connection to the remote database.
- Not installed on the system on which you are installing your dynamic domain manager or a backup dynamic domain manager, the net service name is the alias configured for the connection to the remote database.

Contact your database administrator to obtain the correct net service name.

<TWS_DB_USER>

The Tivoli Workload Scheduler Oracle user name that is the owner of the Tivoli Workload Scheduler schema.

<TWS_DB_PW>

The password for the Tivoli Workload Scheduler Oracle user.

<TWS_IS_DDM>

Specify if the Tivoli Workload Scheduler agent is a dynamic domain manager. Possible values are TRUE or FALSE.

Note: If you are managing a master domain manager or a backup dynamic domain manager, set the value to FALSE.

<TWS_IS_BDM>

Specify if the Tivoli Workload Scheduler agent is a backup dynamic domain manager. Possible values are TRUE or FALSE.

Note: If you are managing a master domain manager or a dynamic domain manager, set the value to FALSE.

Chapter 6. Installing

This chapter describes how to perform a first-time installation of the current version of Tivoli Workload Scheduler.

Changing temporary directory when installing using Installation Manager

When you install the Tivoli Workload Scheduler using Installation Manager, you can change the default path of the temporary directory.

To change the location of the default directory where temporary files are stored during the installation of the Tivoli Workload Scheduler using the IBM Installation Manager, perform the following actions:

1. Go to the Installation Manager installation path, edit the `IBMIM.ini` file and after line:

```
-vmargs
```

add the following line:

```
-Djava.io.tmpdir=<new_temp_folder>
```

where `<new_temp_folder>` is the full path to the new temporary directory.

2. Restart the Installation Manager and install the Tivoli Workload Scheduler.

Examples:

On Windows operating systems:

```
-vmargs  
-Djava.io.tmpdir=C:\NewDir
```

On UNIX operating systems:

```
-vmargs  
-Djava.io.tmpdir=/tmp/NewDir
```

Installing main components

Choose which component you want to install; a master domain manager or its backup, a dynamic domain manager or its backup, the agents.

Selecting installation methods

The methods to install a master domain manager or its backup, a dynamic domain manager or its backup

You can install Tivoli Workload Scheduler using any of the following methods:

Launchpad

To start the installation by using this method, see “Launchpad” on page 66.

Installation wizard

- To install a master domain manager or its backup, see “Installation wizard” on page 67.

- To install a dynamic domain manager or its backup, see Installation wizard.

Silent installation

To install the main components by using this method, see “Silent mode” on page 68.

Launchpad

Installing using the launchpad.

1. Before starting to install, upgrade or uninstall, verify that the user running the installation process has the following authorization requirements:

Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or **domain administrators** group with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

UNIX and Linux operating systems

root access

2. Ensure that your RDBMS is running when you begin the installation.
3. Ensure that you inserted the DVD for your operating system or that you downloaded the Tivoli Workload Scheduler dynamic domain manager, master domain manager, or Dynamic Workload Console image. For details, see the Tivoli Workload Scheduler download document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807> or the Dynamic Workload Console download document <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034821>.
4. Before installing in a Windows Domain, ensure that the Computer Browser service is up and running.

To start the launchpad installation program, perform the following steps:

1. From the DVD that contains the component you want to install, run the launchpad as follows:

Windows operating systems:

From the root directory of the DVD, run `launchpad.exe`.

UNIX operating systems:

- a. Export the browser location to the `BROWSER` environment variable.
- b. From the root directory of the DVD, run `launchpad.sh`.

The launchpad opens.

2. To access information about the product prerequisites, click **Prerequisite Information** in the left frame of the launchpad.
3. To install, click **Installing or Upgrading** and one of the following hyperlinks:

TWS Using this link you can install Tivoli Workload Scheduler and the Dynamic Workload Console simultaneously or only Tivoli Workload Scheduler. The z/OS connector is automatically installed when installing the Dynamic Workload Console. You need to configure it if you are working in an end-to-end environment.

DWC and z/OS Connector

Using this link you install the Dynamic Workload Console. The z/OS

connector is automatically installed. You need to configure it if you are working in an end-to-end environment.

The related installation program starts.

4. Proceed with the installation of the selected Tivoli Workload Scheduler component, follow the instructions described in the following sections:

Master domain manager or its backup

See “Installation procedure for master domain manager and its backup” on page 68.

Dynamic domain manager or its backup

See “Installation procedure for a dynamic domain manager or its backup” on page 90.

Dynamic Workload Console

See “Installation procedure for Dynamic Workload Console” on page 325.

Installation wizard

Installing using the wizard

If you decide to install by using the Installation wizard, perform the following steps

1. Before starting to install, upgrade or uninstall, verify that the user running the installation process has the following authorization requirements:

Windows operating systems

If you did set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or **domain administrators** group with the right **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

UNIX and Linux operating systems

root access

2. Ensure that your RDBMS is running when you begin the installation.
3. Ensure that you inserted the DVD for your operating system or you downloaded the Tivoli Workload Scheduler dynamic domain manager or master domain manager eImage (for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).
4. Before installing on a Windows Domain, ensure that the Computer Browser service is up and running.

To start the installation program, perform the following steps:

1. From the eImage or the DVD that contains the Tivoli Workload Scheduler master domain manager, run:

Windows operating systems:

From the root directory of the DVD or the eImage, run `setupTWS.bat`.

UNIX operating systems:

From the root directory of the DVD or the eImage, run `setupTWS.sh`.

The installation wizard opens and shows you the master domain manager and its prerequisites to install already selected.

2. Continue with the installation by following the procedure described in "Installation procedure for master domain manager and its backup."

Note: If you want to install a master domain manager and a Dynamic Workload Console at the same time in two different directories, run the command:

Windows operating systems:

From the root directory of the DVD or the eImage, run setupALL.bat.

UNIX operating systems:

From the root directory of the DVD or the eImage, run setupALL.sh.

and follow the procedure described for the Tivoli Workload Scheduler master domain manager or its backup in "Installation procedure for master domain manager and its backup" and the Dynamic Workload Console in "Installation procedure for Dynamic Workload Console" on page 325.

Silent mode

Installing using the silent mode.

If you decide to install by using silent mode, see "Performing a silent installation" on page 83.

Installing a master domain manager or its backup

Start the installation of a master domain manager or its backup.

Start the installation of a master domain manager or its backup.

During the master domain manager installation process the following workstation types are created in the database:

master

For the master domain manager

broker

For the broker server

agent For the dynamic agent

Installation procedure for master domain manager and its backup

Installing a master domain manager or its backup and all the prerequisites by using the launchpad or the wizard.

To install a Tivoli Workload Scheduler master domain manager or its backup and all the prerequisites, perform the following steps:

1. After you start the installation process either by using the launchpad as described in "Launchpad" on page 66 or by using the wizard as described in "Installation wizard" on page 67, the Installation Manager wizard starts.
2. In the Installation Packages Installation Manager panel, the installation process selected all the Tivoli Workload Scheduler prerequisites packages and the "Tivoli Workload Scheduler" > "Version 9.1.0.0" product package.

Note: If you have already installed Tivoli Workload Scheduler or its prerequisites products a warning panel is displayed. Click **Continue** to install the package in a new group or click **Cancel** to clear the package that is already installed.

3. Click **Next**.
4. On the Licenses page, read the license agreement for the selected package. If you selected to install the Tivoli Workload Scheduler package and the Tivoli Workload Scheduler prerequisites packages, you must accept the license agreement for each package. On the left side of the License page, click each package to see its license agreement. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements**.
5. Click **Next**. The Location panel is displayed. The Location panel lists the Tivoli Workload Scheduler and the prerequisites packages that will be installed.
6. On the Location panel, perform the following actions:

For each prerequisite package:

Select the prerequisite package and accept the default path, or type, or **Browse** the path to use as the installation directory on which to install the prerequisite instance.

For the Tivoli Workload Scheduler package:

Select the package and accept the default path or type, or **Browse** the path to use as the installation directory for the specific user.

Installation directory

The maximum field length is 46 characters. You cannot use national characters.

On Windows operating systems:

- The following characters are not valid:
! # \$ % & { } [] = ? ' < > , ; ()
- The name must be longer than three characters, the second character must be: and the third character must be \.
- The default directory is C:\Program Files\IBM\TWA

On UNIX and Linux operating systems:

- The following characters are not valid:
! " # \$ % & { } [] = ? ' < > , ; () *blank_space*
- The name must be longer than one character and the first character must be /.
- The default directory is /opt/IBM/TWA

Note: If you are installing on a Windows server 2008 follow the instructions in the message about virtualized directories.

7. Click **Next**. On the Features page, select the languages for which the corresponding WebSphere Application Server packages will be installed. The language translations for the user interface and documentation are installed. You have the option to select languages only the first time that you install a package to a package group. You can install other language translations for all the packages in a package group with the Modify wizard.
8. Click **Next** and perform the following actions:

For the prerequisites packages:

To see a description of the feature, click the feature name. In the Details section you see a short description.

Ensure that you leave the default prerequisites features selected by the installation process.

For the Tivoli Workload Scheduler package:

Leave selected

Master domain manager

9. Click **Next**.

10. Enter the information requested in the following panels:

For each prerequisite package:

On the prerequisites product panels, enter the information related to the product you are installing. For more information about the field values, see the prerequisite product documentation.

If you selected to install Tivoli Workload Scheduler and Dynamic Workload Console, you are first requested to enter or accept configuration data for:

- a. Core services for Jazz for Service Management. See “Core Services in Jazz for Service Management - WebSphere Application Server profile configuration” on page 327 and “Core Services in Jazz for Service Management - ports configuration” on page 328.
- b. IBM Dashboard Application Services Hub context root. See “Configuration for IBM Dashboard Application Services Hub” on page 329.
- c. z/OS connector. See “z/OS connector configuration” on page 329.

Leave the **Registry Services** checkbox blank unless you plan to run workload integrating with OSLC.

For the Tivoli Workload Scheduler package:

Enter the information described in the following panels:

User information:

See “Tivoli Workload Scheduler user information” on page 71.

Master Configuration:

See “Tivoli Workload Scheduler master configuration” on page 72

Database Configuration:

See “Database configuration” on page 74.

WebSphere profile Configuration:

See “WebSphere Application Server profile configuration” on page 81

WebSphere ports Configuration:

See “WebSphere Application Server ports configuration” on page 82

Disk space check:

See “Disk space check” on page 83.

11. On the Summary page, review your choices before installing the product package and its prerequisites. To change any choices that you made on previous pages, click **Back** and make the changes. Click **Install** to install the Tivoli Workload Scheduler package and its prerequisites.

Note: When the installation completes, a summary panel is displayed asking which program you want to start. If you installed the WebSphere Application Server prerequisite, and any of the Profile Management Tool radio buttons appear

selected, unselect them because the installation process already created its own profile. Select either **None** or **Log on to the IBM Dashboard Application Services Hub**.

After a successful installation, perform one of the following configuration tasks, depending on whether you installed a master domain manager or its backup:

- “Configuring a master domain manager” on page 211.
- “Configuration steps for a master domain manager configured as backup” on page 212.

Tivoli Workload Scheduler user information:

Complete the following Tivoli Workload Scheduler data fields.

User name

Specify the Tivoli Workload Scheduler user name. User name can contain alphanumeric, dash (-), and underscore (_) characters; it cannot contain national characters. The first character of the user name must be a letter. The default value is **twuser**.

On Windows operating systems:

- If this user account does not already exist, it is automatically created by the installation wizard.
- If installing on a Windows server in a domain, do not define a domain and local ID with the same user name.
- If you specify a domain user, define the name as *domain_name\user_name*.
- If you specify a local user, define the name as *system_name\user_name*. Type and confirm the password.

On UNIX and Linux operating systems:

This user account must be created manually before running the installation. Create a user with a home directory and group. For more information, see “Tivoli Workload Scheduler user” on page 39.

Note: The Tivoli Workload Scheduler user name and password are also used as the WebSphere Application Server administrator user name and password.

Password

Specify the Tivoli Workload Scheduler password. The password must comply with the password policy in your Local Security Settings. Spaces are not permitted.

On Windows operating systems:

Passwords for users can include any alphanumeric characters and `()!?=^*/~[]$_+;:,@`-#`.

On UNIX and LINUX systems:

Passwords for users can include any alphanumeric characters and `()!?=*_+.-`.

Confirm password

Confirm the Tivoli Workload Scheduler password that you entered.

Validate user

Click to validate that the user was defined successfully and with the correct permissions.

Tivoli Workload Scheduler master configuration:

Note: This panel appears for the installation and upgrade processes, if you are performing an upgrade, you are not required to insert or you cannot see some of the following fields.

Complete the following Tivoli Workload Scheduler data fields.

Master domain manager configuration information

Configure this master domain manager as backup

Configure this master domain manager as backup. By default, this box is deselected. If you select this check box, the installation process configures the master domain manager installation as backup.

Company

The name of the company. Spaces are allowed and the maximum field length is 40 characters. The default is MYCOMPANY.

This workstation name

The name of the workstation on which you are installing the instance. The default is the host name of the workstation.

For a master domain manager, the name you specify here is the name of the Tivoli Workload Scheduler workstation known in the database as **master**.

For a master domain manager configured as backup, the name you specify here is the name of the Tivoli Workload Scheduler workstation known in the database as **fta**. Spaces are not allowed and the maximum field length is 16 characters. If the host name is longer than 16 characters, an alternative name must be provided for a successful installation. It can contain alphanumeric, dash (-), and underscore (_) characters. The first character must be a letter.

Master domain manager name

If you are installing a master domain manager, this field is grayed out. This field is required if you are installing a master domain manager configured as backup.

The name of the master domain manager workstation. Spaces are not allowed and the maximum field length is 16 characters. The first character cannot be numeric.

Master domain manager port (used by Netman)

The port used by the Netman process to manage distributed scheduling. Netman is the network process that controls the production environment. The default value is **31111**. The valid range is from 1 to 65535.

Note: If you change this value, all default port number values in the application server port information panel are changed to reflect the new range. For example, if you specify 42111 as TCP/IP port number, the default for HTTP transport becomes **42125**, the default for HTTPS becomes **42126**, and so on.

Configuration information for dynamic scheduling

Host name or IP address

The fully qualified host name or IP address of the dynamic agent.

The dynamic workload broker uses this address to connect to the dynamic agent. The default is the <HOSTNAME> where HOSTNAME is the host name of the workstation on which you are installing.

Dynamic agent workstation name

The name of the dynamic agent workstation definition. The default is the <HOSTNAME_1> where HOSTNAME is the host name of the workstation on which you are installing.

Note: If you are upgrading from V8.5.1 a dynamic agent that you already registered to the dynamic workload broker server, any value you specify for this parameter is ignored and the old dynamic agent name is used.

JobManager port number

The dynamic agent secure port number (SECUREADDR). The dynamic workload broker uses this port to contact the Tivoli Workload Scheduler dynamic agent. The default value is **31114**. The valid range is from 1 to 65535.

Add the "FINAL" job stream to the database to automate the production cycle

This option is available only if you are installing a master domain manager. Add the *FINAL* and *FINALPOSTREPORTS* job streams definition to the database. This option allows automatic production plan extension at the end of each current production plan processing. By default, this box remains unchecked.

Note: During the installation, if you identified an existing Tivoli Workload Scheduler database that has a final job stream, the installation does not overwrite it.

Create symbolic link

Only on UNIX and Linux systems. Check this option to create symbolic links to /usr/bin. Any existing Tivoli Workload Scheduler symbolic link are overwritten. For more information about symbolic links, see Table 4 on page 35.

Event driven workload automation configuration information

Event Processor port number

The port used by the event management processor to receive events. The default value is **31131**. The valid range is from 1 to 65535. This parameter is not requested if you are installing a backup master domain manager.

Dynamic workload broker configuration information

Tivoli dynamic workload broker workstation name

The definition of the dynamic workload broker workstation created in the Tivoli Workload Scheduler database. Its type is **broker**. The master domain manager name followed by *_DWB*. You can modify this value by including *_DWB*. Spaces are not allowed and the maximum field length is 16 characters. It can contain alphanumeric, dash (-), and underscore (_) characters. The first character must be a letter.

Tivoli dynamic workload broker Netman port

The port on the dynamic workload broker workstation.

The master domain manager or backup master domain manager use this port to communicate with dynamic workload broker. This number is registered in the ResourceAdvisorUrl property in the JobManager.ini file. The default value is **41114**. The valid range is from 1 to 65535.

Database configuration:

To complete the Database configuration panel, perform the following steps:

1. Select the database management system type.
2. In the **Database path** field, specify the installation path.
3. Click **Retrieve database information** to load the information for the database systems selected. For more information about how to configure the RDBMS you selected, see the following sections:

Installing for a DB2 database server:

The following list describes the fields that you might need to complete during the installation.

Database path

Type, or **Browse** for the directory in which the existing DB2 instance is installed.

On Windows operating systems:

This path must be an absolute path to the sqllib directory. If you have more than one DB2 instance installed, make sure that you provide the fully qualified path to the DB2 instance you want. The default is %ProgramFiles%\IBM\sqllib.

On UNIX and Linux operating systems:

This path must be an absolute path to the sqllib directory. If you have more than one DB2 instance installed, make sure you provide the fully qualified path to the DB2 instance you want.

The default is /home/<db2_instance_admin>/sqllib where <db2_instance_admin> is the administrator of the DB2 instance. For example, if the db2inst1 user is the DB2 instance administrator, the path is /home/db2inst1/sqllib.

Instance name

The name of the DB2 server instance.

Instance port

The TCP/IP port number used to communicate with the DB2 instance. The default is **50000**.

DB2 server administrator user

The user name of the administrator of the DB2 server instance. This user can also be any user having SYSADM or SYSCTRL authority on the DB2 server. On UNIX systems, verify that you can switch to this user and that it can load the DB2 environment.

If the DB2 administrator already created the database tables using the procedure "Creating or upgrading the database tables if you are using DB2" on page 46, the user name is the one that the DB2 administrator specified in the **DB_USER** property in the customizedB2SQL.properties file.

On Windows operating systems

The default value is **db2admin**.

On UNIX and Linux operating systems

The default value is **db2inst1**.

DB2 server administrator password

The password of the DB2 server administrator user or of the user with SYSADM or SYSCTRL authority.

Database name

The name of the DB2 database. The maximum length is five characters. You can use an existing DB2 database instance if its name does not exceed five characters. The default is TWS. When you are installing:

Master domain manager

Provide the name of a database that is not used by a dynamic domain manager.

Master domain manager configured as backup

Provide the name of the master domain manager database.

Dynamic domain manager

Provide the name of a database that is not used by a master domain manager.

Dynamic domain manager configured as backup

Provide the name of the dynamic domain manager database.

For information about DB2 database names, see the DB2 documentation.

Test connection

Click to check that the configuration was successful. The test connection result is shown in the upper left corner of the Install package panel.

Tablespace used to store scheduling objects and event rules

Provide the following advanced parameters for the tablespace:

Tablespace name

The name of the DB2 instance tablespace. This tablespace is used to store scheduling objects and event rules. For information about DB2 table spaces, see the DB2 documentation. The default name is **TWS_DATA**.

Tablespace path

The relative path of the DB2 table space. The default path is **TWS_DATA**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path, the DB2 administrator user must have complete access rights to the directory where the table space is installed. For more information see Appendix E, "DB2 tablespace relative paths," on page 415. For UNIX and Linux operating systems, make sure that the DB2 Administrator has write access to the tablespace directory.

Tablespace used to store the plan

Specify the name and path of the DB2 table space where Tivoli Workload Scheduler event logs are to be stored. These logs include data about event rule instances, triggered actions, and operator messages displayed by the Dynamic Workload Console. Data from the logs can be used to create reports. You can view report data using the Dynamic Workload Console.

Plan tablespace name

The name of the table space for storing planning data. The default name is **TWS_PLAN**.

Plan tablespace path

The path of the table space for storing planning data. The default path is **TWS_PLAN**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path the DB2 administrator user must have complete access rights to the directory where the table space is installed. For more information, see Appendix E, “DB2 tablespace relative paths,” on page 415. Note that the report tablespace path cannot be the same as the tablespace path.

Tablespace used to store event logs

Specify the name and path of the DB2 table space where Tivoli Workload Scheduler event logs are to be stored. These logs include data about event rule instances, triggered actions, and operator messages displayed by the Dynamic Workload Console. Data from the logs can be used to create reports. You can view report data using the Dynamic Workload Console.

Report tablespace name

The name of the table space for storing report data. The default name is **TWS_LOG**.

Report tablespace path

The path of the table space for storing report data. The default path is **TWS_LOG**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path the DB2 administrator user must have complete access rights to the directory where the table space is installed. For more information, see Appendix E, “DB2 tablespace relative paths,” on page 415. Note that the report tablespace path cannot be the same as the tablespace path.

Installing for a DB2 database client:

During the installation of the **master domain manager configured as backup**, you install a DB2 client to connect to the DB2 server that contains the Tivoli Workload Scheduler database. This database was created by the master domain manager installation. If it is a DB2 database server, the database is on the workstation of the master domain manager. If it is a DB2 database client, the database is on another workstation.

During the installation of the **dynamic domain manager configured as backup**, you install a DB2 client to connect to the DB2 server that contains the Tivoli Workload Scheduler database. This database was created by the dynamic domain manager installation. If it is a DB2 database server, the database is on the workstation of the dynamic domain manager. If it is a DB2 database client, the database is on another workstation.

The following list describes the fields that you might need to complete during the installation.

Database path

Type, or **Browse** for the directory on which the existing DB2 instance is installed.

On Windows operating systems:

This path must be an absolute path up to the `sql1ib` directory. If

you have more than one DB2 instance installed, make sure that you provide the fully qualified path to the DB2 instance you want. The default is %ProgramFiles%\IBM\sql1ib.

On UNIX and Linux operating systems:

This path must be an absolute path up to the sql1ib directory. If you have more than one DB2 instance installed, make sure that you provide the fully qualified path to the DB2 instance you want.

The default is /home/<db2_instance_admin>/sql1ib where <db2_instance_admin> is the administrator of the DB2 instance. For example, if the *db2inst1* user is the DB2 instance administrator, the path is /home/db2inst1/sql1ib.

Remote database server

The IP address or host name of the workstation where the DB2 server is installed.

Remote database port

The TCP/IP port number that the remote DB2 server instance uses to communicate.

Identify the user on the remote DB2 server to be used by the installation for DB2 administration tasks

Provide the following data:

DB2 server administrator user

The user name of the administrator of the DB2 server instance. This user can also be any user having SYSADM or SYSCTRL authority on the DB2 server. On UNIX systems, verify that you can switch to this user and that it can load the DB2 environment.

If the DB2 administrator already created the database tables using the procedure “Creating or upgrading the database tables if you are using DB2” on page 46, the user name is the one that the DB2 administrator specified in the **DB_USER** property in the *customizeDB2SQL.properties* file.

On Windows operating systems

The default value is **db2admin**.

On UNIX and Linux operating systems

The default value is **db2inst1**.

DB2 server administrator password

The password of the DB2 server administrator user or of the user with SYSADM or SYSCTRL authority.

Identify the user on the DB2 client to be used by the installation for DB2 administration tasks

Specify the user on the DB2 client to be used by the installation for DB2 administration tasks. Provide the following data:

DB2 local administrator user

The user name of the DB2 administrator of the DB2 client instance. The user ID must contain the following login properties:

-login='true'

-rlogin='true'

Identify the user on the DB2 server to be used by Tivoli Workload Scheduler to access the database, if different from the

DB2 Server Administration User

Select this option when the DB2 server user used to access Tivoli Workload Scheduler is different from the DB2 Server Administration User. Provide the following data:

Tivoli Workload Scheduler DB2 user

The user name of the Tivoli Workload Scheduler DB2 user.

Tivoli Workload Scheduler DB2 password

The password of the Tivoli Workload Scheduler DB2 user.

Database name

The name of the DB2 database. The maximum length is five characters. You can use an existing DB2 database instance if its name does not exceed five characters. When you are installing a:

Master domain manager

Provide the name of a database that is not used by a dynamic domain manager.

Master domain manager configured as backup

Provide the name of the master domain manager database.

Dynamic domain manager

Provide the name of a database that is not used by a master domain manager.

Dynamic domain manager configured as backup

Provide the name of the dynamic domain manager database.

For information about DB2 database names, see the DB2 documentation.

Test connection

Click to check that the configuration was successful.

Tablespace used to store scheduling objects and event rules

Provide the following advanced parameters:

Tablespace name

The name of the DB2 instance table space. For information about DB2 table spaces, see the DB2 documentation.

Tablespace path

The relative path of the DB2 table space. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path, the DB2 administrator user must have complete access rights to the directory where the table space is installed. For more information, see Appendix E, "DB2 tablespace relative paths," on page 415.

The default table space path name is **TWS_DATA**. The default table space temporary directory is **TWS_TEMP**. For UNIX and Linux operating systems, make sure that the DB2 Administrator has write access to the directory above the table space directory.

Tablespace used to store the plan

Specify the name and path of the DB2 table space where Tivoli Workload Scheduler event logs are to be stored. These logs include

data about event rule instances, triggered actions, and operator messages displayed by the Dynamic Workload Console. Data from the logs can be used to create reports. You can view report data using the Dynamic Workload Console.

Plan tablespace name

The name of the table space for storing planning data. The default name is **TWS_PLAN**.

Plan tablespace path

The path of the table space for storing planning data. The default path is **TWS_PLAN**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path the DB2 administrator user must have complete access rights to the directory where the table space is installed. For more information, see Appendix E, "DB2 tablespace relative paths," on page 415. Note that the report tablespace path cannot be the same as the tablespace path.

Tablespace used to store event logs

Specify the name and path of the DB2 table space where Tivoli Workload Scheduler event logs are to be stored. These logs are used to create reports. You can view report data using the Dynamic Workload Console.

Report tablespace name

The name of the table space for storing report data. The default name is **TWS_LOG**.

Report tablespace path

The path of the table space for storing report data. The default path is **TWS_LOG**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path, the DB2 administrator user must have complete access rights to the directory where the table space is installed. For more information, see Appendix E, "DB2 tablespace relative paths," on page 415.

Installing for an Oracle database:

When you are installing for an Oracle database, both for server and client, follow the installation wizard prompts. The following list describes the fields that you might need to complete during the installation.

Database path

Specify the path of an Oracle installation that satisfies the Tivoli Workload Scheduler prerequisites. The fully qualified path must identify a tree in the Oracle structure that includes the sqlplus executable.

Net service name

The name used by clients to identify an Oracle Net server and the specific system identifier or database for the Oracle Net connection. A net service name is mapped to a port number and protocol. It is also known as a connect string, database alias, host string, or service name.

If your Oracle database is:

- Installed on the same system on which you are installing your master domain manager or its backup, the net service name is the name of your Oracle database.

- Installed on the same system on which you are installing your dynamic domain manager or its backup, the net service name is the name of your Oracle database.
- Not installed on the system on which you are installing your master domain manager or its backup, the net service name is the alias configured for the connection to the remote database.
- Not installed on the system on which you are installing your dynamic domain manager or its backup, the net service name is the alias configured for the connection to the remote database.

Contact your database administrator to obtain the correct net service name.

Oracle administrator user

The database administrator user name (such as SYSTEM) required to authenticate to the Oracle database. This account must already exist.

If the ORACLE administrator already created the database tables using the procedure “Creating or upgrading the database tables if you are using Oracle” on page 55, the user name is the one that the ORACLE administrator specified in the **MDL_USER** property of the `customizeORACLESQL.properties` file.

Oracle administrator user password

The database administrator user password required to authenticate to the Oracle database.

Tivoli Workload Scheduler Oracle user

The owner of the Tivoli Workload Scheduler schema.

If the ORACLE administrator already created the database tables using the procedure “Creating or upgrading the database tables if you are using Oracle” on page 55, the user name is the one that the ORACLE administrator specified in the **MDL_USER** property of the `customizeORACLESQL.properties` file. The name must comply with the Oracle naming rules.

If you are installing a:

Master domain manager

If you leave this field blank, this name is defaulted to **<TWS_user>**.

Master domain manager configured as backup

Enter the same name that you used in the master domain manager.

Dynamic domain manager

If you leave this field blank, this name is defaulted to **<TWS_user>**.

Provide a name different from the one that you used when installing the master domain manager.

Dynamic domain manager configured as backup

Enter the same name that you used in the dynamic domain manager.

On a fresh installation of a:

Master domain manager

This user does not exist in the database. If this is not the case, it means that there is already a master domain manager or its backup instance pointing to the same database with this user name. If your existing Tivoli Workload Scheduler instance is version 8.3 or later, the installation process upgrades the current database schema to the new schema.

Dynamic domain manager

This user does not exist in the database. If this is not the case, it means that there is already a dynamic domain manager or its backup pointing to the same database with this user name.

If your existing instance is the current version, the installation process assumes that the schema is at the correct level and does not create the database objects (tables, views, clusters, procedures, indexes, and so on) for Tivoli Workload Scheduler.

Note:

If you identify an existing Oracle user as the Tivoli Workload Scheduler Oracle user, the installation process assumes that the configuration is complete and does not create the database objects for Tivoli Workload Scheduler. In this case, the installation completes successfully but you cannot use the database.

Tivoli Workload Scheduler Oracle user password

The password for the Tivoli Workload Scheduler Oracle user. It must comply with the Oracle naming rules.

Create the Tivoli Workload Scheduler schema using the Oracle Partitioning option

Only for master domain manager and dynamic domain manager. If you are installing on Oracle Enterprise Edition, you can choose to implement the Oracle Partitioning option to improve the performance of event-driven workload automation. For more information about event-driven workload automation, see *Overview*.

Tablespace name

Only for master domain manager and dynamic domain manager. The name that identifies the table space where scheduling objects data, event rules data, job history runs data, and job statistics data is stored. This table space must have been previously created by the database administrator. The default for this field is **USERS**.

Plan tablespace name

Only for master domain manager and dynamic domain manager. The name that identifies the table space where planning data is stored. This table space must have been previously created by the database administrator. The default for this field is **USERS**.

Reports tablespace name

Only for master domain manager and dynamic domain manager. The name that identifies the table space where report data is to be stored. You can view the report data using the Dynamic Workload Console.

This table space must have been previously created by the database administrator. The default value for this field is **USERS**.

Temporary tablespace

Only for master domain manager and dynamic domain manager. The name that identifies the temporary table space. This table space must have been previously created by the database administrator. The default value for this field is **TEMP**.

WebSphere Application Server profile configuration:

The following fields are provided for WebSphere Application Server profile configuration data.

WebSphere installation location

The field shows the path you specified in the Location panel. To change it go back to the Location panel.

Profile deployment type

Create a WebSphere Application Server profile.

Profile details

Enter the information that identify the WebSphere Application Server profile you created.

Profile location

Enter the name of the directory where the WebSphere Application Server profile is located. Click **Browse** to find the appropriate location. The default value is:

On Windows operating systems:

c:\Program Files\IBM\TWA\WAS\TWSPProfile

On UNIX operating systems:

/opt/IBM/TWA/WAS/TWSPProfile

Note: Do not use any of the following characters in the profile path field:

On Windows operating systems::

!"#\$%&{} []=?'<>,;*:

On UNIX operating systems:

!"#\$%&{} []=?'<>,;*:

Profile name

Enter the name of the file on which the WebSphere Application Server profile is defined. The default is **TWSPProfile**.

Node name

Enter the name of the node contained in the WebSphere Application Server profile. The default is **TWSNode**.

Server name

Enter the name of the server contained in the WebSphere Application Server profile. The default is **server1**.

Validate

Click to validate that the information you entered is correct.

WebSphere Application Server ports configuration:

This panel appears during installation or upgrade processes. If you are performing an upgrade, you are not required to insert or you cannot see some of the following fields.

The following fields are provided for WebSphere Application Server data. The installation procedure checks for the availability of the ports in the specified port range. If one or more ports are being used by other applications, you are prompted to enter a new port number.

Automatically generate WebSphere ports

Select if you changed the *JobManager* port and you want to automatically generate the ports listed starting from this port.

HTTP transport

The port for the HTTP transport. It is used by the **composer** command line

and the Dynamic workload broker when this protocol is selected. The default value is **31115**. The valid range is from 1 to 65535.

HTTPS transport

The port for the secure HTTP transport. It is used by the **composer** command line and the Dynamic workload broker when this protocol is selected. The default value is **31116**. The valid range is from 1 to 65535.

Bootstrap

The port for the bootstrap or RMI. It is used by the graphical user interfaces. The default value is **31117**. The valid range is from 1 to 65535.

SOAP connector

The port for the application server protocol SOAP connector. The default value is **31118**. The valid range is from 1 to 65535.

SAS Server Authentication Listener

The port used by the Secure Association Services (SAS) to listen for inbound authentication requests. The default value is **31119**. The valid range is from 1 to 65535.

CSIv2 Server Authentication Listener

The port on which the Common Secure Interoperability Version 2 (CSIv2) service listens for inbound server authentication requests. The default value is **31120**. The valid range is from 1 to 65535.

CSIv2 Client Authentication Listener

The port on which the Common Secure Interoperability Version 2 (CSIv2) service listens for inbound client authentication requests. The default value is **31121**. The valid range is from 1 to 65535.

ORB Listener

The port used for RMI over IIOP communication. The default value is **31122**. The valid range is from 1 to 65535.

Administration HTTP transport

The administrative console port. The default value is **31123**. The valid range is from 1 to 65535.

Administration HTTPS transport

The administrative console secure port. The default value is **31124**. The valid range is from 1 to 65535.

Disk space check:

The installation process checks if there is enough disk space available to install a master domain manager or its backup, a dynamic domain manager or its backup. The installation or upgrade process does not check the space required to install table spaces. Before you click install, verify there is enough space to install table spaces in the indicated path.

In the Disk space check panel, you can see the log for the disk space check operation. If the operation failed because of insufficient disk space, you must free the disk space that is shown in the log and then click **Retry**.

Performing a silent installation

1. Before starting to install, upgrade or uninstall, verify that the user running the installation process has the following authorization requirements:

Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or **domain administrators** group with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

UNIX and Linux operating systems root access

2. Ensure that you inserted the DVD for your operating system or that you downloaded the Tivoli Workload Scheduler dynamic domain manager or master domain manager eImage (for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).

When you run a silent installation, the Installation Manager is already installed and you use an XML response file that contains parameters required to install the product package. The response file includes all the installation information required to run the installation without user intervention.

To silently install the Tivoli Workload Scheduler product package you can have one of the following scenarios:

Installing the Tivoli Workload Scheduler package:

The Tivoli Workload Scheduler prerequisites are already installed. For more information about performing a silent installation of Tivoli Workload Scheduler package, see “Performing a Tivoli Workload Scheduler silent installation.”

Installing the Tivoli Workload Scheduler and the Dynamic Workload Console packages and their prerequisites:

For more information about performing the silent installation of the Tivoli Workload Scheduler package, Tivoli Workload Scheduler prerequisites packages, the Dynamic Workload Console package and the Dynamic Workload Console prerequisites packages, , see “Performing a Tivoli Workload Scheduler and its prerequisites and a Dynamic Workload Console and its prerequisites silent installation” on page 86.

Note: You can decide to install only the Tivoli Workload Scheduler package and its prerequisites or only the Dynamic Workload Console package and its prerequisites or both.

Performing a Tivoli Workload Scheduler silent installation:

You must install Installation Manager before you perform a silent installation of the Tivoli Workload Scheduler package and its prerequisites.

For detailed information about how to install Installation Manager, see the Installation Manager documentation.

You can silently install the Tivoli Workload Scheduler package by using a response file that is provided on the installation DVDs in the `\response_files\` directory. For a list of response files, see “Tivoli Workload Scheduler response file templates” on page 85.

Perform the following steps:

1. Copy the relevant response file to a local directory.

2. Edit the Tivoli Workload Scheduler section. For details about the response file properties, see Appendix B, “The Tivoli Workload Scheduler response file properties,” on page 397.

Note: Ensure that all the passwords that you specify in the response file are encrypted as described in “Encrypting user passwords for response files” on page 88.

3. Save the file with your changes.
4. Open a command-line prompt.
5. Go to the Installation Manager tools directory.

The default tools directory is:

On Windows operating systems

```
C:\Program Files\IBM\Installation Manager\eclipse\tools
```

On UNIX and Linux operating systems

```
/opt/IBM/InstallationManager/eclipse/tools
```

6. Run the following command:

On Windows operating systems

```
imcl.exe input <local_dir>\response_file.xml  
-log <local_dir>\log_file.xml  
-acceptLicense
```

On UNIX and Linux operating systems

```
./imcl input /<local_dir>/response_file.xml  
-log /<local_dir>/log_file.xml  
-acceptLicense
```

where

- The `response_file.xml` is the name of the response file to be used for the installation.
- The `log_file` is the name of the log file that records the result of the silent installation.

Note: For more information about the Installation Manager silent install command and the Installation Manager silent log file, see Installation Manager documentation.

After a successful installation, perform one of the following configuration tasks, depending on whether you installed a dynamic domain manager or its backup: or a master domain manager or its backup:

- “Configuring a master domain manager” on page 211.
- “Configuration steps for a master domain manager configured as backup” on page 212.
- “Configuring a dynamic domain manager” on page 215.
- “Configuration steps for a dynamic domain manager configured as backup” on page 215.

Tivoli Workload Scheduler response file templates:

Edit the response file templates provided on the installation DVDs in the `\response_files\` directory. Instructions for customizing the files are included in the files as commented text.

Table 6 on page 86 lists the response files and the types of installation each performs by operating systems:

Table 6. Installation response files

Type of installation	Response file to use
Installing on Windows operating systems	
Fresh dynamic domain manager configured as backup	TWS91_FRESH_DDM_configured_as_backup_WIN.xml
Fresh dynamic domain manager	TWS91_FRESH_DDM_WIN.xml
Fresh dynamic domain manager for z/OS controller	TWS91_FRESH_DDM_for_zOS_WIN.xml
Fresh master domain manager configured as backup	TWS91_FRESH_MDMconfigured_as_backup_WIN.xml
Fresh master domain manager	TWS91_FRESH_MDM_WIN.xml
Installing on UNIX operating systems	
Fresh dynamic domain manager configured as backup	TWS91_FRESH_DDM_configured_as_backup_UNIX.xml
Fresh dynamic domain manager	TWS91_FRESH_DDM_UNIX.xml
Fresh dynamic domain manager for z/OS controller	TWS91_FRESH_DDM_for_zOS_UNIX.xml
Fresh master domain manager configured as backup	TWS91_FRESH_MDMconfigured_as_backup_UNIX.xml
Fresh master domain manager	TWS91_FRESH_MDM_UNIX.xml

For details about response file properties, see Appendix B, “The Tivoli Workload Scheduler response file properties,” on page 397.

Performing a Tivoli Workload Scheduler and its prerequisites and a Dynamic Workload Console and its prerequisites silent installation:

You must install Installation Manager before you perform a silent installation of the Tivoli Workload Scheduler package.

For detailed information about how to install Installation Manager, see the Installation Manager documentation.

You can silently install the Tivoli Workload Scheduler package and the Dynamic Workload Console package at the same time as their prerequisites packages, by using a global response file that is provided on the installation DVDs in the \response_files\ directory. For a list of response files, see Table 7 on page 88.

The silent installation process:

- Assigns the correct order to the package installation.
- Manages the prerequisites package installation.

The response file contains one section for each prerequisite package that you have to install, one section related to Tivoli Workload Scheduler, and one section related to the Dynamic Workload Console package installation.

Perform the following steps:

1. Copy the response file to a local directory.
2. Edit the following sections:

Dynamic Workload Console and Tivoli Workload Scheduler prerequisites packages sections:

If you do not want to install the Dynamic Workload Console, comment the Dynamic Workload Console prerequisites section. For more information about how to fill in this section, see the response file properties description provided as commented text or see the prerequisites product documentation.

Dynamic Workload Console section:

If you do not want to install the Dynamic Workload Console, comment this section. For more information about how to complete the Dynamic Workload Console section properties, see Appendix C, “The Dynamic Workload Console response file properties,” on page 409.

Tivoli Workload Scheduler section:

For more information about how to complete the Tivoli Workload Scheduler section properties, see Appendix B, “The Tivoli Workload Scheduler response file properties,” on page 397.

Note: Ensure that all the passwords that you specify in the response file are encrypted as described in “Encrypting user passwords for response files” on page 88.

3. Save the file with your changes.
4. Open a command-line prompt.
5. Go to the Installation Manager tools directory.

The default tools directory is:

On Windows operating systems

C:\Program Files\IBM\Installation Manager\eclipse\tools

On UNIX and Linux operating systems

/opt/IBM/InstallationManager/eclipse/tools

6. Run the following command:

On Windows operating systems

```
imcl.exe input <local_dir>\response_file.xml  
-log <local_dir>\log_file.xml  
-acceptLicense
```

On UNIX and Linux operating systems

```
./imcl input /<local_dir>/response_file.xml  
-log /<local_dir>/log_file.xml  
-acceptLicense
```

where

- The response_file.xml is the name of the response file to be used for the installation.
- The log_file is the name of the log file that records the result of the silent installation execution.

Note: For more information about the Installation Manager silent installation command and Installation Manager silent log files, see the Installation Manager information center.

Table 7 on page 88 lists the response files and the types of installation each file performs by operating systems:

Table 7. Global installation response files

Type of installation	Response file to use
Installing on Windows operating systems	
WebSphere Application Server, Jazz for Service Management extension for WebSphere, Tivoli Workload Scheduler and Dynamic Workload Console.	TWS91_FRESH_FULL_MDM_DWC_WIN.xml
Installing on UNIX operating systems	
WebSphere Application Server, Jazz for Service Management extension for WebSphere, Tivoli Workload Scheduler and Dynamic Workload Console.	TWS91_FRESH_FULL_MDM_DWC_UNIX.xml

After a successful installation, perform one of the following configuration tasks, depending on the type of agent you installed:

- “Configuring a master domain manager” on page 211.
- “Configuration steps for a master domain manager configured as backup” on page 212.
- “Configuring a dynamic domain manager” on page 215.
- “Configuration steps for a dynamic domain manager configured as backup” on page 215.

Encrypting user passwords for response files:

You must encrypt each password string stored in the response files by using Installation Manager.

You can perform the password encryption by using one of the following procedures:

Installation Manager String encryption utility interface

To encrypt the password string for the response files, perform the following steps:

1. Go to the eclipse directory of the Installation Manager installation directory. The default eclipse directory is:

Windows operating systems

C:\Program Files\IBM\Installation Manager\eclipse

UNIX and Linux operating systems

/opt/IBM/InstallationManager/eclipse

2. To open the **String encryption utility interface**, run the following command:

Windows operating systems

```
IBMIM.exe encryptString <stringToEncrypt>
```

where <stringToEncrypt> is the value to be encrypted.

UNIX and Linux operating systems

```
./IBMIM encryptString <stringToEncrypt>
```

where <stringToEncrypt> is the value to be encrypted.

3. In the **String encryption utility** window, note the Encrypted version of the String field value related to the String to be encrypt field value.
4. Copy the Encrypted version of the String value in the password entry of the response file.

Installation Manager command line tool

To encrypt the password string for the response files, perform the following steps:

1. Go to the eclipse directory of the Installation Manager installation directory. The default eclipse directory is:

Windows operating systems

C:\Program Files\IBM\Installation Manager\eclipse

UNIX and Linux operating systems

/opt/IBM/InstallationManager/eclipse

2. Run the following command:

Windows operating systems

```
IBMIM.exe -silent -noSplash encryptString <stringToEncrypt> >
<Encryptedpwd>.txt
```

where <stringToEncrypt> is the value to be encrypted and the <Encryptedpwd>.txt is the file where there is the encrypted value of the password.

UNIX and Linux operating systems

```
./IBMIM -silent -noSplash encryptString <stringToEncrypt> >
<Encryptedpwd>
```

where <stringToEncrypt> is the value that is encrypted and the <Encryptedpwd> is the file where there is the encrypted value of the password.

3. Open the file <Encryptedpwd> and copy the value contained into the file in the data key of the response file.
4. Remove the file <Encryptedpwd>.

This example shows you how to write the section USER INFORMATION of the TWS91_FRESH_MDM_WIN.xml response file, setting the Tivoli Workload Scheduler user value to *twuser* and the user password value to *passwd* on Windows operating systems.

By using the Installation Manager command line tool, encrypt the password *passwd* saving the encrypted value to the file *my_pwd.txt*:

```
IBMIM.exe -silent -noSplash encryptString passwd > my_pwd.txt
```

The file *my_pwd.txt* contains the following value:

```
rbN1IaMAWYYtQxLf6KdNyA==
```

Complete the USER INFORMATION section of the TWS91_FRESH_MDM_WIN.xml response file as follows:

```
<!--USER INFORMATION
Supply the Tivoli Workload Scheduler credentials information -->
<data key='user.userName,com.ibm.tws' value='twuser' />
<data key='user.password,com.ibm.tws' value='rbN1IaMAWYYtQxLf6KdNyA==' />
```

Note: For security reasons, remove the file *my_pwd.txt* after using it.

Installing a dynamic domain manager or its backup

Start the installation of a dynamic domain manager or its backup.

Install a dynamic domain manager if you want to schedule and control your static and dynamic workload both in distributed and end-to-end environments. For example, you might have different branch offices and want to run your dynamic schedule independently at each branch office to improve agent scalability. Moreover, installing a dynamic domain manager or its backup you run your dynamic schedule even if the master domain manager or the master domain manager configured as backup is unavailable.

By installing a dynamic domain manager you can:

- Improve fault-tolerant and dynamic agent scalability because the workload of the agents in the domain is directly controlled by the dynamic domain manager to which they are directly connected.
- Allow static and dynamic processing to continue even if the agent connection to its master domain manager is unavailable.

If you want to ensure that your workload runs even if the connection to the dynamic domain manager is unavailable, install a dynamic domain manager configured as backup.

A dynamic domain manager that is configured as backup is composed of a:

- Fault-tolerant agent
- Broker server
- Dynamic agent

When you install a dynamic domain manager, the following workstation types are created in the database:

Broker

For the broker server

Agent For the dynamic agent

Manager

For the fault-tolerant agent

Domain

For the domain. The domain is a child of the master domain manager domain.

These workstations belong to the newly created domain of the dynamic domain manager, and you cannot move them under another domain. Moreover, you cannot change the parent domain of the domain of the dynamic domain manager.

Installation procedure for a dynamic domain manager or its backup

To install a Tivoli Workload Scheduler dynamic domain manager or its backup and all the prerequisites, perform the following steps:

1. After you start the installation process either by using the launchpad as described in “Launchpad” on page 66 or by using the wizard as described in Installation wizard, the Installation Manager wizard starts.

2. In the Installation Manager Installation Packages panel, the installation process selected all the Tivoli Workload Scheduler prerequisites packages and the "Tivoli Workload Scheduler" > "Version 9.1.0.0" product package.

Note: If you have already installed Tivoli Workload Scheduler or its prerequisites products a warning panel is displayed. Click **Continue** to install the package in a new group or click **Cancel** to clear the package that is already installed.

3. Click **Next**.
4. On the Licenses page, read the license agreement for the selected package. If you selected to install the Tivoli Workload Scheduler package and the Tivoli Workload Scheduler prerequisites packages, you must accept the license agreement for each package. On the left side of the License page, click each package to see its license agreement. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements**.
5. Click **Next**.
6. On the Location panel, the Tivoli Workload Scheduler and the Tivoli Workload Scheduler prerequisites packages are already selected:

For each prerequisite package:

Select the prerequisite package and type, or **Browse** the path to use as the installation directory on which to install the prerequisite instance, or accept the default path.

For the Tivoli Workload Scheduler package:

Type, or **Browse** the path to use as the installation directory on which to install the Tivoli Workload Scheduler instance for the specific user, or accept the default path:

Installation directory

The maximum field length is 46 characters. You cannot use national characters.

On Windows operating systems:

- The following characters are not valid:
! # \$ % & { } [] = ? ' < > , ; ()
- The name must be longer than three characters, the second character must be: and the third character must be \.
- The default directory is C:\Program Files\IBM\TWA

On UNIX and Linux operating systems:

- The following characters are not valid:
! " # \$ % & { } [] = ? ' < > , ; () *blank_space*
- The name must be longer than one character and the first character must be /.
- The default directory is /opt/IBM/TWA

7. Click **Next**.
8. On the Features page, perform the following actions:

For the prerequisites packages:

To see a description of the feature, click the feature name. In the Details section you see a short description.

Ensure that you leave the default prerequisites features selected by installation process.

For the Tivoli Workload Scheduler package:

Select the following feature:

Dynamic domain manager

Note:

Select directly the **Dynamic domain manager** option. If you first clear the **Master domain manager** option and then select the correct option, you have the following error message:

"Select at least one feature for the Tivoli Workload Scheduler package."

9. Click **Next**.
10. Enter the information in the following panels:

For each prerequisite package:

On the prerequisites product panels, enter the information related to the product you are installing. For more information about the field values, see the prerequisite product documentation.

For the Tivoli Workload Scheduler package:

On the following panels, enter the following information:

User information:

See "Tivoli Workload Scheduler user information" on page 71.

Dynamic domain manager Configuration:

See "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.

Database Configuration:

See "Database configuration" on page 74.

WebSphere profile Configuration:

See "WebSphere Application Server profile configuration" on page 81.

WebSphere ports Configuration:

See "WebSphere Application Server ports configuration" on page 82.

Disk space check:

See "Disk space check" on page 83.

11. On the Summary page, review your choices before installing the product package and its prerequisites. To change any choices that you made on previous pages, click **Back** and make the changes. Click **Install** to install the Tivoli Workload Scheduler package and its prerequisites.

After a successful installation, perform one of the following configuration tasks, depending on whether you installed a dynamic domain manager or its backup:

- "Configuring a dynamic domain manager" on page 215
- "Configuration steps for a dynamic domain manager configured as backup" on page 215.

Tivoli Workload Scheduler user information:

Complete the following Tivoli Workload Scheduler data fields.

User name

Specify the Tivoli Workload Scheduler user name. User name can contain alphanumeric, dash (-), and underscore (_) characters; it cannot contain national characters. The first character of the user name must be a letter. The default value is **twuser**.

On Windows operating systems:

- If this user account does not already exist, it is automatically created by the installation wizard.
- If installing on a Windows server in a domain, do not define a domain and local ID with the same user name.
- If you specify a domain user, define the name as *domain_name\user_name*.
- If you specify a local user, define the name as *system_name\user_name*. Type and confirm the password.

On UNIX and Linux operating systems:

This user account must be created manually before running the installation. Create a user with a home directory and group. For more information, see "Tivoli Workload Scheduler user" on page 39.

Note: The Tivoli Workload Scheduler user name and password are also used as the WebSphere Application Server administrator user name and password.

Password

Specify the Tivoli Workload Scheduler password. The password must comply with the password policy in your Local Security Settings. Spaces are not permitted.

On Windows operating systems:

Passwords for users can include any alphanumeric characters and `()!?=^*/~[]$_+;:,@`-#`.

On UNIX and LINUX systems:

Passwords for users can include any alphanumeric characters and `()!?=*~_+.-`.

Confirm password

Confirm the Tivoli Workload Scheduler password that you entered.

Validate user

Click to validate that the user was defined successfully and with the correct permissions.

Tivoli Workload Scheduler dynamic domain manager configuration:

Note: This panel appears for the installation and upgrade processes, if you are performing an upgrade, you are not required to insert or you cannot see some of the following fields.

Complete the following Tivoli Workload Scheduler data fields.

Enter the configuration information for the dynamic domain manager installation:

Configure this dynamic domain manager as backup

By default, this box is left clear. If you check this box, the installation process configures the dynamic domain manager installation as backup.

Do you want to connect the Dynamic Domain Manager only to the z/OS controller?

Only for dynamic domain manager.

Select this check box if you want to connect the dynamic domain manager only to the z/OS controller. Leave the check box clear to connect the dynamic domain manager to:

- A master domain manager
- Both a master domain manager and a z/OS controller

If you connect the dynamic domain manager only to a z/OS controller, you must create a lightweight end-to-end scheduling environment where the Tivoli Workload Scheduler for z/OS manages the scheduling workload on distributed systems. To complete this environment you must install a Tivoli Workload Scheduler for z/OS agent. For a detailed explanation about how to install the Tivoli Workload Scheduler for z/OS agent, see the *Tivoli Workload Scheduler for z/OS: Planning and Installation Guide*. If you select the check box the following fields are disabled:

- **Domain name**
- **This workstation name**
- **Master domain manager workstation name**
- **Dynamic domain manager port (used by Netman)**
- **Master domain manager host name**
- **Master domain manager https port**

Domain name

Only for a dynamic domain manager connected to a z/OS controller or to a master domain manager or both. Applies only to dynamic domain manager. Specify the Tivoli Workload Scheduler domain name managed by the dynamic domain manager. The default value is DYNAMICDM.

This workstation name

Only for connecting the Dynamic Domain Manager only to the z/OS controller. The name of the workstation on which you are installing the instance. The default is the hostname of the workstation. Spaces are not allowed and the maximum field length is 16 characters. If the host name is longer than 16 characters, an alternative name must be provided for a successful installation. It can contain alphanumeric, dash (-), and underscore (_) characters. The first character must be a letter. This workstation name and master domain manager workstation name values must not be the same.

dynamic domain manager

The name of the Tivoli Workload Scheduler workstation known in the database as **fta**. Configure it as **manager** by performing the procedure described in “Configuring a dynamic domain manager” on page 215.

dynamic domain manager configured as backup

The name of the Tivoli Workload Scheduler workstation known in the database as **fta**. Configure it as **fta** by performing the procedure described in “Configuration steps for a dynamic domain manager configured as backup” on page 215.

Master domain manager workstation name

Only for dynamic domain manager connected to a z/OS controller and a distributed environment or a distributed environment. The name of the master domain manager workstation. Spaces are not allowed and the maximum field length is 16 characters. The first character cannot be numeric. This workstation name and master domain manager workstation name values must not be the same.

Dynamic domain manager port (used by Netman)

Only for dynamic domain manager connected to a z/OS controller and a distributed environment or a distributed environment The port used by the Netman process to manage distributed environment. Netman is the network process that controls the production environment. The default value is **31111**. The valid range is from 1 to 65535.

Note: If you change this value, all default port number values in the application server port information panel are changed to reflect the new range. For example, if you specify 42111 as TCP/IP port number, the default for HTTP transport becomes 42125, the default for HTTPS becomes 42126, and so on.

Master domain manager host name

Only for dynamic domain manager connected to a z/OS controller and a distributed environment or a distributed environment The fully qualified host name on which the dynamic domain manager contacts the master domain manager.

Master domain manager HTTPS port

Only for dynamic domain manager connected to a z/OS controller and a distributed environment or a distributed environment. The port for the secure HTTP transport. The dynamic agent component installed on the dynamic domain manager instance uses this port to connect to the dynamic workload broker installed on the master domain manager instance. The default value is **31116**. If you leave the field blank, it defaults to **0**. The valid range is from 1 to 65535.

Enter the configuration information for the dynamic scheduling**Host name or IP address**

The host name or IP address of the dynamic agent component installed in the dynamic domain manager instance. The Tivoli dynamic workload broker and the Tivoli Workload Scheduler for z/OS controller use this address to connect to the dynamic agent.

Dynamic agent workstation name

The name of the dynamic agent workstation definition.

JobManager port number

The dynamic agent secure port number (SECUREADDR). The Tivoli Workload Scheduler for z/OS controller and the Dynamic workload broker use this port to connect to the Tivoli Workload Scheduler dynamic agent. The default value is **31114**. The valid range is from 1 to 65535.

Enable HTTPS communication for the JobManager port

This option enables HTTPS communication between the local Dynamic workload broker and the dynamic agent. For secure connections, it is recommended that you use HTTPS. To use HTTP communication, leave this box clear.

Enter the information to identify the Dynamic workload broker scheduling component. This is used by Tivoli Workload Scheduler to run jobs dynamically

Only for dynamic domain manager.

Dynamic workload broker workstation name

Only for dynamic domain manager. The definition of the Dynamic workload broker workstation created in the Tivoli Workload Scheduler database. Spaces are not allowed and the maximum field length is 16 characters. It can contain alphanumeric, dash (-), and underscore (_) characters. The first character must be a letter.

The Dynamic workload broker workstation acts as the communication bridge between the dynamic domain manager and the local Dynamic workload broker component. In your job or job stream definitions, it is the workstation on which the jobs run. In this way, you submit your workload through this workstation to the Dynamic workload broker component.

Dynamic workload broker Netman port

Only for dynamic domain manager. The port used by the Tivoli Workload Scheduler dynamic domain manager to communicate with the local Dynamic workload broker component. The default value is **41114**. The valid range is from 1 to 65535.

Database Configuration:

This section is divided into subsections. See the section that corresponds to the RDBMS you are using.

- “Installing for a DB2 database server” on page 74
- “Installing for a DB2 database client” on page 76
- “Installing for an Oracle database” on page 79

Note: When providing the database name, ensure that you provide the database name that is not used by a master domain manager.

WebSphere Application Server profile configuration:

The following fields are provided for WebSphere Application Server profile configuration data.

WebSphere installation location

The field shows the path you specified in the Location panel. To change it go back to the Location panel.

Profile deployment type

Create a WebSphere Application Server profile.

Profile details

Enter the information that identify the WebSphere Application Server profile you created.

Profile location

Enter the name of the directory where the WebSphere Application Server profile is located. Click **Browse** to find the appropriate location. The default value is:

On Windows operating systems:

c:\Program Files\IBM\TWA\WAS\TWSPProfile

On UNIX operating systems:

/opt/IBM/TWA/WAS/TWSPProfile

Note: Do not use any of the following characters in the profile path field:

On Windows operating systems::

!"#\$%&{} []=?'<>,;*:

On UNIX operating systems:

!"#\$%&{} []=?'<>,;*:

Profile name

Enter the name of the file on which the WebSphere Application Server profile is defined. The default is **TWSPProfile**.

Node name

Enter the name of the node contained in the WebSphere Application Server profile. The default is **TWSNode**.

Server name

Enter the name of the server contained in the WebSphere Application Server profile. The default is **server1**.

Validate

Click to validate that the information you entered is correct.

WebSphere Application Server ports configuration:

This panel appears during installation or upgrade processes. If you are performing an upgrade, you are not required to insert or you cannot see some of the following fields.

The following fields are provided for WebSphere Application Server data. The installation procedure checks for the availability of the ports in the specified port range. If one or more ports are being used by other applications, you are prompted to enter a new port number.

Automatically generate WebSphere ports

Select if you changed the *JobManager* port and you want to automatically generate the ports listed starting from this port.

HTTP transport

The port for the HTTP transport. It is used by the **composer** command line and the Dynamic workload broker when this protocol is selected. The default value is **31115**. The valid range is from 1 to 65535.

HTTPS transport

The port for the secure HTTP transport. It is used by the **composer** command line and the Dynamic workload broker when this protocol is selected. The default value is **31116**. The valid range is from 1 to 65535.

Bootstrap

The port for the bootstrap or RMI. It is used by the graphical user interfaces. The default value is **31117**. The valid range is from 1 to 65535.

SOAP connector

The port for the application server protocol SOAP connector. The default value is **31118**. The valid range is from 1 to 65535.

SAS Server Authentication Listener

The port used by the Secure Association Services (SAS) to listen for inbound authentication requests. The default value is **31119**. The valid range is from 1 to 65535.

CSIV2 Server Authentication Listener

The port on which the Common Secure Interoperability Version 2 (CSIV2) service listens for inbound server authentication requests. The default value is **31120**. The valid range is from 1 to 65535.

CSIV2 Client Authentication Listener

The port on which the Common Secure Interoperability Version 2 (CSIV2) service listens for inbound client authentication requests. The default value is **31121**. The valid range is from 1 to 65535.

ORB Listener

The port used for RMI over IIOP communication. The default value is **31122**. The valid range is from 1 to 65535.

Administration HTTP transport

The administrative console port. The default value is **31123**. The valid range is from 1 to 65535.

Administration HTTPS transport

The administrative console secure port. The default value is **31124**. The valid range is from 1 to 65535.

Disk space check:

The installation process checks if there is enough disk space available to install a master domain manager or its backup, a dynamic domain manager or its backup. The installation or upgrade process does not check the space required to install table spaces. Before you click install, verify there is enough space to install table spaces in the indicated path.

In the Disk space check panel, you can see the log for the disk space check operation. If the operation failed because of insufficient disk space, you must free the disk space that is shown in the log and then click **Retry**.

Performing a silent installation

1. Before starting to install, upgrade or uninstall, verify that the user running the installation process has the following authorization requirements:

Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or **domain administrators** group with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

UNIX and Linux operating systems root access

2. Ensure that you inserted the DVD for your operating system or that you downloaded the Tivoli Workload Scheduler dynamic domain manager or master domain manager image (for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).

When you run a silent installation, the Installation Manager is already installed and you use an XML response file that contains parameters required to install the product package. The response file includes all the installation information required to run the installation without user intervention.

To silently install the Tivoli Workload Scheduler product package you can have one the following scenarios:

Installing the Tivoli Workload Scheduler package:

The Tivoli Workload Scheduler prerequisites are already installed. For more information about performing a silent installation of Tivoli Workload Scheduler package, see “Performing a Tivoli Workload Scheduler silent installation” on page 84.

Installing the Tivoli Workload Scheduler and the Dynamic Workload Console packages and their prerequisites:

For more information about performing the silent installation of the Tivoli Workload Scheduler package, Tivoli Workload Scheduler prerequisites packages, the Dynamic Workload Console package and the Dynamic Workload Console prerequisites packages, , see “Performing a Tivoli Workload Scheduler and its prerequisites and a Dynamic Workload Console and its prerequisites silent installation” on page 86.

Note: You can decide to install only the Tivoli Workload Scheduler package and its prerequisites or only the Dynamic Workload Console package and its prerequisites or both.

Performing a Tivoli Workload Scheduler silent installation:

You must install Installation Manager before you perform a silent installation of the Tivoli Workload Scheduler package and its prerequisites.

For detailed information about how to install Installation Manager, see the Installation Manager documentation.

You can silently install the Tivoli Workload Scheduler package by using a response file that is provided on the installation DVDs in the `\response_files\` directory. For a list of response files, see “Tivoli Workload Scheduler response file templates” on page 85.

Perform the following steps:

1. Copy the relevant response file to a local directory.
2. Edit the Tivoli Workload Scheduler section. For details about the response file properties, see Appendix B, “The Tivoli Workload Scheduler response file properties,” on page 397.

Note: Ensure that all the passwords that you specify in the response file are encrypted as described in “Encrypting user passwords for response files” on page 88.

3. Save the file with your changes.
4. Open a command-line prompt.
5. Go to the Installation Manager tools directory.

The default tools directory is:

On Windows operating systems

`C:\Program Files\IBM\Installation Manager\eclipse\tools`

On UNIX and Linux operating systems

/opt/IBM/InstallationManager/eclipse/tools

6. Run the following command:

On Windows operating systems

```
imcl.exe input <local_dir>\response_file.xml  
-log <local_dir>\log_file.xml  
-acceptLicense
```

On UNIX and Linux operating systems

```
./imcl input /<local_dir>/response_file.xml  
-log /<local_dir>/log_file.xml  
-acceptLicense
```

where

- The response_file.xml is the name of the response file to be used for the installation.
- The log_file is the name of the log file that records the result of the silent installation.

Note: For more information about the Installation Manager silent install command and the Installation Manager silent log file, see Installation Manager documentation.

After a successful installation, perform one of the following configuration tasks, depending on whether you installed a dynamic domain manager or its backup: or a master domain manager or its backup:

- “Configuring a master domain manager” on page 211.
- “Configuration steps for a master domain manager configured as backup” on page 212.
- “Configuring a dynamic domain manager” on page 215.
- “Configuration steps for a dynamic domain manager configured as backup” on page 215.

Tivoli Workload Scheduler response file templates:

Edit the response file templates provided on the installation DVDs in the \response_files\ directory. Instructions for customizing the files are included in the files as commented text.

Table 6 on page 86 lists the response files and the types of installation each performs by operating systems:

Table 8. Installation response files

Type of installation	Response file to use
Installing on Windows operating systems	
Fresh dynamic domain manager configured as backup	TWS91_FRESH_DDM_configured_as_backup_WIN.xml
Fresh dynamic domain manager	TWS91_FRESH_DDM_WIN.xml
Fresh dynamic domain manager for z/OS controller	TWS91_FRESH_DDM_for_zOS_WIN.xml
Fresh master domain manager configured as backup	TWS91_FRESH_MDMconfigured_as_backup_WIN.xml
Fresh master domain manager	TWS91_FRESH_MDM_WIN.xml
Installing on UNIX operating systems	

Table 8. Installation response files (continued)

Type of installation	Response file to use
Fresh dynamic domain manager configured as backup	TWS91_FRESH_DDM_configured_as_backup_UNIX.xml
Fresh dynamic domain manager	TWS91_FRESH_DDM_UNIX.xml
Fresh dynamic domain manager for z/OS controller	TWS91_FRESH_DDM_for_zOS_UNIX.xml
Fresh master domain manager configured as backup	TWS91_FRESH_MDMconfigured_as_backup_UNIX.xml
Fresh master domain manager	TWS91_FRESH_MDM_UNIX.xml

For details about response file properties, see Appendix B, “The Tivoli Workload Scheduler response file properties,” on page 397.

Performing a Tivoli Workload Scheduler and its prerequisites and a Dynamic Workload Console and its prerequisites silent installation:

You must install Installation Manager before you perform a silent installation of the Tivoli Workload Scheduler package.

For detailed information about how to install Installation Manager, see the Installation Manager documentation.

You can silently install the Tivoli Workload Scheduler package and the Dynamic Workload Console package at the same time as their prerequisites packages, by using a global response file that is provided on the installation DVDs in the \response_files\ directory. For a list of response files, see Table 7 on page 88.

The silent installation process:

- Assigns the correct order to the package installation.
- Manages the prerequisites package installation.

The response file contains one section for each prerequisite package that you have to install, one section related to Tivoli Workload Scheduler, and one section related to the Dynamic Workload Console package installation.

Perform the following steps:

1. Copy the response file to a local directory.
2. Edit the following sections:

Dynamic Workload Console and Tivoli Workload Scheduler prerequisites packages sections:

If you do not want to install the Dynamic Workload Console, comment the Dynamic Workload Console prerequisites section. For more information about how to fill in this section, see the response file properties description provided as commented text or see the prerequisites product documentation.

Dynamic Workload Console section:

If you do not want to install the Dynamic Workload Console, comment this section. For more information about how to complete the Dynamic Workload Console section properties, see Appendix C, “The Dynamic Workload Console response file properties,” on page 409.

Tivoli Workload Scheduler section:

For more information about how to complete the Tivoli Workload Scheduler section properties, see Appendix B, “The Tivoli Workload Scheduler response file properties,” on page 397.

Note: Ensure that all the passwords that you specify in the response file are encrypted as described in “Encrypting user passwords for response files” on page 88.

3. Save the file with your changes.
4. Open a command-line prompt.
5. Go to the Installation Manager tools directory.

The default tools directory is:

On Windows operating systems

C:\Program Files\IBM\Installation Manager\eclipse\tools

On UNIX and Linux operating systems

/opt/IBM/InstallationManager/eclipse/tools

6. Run the following command:

On Windows operating systems

```
imcl.exe input <local_dir>\response_file.xml
-log <local_dir>\log_file.xml
-acceptLicense
```

On UNIX and Linux operating systems

```
./imcl input /<local_dir>/response_file.xml
-log /<local_dir>/log_file.xml
-acceptLicense
```

where

- The response_file.xml is the name of the response file to be used for the installation.
- The log_file is the name of the log file that records the result of the silent installation execution.

Note: For more information about the Installation Manager silent installation command and Installation Manager silent log files, see the Installation Manager information center.

Table 7 on page 88 lists the response files and the types of installation each file performs by operating systems:

Table 9. Global installation response files

Type of installation	Response file to use
Installing on Windows operating systems	
WebSphere Application Server, Jazz for Service Management extension for WebSphere, Tivoli Workload Scheduler and Dynamic Workload Console.	TWS91_FRESH_FULL_MDM_DWC_WIN.xml
Installing on UNIX operating systems	

Table 9. Global installation response files (continued)

Type of installation	Response file to use
WebSphere Application Server, Jazz for Service Management extension for WebSphere, Tivoli Workload Scheduler and Dynamic Workload Console.	TWS91_FRESH_FULL_MDM_DWC_UNIX.xml

After a successful installation, perform one of the following configuration tasks, depending on the type of agent you installed:

- “Configuring a master domain manager” on page 211.
- “Configuration steps for a master domain manager configured as backup” on page 212.
- “Configuring a dynamic domain manager” on page 215.
- “Configuration steps for a dynamic domain manager configured as backup” on page 215.

Encrypting user passwords for response files:

You must encrypt each password string stored in the response files by using Installation Manager.

You can perform the password encryption by using one of the following procedures:

Installation Manager String encryption utility interface

To encrypt the password string for the response files, perform the following steps:

1. Go to the eclipse directory of the Installation Manager installation directory. The default eclipse directory is:

Windows operating systems

C:\Program Files\IBM\Installation Manager\eclipse

UNIX and Linux operating systems

/opt/IBM/InstallationManager/eclipse

2. To open the **String encryption utility interface**, run the following command:

Windows operating systems

```
IBMIM.exe encryptString <stringToEncrypt>
```

where <stringToEncrypt> is the value to be encrypted.

UNIX and Linux operating systems

```
./IBMIM encryptString <stringToEncrypt>
```

where <stringToEncrypt> is the value to be encrypted.

3. In the **String encryption utility** window, note the Encrypted version of the String field value related to the String to be encrypt field value.
4. Copy the Encrypted version of the String value in the password entry of the response file.

Installation Manager command line tool

To encrypt the password string for the response files, perform the following steps:

1. Go to the eclipse directory of the Installation Manager installation directory. The default eclipse directory is:

Windows operating systems

C:\Program Files\IBM\Installation Manager\eclipse

UNIX and Linux operating systems

/opt/IBM/InstallationManager/eclipse

2. Run the following command:

Windows operating systems

```
IBMIM.exe -silent -noSplash encryptString <stringToEncrypt> >
<Encryptedpwd>.txt
```

where <stringToEncrypt> is the value to be encrypted and the <Encryptedpwd>.txt is the file where there is the encrypted value of the password.

UNIX and Linux operating systems

```
./IBMIM -silent -noSplash encryptString <stringToEncrypt> >
<Encryptedpwd>
```

where <stringToEncrypt> is the value that is encrypted and the <Encryptedpwd> is the file where there is the encrypted value of the password.

3. Open the file <Encryptedpwd> and copy the value contained into the file in the data key of the response file.
4. Remove the file <Encryptedpwd>.

This example shows you how to write the section USER INFORMATION of the TWS91_FRESH_MDM_WIN.xml response file, setting the Tivoli Workload Scheduler user value to *twsuser* and the user password value to *passw0rd* on Windows operating systems.

By using the Installation Manager command line tool, encrypt the password *passw0rd* saving the encrypted value to the file *my_pwd.txt*:

```
IBMIM.exe -silent -noSplash encryptString passw0rd > my_pwd.txt
```

The file *my_pwd.txt* contains the following value:

```
rbN1IaMAWYYtQxLf6KdNyA==
```

Complete the USER INFORMATION section of the TWS91_FRESH_MDM_WIN.xml response file as follows:

```
<!--USER INFORMATION
Supply the Tivoli Workload Scheduler credentials information -->
<data key='user.userName,com.ibm.tws' value='twsuser' />
<data key='user.password,com.ibm.tws' value='rbN1IaMAWYYtQxLf6KdNyA==' />
```

Note: For security reasons, remove the file *my_pwd.txt* after using it.

Installing agents

Start the installation of an agent.

This section describes how to install a Tivoli Workload Scheduler fault-tolerant agent or dynamic agent in your distributed or end-to-end network by using the **twinst** script.

When you install a fault-tolerant agent, also the remote command line client is installed.

To install agents you can use only the **twinst** script. If you are installing a dynamic agent, you can add to the agent also the Java runtime that is needed to run job types with advanced options.

During each step of the installation process, the **twinst** script creates files in the installation directory that you specified in the command. If you do not specify an installation directory in the command, the script creates files in the following directories:

| **On Windows operating systems**

| %ProgramFiles%\IBM\TWA\TWS

| For subsequent agent installations, you must always specify the installation
| directory.

| **On UNIX operating systems**

| /opt/IBM/TWS

| For subsequent agent installations, you must always specify the installation
| directory.

Procedure

1. Before you start to install, upgrade, or uninstall, verify that the user that runs the installation process has the following authorization requirements:

Windows operating system

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or domain administrators with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation, you must run the installation as **administrator**.

UNIX and Linux operating systems

root access

2. Ensure that you inserted the DVD for your operating system or that you downloaded the Tivoli Workload Scheduler agent eImage (for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).
3. Ensure that you have enough temporary space before you start the installation process. If you have not much space in the temporary directory and you cannot free the space, see “twinst needs long time to run if the machine does not have enough temporary space” on page 247.

You can install a fault-tolerant or dynamic agent in a distributed or an end-to-end environment.

To install a Tivoli Workload Scheduler agent, perform the following steps:

On Windows operating systems:

1. Insert the DVD for your operating system or download the agent eImage. For more information, see “Installation media” on page 31 or the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>.
2. Log in as administrator on the workstation where you want to install the product.
3. From the *DVD_root/TWS/operating_system* directory, run `twinst` by using the syntax described below. For a description of the syntax parameters, see “Agent installation parameters” on page 107.

Note: `twinst` for Windows is a Visual Basic Script (VBS) that you can run in CScript and WScript mode.

The Tivoli Workload Scheduler user is automatically created. The software is installed by default in the Tivoli Workload Scheduler installation directory. The default value is `%ProgramFiles%\IBM\TWA`.

If you enabled the Security Warning, a dialog box is displayed during the installation. In this case answer **Run** to continue.

On UNIX and Linux operating systems:

1. Insert the DVD for your operating system or download the agent eImage. For more information about eImages, see “Installation media” on page 31 or the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>.
2. Create the Tivoli Workload Scheduler user. The software is installed by default in the user's home directory, referred to as */installation_dir/TWS*.

User: *TWS_user*

Home: */installation_dir/TWS* (for example: */home/user1/TWS* where *user1* is the name of Tivoli Workload Scheduler user.)

3. Log in as root on the workstation where you want to install the product.
4. From the *DVD_root/TWS/operating_system* directory, run `twinst` by using the syntax described below. For a description of the syntax parameters, see “Agent installation parameters” on page 107.

If the installation fails, to understand the cause of the error see “Analyzing return codes for agent installation, upgrade, restore, and uninstallation” on page 243.

After a successful installation, perform one of the following configuration tasks, depending on the type of agent you installed:

- “Configuring a fault-tolerant agent” on page 216.
- “Configuring a dynamic agent” on page 217.

On Windows operating systems:

Show command usage and version

```
twinst -u | -v
```

Install a new instance

```
twinst -new -uname username
      -password user_password
      [-addjruntime true|false]
      [-agent dynamic|fta|both]
      [-company company_name]
      [-displayname agentname]
```

```

[-domain user_domain]
[-hostname host_name]
[-inst_dir install_dir]
[-jport port_number]
[-jportssl true|false]
[-lang lang_id]
[-master master_cpu_name]
[-port port_number]
[-skip_usercheck]
[-tdwport tdwport_number]
[-tdwhostname host_name]
[-thiscpu workstation]
[-work_dir working_dir]

```

On UNIX and Linux operating systems

Show command usage and version

```
twinst -u | -v
```

Install a new instance

```

twinst -new -uname username
[-addruntime true|false]
[-agent dynamic|fta|both]
[-company company_name]
[-create_link]
[-displayname agentname]
[-hostname hostname]
[-inst_dir install_dir]
[-jport port_number]
[-jportssl true|false]
[-lang lang_id]
[-master master_cpu_name]
[-port port_number]
[-reset_perm]
[-skip_usercheck]
[-stoponcheckprereq]
[-tdwport tdwport_number]
[-tdwhostname host_name]
[-thiscpu workstation]
[-work_dir working_dir]

```

Agent installation parameters

This section lists and describes the parameters used when running a **twinst** script to install the fault-tolerant or dynamic agent.

-addruntime *true|false*

Adds the Java runtime to run job types with advanced options, both those types supplied with the product and the additional types implemented through the custom plug-ins. Valid values are **true** and **false**. The default for a fresh installation is **true**.

If you decided not to install Java runtime at installation time, you can still add this feature at a later time as described in "Part 2. Tivoli Workload Scheduler -> Chapter 7. Configuring -> Adding a feature" in Tivoli Workload Scheduler Planning and Installation.

-agent *dynamic|fta|both*

The type of agent that you want to install. Valid values are:

dynamic

To install a Tivoli Workload Scheduler dynamic agent. Use this value with the **-tdwhostname** *host_name* and the **-tdwport** *tdwport_number* parameters.

fta To install a Tivoli Workload Scheduler fault-tolerant agent.

both To install the dynamic agent that is used with the **-tdwbhostname** *host_name* and the **-tdwbport** *tdwbport_number* parameters, and a fault-tolerant agent.

The default is **dynamic**.

-company *company_name*

The name of the company. The company name cannot contain blank characters. The name is shown in program headers and reports. If not specified, the default name is COMPANY.

-create_link

UNIX systems only. Create the **symlink** between /usr/bin/at and <install_dir>/TWS/bin/at. For more information, see Table 4 on page 35.

-displayname

The name to assign to the dynamic agent. The default is the host name of this computer.

-domain *user_domain*

Windows systems only. The domain name of the Tivoli Workload Scheduler user. The default is the name of the workstation on which you are installing the product.

-hostname *host_name*

The fully qualified host name or IP address on which the agent is contacted by the Tivoli dynamic workload broker. The default is the host name of this computer.

-inst_dir *installation_dir*

The directory of the Tivoli Workload Scheduler installation. Always specify an absolute path.

On Windows operating systems:

The path cannot contain blanks. If you do not manually specify a path, the path is set to %ProgramFiles%\IBM\TWA directory.

For subsequent agent installations, you must always specify the installation directory.

On UNIX and Linux operating systems:

If you specify a path that contains blanks, enclose it in double quotes. If you do not manually specify a path, the path is set to /opt/IBM/TWS.

For subsequent agent installations, you must always specify the installation directory.

Note: The Tivoli Workload Scheduler user that you specify in the **-uname** *username* parameter, must have read and run privileges for the *installation_dir* installation path; otherwise the installation fails.

-jimport *port_number*

The JobManager port number used by the Tivoli dynamic workload broker to connect to the Tivoli Workload Scheduler dynamic agent. The default value is **31114**. The valid range is from 1 to 65535.

-jimportssl *true|false*

The JobManager port used by the dynamic workload broker to connect to the Tivoli Workload Scheduler dynamic agent. This number is registered in

the `ita.ini` file located in `ITA\cpa\ita` on Windows systems and `ITA/cpa/ita` on UNIX, Linux, and IBM i systems.

For communication using SSL or HTTPS

Set `jmportssl = true`. To communicate with the Tivoli dynamic workload broker, it is recommended that you set the value to **true**. In this case, the port specified in `jmport` communicates in HTTPS.

For communication without using SSL or through HTTP

Set `jmportssl = false`. In this case the port specified in `jmport` communicates in HTTP.

-lang *lang_id*

The language in which the `twinst` messages are displayed. If not specified, the system LANG is used. If the related catalog is missing, the default C language catalog is used.

Note: This is the language in which the installation log is recorded and not the language of the installed engine instance. `twinst` installs all languages as default.

-master *workstation*

The workstation name of the master domain manager. This name cannot exceed 16 characters, cannot contain spaces, and cannot be the same as the workstation name that you entered in the `thiscpu` parameter. If not specified, the default value is **MASTER**.

-new A fresh installation of the agent. Installs an agent and all supported language packs.

-password *user_password*

Windows systems only. The password of the user for which you are installing Tivoli Workload Scheduler.

-port *port_number*

The TCP/IP port number used by the Netman process to listen for communication from the master. The default value is **31111**. The valid range is from 1 to 65535. This port number is registered in the `localopts` file. For each installation you must specify a different number.

-reset_perm

UNIX and IBM i systems only. Reset the permission of the libraries in the `/usr/Tivoli` directory.

-skip_usercheck

Enable this option if the authentication process within your organization is not standard, thereby disabling the default authentication option.

On Windows systems if you specify this parameter, the program does not create the user you specified in the `-uname username` parameter. If you specify this parameter you must create the user manually before running the script.

On UNIX and Linux systems if you specify this parameter, the program skips the check of the user in the `/etc/passwd` file or the check you perform using the `su` command.

-stoponcheckprereq

Stop the installation whenever a problem occurs during the prerequisite check. For more information on the prerequisite check, see “Scanning system prerequisites for Tivoli Workload Scheduler” on page 42.

-tdwbhostname *host_name*

The fully qualified host name of the Tivoli dynamic workload broker. It is used together with the **-agent** set to **dynamic** or **both** and the **-tdwbport** *tdwbport_number* parameters. It is necessary to install the dynamic agent. If not specified, you cannot run your workload dynamically and this parameter assumes the **localhost** default value. This value is registered in the **ResourceAdvisorUrl** property in the **JobManager.ini** file.

-tdwbport *tdwbport_number*

The Tivoli dynamic workload broker HTTP or HTTPS transport port number. It is used together with the **-agent** **dynamic|both** and the **-tdwbhostname** *host_name* parameters. It is required if you install the dynamic agent. This number is registered in the **ResourceAdvisorUrl** property in the **JobManager.ini** file. The default value is **31116**. The valid range is from 0 to 65535. If you specify **0** or do not specify this parameter, you cannot run workload dynamically. Do not specify **0** if the *agent* value is **dynamic** or **both**. For each installation you must specify a different port number.

-thiscpu *workstation*

The name of the Tivoli Workload Scheduler workstation of this installation. The name cannot exceed 16 characters, cannot contain spaces, and cannot be the same as the workstation name of the master domain manager. This name is registered in the **localopts** file. If not specified, the default value is the host name of the workstation.

-u Displays command usage information and exits.

-uname *username*

The name of the user for which Tivoli Workload Scheduler agent is being installed. This user name is not to be confused with the user performing the installation logged on as **root** on UNIX and Linux systems and as **administrator** on Windows systems. The user name cannot contain periods (.).

On UNIX and Linux systems, for a new installation, this user account must be created manually before running the installation. Create a user with a home directory. Tivoli Workload Scheduler is installed by default under the home directory of the specified user.

-work_dir *working_dir*

The temporary directory used by the program to deploy the installation process files.

On Windows operating systems:

If you specify a path that contains blanks, enclose it in double quotes. If you do not manually specify a path, the path is set to **%temp%\TWA\tws91**, where **%temp%** is the temporary directory of the operating system.

On UNIX and Linux operating systems:

The path cannot contain blanks. If you do not manually specify a path, the path is set to **/tmp/TWA/tws91**.

-v Displays the command version and exits.

Example installations

The following example shows the syntax used when using the **twsinst** script to install a new instance of a fault-tolerant agent.

On Windows operating systems:

```

twinst -new
-uname TWS_user
-password user_password
-agent fta
-company IBM
-displayname thishostcomputername
-hostname thishostname.mycompany.com
-inst_dir "c:\Program Files\IBM\TWA"
-master TWSmdm
-port 37124
-thiscpu mainworkstation

```

On UNIX and Linux operating systems:

```

./twinst -new
-uname TWS_user
-agent fta
-company IBM
-create_link
-hostname thishostname.mycompany.com
-inst_dir "/opt/IBM/TWA"
-master TWSmdm
-port 37124
-reset_perm
-stoponcheckprereq
-thiscpu mainworkstation
-work_dir "/home/TWS_user/tmp"

```

The following example shows the syntax used when using the **twinst** script to install a new instance of a dynamic agent and adding the Java runtime for running job types with advanced options.

On Windows operating systems:

```

twinst -new
-uname TWS_user
-password user_password
-addjruntime true
-agent dynamic
-company IBM
-displayname thishostcomputername
-hostname thishostname.mycompany.com
-inst_dir "c:\Program Files\IBM\TWA"
-jmport 31114
-port 37124
-tdwbport 31116
-tdwbhostname mainbroker.mycompany.com

```

On UNIX and Linux operating systems:

```

./twinst -new
-uname TWS_user
-addjruntime true
-agent dynamic
-company IBM
-displayname thishostcomputername
-hostname thishostname.mycompany.com
-inst_dir "/opt/IBM/TWA"
-jmport 31114
-port 37124
-reset_perm
-stoponcheckprereq
-tdwbport 31116
-tdwbhostname mainbroker.mycompany.com

```

The following example shows the syntax used when running the **twsinst** script to install a new instance of both a fault-tolerant and a dynamic agent, and adding the Java runtime for running job types with advanced options.

On Windows operating systems:

```
twsinst -new
-uname TWS_user
-password user_password
-addjruntime true
-agent both
-company IBM
-displayname thishostcomputername
-hostname thishostname.mycompany.com
-inst_dir "c:\Program Files\IBM\TWA"
-jmport 31114
-master TWSmdm
-port 37124
-tdwbport 31116
-tdwbhostname mainbroker.mycompany.com
-thiscpu mainworkstation
```

On UNIX and Linux operating systems:

```
./twsinst -new
-uname TWS_user
-addjruntime true
-agent both
-company IBM
-displayname thishostcomputername
-create_link
-displayname thishostcomputername
-hostname thishostname.mycompany.com
-inst_dir "/opt/IBM/TWA"
-jmport 31114
-master TWSmdm
-port 37124
-reset_perm
-stoponcheckprereq
-tdwbport 31116
-tdwbhostname mainbroker.mycompany.com
-thiscpu mainworkstation
```

The twsinst log files

The **twsinst** log file is as follows:

<tempDir>/twsinst_<operating_system>_<TWS_user>^9.1.0.00.log, where:

<tempDir>

The user temporary directory:

Windows operating systems

%Temp%\TWA\tws91

UNIX /tmp/TWA/tws91

<operating_system>

The operating system.

<TWS_user>

The name of the user for which Tivoli Workload Scheduler was installed (the name you supplied during installation)

Discovering installed components

To know which Tivoli Workload Scheduler components you have installed on the workstation

If you want to know which Tivoli Workload Scheduler components you have installed on the workstation, check the `TWSRegistry.dat` file.

Note: For more information about the `TWSRegistry.dat` file, see "Registry file".

Installing additional components

Installing the Job Brokering definition Console, the Integration Workbench and the additional plug-ins.

You can install the following additional components:

- The Job Brokering definition Console. See "Installing the Job Brokering Definition Console."
- The Integration Workbench. See "Installing Tivoli Workload Scheduler Integration Workbench" on page 114.
- The additional plug-ins. See "Installing the additional plug-ins by using the Tivoli Workload Scheduler for Additional Plug-ins" on page 117.

Installing the Job Brokering Definition Console

This section describes how to install the Job Brokering Definition Console. It is divided into the following sections:

- "Installing the Job Brokering Definition Console using the installation wizard"
- "Performing a silent installation of the Job Brokering Definition Console" on page 114

The Job Brokering Definition Console is a structured editing tool that you use to create and modify Job Submission Description Language (JSDL) files. These files are saved in the Job Repository as job definitions and become available for submission. The JSDL files adhere to the XML syntax and semantics as defined in the JSDL schema. For more information about the Job Brokering Definition Console, see the *Tivoli Workload Scheduler: User's Guide and Reference*.

The Job Brokering Definition Console is supported only on Windows 32-bit and Linux 32-bit systems. You can install one instance of the Job Brokering Definition Console for a single user on each workstation. This is because two instances installed by the same user share the same workspace. If you need to install two instances of the Job Brokering Definition Console on the same workstation, install each instance using a different user and ensure that each instance accesses its own workspace.

Installing the Job Brokering Definition Console using the installation wizard

For a graphical installation, perform the following steps:

1. Download the appropriate images. See the product Download Document.
2. Run the setup for the operating system on which you are installing. From the root directory of the DVD, run the following:
 - On Windows operating systems: `JBDC\WORKBENCH\setupwin32.exe`
 - On Linux operating systems: `JBDC/WORKBENCH/setuplinux.bin`

Follow the installation wizard, providing the installation directory name, to complete the installation.

Performing a silent installation of the Job Brokering Definition Console

For a silent installation:

1. Download the appropriate eImages. See the product Download Document.
2. Copy the following file to a local directory:
`<images_path>/JBDC/WORKBENCH/ResponseFiles/TDWB_Workbench_installation.rsp`
3. In this file, edit the following parameters:
-V licenseAccepted=true
-P installLocation="*<installation_path>*"

To perform a silent installation using a response file template, enter the following command:

```
-options "<path-to-ResponseFile>/TDWB_Workbench_installation.rsp" -silent
```

For information about response files and silent installation, see "Performing a silent installation" on page 83.

Installing Tivoli Workload Scheduler Integration Workbench

Use Tivoli Workload Scheduler Integration Workbench to develop event and action plug-ins that extend the capabilities of Tivoli Workload Scheduler event-driven workload automation. You can create also Java applications that use the Tivoli Workload Scheduler Java API.

You can install Tivoli Workload Scheduler Integration Workbench using one of the methods that are described in this section:

Installation wizard

To start installation by using this method, see "Installation wizard."

Silent installation

To start installation by using this method, see "Performing the Integration Workbench silent installation" on page 116.

Installation wizard

1. Before starting to install, upgrade, or uninstall, verify that the user running the installation process has the following authorization requirements:

UNIX and Linux operating systems

root access

Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or domain administrators with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation, you must run the installation as **administrator**.

2. Ensure that you inserted the DVD for your operating system or that you downloaded the Tivoli Workload Schedulerdynamic domain manager or its backup eImage for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).

Perform the following steps to install by using Installation Manager:

1. From the eImage or the DVD that contains the component you want to install, run:

UNIX operating systems

From the root directory of the DVD, run
setupIntegrationWorkbench.sh.

Windows operating systems

From the root directory of the DVD, run
setupIntegrationWorkbench.bat.

The installation wizard opens and shows you the Tivoli Workload Scheduler component and its prerequisites already selected.

2. In the Product Package Installation Manager panel, the installation process selected the following product package and its prerequisites:

"Tivoli Workload Scheduler Integration Workbench" > "Version 9.1.0.0"

If you have the prerequisites already installed, you can clear the prerequisites to continue or reinstall them in a new package group as described in the next step.

Click **Next** to continue.

3. On the Licenses page, read the license agreement for the selected package. If you selected more than one package to install, there might be a license agreement for each package. On the left side of the License page, click each package version to display its license agreement. The package versions that you selected (for example, the base package and an update) are listed under the package name. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements**.
4. Click **Next**.
5. On this page, you can create a package group for the product package. A package group represents a directory in which packages share resources with other packages in the same group.

To create a new package group:

- a. Click **Create a new package group**
 - b. Type the path for the installation directory for the package group or use the default path. The name for the package group is created automatically.
6. Type or **Browse** the path for the installation directory where the Tivoli Workload Scheduler Integration Workbench instance is installed for the specific user or accept the default path:

Installation directory

The maximum field length is 46 characters. You cannot use national characters.

On Windows operating systems

- The following characters are not valid:
! # \$ % & { } [] = ? \ < > , ; ()
- The name must be longer than three characters, the second character must be '.', the third character must be '\.'
- The default directory is C:\Program Files\IBM\TWAIW

On UNIX and Linux operating systems

- The following characters are not valid:

! \ # \$ % & { } [] = ? \ < > , ; ()

- The name must be longer than one character and the first character must be '/'.
- The default directory is /opt/IBM/TWAIW

7. Click **Next**.
8. On the Features page, select the features you want to install. To display a description of a feature in the Details section, click the feature name.
9. On the Summary page, review your choices before installing the product package. To change the choices that you made on previous pages, click **Back** and make the changes. When you are satisfied with your installation choices, click **Install** to install the package.

Performing the Integration Workbench silent installation

You must install Installation Manager before you perform a silent installation of the Integration Workbench package.

For detailed information about how to install Installation Manager, see the Installation Manager documentation.

You can silently install the Integration Workbench package by using a global response file that is provided on the installation DVDs in the \response_files\ directory. For a list of response files, see Table 10 on page 117.

Perform the following steps:

1. Copy the response file to a local directory.
2. Edit the following sections:

Integration Workbench section:

For more information about how to complete the section properties, see the properties description in the Integration Workbench response file

Note: Ensure that all the passwords that you specify in the response file are encrypted as described in “Encrypting user passwords for response files” on page 88.

3. Save the file with your changes.
4. Open a command-line prompt.
5. Go to the Installation Manager tools directory.

The default tools directory is:

On Windows operating systems

C:\Program Files\IBM\Installation Manager\eclipse\tools

On UNIX and Linux operating systems

/opt/IBM/InstallationManager/eclipse/tools

6. Run the following command:

On Windows operating systems

```
imcl.exe input <local_dir>\response_file.xml  
-log <local_dir>\log_file.xml  
-acceptLicense
```

On UNIX and Linux operating systems

```
./imcl input /<local_dir>/response_file.xml  
-log /<local_dir>/log_file.xml  
-acceptLicense
```

Where:

- The `response_file.xml` is the name of the response file to be used for installation.
- The `log_file` is the name of the log file that records the result of the silent installation.

Note: For more information about Installation Manager silent installation command and Installation Manager silent log files, see the Installation Manager information center.

Table 10 lists the response files and the types of installation that each one performs by platform:

Table 10. Global installation response files

Packages that you are installing:	Response file to use
Installing on Windows operating systems	
Integration Workbench	TWS91_FRESH_IntegrationWorkbench_WIN.xml
Installing on UNIX operating systems	
Integration Workbench	TWS91_FRESH_IntegrationWorkbench_UNIX.xml

Installing the additional plug-ins by using the Tivoli Workload Scheduler for Additional Plug-ins

This section describes how to install one or more additional plug-ins by using the Tivoli Workload Scheduler for Additional Plug-ins. It is divided into the following topics:

- “Before installing”
- “Selecting your installation method” on page 118
- “Installing by using the installation wizard” on page 119
- “Installing by using the silent installation” on page 119

The Tivoli Workload Scheduler for Additional Plug-ins is an installation process that you can use to install the additional plug-ins that you have developed to resolve your particular needs. This installer is contained in the Tivoli Workload Scheduler images.

Before installing

Before you install the additional plug-in, ensure that the following conditions are satisfied:

- You must have the following structure for the plug-in file `<plug-in_namespace>.<plug-in id>_<plug-in_version>.zip` as described in the following section: “The additional plug-in structure.”
- You have the following permissions to run the installation:
 - Windows operating systems:**
Administrator
 - UNIX and Linux operating systems:**
root
- The installation process is not already running on the workstation. You can verify it by checking that the `setup` process is not running.

The additional plug-in structure

This section describes the plug-in structure.

- The plug-in zip name must be the following:

```
<plug-in_namespace>.<plug-in_id>_<plug-in_version>.zip
```

- You must have the following structure for the plug-in file<plug-in_namespace>.<plug-in id>_<plug-in_version>.zip:

```
/files/license  
/files/plugin.xml  
/files/<plug-in_name>.properties  
/files/<plug-in_name>_<plugin_version>.jar
```

where,

- The/files/license directory contains the License agreement files. This directory is optional.
- The optional file <plug-in_name>.properties contains the properties of the plug-in.
- The mandatory file/files/plugin.xml must have the following structure:

```
<plugin>  
  <pluginInfo version="<plugin_version>" name="<plug-in_name>"  
              id="<plug-in_ID>" />  
  <vendor name="<company_name>" id="<company_id>" />  
  <pluginInstaller minVersionSupported="<plugin_min_version>" />  
  
  <twInstances>  
    <twInstance version="8.6.0.00" />  
  </twInstances>  
  
  <licenses dir="files/license" />  
  
  <deploy>  
    <jarFiles>  
      <file name="files/com.ibm.scheduling.agent.<plug-in_name>_  
              <plug-in_version>.jar"  
            overwriteIfExists="yes" mod="755" uninstall="yes" />  
    </jarFiles>  
    <propertiesFiles>  
      <file name="files/<plug-in_name>.properties" />  
    </propertiesFiles>  
  </deploy>  
</plugin>
```

Selecting your installation method

You can install the additional plug-ins by using one of the methods described in this section. To install a additionalplug-in, use any of the following procedures. If you want to install another one, start the installation procedure again.

Installation wizard

Install additional plug-in on an existing installation by running the individual setup files for each supported operating system. For details, see “Installing by using the installation wizard” on page 119.

Silent installation

Customize a *response file* by adding all the configuration settings to be used during installation. Then, from the command line, run the setup command. With this procedure, you can run the installation unattended and in the background. For details, see “Installing by using the silent installation” on page 119.

Before starting the installation process, ensure that the file <plug-in_namespace>.<plug-in id>_<plug-in_version>.zip is built as described in “Before installing” on page 117.

Note: To successfully use the installed plug-ins, you must first restart WebSphere Application Server, Tivoli Workload Scheduler agent or both.

Installing by using the installation wizard

To install additional plug-in, perform the following steps:

1. From the Tivoli Workload Scheduler Fix Pack 1 DVD or eImages, for the operating system where you are installing, run the **setup** installation command. It is located in the `/PLUGIN_INSTALLER` directory. The installation starts.
2. Select the language in which you want the wizard to be displayed, and click **OK**. The Welcome panel is displayed.
3. Read the welcome information and click **Next**. The operations panel is displayed.
4. Select the *Install* radio button. Click **Next**. The zip file location panel is displayed.
5. Select the path on your workstation where the zip file `<plug-in_namespace>.<plug-in id>_<plug-in_version>.zip` is located.
If the installation program does not detect any zip file in the path you specified, you cannot perform any actions.
6. Click **Next**. The plug-in details panel is displayed.
7. Review the plug-in details, and click **Next**. The plug-in Software License Agreement panel is displayed.
8. Read the plug-in Software License Agreement information and select the radio button to accept the license agreement. Click **Next**. A summary information panel is displayed.
9. Select the Tivoli Workload Scheduler on your workstation where the zip file `<plug-in_namespace>.<plug-in id>_<plug-in_version>.zip` is installed.
If the installation program does not detect any instance of Tivoli Workload Scheduler, you cannot perform any actions.
10. Review the summary details and click **Install**. The installation process begins; the progress panel is displayed showing the status.

If you received error messages, analyze the installation log files shown in the table Table 12 on page 122.

Installing by using the silent installation

A silent installation runs according to the parameters set in a response file. The response file includes all the installation information required to run the installation without user intervention.

To install additional plug-in with the silent installation, you are provided with the following response file located under `PLUGIN_INSTALLER/RESPONSE_FILE` on the product DVD:

```
TWS_Plug-ins_RespFile_<operatingsystem>.txt
```

where `<operatingsystem>` can be `unix` or `windows`.

It is a template file that you can customize to reflect the additional plug_in you want to install.

Note: Using the silent installation you can install one plug-in at time.

When running the installation in silent mode, no messages are displayed. The messages are written in the silent installation log files listed in “Installation actions and log files” on page 122. If the silent installation fails, you can verify the

messages written in the log files , by checking them in the section “Analyzing return codes for Tivoli Workload Scheduler for Additional Plug-ins silent installation” on page 240.

To run the silent installation, perform the following steps:

1. Create your response file or customize the response file to include the options required to complete the installation.

```
TWS_Plug-ins_RespFile_<operatingsystem>.txt
```

For a list of these options, see Table 11 on page 121.

The response file must be accessible from the workstation where you want to perform the installation. Entries in the response file are in the format *option=value*. Each entry must be written on a separate line.

2. Insert the product DVD for your operating system and run the **setup** command, located in the *PLUGIN_INSTALLER/* directory:

On UNIX and Linux operating systems:

```
./setup.sh -i silent -f response_file
```

On Windows operating systems:

```
setup.bat -i silent -f response_file
```

Where:

-i silent

Specifies that the installation is run unattended, driven by a response file.

-f response_file

Indicates the fully qualified path to the response file that contains the installation options. *response_file* can be any text file with the name and extension you choose.

The actions performed by installation is described in the section “Installation actions and log files” on page 122.

Table 11 on page 121 lists the options you can specify to drive the installation.

Table 11. Options to perform a silent installation

Option	Required	Description	Value
USER_INSTALL_DIR=<path>	Yes	Specify the Tivoli Workload Scheduler installation path where you want to install an additional plug-in.	A fully qualified path. For example, to install the product under c:\program Files\IBM\TWA86, specify: USER_INSTALL_DIR="c:\program Files\IBM\TWA86" The product files are installed in: c:\program Files\IBM\TWA86\methods On Windows operating systems: The default path is "c:\\Program Files\\IBM\\TWA" On UNIX and Linux operating systems: The default path is /opt/IBM/TWA
TWSAPPS_PLUGIN_FILE_NAME=<zip-filename>	Yes	Specify the fully qualified path to the zip file that contains the additional plug-in that you want to install.	A fully qualified path. For example, to install the additional plug-in <test_plug-in>.zip located in C:\Documents and Settings\Administrator\Desktop\PLUGINS\, specify: TWSAPPS_PLUGIN_FILE_NAME=C:\Documents and Settings\Administrator\Desktop\PLUGINS\<test_plug-in>.zip
LICENSE_ACCEPTED=<value>	Yes	Specify the boolean value to accept license agreement of additional plug-in.	The value can be true or false. But the plug-in installation proceed even if the value is set to true
ACTION_TYPE=<value>	Yes	Specify the action that installation process performs on plug-in. In this case the value must be set to DEPLOY.	The value must be set to DEPLOY.

The following is an example of the command you run to perform a silent installation on a UNIX workstation, by using the response file TWSPlug-ins_RespFile_UNIX.txt:

```
./setup.sh -i silent -f /tmp/TWSPlug-ins_RespFile_unix.txt
```

The following example shows a response file that installs the additional plug-in contained in the zip file <plug-in>.zip on a Windows workstation:

```
USER_INSTALL_DIR="c:\\Program Files\\IBM\\TWA"
TWSAPPS_PLUGIN_FILE_NAME=C:\Documents and Settings\Administrator\Desktop\
PLUGINS\<plug-in>.zip
```

Installation actions and log files

This section describes the additional plug-in installation process actions and installation logs files.

The additional plug-in installation is possible on Tivoli Workload Scheduler instance of:

- Master domain manager
- Backup master domain manager
- Dynamic Domain manager
- Backup Dynamic Domain manager
- Agent
- Fault-tolerant agent with Java extension installed.

The structure of the zip file is described in the section “The additional plug-in structure” on page 117.

The installation performs the following actions on the content of the zip file <plug-in_namespace>.<plug-in id>_<plug-in_version>.zip for all Tivoli Workload Scheduler workstation types:

- Copy the file plugin.xml as plugin_<plugin_name>.xml in the directory <TWA_HOME>/installDataPlugins of the selected Tivoli Workload Scheduler instance.
- Copy the file/files/<plug-in_name>.properties in the directory <TWA_HOME>/TWS/JavaExt/eclipse/configuration of the selected Tivoli Workload Scheduler instance.
- Copy the file/files/<plugin_namespace>.<plug-in_id>_<plugin_version>.jar in the directory <TWA_HOME>/TWS/JavaExt/eclipse/configuration of the selected Tivoli Workload Scheduler instance.
- Copy all the files in the /files/licenses directory in the directory <TWA_HOME>/license/<plug-in_id> of the selected Tivoli Workload Scheduler instance.

The installation also performs the following actions on the content of the zip file <plug-in_namespace>.<plug-in id>_<plug-in_version>.zip for specific workstation types:

- For **master domain manager**, **backup master domain manager**, **Dynamic Domain manager**, and **Backup Dynamic Domain manager**, also copy the file files/<plugin_namespace>.<plug-in_id>_<plugin_version>.jar in the directory <TWA_HOME>/TWS/applicationJobPlugins of the selected Tivoli Workload Scheduler instance.
- For **Tivoli Workload Scheduler for z/OS connector**, also copy the file files/<plugin_namespace>.<plug-in_id>_<plugin_version>.jar in the directory <TWA_HOME>/TWSZOS/applicationJobPlugins of the selected Tivoli Workload Scheduler instance.

If you received error messages, analyze the installation log files shown in Table 12.

Table 12. Installation log files

Log file name	Content	Directory
tw4plugins_ia_install.log	additional plug-in log file for InstallAnywhere errors.	<i>Tivoli Workload Scheduler_installation_dir</i> \logs

Table 12. Installation log files (continued)

Log file name	Content	Directory
tws4plugins_install.log	The additional plug-in installation log file.	<p>At the begin of the installation process this log file is created in the following directory:</p> <p>On Windows operating systems: %TEMP%\TWA\tws4apps</p> <p>On UNIX and Linux operating systems: \$tmp\TWA\tws4apps</p> <p>and copied to directory <i>Tivoli Workload Scheduler_installation_dir</i> logs at the end of the installation process.</p>
tws4plugins_status.log	The additional plug-in installation status log file is created only for silent installation. It reports if the installation completed successfully or with errors. In case of errors it indicates if the error is due to an incorrect field value or to a failed step.	<p>At the begin of the installation process this log file is created in the following directory:</p> <p>On Windows operating systems: %TEMP%\TWA\tws4apps</p> <p>On UNIX and Linux operating systems: \$tmp\TWA\tws4apps</p> <p>and copied to the directory <i>Tivoli Workload Scheduler_installation_dir</i> logs at the end of the installation process.</p>

Note: If you are installing in silent mode and you need to see the logs files, check before the `tws4plugins_status.log` file to verify the installation process status and then check the `tws4plugins_install.log` file for details.

Chapter 7. Upgrading

This chapter describes how to upgrade Tivoli Workload Scheduler from version 8.4.0 and later to the current version.

Note: Direct upgrade of the master domain manager or domain manager is not supported, only a parallel upgrade is supported. For a Tivoli Workload Scheduler 8.4 fault-tolerant agent, direct upgrade to Tivoli Workload Scheduler 9.1 is not supported.

Upgrading overview

An overview of the upgrade process from Tivoli Workload Scheduler instance V8.4.0 and later.

The changes in the installation process

The following changes in v9.1 affected the installation process:

- Use of the Installation Manager infrastructure to manage the upgrade process for the master domain manager and the dynamic domain manager or their backups.
- Use of the external WebSphere Application Server with an exclusive profile.
- Removal of the Software Distribution technology to deploy the product.
- Removal of the InstallShield wizard technology.

Upgrade deployment model for single or multiple component instances installed in the directory <TWS_INST_DIR>

Single instance

A single instance contains one Tivoli Workload Scheduler component installed in the directory <TWS_INST_DIR>.

Multiple instance

A multiple instance contains two or more Tivoli Workload Scheduler components installed in the same directory <TWS_INST_DIR>.

The procedure to run in the upgrade deployment model depends on whether your instance is simple or multiple.

Table 13 shows the procedure to run in the upgrade deployment model for single and multiple components instances of Tivoli Workload Scheduler.

Table 13. Upgrade single or multiple components instances

Tivoli Workload Scheduler instance in the directory <TWS_INST_DIR>	Upgrade deployment model
Single	“Upgrading Tivoli Workload Scheduler single component” on page 130.
Multiple	“Upgrading Tivoli Workload Scheduler components installed in the same directory” on page 131.

Choosing how to upgrade your network

Because Tivoli Workload Scheduler supports compatibility with earlier versions, you can decide to upgrade your network in either of the following ways:

Top-down

Upgrade the master domain manager and its backup, and then progressively upgrade the agents. Many of the new functions that are introduced in the current version become available for each agent as it is upgraded. The disadvantage is that the same functions are not available to all agents at the same time. Even if you distribute the new security file to an agent before V9.1, it does not work until you upgrade it. You must upgrade all agents that are older than V9.1.

Bottom-up

Upgrade the agents first, and then upgrade the master domain manager and its backup. The new functions that are introduced in the current version are not available until the whole network is upgraded.

Note:

The Tivoli Workload Scheduler V9.1 installs new default certificates during the upgrade process.

In the network upgrade phase, if you are using dynamic scheduling or you have the SSL enabled by using the default certificates on the fault-tolerant agents, to manage the default certificates, see the *IBM Tivoli Workload Scheduler: Release Notes*[®] at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038323>.

Verifying supported software prerequisites before upgrading

Before starting to upgrade the product, verify that your network has the minimum required supported versions of the operating system, product, and database.

Supported operating systems

To produce a dynamic report that lists the supported operating systems, perform the following actions:

1. Go to the web page: <http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/index.html>.
2. Click the *"Operating systems for a specific product"* report.
3. In the window *"Operating systems for a specific product"*, fill in the field *Enter a full or partial product name* with the value **IBM Tivoli Workload Scheduler** and click *Search*.
4. In the *Select version* drop-down list, select version **9.1** and click *Submit to run the report*.

For a complete list of system requirements (disk spaces, temporary spaces and RAM usage), see System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

Supported databases

Tivoli Workload Scheduler requires the use of either the DB2 or the Oracle relational database. For supported versions, see the Tivoli Workload Scheduler System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

Product level prerequisites for master domain manager, backup master domain manager, and agents

Before you start the upgrade, verify that your environment has the required product level prerequisites. For a complete list of product level, see System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

User authorization requirements

Before starting to install, upgrade, or uninstall, verify that the user running the installation process has the following authorization requirements:

UNIX and Linux operating systems

root access

Windows operating system

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or **domain administrators** group with the right **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

Files and folders changed during the upgrade

The upgrade process changes the following folders and files:

On Windows operating systems:

`%windir%\TWA`
`%windir%\system32\TWS*Registry.dat`
`twshome`

On UNIX and Linux operating systems:

`/etc/TWS`
`/etc/TWA`
`/usr/Tivoli/TWS`
`twshome`

Files not changed during master domain manager upgrade

The following files are not modified during the master domain manager upgrade process:

On Windows operating systems:

- `<TWS_INST_DIR>\TWS\twshome\env.cmd`
- `<TWS_INST_DIR>\TWS\jobmanrc.cmd`
- `<TWS_INST_DIR>\TWS\TWSLog.properties`
- `<TWS_INST_DIR>\TWS\Startup.cmd`
- `<TWS_INST_DIR>\TWS\JnextPlan.cmd`
- `<TWS_INST_DIR>\TWS\MakePlan.cmd`
- `<TWS_INST_DIR>\TWS\SwitchPlan.cmd`
- `<TWS_INST_DIR>\TWS\CreatePostReports.cmd`
- `<TWS_INST_DIR>\TWS\UpdateStats.cmd`
- `<TWS_INST_DIR>\TWS\ResetPlan.cmd`
- `<TWS_INST_DIR>\TWS\Sfinal`
- `<TWS_INST_DIR>\TDWB\config\audit.properties`

- <TWS_INST_DIR>\TDWB\config\BrokerWorkstation.properties
- <TWS_INST_DIR>\TDWB\config\CCMDBConfig.properties
- <TWS_INST_DIR>\TDWB\config\CLIConfig.properties
- <TWS_INST_DIR>\TDWB\config\DAOCommon.properties
- <TWS_INST_DIR>\TDWB\config\EWLMBvcConfig.properties
- <TWS_INST_DIR>\TDWB\config\JobDispatcherConfig.properties
- <TWS_INST_DIR>\TDWB\config\ResourceAdvisorConfig.properties
- <TWS_INST_DIR>\TDWB\config\TEPListener.properties
- <TWS_INST_DIR>\TDWB\config\TPMConfig.properties

where <TWS_INST_DIR> is the Tivoli Workload Scheduler installation directory.

On UNIX operating systems:

- <TWS_INST_DIR>/TWS/tws_env.cmd
- <TWS_INST_DIR>/TWS/jobmanrc.cmd
- <TWS_INST_DIR>/TWS/TWSCCLog.properties
- <TWS_INST_DIR>/TWS/Startup
- <TWS_INST_DIR>/TWS/JnextPlan
- <TWS_INST_DIR>/TWS/MakePlan
- <TWS_INST_DIR>/TWS/SwitchPlan
- <TWS_INST_DIR>/TWS/CreatePostReports
- <TWS_INST_DIR>/TWS/UpdateStats
- <TWS_INST_DIR>/TWS/ResetPlan
- <TWS_INST_DIR>/TWS/Sfinal
- <TWS_INST_DIR>/TDWB/config/audit.properties
- <TWS_INST_DIR>/TDWB/config/BrokerWorkstation.properties
- <TWS_INST_DIR>/TDWB/config/CCMDBConfig.properties
- <TWS_INST_DIR>/TDWB/config/CLIConfig.properties
- <TWS_INST_DIR>/TDWB/config/DAOCommon.properties
- <TWS_INST_DIR>/TDWB/config/EWLMBvcConfig.properties
- <TWS_INST_DIR>/TDWB/config/JobDispatcherConfig.properties
- <TWS_INST_DIR>/TDWB/config/ResourceAdvisorConfig.properties
- <TWS_INST_DIR>/TDWB/config/TEPListener.properties
- <TWS_INST_DIR>/TDWB/config/TPMConfig.properties

where <TWS_INST_DIR> is the Tivoli Workload Scheduler installation directory.

Note: The new version of these files are saved in the config directory.

Scanning system prerequisites for Tivoli Workload Scheduler

Before you install or upgrade the product, Tivoli Workload Scheduler automatically runs a scan on your system. Having an environment that meets the product system requirements ensures that an installation or upgrade succeeds without any delays or complications.

The scan verifies that:

- The operating system is supported for the product.

- On UNIX operating systems, the necessary product libraries are installed.
- There is enough permanent and temporary disk space to install both the product and its prerequisites.
- There is enough memory and virtual memory.

Note: The scan verifies only that the environment meets the requirements of Tivoli Workload Scheduler. It does not check the requirements for other components, such as DB2. To verify the requirements for Installation Manager use the procedure described in “Scanning system prerequisites for Installation Manager” on page 43.

If any of these checks fails, Tivoli Workload Scheduler performs the following action:

For all the components installed by using Installation Manager:

Displays a notification of the requirement that was not met. In this case, stop the installation or the upgrade, analyze the log files, solve the error, and rerun the installation or upgrade. If you are performing an interactive installation, the errors are displayed on the screen. If you are performing a silent installation, the errors are written in the Installation Manager log files. For more information about log files, see “Installation Manager wizard and silent installation and uninstallation log files” on page 237.

For agents

If you specified the **stoponcheckprereq** parameter, the **twinst** script does not proceed. In this case, analyze the log file, solve the error, and rerun the installation or upgrade. The log files are located:

On Windows operating systems:

`%TEMP%\TWA\tws91\result.txt`

On UNIX and Linux operating systems:

`$tmp/TWA/tws91/result.txt`

If you did not specify **stoponcheckprereq**, the **twinst** script proceeds. If a problem occurs, an error is displayed, the agent is installed or upgraded, but might not work.

For a detailed list of supported operating systems and product prerequisites, see the System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

Scanning system prerequisites for Installation Manager

Before you install or upgrade the Tivoli Workload Scheduler, if you have not installed Installation Manager, run a scan on your system to verify that your workstation has all the system requirements needed for a successful installation. Having an environment that meets the product system requirements ensures that an installation succeeds without any delays or complications.

You can run a prerequisite scan for Installation Manager by using:

“Launchpad” on page 29

From the DVD or from the eImage, launch it and select **Prerequisites Scan**.

checkPrereq

On Windows operating systems:

Run the following command:

`checkPrereq.bat`

On UNIX or Linux operating systems:

Run the following command:

```
checkPrereq.sh
```

Specify the **-silent** option if you are not interested in installing Installation Manager by using the wizard. If you use the **-silent** option, the program does not check that the graphical libraries exist. If the scan fails, the program displays a notification of the requirement that was not met. In this case, stop the installation, solve the error, and rerun the installation.

Upgrading Tivoli Workload Scheduler single component

To upgrade a single component instance installed in the directory <TWS-INST-DIR> with the previous versions of Tivoli Workload Scheduler, you must follow the procedure listed in Table 14.

Table 14 describes the procedures that you can perform in each different scenario to upgrade the existing instance to version 9.1.0.

Table 14. Upgrade deployment model for Tivoli Workload Scheduler single component instances

Tivoli Workload Scheduler component	Procedure to run
Fault-tolerant agent V8.5.0, V8.5.1, or V8.6.0 and related fix packs	"Upgrading agents and domain managers" on page 183.
Dynamic agent V8.5.1 or V8.6.0 and related fix packs	"Upgrading agents and domain managers" on page 183.
Dynamic domain manager V8.6.0 and related fix packs	"Upgrading a dynamic domain manager or its backup instance" on page 166.
Backup dynamic domain manager V8.6.0 and related fix packs	"Upgrading a dynamic domain manager or its backup instance" on page 166.
Master domain manager V8.4.0, V8.5.0, V8.5.1, or V8.6.0 and related fix packs.	"Upgrading a master domain manager instance or its backup" on page 140.
Backup master domain manager V8.4.0, V8.5.0, V8.5.1, or V8.6.0 and related fix packs.	"Upgrading a master domain manager instance or its backup" on page 140. Note: Direct upgrade of the master domain manager or domain manager is not supported, only parallel upgrade is supported from Tivoli Workload Scheduler For Tivoli Workload Scheduler 8.4 For Tivoli Workload Scheduler 8.4 fault-tolerant agent direct upgrade to Tivoli Workload Scheduler 9.1 is not supported.

Table 14. Upgrade deployment model for Tivoli Workload Scheduler single component instances (continued)

Tivoli Workload Scheduler component	Procedure to run
Remote command-line client V8.5.0, V8.5.1, or V8.6.0 and related fix packs	<p>You cannot upgrade the remote command-line client to version 9.1 directly.</p> <p>Perform the following procedure:</p> <ol style="list-style-type: none"> 1. Save the remote command line localopts properties file. 2. Install a fault-tolerant agent V9.1 instance that contains a remote command line, by performing the procedure described in "Installing agents" on page 104. 3. Run "Configuring a remote command-line client" on page 217 to configure the remote command line with the old configuration properties stored in localopts. <p>Note: Direct upgrade of the master domain manager or domain manager is not supported, only parallel upgrade is supported from Tivoli Workload Scheduler For Tivoli Workload Scheduler 8.4 fault-tolerant agent direct upgrade to Tivoli Workload Scheduler 9.1 is not supported.</p>

Upgrading Tivoli Workload Scheduler components installed in the same directory

Due to Tivoli Workload Scheduler installation infrastructure changes described in "Upgrading overview" on page 125, to upgrade a multiple components instance installed in the same directory <TWS_INST_DIR> with the previous versions of Tivoli Workload Scheduler, you must follow the procedure listed in Table 15.

Table 15 describes the procedures that you perform in each different scenario of the multiple components instance installed in the same directory <TWS_INST_DIR> to upgrade the existing instance to version 9.1.0.

Table 15. Upgrade deployment model for Tivoli Workload Scheduler multiple components instances

Tivoli Workload Scheduler multiple components instance installed in the directory <TWS_INST_DIR>	Procedure to run
Fault-tolerant agent V8.5.0, V8.5.1, or V8.6.0 and related fix packs Distributed Connector V8.5.0, V8.5.1, or V8.6.0 and related fix packs	"Procedure to upgrade the fault-tolerant agent and the distributed connector" on page 133.

Table 15. Upgrade deployment model for Tivoli Workload Scheduler multiple components instances (continued)

Tivoli Workload Scheduler multiple components instance installed in the directory <TWS_INST_DIR>	Procedure to run
Fault-tolerant agent V8.5.0, V8.5.1, or V8.6.0 and related fix packs Dynamic Workload Console V8.5.0, V8.5.1, or V8.6.0 and related fix packs	“Procedure to upgrade the fault-tolerant agent and the Dynamic Workload Console” on page 133.
Fault-tolerant agent V8.5.0, V8.5.1, or V8.6.0 and related fix packs Dynamic Workload Console V8.5.0, V8.5.1, or V8.6.0 and related fix packs z/OS connector V8.5.0, V8.5.1, or V8.6.0 and related fix packs	“Procedure to upgrade the fault-tolerant agent, the Dynamic Workload Console, and the z/OS connector” on page 134.
Fault-tolerant agent V8.5.0, V8.5.1, or V8.6.0 and related fix packs z/OS connector V8.5.0, V8.5.1, or V8.6.0 and related fix packs	“Procedure to upgrade the fault-tolerant agent and the z/OS connector” on page 134.
Dynamic domain manager V8.6.0 and related fix packs Dynamic Workload Console V8.6.0 and related fix packs	“Procedure to upgrade the dynamic domain manager and the Dynamic Workload Console” on page 135.
Dynamic domain manager V8.6.0 and related fix packs Dynamic Workload Console V8.6.0 and related fix packs z/OS connector V8.6.0 and related fix packs	“Procedure to upgrade the dynamic domain manager, the Dynamic Workload Console and the z/OS connector” on page 136.
dynamic domain manager V8.6.0 and related fix packs z/OS connector V8.6.0 and related fix packs	“Procedure to upgrade the dynamic domain manager and the z/OS connector” on page 137
Master domain manager V8.5.0, V8.5.1, or V8.6.0 and related fix packs Dynamic Workload Console V8.5.0, V8.5.1, or V8.6.0 and related fix packs	“Procedure to upgrade the master domain manager and the Dynamic Workload Console” on page 138

Table 15. Upgrade deployment model for Tivoli Workload Scheduler multiple components instances (continued)

Tivoli Workload Scheduler multiple components instance installed in the directory <TWS_INST_DIR>	Procedure to run
Master domain manager V8.5.0, V8.5.1, or V8.6.0 and related fix packs Dynamic Workload Console V8.5.0, V8.5.1, or V8.6.0 and related fix packs z/OS connector V8.5.0, V8.5.1, or V8.6.0 and related fix packs	“Procedure to upgrade the master domain manager, the Dynamic Workload Console, and the z/OS connector” on page 138
Master domain manager V8.5.0, V8.5.1, or V8.6.0 and related fix packs z/OS connector V8.5.0, V8.5.1, or V8.6.0 and related fix packs	“Procedure to upgrade the master domain manager and the z/OS connector” on page 139

Procedure to upgrade the fault-tolerant agent and the distributed connector

If you have a multiple components instance that contains a fault-tolerant agent and a distributed connector installed in the directory <TWS_INST_DIR>, you must first uninstall the old distributed connector and then upgrade the fault-tolerant agent in the <TWS_INST_DIR> directory.

If you try to upgrade the fault-tolerant agent first, the **twinsinst** script stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Manually uninstall the distributed connector in the directory <TWS_INST_DIR> by using the silent or wizard uninstallation process that is provided by earlier versions of Tivoli Workload Scheduler.
2. Upgrade the fault-tolerant agent by using the **twinsinst** script as described in “Upgrading agents and domain managers” on page 183.

Procedure to upgrade the fault-tolerant agent and the Dynamic Workload Console

How to upgrade the fault-tolerant agent and the Dynamic Workload Console installed in the same directory.

If you have a multiple components instance that contains a Dynamic Workload Console and a fault-tolerant agent installed in the directory <TWS_INST_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC_NEW_INST_DIR> directory, uninstall the old Dynamic Workload Console installed in the <TWS_INST_DIR> directory, and then upgrade the fault-tolerant agent in the <TWS_INST_DIR> directory.

If you try to upgrade the fault-tolerant agent first, the **twinst** script stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC_NEW_INST_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS_INST_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Upgrade the fault-tolerant agent by using the **twinst** script, as described in “Upgrading agents and domain managers” on page 183.

Procedure to upgrade the fault-tolerant agent, the Dynamic Workload Console, and the z/OS connector

How to upgrade the fault-tolerant agent, the Dynamic Workload Console, and the z/OS connector installed in the same directory.

If you installed a multiple components instance that contains a Dynamic Workload Console, a z/OS connector, and a fault-tolerant agent in the directory <TWS_INST_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC_NEW_INST_DIR> directory and then upgrade the fault-tolerant agent in the <TWS_INST_DIR> directory.

The Dynamic Workload Console upgrade process migrates also the z/OS connector configuration properties.

If you try to upgrade the fault-tolerant agent first, the **twinst** script stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC_NEW_INST_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS_INST_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Manually uninstall the old z/OS connector instance in the directory <TWS_INST_DIR>, by using the z/OS connector previous version uninstallation process.
4. Upgrade the fault-tolerant agent by using the **twinst** script as described in “Upgrading agents and domain managers” on page 183.

Procedure to upgrade the fault-tolerant agent and the z/OS connector

If you have a multiple components instance that contains a z/OS connector and a fault-tolerant agent in the directory <TWS_INST_DIR>, you must first configure the old z/OS connector in the <DWC_NEW_INST_DIR> directory in which you installed a

new instance of the Dynamic Workload Console, uninstall the old z/OS connector and then you can upgrade the fault-tolerant agent in the <TWS_INST_DIR> directory.

If you try to upgrade the fault-tolerant agent first, the **twinst** script stops at the beginning and issues an error message that tells you the correct order on which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Install a Dynamic Workload Console instance in the new directory <DWC_NEW_INST_DIR>, as described in Chapter 19, “Installing,” on page 323.
2. Export the z/OS connector configuration properties in the old multiple components instance instance, by running:

On Windows operating systems

```
<TWS_INST_DIR>\wastools\displayZosEngine.bat
```

On UNIX and Linux operating systems

```
<TWS_INST_DIR>/wastools/displayZosEngine.sh
```

For more information about the **displayZosEngine** tool, see:

z/OS connector V8.5 or V8.5.1 and related fix packs

IBM Tivoli Workload Scheduler V8.4 Job Scheduling Console User's Guide.

z/OS connector V8.6 and related fix packs

IBM Tivoli Workload Scheduler for z/OS Planning and Installation guide.

Note: If you are connected to multiple controllers, repeat this step for each connection that you want to maintain in the new z/OS connector configuration.

3. Import the z/OS connector configuration properties into the Dynamic Workload Console instance, by running:

On Windows operating systems

```
<TWS_INST_DIR>\wastools\createZosEngine.bat
```

On UNIX and Linux operating systems

```
<TWS_INST_DIR>/wastools/createZosEngine.sh
```

For more information about the **createZosEngine** tool, see:

z/OS connector V8.5 or V8.5.1 and related fix packs

IBM Tivoli Workload Scheduler V8.4 Job Scheduling Console User's Guide.

z/OS connector V8.6 and related fix packs

IBM Tivoli Workload Scheduler for z/OS Planning and Installation guide.

Note: If you want to maintain the connections to multiple controllers, repeat this step for each connection previously defined that you want to save.

4. Manually uninstall the old z/OS connector in the directory <TWS_INST_DIR>, by using the uninstallation process provided by the earlier versions.
5. Upgrade the fault-tolerant agent by using the **twinst** script as described in “Upgrading agents and domain managers” on page 183.

Procedure to upgrade the dynamic domain manager and the Dynamic Workload Console

How to upgrade the dynamic domain manager and the Dynamic Workload Console installed in the same directory.

If you installed a multiple components instance that contains a Dynamic Workload Console and a dynamic domain manager installed in the directory <TWS_INST_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC_NEW_INST_DIR> directory, uninstall the old Dynamic Workload Console installed in the <TWS_INST_DIR> directory, and then upgrade the dynamic domain manager in the <TWS_INST_DIR> directory.

If you try to upgrade the dynamic domain manager first, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC_NEW_INST_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS_INST_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Upgrade the dynamic domain manager as described in “Upgrading a dynamic domain manager or its backup instance” on page 166.

Procedure to upgrade the dynamic domain manager, the Dynamic Workload Console and the z/OS connector

How to upgrade the dynamic domain manager, the Dynamic Workload Console and the z/OS connector installed in the same directory.

If you installed a multiple component instance that contains a Dynamic Workload Console, a z/OS connector, and a dynamic domain manager in the directory <TWS_INST_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC_NEW_INST_DIR> directory and then upgrade the dynamic domain manager in the <TWS_INST_DIR> directory.

The Dynamic Workload Console upgrade process migrates also the z/OS connector configuration properties.

If you try to upgrade the dynamic domain manager first, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC_NEW_INST_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS_INST_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Manually uninstall the old z/OS connector instance in the directory <TWS_INST_DIR>, by using the z/OS connector previous version uninstallation process.
4. Upgrade the dynamic domain manager, as described in “Upgrading a dynamic domain manager or its backup instance” on page 166.

Procedure to upgrade the dynamic domain manager and the z/OS connector

If you have a multiple components instance that contains a z/OS connector and a dynamic domain manager installed in the directory <TWS_INST_DIR>, you must first configure the old z/OS connector in the <DWC_NEW_INST_DIR> directory where you installed a new instance of the Dynamic Workload Console, uninstall the old z/OS connector, and then you upgrade the dynamic domain manager in the <TWS_INST_DIR> directory.

If you try to upgrade the dynamic domain manager first, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Install a Dynamic Workload Console instance in the new directory <DWC_NEW_INST_DIR>, as described in Chapter 19, “Installing,” on page 323.
2. Export the z/OS connector configuration properties in the old shared instance, by running:

On Windows operating systems

```
<TWS_INST_DIR>\wastools\displayZosEngine.bat
```

On UNIX and Linux operating systems

```
<TWS_INST_DIR>/wastools/displayZosEngine.sh
```

For more information about the **displayZosEngine** tool, see:

z/OS connector V8.5 or V8.5.1 and related fix packs

IBM Tivoli Workload Scheduler V8.4 Job Scheduling Console User's Guide.

z/OS connector V8.6 and related fix packs

IBM Tivoli Workload Scheduler for z/OS Planning and Installation guide.

Note: If you are connected to multiple controllers, you have to repeat this step for each connection you want to maintain in the new z/OS connector configuration.

3. Import the z/OS connector configuration properties in the Dynamic Workload Console instance, by running:

On Windows operating systems

```
<TWS_INST_DIR>\wastools\createZosEngine.bat
```

On UNIX and Linux operating systems

```
<TWS_INST_DIR>/wastools/createZosEngine.sh
```

For more information about the **createZosEngine** tool, see:

z/OS connector V8.5 or V8.5.1 and related fix packs

IBM Tivoli Workload Scheduler V8.4 Job Scheduling Console User's Guide.

z/OS connector V8.6 and related fix packs

IBM Tivoli Workload Scheduler for z/OS Planning and Installation guide.

Note: If you want to maintain the connections to multiple controllers, repeat this step for each connection previously defined that you want to save.

4. Manually uninstall the old z/OS connector in the directory <TWS_INST_DIR>, by using the uninstallation process provided by the earlier versions.

5. Upgrade the dynamic domain manager as described in “Upgrading a dynamic domain manager or its backup instance” on page 166.

Procedure to upgrade the master domain manager and the Dynamic Workload Console

How to upgrade the master domain manager and the Dynamic Workload Console installed in the same directory.

If you have a multiple components instance that contains a Dynamic Workload Console and a master domain manager installed in the directory <TWS_INST_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC_NEW_INST_DIR> directory, uninstall the old Dynamic Workload Console installed in the <TWS_INST_DIR> directory, and then upgrade the master domain manager in the <TWS_INST_DIR> directory.

If you try to upgrade the master domain manager first, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the shared instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC_NEW_INST_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS_INST_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Upgrade the master domain manager as described in “Upgrading a master domain manager instance or its backup” on page 140.

Procedure to upgrade the master domain manager, the Dynamic Workload Console, and the z/OS connector

How to upgrade the master domain manager, the Dynamic Workload Console, and the z/OS connector installed in the same directory.

If you installed a multiple components instance that contains a Dynamic Workload Console, a z/OS connector, and the master domain manager in the directory <TWS_INST_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC_NEW_INST_DIR> directory, and then upgrade the master domain manager in the <TWS_INST_DIR> directory.

The Dynamic Workload Console upgrade process migrates also the z/OS connector configuration properties.

If you try to upgrade the master domain manager first, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC_NEW_INST_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.

2. Manually uninstall the old Dynamic Workload Console in the directory <TWS_INST_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Manually uninstall the old z/OS connector instance in the directory <TWS_INST_DIR>, by using the z/OS connector previous version uninstallation process.
4. Upgrade the master domain manager as described in “Upgrading a master domain manager instance or its backup” on page 140.

Procedure to upgrade the master domain manager and the z/OS connector

If you have a multiple components instance that contains a z/OS connector and a dynamic domain manager installed in the directory <TWS_INST_DIR>, you must first configure the old z/OS connector in the <DWC_NEW_INST_DIR> directory in which you installed a new instance of the Dynamic Workload Console, uninstall the old z/OS connector, and then upgrade the master domain manager in the <TWS_INST_DIR> directory.

If you try to upgrade first the master domain manager, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Install a Dynamic Workload Console instance in the new directory <DWC_NEW_INST_DIR>, as described in Chapter 19, “Installing,” on page 323.
2. Export the z/OS connector configuration properties in the old shared instance, by running:

On Windows operating systems

```
<TWS_INST_DIR>\wastools\displayZosEngine.bat
```

On UNIX and Linux operating systems

```
<TWS_INST_DIR>/wastools/displayZosEngine.sh
```

For more information about the **displayZosEngine** tool, see:

z/OS connector V8.5 or V8.5.1 and related fix packs

IBM Tivoli Workload Scheduler V 8.4 Job Scheduling Console User's Guide.

z/OS connector V8.6 and related fix packs

IBM Tivoli Workload Scheduler for z/OS Planning and Installation guide.

Note: If you are connected to multiple controllers, repeat this step for each connection that you want to maintain in the new z/OS connector configuration.

3. Import the z/OS connector configuration properties in the Dynamic Workload Console instance, by running:

On Windows operating systems

```
<TWS_INST_DIR>\wastools\createZosEngine.bat
```

On UNIX and Linux operating systems

```
<TWS_INST_DIR>/wastools/createZosEngine.sh
```

For more information about the **createZosEngine** tool, see:

z/OS connector V8.5 or V8.5.1 and related fix packs

IBM Tivoli Workload Scheduler V 8.4 Job Scheduling Console User's Guide.

z/OS connector V8.6 and related fix packs

IBM Tivoli Workload Scheduler for z/OS Planning and Installation guide.

Note: If you want to maintain the connections to multiple controllers, repeat this step for each connection previously defined that you want to save.

4. Manually uninstall the old z/OS connector in the directory <TWS_INST_DIR>, by using the uninstallation process provided by the earlier versions.
5. Upgrade the master domain manager as described in "Upgrading a master domain manager instance or its backup."

Upgrading a master domain manager instance or its backup

This section describes how to upgrade the master domain manager or its backup.

Performing a direct upgrade

This section describes the procedure to follow to perform the upgrade using the direct upgrade procedure.

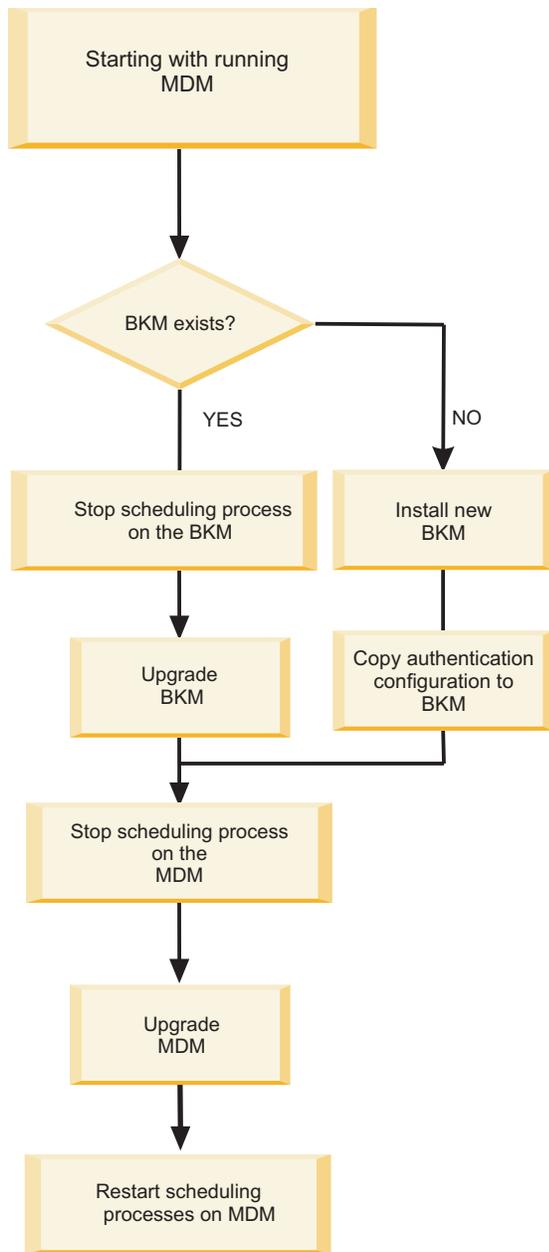


Figure 11. Direct upgrade procedure flowchart

Unlink the master domain manager from the network and stop it

Before upgrading, you must unlink all the workstations from the master domain manager and stop it.

Follow these steps:

1. Log in as the <TWS_user>.
2. Unlink all workstations in the domain:

From the Dynamic Workload Console

Run the **Monitor Workstations** task and, in the table of results, select all the workstations of the master domain manager and click **Unlink**.

From the command line of the master domain manager

Issue the following command:

```
conman "unlink @;noask"
```

3. Stop the master domain manager processes:

From the Dynamic Workload Console

Run the **Monitor Workstations** task and, in the table of results, select all the workstations of the master domain manager and click **Stop**.

From the command line of the master domain manager

Issue the following command:

```
conman stop
```

4. From the command line of the master domain manager, stop the SSM Agent as follows:

On Windows, UNIX, and Linux operating systems

Run:

```
conman "stopmon"
```

5. From the command line of the master domain manager, stop the dynamic agent processes as follows:

On Windows operating systems:

Run:

```
ShutdownLwa.bat
```

On UNIX and Linux operating systems:

Run:

```
ShutdownLwa
```

6. From the command line of the master domain manager, stop the **netman** process as follows:

On Windows operating systems:

Run the shutdown.cmd command from the Tivoli Workload Scheduler home directory.

On UNIX and Linux operating systems:

Run:

```
conman "shut ; wait"
```

7. Verify that all services and processes are not running, as follows:

On Windows operating systems:

Run:

```
<TWA_HOME>\unsupported\listproc.exe
```

where <TWA_HOME> is the Tivoli Workload Scheduler home directory.

Verify that the following processes are not running:

```
netman, mailman, batchman, writer, jobman,stageman,  
JOBMON, tokensrv, batchup, monman, JobManager
```

Also, ensure that no system programs are accessing the directory or subdirectories, including the command prompt, and that in Windows Explorer the **Administrative Tools>Services** panel is not open.

On UNIX and Linux operating systems:

Run

```
ps -u <TWS_user>
```

Verify that the following processes are not running:

netman, mailman, batchman, writer, jobman, JOBMAN,
stageman, monman, JobManager

All processes must be stopped with the exception of the WebSphere Application Server, which must remain running.

Upgrading the master domain manager or its backup

This section describes how to upgrade a master domain manager or its backup.

You can upgrade a master domain manager or its backup by using the wizard or silent methods.

Upgrading procedure using the wizard:

1. Before starting to upgrade, verify that the user running the installation process has the following authorization requirements:

Windows operating system

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or **domain administrators** group with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

UNIX and Linux operating systems

root access

2. Ensure that you inserted the DVD for your operating system or that you downloaded the Tivoli Workload Scheduler master domain manager or its backup eImage (for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).

To upgrade a Tivoli Workload Scheduler master domain manager or its backup and all the prerequisites, perform the following steps:

1. Run the installation process either by using the launchpad as described in "Launchpad" on page 66 or by using the wizard as described in "Installation wizard" on page 67.
2. In the Installation Packages Installation Manager panel, the installation process selected all the Tivoli Workload Scheduler prerequisites packages and the "**Tivoli Workload Scheduler**" > "**Version 9.1.0.0**" product package.

Note: If you have already installed Tivoli Workload Scheduler or its prerequisites products a warning panel is displayed. Click **Continue** to install the package in a new group or click **Cancel** to clear the package that is already installed.

3.

Click **Next**.

4. On the Licenses page, read the license agreement for the selected package. If you selected to install the Tivoli Workload Scheduler package and the Tivoli Workload Scheduler prerequisites packages, you must accept the license agreement for each package. On the left side of the License page, click each

package to see its license agreement. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements**.

5. Click **Next**.
6. On the Location panel, the Tivoli Workload Scheduler and the Tivoli Workload Scheduler prerequisites packages are already selected:

For each prerequisite package:

Select the prerequisite package and type, or **Browse** the path to use as the installation directory on which to install the prerequisite instance, or accept the default path.

For the Tivoli Workload Scheduler package:

Type, or **Browse** the path on which the Tivoli Workload Scheduler instance to upgrade is installed:

Installation directory

On Windows operating systems

The default directory is C:\Program Files\IBM\TWA.

On UNIX and Linux operating systems

The default directory is /opt/IBM/TWA.

7. Click **Next** to continue.
8. On the Features page, perform the following actions:

For the prerequisites packages:

To see a description of the feature, click the feature name. In the Details section you see a short description.

Ensure that you leave the default prerequisites features selected by installation process.

For the Tivoli Workload Scheduler package:

Select the following feature:

Master domain manager

9. Click **Next** to continue.
10. The Retrieve data Information panel is displayed with successful operation message or with an error message.

Note: If the upgrade process is unable to retrieve one or more Tivoli Workload Scheduler configuration properties values in the directory you specified, the Retrieve data Information panel is shown. To perform the problem determination, see “Retrieving Tivoli Workload Scheduler instance information data fails with error AWSJIM018E” on page 267.

11. Enter the information in the following panels:

For the Tivoli Workload Scheduler package:

Complete the not greyed fields in the following panels: :

Upgrade Configuration:

See “Upgrade configuration” on page 145.

User information:

See “Tivoli Workload Scheduler user information” on page 145.

Master Configuration:

See “Tivoli Workload Scheduler master configuration” on page 72.

Database Configuration:

See "Database configuration" on page 148.

WebSphere profile Configuration:

See "WebSphere Application Server profile configuration" on page 151.

WebSphere ports Configuration:

See "WebSphere Application Server ports configuration" on page 82.

Disk space check:

See "Disk space check" on page 83.

12. On the Summary page, review your choices before upgrading the product package. To change any choices that you made on previous pages, click **Back** and make the changes. When you are satisfied with your installation choices, click **Install** to install the package.

Upgrade configuration:

Type or **Browse** the path for the backup directory where the Tivoli Workload Scheduler upgrade process saves a backup of your current configuration.

Backup directory

Type the directory:

On Windows operating systems

- The following characters are not valid:

```
'!', '#', '$', '%', '&', '{', '}', '[', ']',
'=', '?', '\', '<', '>', '|', ';', '(, ')',
'*', '/'
```

- The default is the Administrator temporary directory.

On UNIX and Linux operating systems

- The following characters are not valid:

```
'!', '#', '$', '%', '&', '{', '}', '[', ']',
'=', '?', '\', '<', '>', '|', ';', '(, ')',
'*', '/'
```

- The default is \$TEMP.

Browse

Click to select an existing directory in which the Tivoli Workload Scheduler upgrade process saves a backup of your current configuration.

Tivoli Workload Scheduler user information:

Complete the following Tivoli Workload Scheduler fields:

User name

Specify the name of the user for which you want to upgrade or uninstall Tivoli Workload Scheduler.

Validate user

Click to validate that the user was defined successfully and with the correct permissions.

Tivoli Workload Scheduler master configuration:

Note: This panel appears for the installation and upgrade processes, if you are performing an upgrade, you are not required to insert or you cannot see some of the following fields.

Complete the following Tivoli Workload Scheduler data fields.

Master domain manager configuration information

Configure this master domain manager as backup

Configure this master domain manager as backup. By default, this box is deselected. If you select this check box, the installation process configures the master domain manager installation as backup.

Company

The name of the company. Spaces are allowed and the maximum field length is 40 characters. The default is MYCOMPANY.

This workstation name

The name of the workstation on which you are installing the instance. The default is the host name of the workstation.

For a master domain manager, the name you specify here is the name of the Tivoli Workload Scheduler workstation known in the database as **master**.

For a master domain manager configured as backup, the name you specify here is the name of the Tivoli Workload Scheduler workstation known in the database as **fta**. Spaces are not allowed and the maximum field length is 16 characters. If the host name is longer than 16 characters, an alternative name must be provided for a successful installation. It can contain alphanumeric, dash (-), and underscore (_) characters. The first character must be a letter.

Master domain manager name

If you are installing a master domain manager, this field is grayed out. This field is required if you are installing a master domain manager configured as backup.

The name of the master domain manager workstation. Spaces are not allowed and the maximum field length is 16 characters. The first character cannot be numeric.

Master domain manager port (used by Netman)

The port used by the Netman process to manage distributed scheduling. Netman is the network process that controls the production environment. The default value is **31111**. The valid range is from 1 to 65535.

Note: If you change this value, all default port number values in the application server port information panel are changed to reflect the new range. For example, if you specify 42111 as TCP/IP port number, the default for HTTP transport becomes **42125**, the default for HTTPS becomes **42126**, and so on.

Configuration information for dynamic scheduling

Host name or IP address

The fully qualified host name or IP address of the dynamic agent. The dynamic workload broker uses this address to connect to the dynamic agent. The default is the <HOSTNAME> where HOSTNAME is the host name of the workstation on which you are installing.

Dynamic agent workstation name

The name of the dynamic agent workstation definition. The default is the <HOSTNAME_1> where HOSTNAME is the host name of the workstation on which you are installing.

Note: If you are upgrading from V8.5.1 a dynamic agent that you already registered to the dynamic workload broker server, any value you specify for this parameter is ignored and the old dynamic agent name is used.

JobManager port number

The dynamic agent secure port number (SECUREADDR). The dynamic workload broker uses this port to contact the Tivoli Workload Scheduler dynamic agent. The default value is **31114**. The valid range is from 1 to 65535.

Add the "FINAL" job stream to the database to automate the production cycle

This option is available only if you are installing a master domain manager. Add the *FINAL* and *FINALPOSTREPORTS* job streams definition to the database. This option allows automatic production plan extension at the end of each current production plan processing. By default, this box remains unchecked.

Note: During the installation, if you identified an existing Tivoli Workload Scheduler database that has a final job stream, the installation does not overwrite it.

Create symbolic link

Only on UNIX and Linux systems. Check this option to create symbolic links to /usr/bin. Any existing Tivoli Workload Scheduler symbolic link are overwritten. For more information about symbolic links, see Table 4 on page 35.

Event driven workload automation configuration information

Event Processor port number

The port used by the event management processor to receive events. The default value is **31131**. The valid range is from 1 to 65535. This parameter is not requested if you are installing a backup master domain manager.

Dynamic workload broker configuration information

Tivoli dynamic workload broker workstation name

The definition of the dynamic workload broker workstation created in the Tivoli Workload Scheduler database. Its type is **broker**. The master domain manager name followed by *_DWB*. You can modify this value by including *_DWB*. Spaces are not allowed and the maximum field length is 16 characters. It can contain alphanumeric, dash (-), and underscore (_) characters. The first character must be a letter.

Tivoli dynamic workload broker Netman port

The port on the dynamic workload broker workstation. The master domain manager or backup master domain manager use this port to communicate with dynamic workload broker. This number is registered in the

ResourceAdvisorUrl property in the JobManager.ini file. The default value is 41114. The valid range is from 1 to 65535.

Database configuration:

The upgrade process retrieves automatically the RDBMS you used in the previous version of the Tivoli Workload Scheduler.

To complete the Database configuration panel, perform the following steps:

1. In the **Database path** field, specify the installation path if you are using Oracle RDBMS.

Note: The DB2 installation path is discovered automatically by the upgrade process.

2. Press the **Retrieve database information** to load the information for the database systems selected. For more information about how to insert the required RDBMS values, see the following sections:

- “Upgrading for a DB2 database server.”
- “Upgrading for a DB2 database client” on page 149.
- “Upgrading for an Oracle database” on page 151.

Upgrading for a DB2 database server:

The following list describes the fields that you must complete during the upgrade:

Remote database server

The value is automatically retrieved. The IP address or host name of the workstation where the DB2 server is installed.

Remote database port

The value is automatically retrieved. The TCP/IP port number that the remote DB2 server instance uses to communicate.

DB2 server administrator user (administrator of the DB2 instance)

The value is automatically retrieved. The user name of the administrator of the DB2 server instance.

If the DB2 administrator already created the database tables using the “Creating or upgrading the database tables if you are using DB2” on page 46 procedure, the user name is the one that the DB2 administrator specified in the **DB_USER** property in the customizedB2SQL.properties file.

On Windows operating systems

The default value is **db2admin**.

On UNIX and Linux operating systems

The default value is **db2inst1**.

DB2 server administrator password

The password of the DB2 server administrator user or of the user with SYSADM or SYSCTRL authority.

Use a different user on the server to access the database

Select this option when the DB2 server user used to access Tivoli Workload Scheduler database is different from the DB2 Server Administration User. Provide the following data:

Tivoli Workload Scheduler DB2 user

The user name of the Tivoli Workload Scheduler DB2 user.

Tivoli Workload SchedulerDB2 password

The password of the Tivoli Workload Scheduler DB2 user.

Database name

The value is automatically retrieved. The name of the DB2 database.

Test connection

Click to check that the configuration was successful.

Table space that is used to store scheduling objects and event rules

Check the following advanced parameters:

Table space name

The value is automatically retrieved. The name of the DB2 instance table space.

Table space path

The value is automatically retrieved. The relative path of the DB2 table space.

Table space that is used to store the plan

Only for master domain manager and its backup. Specify the name and path of the DB2 table space where Tivoli Workload Scheduler plan information is to be stored.

Plan table space name

The name of the table space for storing planning data. The default name is **TWS_PLAN**.

Plan table space path

The path of the table space for storing planning data. The default path is **TWS_PLAN**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path the DB2 administrator user must have complete access rights to the directory where the table space is installed. Note that the plan table space path cannot be the same as the table space path.

Table space used to store event logs

Only for master domain manager and its backup. Check the name and path of the DB2 table space where Tivoli Workload Scheduler event logs are to be stored. These logs are used to create reports.

Report table space name

The value is automatically retrieved. The name of the table space for storing report data.

Upgrading for a DB2 database client:

The following list describes the fields that you must complete during the upgrade:

Remote database server

The value is automatically retrieved. The IP address or host name of the workstation where the DB2 server is installed.

Remote database port

The value is automatically retrieved. The TCP/IP port number that the remote DB2 server instance uses to communicate.

DB2 server administrator user (administrator of the DB2 instance)

The value is automatically retrieved. The user name of the administrator of the DB2 server instance.

If the DB2 administrator already upgraded the database tables using the procedure "Creating or upgrading the database tables if you are using

DB2” on page 46, the user name is the one that the DB2 administrator specified in the **DB_USER** property in the `customizeDB2SQL.properties` file.

On Windows operating systems

The default value is **db2admin**.

On UNIX and Linux operating systems

The default value is **db2inst1**.

DB2 server administrator password

The password of the DB2 server administrator user or of the user with **SYSADM** or **SYSCTRL** authority.

DB2 local administrator user

The user name of the DB2 administrator of the DB2 client instance.

Use a different user on the server to access the database

Select this option when the DB2 server user that you used to access Tivoli Workload Scheduler database is different from the DB2 Server Administration user. Provide the following data:

Tivoli Workload Scheduler DB2 user

The user name of the Tivoli Workload Scheduler DB2 user.

Tivoli Workload SchedulerDB2 password

The password of the Tivoli Workload Scheduler DB2 user.

Database name

The value is automatically retrieved. The name of the DB2 database.

Test connection

Click to check that the configuration was successful.

Table space used to store scheduling objects and event rules

Check the following advanced parameters:

Table space name

The value is automatically retrieved. The name of the DB2 instance table space.

Table space path

The value is automatically retrieved. The relative path of the DB2 table space.

Table space used to store the plan

Only for master domain manager and its backup. Specify the name and path of the DB2 table space where Tivoli Workload Scheduler plan information is to be stored.

Plan table space name

The name of the table space for storing planning data. The default name is **TWS_PLAN**.

Plan table space path

The path of the table space for storing planning data. The default path is **TWS_PLAN**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path the DB2 administrator user must have complete access rights to the directory where the table space is installed. Note that the plan table space path cannot be the same as the table space path.

Table space used to store event logs

Only for master domain manager and its backup. Check the name and path of

theDB2 table space where Tivoli Workload Scheduler event logs are to be stored. These logs are used to create reports.

Report table space name

The value is automatically retrieved. The name of the table space for storing report data.

Upgrading for an Oracle database:

The following list describes the fields that you must complete during the upgrade.

Net service name

The value is automatically retrieved. The name that is used by clients to identify an Oracle NetServer and the specific system identifier or database for the Oracle Net connection. A net service name is mapped to a port number and protocol. It is also known as a connect string, database alias, host string, or service name.

Oracle administrator user

The database administrator user name (such as SYSTEM) required to authenticate to the Oracle database.

If the Oracle administrator already upgraded the database tables using the “Creating or upgrading the database tables if you are using Oracle” on page 55, the user name is the Oracle administrator that is specified in the **MDL_USER** property of the `customizeWinOracleSql.properties` file on Windows operating systems and the `customizeUnixOracleSql.properties` file on UNIX operating systems.

Oracle administrator user password

The database administrator user password that is required to authenticate to the Oracle database.

Tivoli Workload Scheduler Oracle user

The value is automatically retrieved. The owner of the Tivoli Workload Scheduler schema.

Tivoli Workload Scheduler Oracle user password

The password for the Tivoli Workload Scheduler Oracle user. It must comply with the Oracle naming rules.

Create the Tivoli Workload Scheduler schema using the Oracle Partitioning option

If you are installing on Oracle Enterprise Edition, you can choose to implement the Oracle Partitioning option to improve the performance of event-driven workload automation. For more information about event-driven workload automation feature, see *Overview*.

Tivoli Workload Scheduler plan table space

Only for master domain manager and its backup. Insert the name that identifies the Tivoli Workload Scheduler planning table space. This table space must have been previously created by the database administrator. The default for this field is **USERS**.

Tivoli Workload Scheduler Reports table space

Only for master domain manager and its backup. The value is automatically retrieved. The name that identifies the Tivoli Workload Scheduler table space where report data is to be stored.

This table space must have been previously created by the database administrator. The default value for this field is **USERS**.

WebSphere Application Server profile configuration:

The upgrade process creates a profile in the external WebSphere Application Server instance. The WebSphere Application Server profile is created by using the data of the profile that is installed in the WebSphere Application Server embedded in the Tivoli Workload Scheduler instance old version.

The following fields are provided for WebSphere Application Server profile configuration data.

WebSphere installation location

Type or **Browse** for the directory where the external WebSphere Application Server instance is installed. Click **Browse** to find the appropriate location.

Profile deployment type

Create WebSphere Application Server profile. You create a profile on the external WebSphere Application Server.

Profile details

Profile location

Enter the name of the directory where the new WebSphere Application Server profile is located. Click **Browse** to find the appropriate location. The default value:

On Windows operating systems

c:\Program Files\IBM\TWA\WAS\TWSPProfile

On UNIX operating systems

/opt/IBM/TWA/WAS/TWSPProfile

Note: Do not use any of the following characters in the profile path field:

On Windows:

!"#\$%&{}[]=?'<>,,*:

On UNIX:

!"#\$%&{}[]=?'<>,,*:

Profile name

The name of the profile that is defined in the WebSphere Application Server embedded in the Tivoli Workload Scheduler instance.

Node name

The name of the node that is defined in the WebSphere Application Server embedded in the Tivoli Workload Scheduler instance.

Server name

The name of the server that is defined in the WebSphere Application Server embedded in the Tivoli Workload Scheduler instance.

User name

Enter the name of the user that can access the WebSphere Application Server profile. The name of the WebSphere Application Server administrator that is defined in the WebSphere Application Server profile that is embedded in the Tivoli Workload Scheduler instance.

Password

Enter the password of the WebSphere Application Server user you specified.

Validate

Click **Validate** to validate that the information you entered are correct.

Note: The upgrade process checks the credentials that you entered in the WebSphere Application Server instance that is embedded in the previous versions of the Tivoli Workload Scheduler instance.

WebSphere Application Server ports configuration:

This panel appears during installation or upgrade processes. If you are performing an upgrade, you are not required to insert or you cannot see some of the following fields.

The following fields are provided for WebSphere Application Server data. The installation procedure checks for the availability of the ports in the specified port range. If one or more ports are being used by other applications, you are prompted to enter a new port number.

Automatically generate WebSphere ports

Select if you changed the *JobManager* port and you want to automatically generate the ports listed starting from this port.

HTTP transport

The port for the HTTP transport. It is used by the **composer** command line and the Dynamic workload broker when this protocol is selected. The default value is **31115**. The valid range is from 1 to 65535.

HTTPS transport

The port for the secure HTTP transport. It is used by the **composer** command line and the Dynamic workload broker when this protocol is selected. The default value is **31116**. The valid range is from 1 to 65535.

Bootstrap

The port for the bootstrap or RMI. It is used by the graphical user interfaces. The default value is **31117**. The valid range is from 1 to 65535.

SOAP connector

The port for the application server protocol SOAP connector. The default value is **31118**. The valid range is from 1 to 65535.

SAS Server Authentication Listener

The port used by the Secure Association Services (SAS) to listen for inbound authentication requests. The default value is **31119**. The valid range is from 1 to 65535.

CSIv2 Server Authentication Listener

The port on which the Common Secure Interoperability Version 2 (CSIv2) service listens for inbound server authentication requests. The default value is **31120**. The valid range is from 1 to 65535.

CSIv2 Client Authentication Listener

The port on which the Common Secure Interoperability Version 2 (CSIv2) service listens for inbound client authentication requests. The default value is **31121**. The valid range is from 1 to 65535.

ORB Listener

The port used for RMI over IIOP communication. The default value is 31122. The valid range is from 1 to 65535.

Administration HTTP transport

The administrative console port. The default value is 31123. The valid range is from 1 to 65535

Administration HTTPS transport

The administrative console secure port. The default value is 31124. The valid range is from 1 to 65535.

Disk space check:

The installation process checks if there is enough disk space available to install a master domain manager or its backup, a dynamic domain manager or its backup. The installation or upgrade process does not check the space required to install table spaces. Before you click install, verify there is enough space to install table spaces in the indicated path.

In the Disk space check panel, you can see the log for the disk space check operation. If the operation failed because of insufficient disk space, you must free the disk space that is shown in the log and then click **Retry**.

Upgrading using the silent installation:

To upgrade your Tivoli Workload Scheduler master domain manager or backup master domain manager instance, use the response files in Table 16 and follow the procedure described in "Performing a silent installation" on page 83.

Table 16 lists the response files for the upgrade process:

Table 16. Upgrade response files

Type of installation	Response file to use
Upgrading on Windows	
Upgrade backup master domain manager	Tivoli Workload Scheduler V8.5.0 TWS91_UPGRADE_MDM_from85_WIN.xml Tivoli Workload Scheduler V8.5.1 TWS91_UPGRADE_MDM_from851_WIN.xml Tivoli Workload Scheduler V8.6 TWS91_UPGRADE_MDM_from86_WIN.xml
Upgrade master domain manager	Tivoli Workload Scheduler V8.5.0 TWS91_UPGRADE_MDM_from85_WIN.xml Tivoli Workload Scheduler V8.5.1 TWS91_UPGRADE_MDM_from851_WIN.xml Tivoli Workload Scheduler V8.6 TWS91_UPGRADE_MDM_from86_WIN.xml
Upgrading on UNIX	

Table 16. Upgrade response files (continued)

Type of installation	Response file to use
Upgrade backup master domain manager	<p>Tivoli Workload Scheduler V8.5.0 TWS91_UPGRADE_MDM_from85_UNIX.xml</p> <p>Tivoli Workload Scheduler V8.5.1 TWS91_UPGRADE_MDM_from851_UNIX.xml</p> <p>Tivoli Workload Scheduler V8.6 TWS91_UPGRADE_MDM_from86_UNIX.xml</p>
Upgrade master domain manager	<p>Tivoli Workload Scheduler V8.5.0 TWS91_UPGRADE_MDM_from85_UNIX.xml</p> <p>Tivoli Workload Scheduler V8.5.1 TWS91_UPGRADE_MDM_from851_UNIX.xml</p> <p>Tivoli Workload Scheduler V8.6 TWS91_UPGRADE_MDM_from86_UNIX.xml</p>

Customize and submit the optional final job stream

If your old final job stream is called FINAL, a backup copy was made of it in Sfinal.extract and it was upgraded to V9.1. If it was customized, you must make the corresponding customization to the new FINAL job stream. If it is not called FINAL, you must merge the functions of your old final job stream with the syntax of your new FINAL job stream. Perform the following steps:

1. Customize the final job stream as required:

If you had a customized job stream called FINAL in your database:

- a. Edit the new FINAL job stream by using **composer** or the Dynamic Workload Console.
- b. Use a text editor to edit the <TWA_HOME>\Sfinal.extract.
- c. Merge the two job streams so that your new FINAL job stream has the same customization as your customized FINAL job stream.
- d. Save your new FINAL job stream.

If you had a customized final job stream called something other than FINAL in your database:

- a. Merge the two job streams so that the new FINAL job stream has the same customization as your customized final job stream plus the new required attributes provided by the new FINAL job stream.
- b. Save this new final job stream so that it has the same name as your old customized final job stream.
- c. Delete the FINAL job stream.

If you had a final job stream called something other than FINAL in your database, but it is not customized:

- a. Delete your old final job stream with **composer** or the Dynamic Workload Console.
- b. Rename the new FINAL job stream to the name of your old final job stream with **composer** or the Dynamic Workload Console

If you had a final job stream called FINAL in your database, but it is not customized:

Take no action because the FINAL job stream was already edited by the installation or upgrade procedure.

If you had a final job stream called FINAL but it is in DRAFT in your database:

The installation ignores that the job stream is in DRAFT. After the upgrade, change this job stream into the DRAFT status again.

2. Use **conman** to delete your old final job stream instances and submit new instances to replace them.

During the upgrade, **JnextPlan** is overwritten even if you customized it. The existing **JnextPlan** is backed up and renamed to:

On Windows operating systems:

JnextPlan.cmd.bk

On UNIX and Linux operating systems:

JnextPlan.bk

Complete the security configuration for the new environment

Version 9.1 includes new security statements for the workload application and run cycle group objects. For more information about these statements, see *Administration Guide*.

If you have specific security settings in your V8.4, V8.5, V8.5.1, or V8.6.0 environment, these settings must be manually merged with the new settings before you build the final security file to be used in your new environment. The statements you might have to add manually vary depending on your specific security settings.

To manually merge the new settings, perform the following procedure:

1. Log in as `<TWS_user>` on your upgraded master domain manager and set the Tivoli Workload Scheduler environment.
2. If you have centralized security enabled, extract the new security file on the new master using the command:

```
dumpsec > sec_file
```

where `sec_file` is the text file created by the **dumpsec** command.

3. Edit the `sec_file`, and insert the following statements:

Workload application

```
WKLDAPPL NAME=@ ACCESS=ADD,DELETE,DISPLAY,MODIFY,LIST,UNLOCK
```

Run cycle group

```
RUNCYGRP NAME=@ ACCESS=ADD,DELETE,DISPLAY,MODIFY,USE,LIST,UNLOCK
```

4. Check that the user permissions of the new statements are correct.
5. Save your changes to the `sec_file`.
6. Build your final security file for your new master domain manager using the **makesec** command:

```
makesec sec_file
```
7. If you are using FIPS, you must manually enable it again in the WebSphere Application Server `java.security` file. For the FIPS compliance information, see the *Tivoli Workload Scheduler: Administration Guide*.
8. If you have centralized security enabled, distribute the security file.

9. Run **JnextPlan -for 0000** to distribute the Symphony file to the agents.

Note: Ensure that the **optman** cf option is set to **all** or only the unfinished jobstreams are carried forward.

10. Restore the previous setting of the **optman** cf option, if necessary.

Restart scheduling processes

After the upgrade is complete, restart the scheduling processes, as follows:

1. Log in as the *<TWS_user>*. From the command line of the master domain manager, start the **netman** process as follows:

Windows operating systems

Run:

StartUp

UNIX and Linux operating systems

Run:

StartUp.sh

2. Start the master domain manager:

From the Dynamic Workload Console

In the navigation tree, click **Scheduling Environment > Monitor > Monitor Workstations**, run a task and, in the table of results, select all the workstations of the master domain manager and click **Start**.

From the command line of the master domain manager

Issue the following commands:

```
conman "start"
```

3. Link all workstations in the domain:

From the Dynamic Workload Console

In the navigation tree, click **Scheduling Environment > Monitor > Monitor Workstations**, run a task and, in the table of results, select all the workstations of the master domain manager and click **Link**.

From the command line of the master domain manager

Issue the following commands:

```
conman "link @;noask"
```

4. If you want your upgraded environment to perform event processing, firstly, run:

```
conman startevtp
```

Then do the following:

From the Dynamic Workload Console

- a. Click **Tivoli Workload Scheduler>Scheduling Environment>Monitor>Monitor Workstations**
- b. Select **All Workstations in plan** or another predefined task name
- c. Choose an engine name, or specify connection properties, and click **OK**
- d. Select a workstation and click **More Actions>Start Event Monitoring**.

From the command line of the master domain manager

Windows operating systems

Start the Windows service: Tivoli Workload Scheduler SSM Agent (for <TWS_user>).

UNIX and Linux operating systems

Run

```
conman startmon
```

5. Verify that all services and processes are running, as follows:

Windows operating systems

Run:

```
<TWA_HOME>\unsupported\listproc.exe
```

where <TWA_HOME> is the Tivoli Workload Scheduler home directory. Verify that the following processes are running: netman, mailman, batchman, writer, jobman, stageman, JOBMON, tokensrv, batchup.

UNIX and Linux operating systems

Run

```
ps -u <TWS_user>
```

Verify that the following processes are running: netman, mailman, batchman, writer, jobman, JOBMAN, stageman, appserverman.

Note: Even if the autotrace mechanism is no longer supported, the upgrade process does not remove the *TWA_home*\TWS\trace directory after the upgrade because you might use it with other Tivoli products. If you are sure that you do not use it, you can remove the *TWA_home*\TWS\trace directory.

Upgrade your backup master domain manager

If you use a backup master domain manager you must now upgrade it to the same version as the master domain manager, otherwise the new functions are not supported.

Perform the following steps:

- “Upgrading the master domain manager or its backup” on page 143
- You should have implemented the same authentication for your backup master domain manager as your master domain manager, so you should expect to get the same results from the authentication upgrade, but even if the master domain manager authentication upgrade completed successfully, you must still check the upgrade log for the backup master domain manager.
- There is no need to make any changes to the FINAL job stream because the FINAL job stream on the master domain manager is used whenever you run the switch manager process.
- You do not need to change the security file configuration on the backup master domain manager, because the procedure for maintaining your environment in readiness for the use of switch manager requires you to mirror the Security file to the backup master domain manager whenever you change it.

If you do not use a backup master domain manager, you are strongly recommended to install and use one to ensure the high availability of your scheduling environment.

Performing a parallel upgrade

This section describes how to upgrade your environment using a parallel upgrade procedure.

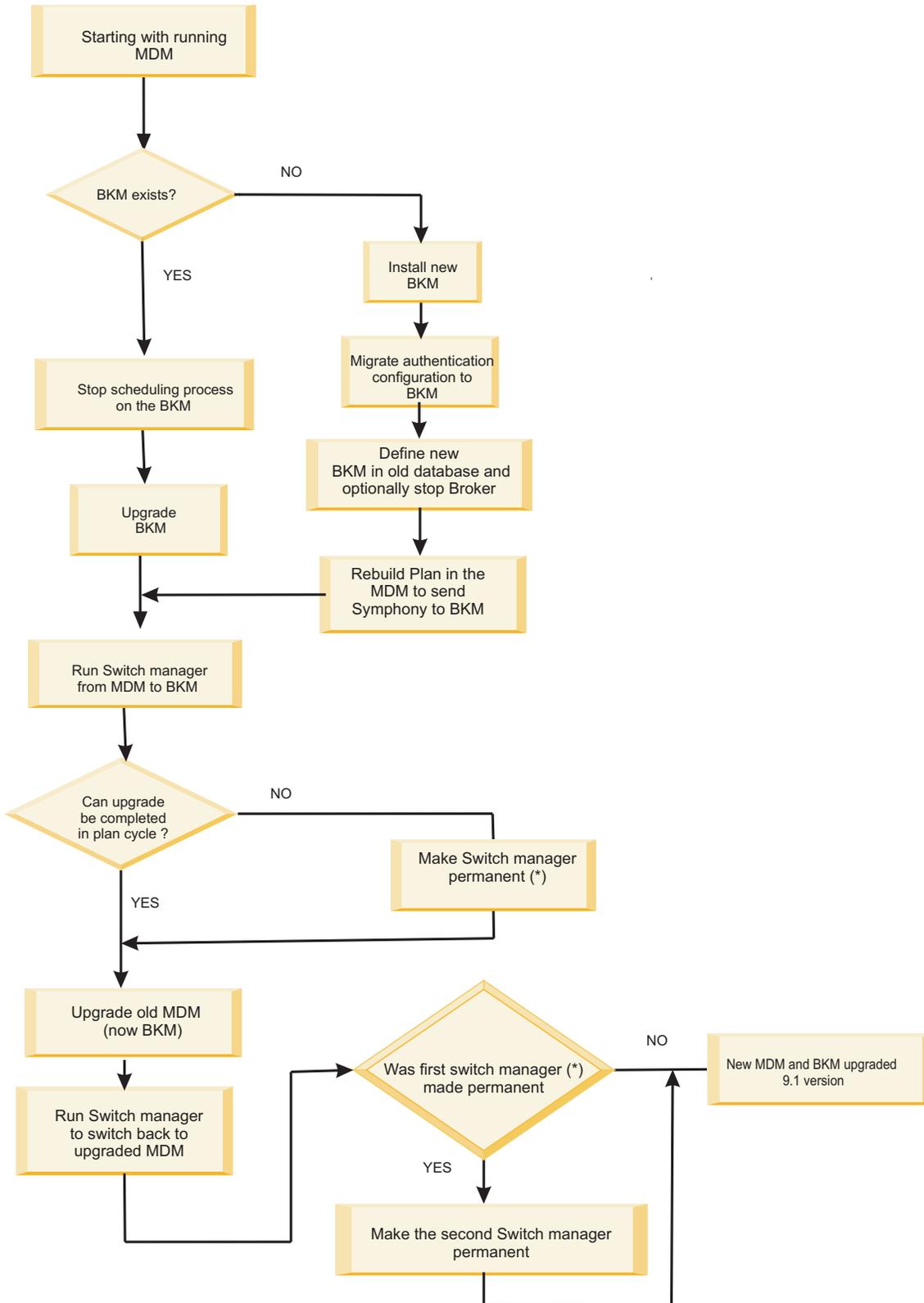


Figure 12. Parallel upgrade procedure flowchart

Upgrade your existing backup master domain manager, or install a new master domain manager configured as backup

You can upgrade your existing backup master domain manager or install a new master domain manager configured as backup. The procedure is divided into two alternative steps, depending on whether you already have a backup master domain manager in your environment.

Install a new master domain manager configured as backup:

Complete this procedure to install a fresh master domain manager configured as backup and link it to your current network.

The master domain manager configured as backup points to your existing Tivoli Workload Scheduler database and becomes your new master domain manager.

Perform the following steps:

1. **Install a master domain manager configured as backup:** For more information about how to install a new master domain manager configured as backup, see “Installing a master domain manager or its backup” on page 68 and subsequent sections depending on whether you are using a DB2 or an Oracle database. Ensure that your new master domain manager configured as backup points to your current Tivoli Workload Scheduler database instance.
2. **Migrate your authentication configuration:** complete the following steps to migrate your authentication mechanism to the newly-installed master domain manager configured as backup:
 - a. On your existing master domain manager, use the `showSecurityProperties` tool to export your authentication configuration to a text file.
 - b. Copy this file to your new master domain manager configured as backup.
 - c. During the export all the passwords in the file have been replaced with asterisks. Locate them and remove the asterisks by entering passwords again.
 - d. Run the `changeSecurityProperties` tool on the new master domain manager configured as backup to import the configuration. The tool recognizes that the input file is in the old format and attempts to migrate the configuration to the new format.

If your authentication mechanism is customized in ways that the migration cannot handle, an error or errors are issued and you must configure the authentication mechanism manually.
 - e. Test that the migrated authentication mechanism allows you to log on and use **composer** with more than one user ID.
3. **Define a new master domain manager configured as backup in the database:** define your new master domain manager configured as backup as a full status agent in the domain of your master domain manager, using the **composer** command interface.
4. **Prepare the old security file for switching the manager:** to switch correctly, you must add the new `TWS_user` into the old security file. The new `TWS_user` is the one that you used when you installed the new master domain manager configured as backup manager. Perform the following steps:
 - a. On the master domain manager, log in as the master `TWS_user` and set the Tivoli Workload Scheduler environment. Add the master configured as backup `TWS_user` to the old security file.

- b. If you have centralized security, distribute the security file to all agents. If you do not have centralized security, copy the compiled security file Security to the installed master domain manager configured as backup, overwriting the version that is there.
5. **Distribute the Symphony file to the new master domain manager configured as backup:**
- a. Ensure that the **optman cf** option is set to *all*.
 - b. To distribute the Symphony file to the new master domain manager configured as backup, run **JnextPlan -for 0000** or wait until the end of the production plan.
 - c. Restore the previous setting of the **optman cf** option, if you previously modified the value.

Upgrade your current backup master domain manager:

To upgrade your current backup master domain manager, follow the procedure described in “Upgrading the master domain manager or its backup” on page 143 using your preferred installation method.

Switch the master domain manager to the new or upgraded backup master

Switch to your new backup master domain manager, which now becomes your master domain manager, by issuing the following command from the old master domain manager:

```
conman
switchmgr masterdm;new_mgr_cpu
```

where *new_mgr_cpu* is the backup master domain manager workstation name.

Switch the event processor from the old master domain manager to the backup master domain manager, by running the following command from the old master domain manager:

```
conman
switcheventprocessor new_mgr_cpu
```

where *new_mgr_cpu* is the backup master domain manager workstation name.

If using the backup master domain manager V9.1 you define agent, pool, or dynamic pool workstations and then you open their database definitions from the master domain manager V8.4.0 database, their workstation types are blank.

Note: The new backup master domain manager connecting to the old database updated schemas and tables to ensure product backward compatibility. Therefore, the old master domain manager and the new backup master domain manager work with the new updated schema.

Make the switch manager permanent

In the procedure “Switch the master domain manager to the new or upgraded backup master,” you switched your master domain manager promoting your new version backup master domain manager to the role of master domain manager.

To make this configuration fully operational and persistent through **JnextPlan**, you must perform the following steps:

On the new master domain manager, referred to as *new_mgr_cpu*:

1. Edit the *localopts* file and modify the following entry as shown:

```
DEFAULTWS=new_mgr_cpu
```

where *new_mgr_cpu* is the workstation name of the new master domain manager. For more information about `localoptsfile`, see the *Tivoli Workload Scheduler: Administration Guide*.

2. Change the workstation definition of the old master by running:

```
composer modify cpu=old_mgr_cpu
```

and in the definition substitute *type=manager* with *type=fta*

3. Change the workstation definition of the new master by running:

```
composer modify cpu=new_mgr_cpu
```

and in the definition substitute *type=fta* with *type=manager*.

4. Ensure that the **optman** cf option is set to *all*.
5. Rebuild the plan to activate the changes to the database:

```
JnextPlan -for 0000
```
6. Restore the previous setting of the **optman** cf option, if necessary.
7. Edit the `\TWS\mozart\globalopts` file and modify the **master=old_mgr_cpu** entry as shown:

```
master=new_mgr_cpu
```

where *new_mgr_cpu* is the workstation name of the new master. See the *Tivoli Workload Scheduler: Administration Guide*.

In this way the reports **reptr-pre** and **reptr-post** can run when you run **JnextPlan**.

8. Ensure that the global option **carryforward** is set to **all** or only the unfinished jobstreams are carried forward.

Customize and submit the optional final job stream

If your old final job stream is called `FINAL`, a backup copy was made of it in `Sfinal.extract` and it was upgraded to V9.1. If it was customized, you must make the corresponding customization to the new `FINAL` job stream. If it is not called `FINAL`, you must merge the functions of your old final job stream with the syntax of your new `FINAL` job stream. Perform the following steps:

1. Customize the final job stream as required:

If you had a customized job stream called `FINAL` in your database:

- a. Edit the new `FINAL` job stream by using **composer** or the Dynamic Workload Console.
- b. Use a text editor to edit the `<TWA_HOME>\Sfinal.extract`.
- c. Merge the two job streams so that your new `FINAL` job stream has the same customization as your customized `FINAL` job stream.
- d. Save your new `FINAL` job stream.

If you had a customized final job stream called something other than `FINAL` in your database:

- a. Merge the two job streams so that the new `FINAL` job stream has the same customization as your customized final job stream plus the new required attributes provided by the new `FINAL` job stream.
- b. Save this new final job stream so that it has the same name as your old customized final job stream.
- c. Delete the `FINAL` job stream.

If you had a final job stream called something other than FINAL in your database, but it is not customized:

- a. Delete your old final job stream with **composer** or the Dynamic Workload Console.
- b. Rename the new FINAL job stream to the name of your old final job stream with **composer** or the Dynamic Workload Console

If you had a final job stream called FINAL in your database, but it is not customized:

Take no action because the FINAL job stream was already edited by the installation or upgrade procedure.

If you had a final job stream called FINAL but it is in DRAFT in your database:

The installation ignores that the job stream is in DRAFT. After the upgrade, change this job stream into the DRAFT status again.

2. Use **conman** to delete your old final job stream instances and submit new instances to replace them.

During the upgrade, **JnextPlan** is overwritten even if you customized it. The existing **JnextPlan** is backed up and renamed to:

On Windows operating systems:

JnextPlan.cmd.bk

On UNIX and Linux operating systems:

JnextPlan.bk

Install a new master domain manager or upgrade your old master domain manager

Install a new master domain manager

“Installing a master domain manager or its backup” on page 68

Upgrade the old master domain manager

Before performing this step, if you created agent, pool, or dynamic pool workstations in procedure “Switch the master domain manager to the new or upgraded backup master” on page 162 set them to **ignore**. If you do not set them to **ignore**, when the master domain manager adds the workstation definition to the plan it does not find them and sends several messages into the IBM\TWA\TWS\pobox files. The size of these files increases exponentially.

To upgrade your old master domain manager (which is now your backup master domain manager), perform the following steps:

1. From the new master domain manager, unlink the old master workstation

```
conman "unlink old_mdm_cpu"
```
2. Upgrade your old master domain manager to the current version using the procedure described in “Upgrading a master domain manager instance or its backup” on page 140.
3. Link the upgraded master domain manager to the network

```
conman "link old_mdm_cpu"
```

Switching back to the old master domain manager (optional)

This step is optional. You can switch back to your old master domain manager that has now been upgraded.

To do this, perform the following steps:

1. From the upgraded master domain manager run the command:

```
conman
switchmgr masterdm;old_mdm_cpu
```

2. To restore your upgraded master domain manager to its role permanently, perform the steps in “Make the switch manager permanent” on page 162, for the master workstation.

Complete the security configuration for the new environment

Version 9.1 includes new security statements for the workload application and run cycle group objects. For more information about these statements, see *Administration Guide*.

If you have specific security settings in your V8.4, V8.5, V8.5.1, or V8.6.0 environment, these settings must be manually merged with the new settings before you build the final security file to be used in your new environment. The statements you might have to add manually vary depending on your specific security settings.

To manually merge the new settings, perform the following procedure:

1. Log in as <TWS_user> on your upgraded master domain manager and set the Tivoli Workload Scheduler environment.
2. If you have centralized security enabled, extract the new security file on the new master using the command:

```
dumpsec > sec_file
```

where *sec_file* is the text file created by the **dumpsec** command.

3. Edit the *sec_file*, and insert the following statements:

Workload application

```
WKLDAPPL NAME=@ ACCESS=ADD,DELETE,DISPLAY,MODIFY,LIST,UNLOCK
```

Run cycle group

```
RUNCYGRP NAME=@ ACCESS=ADD,DELETE,DISPLAY,MODIFY,USE,LIST,UNLOCK
```

4. Check that the user permissions of the new statements are correct.
5. Save your changes to the *sec_file*.
6. Build your final security file for your new master domain manager using the **makesec** command:

```
makesec sec_file
```
7. If you are using FIPS, you must manually enable it again in the WebSphere Application Server `java.security` file. For the FIPS compliance information, see the *Tivoli Workload Scheduler: Administration Guide*.
8. If you have centralized security enabled, distribute the security file.
9. Run **JnextPlan -for 0000** to distribute the Symphony file to the agents.

Note: Ensure that the **optman** cf option is set to **all** or only the unfinished jobstreams are carried forward.

10. Restore the previous setting of the **optman** cf option, if necessary.

Performing a safe upgrade

If you are upgrading in parallel mode you do not interrupt any running processes. However, if you are upgrading in direct mode you interrupt the running processes while you perform the upgrade. To ensure that this interruption does not risk the

integrity of these running processes, the upgrade is performed in *safe mode*. Safe mode performs following actions before starting the upgrade:

- Checks if there are command lines currently running.
- Prevents other jobs from starting by setting the job fence on the workstation to the go (101) value.
- Checks if there are jobs running. If there are, it waits **60** minutes and checks again. If the jobs do not all complete during this interval, the upgrade does not proceed and an error message is displayed. If you want to change this value, specify the number of minutes to wait when you run the setup or perform a silent installation.
- Check if there are processes running. It stops any running processes and waits for the completion of the stop action.

If all these checks are passed, Tivoli Workload Scheduler starts the upgrade:

- If the upgrade completes successfully after the Batchman process restarts, the job fence is set to the original value, because there is a synchronization between the Batchman message queues and the Symphony file for the job fence value. The installation process does not start the Batchman process and the original job fence is not restored on your workstation. To set the original job fence, start Batchman process by running the following command:

```
conman "start"
```

- If the upgrade does not complete successfully either because the checks are not passed or an error occurs, the job fence is not set to the original value. You must:
 - Set the job fence manually to its original value.
 - Perform the steps to complete the actions or correct the errors and resume the upgrade.

Upgrading a dynamic domain manager or its backup instance

This section describes how to upgrade a dynamic domain manager or its backup.

Performing a direct upgrade

This section describes the procedure to follow to perform the upgrade using the direct upgrade procedure.

Unlink the dynamic domain manager from the network and stop it

Before commencing the upgrade, you must unlink all dynamic agents and backup dynamic domain manager from the dynamic domain manager and stop it.

Follow these steps:

1. Log in as the *<TWS_user>*.
2. Unlink all workstations in the dynamic domain manager domain:

From the Dynamic Workload Console

In the navigation tree, click **Scheduling Environment > Monitor > Monitor Workstations**, run a task and, in the table of results, select all the workstations of the master domain manager and click **Unlink**.

From the command line of the master domain manager

Issue the following command:

```
conman "unlink @;noask"
```

3. Stop the dynamic domain manager:

From the Dynamic Workload Console

In the navigation tree, click **Scheduling Environment > Monitor > Monitor Workstations**, run a task and, in the table of results, select all the workstations of the master domain manager and click **Stop**.

From the command line of the master domain manager

Issue the following command:

```
conman "stop;wait"
```

4. From the command line of the dynamic domain manager, stop the SSM Agent as follows:

On UNIX, Linux, and Windows operating systems

Run:

```
conman "stopmon"
```

5. From the command line of the dynamic domain manager, stop the dynamic agent processes as follows:

On Windows operating systems:

Run:

```
ShutdownLwa.bat
```

On UNIX and Linux operating systems:

Run:

```
ShutdownLwa
```

6. From the command line of the dynamic domain manager, stop the **netman** process as follows:

Windows operating systems

Run the `shutdown.cmd` command from the Tivoli Workload Scheduler home directory.

On UNIX and Linux operating systems

Run:

```
conman "shut" ; wait
```

7. Verify that all services and processes are not running, as follows:

Windows operating systems

Run:

```
<TWA_HOME>\unsupported\listproc.exe
```

where `<TWA_HOME>` is the Tivoli Workload Scheduler home directory.

Verify that the following processes are not running:

```
netman, mailman, batchman, writer, jobman, stageman,  
JOBMON, tokensrv, batchup, monman, JobManager
```

Also, ensure that no system programs are accessing the directory or subdirectories, including the command prompt, and that in Windows Explorer the **Administrative Tools>Services** panel is not open.

UNIX and Linux operating systems

Run:

```
ps -u <TWS_user>
```

Verify that the following processes are not running:

```
netman, mailman, batchman, writer, jobman, JOBMAN,  
stageman, monman, JobManager
```

All processes must be stopped with the exception of the WebSphere Application Server, which must remain running.

Upgrading a dynamic domain manager

This section describes how to upgrade a dynamic domain manager or its backup.

You can upgrade a dynamic domain manager or its backup by using the wizard or silent methods.

Upgrading using the wizard:

1. Before starting to upgrade, verify that the user running the installation process has the following authorization requirements:

UNIX and Linux operating systems

root access

Windows operating system

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or **domain administrators** group with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

2. Ensure that you inserted the DVD for your operating system or you downloaded the Tivoli Workload Scheduler dynamic domain manager or its backup eImage (for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).

To upgrade a dynamic domain manager or its backup and all the prerequisites, perform the following steps:

1. Run the installation process either by using the launchpad as described in "Launchpad" on page 66 or by using the wizard as described in "Installation wizard" on page 67.
2. In the Installation Packages Installation Manager panel, the installation process selected all the Tivoli Workload Scheduler prerequisites packages and the "**Tivoli Workload Scheduler**" > "**Version 9.1.0.0**" product package.

Note: If you have already installed Tivoli Workload Scheduler or its prerequisites products a warning panel is displayed. Click **Continue** to install the package in a new group or click **Cancel** to clear the package that is already installed.

3. Click **Next**.
4. On the Licenses page, read the license agreement for the selected package. If you selected to install the Tivoli Workload Scheduler package and the Tivoli Workload Scheduler prerequisites packages, you must accept the license agreement for each package. On the left side of the License page, click each package to see its license agreement. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements**.
5. Click **Next**.
6. On the Location panel, the Tivoli Workload Scheduler and the Tivoli Workload Scheduler prerequisites packages are already selected:

For Tivoli Workload Scheduler package:

Type or **Browse** the path for the installation directory where the Tivoli Workload Scheduler instance to upgrade is installed for the specific user.

For each prerequisite package:

Select the prerequisite package and type, or **Browse** the path to use as the installation directory on which to install the prerequisite instance, or accept the default path.

For the Tivoli Workload Scheduler package:

Type, or **Browse** the path on which the Tivoli Workload Scheduler instance to upgrade is installed:

Installation directory

On Windows operating systems

The default directory is C:\Program Files\IBM\TWA.

On UNIX and Linux operating systems

The default directory is /opt/IBM/TWA.

7. Click **Next**.

8. On the Features page, perform the following actions:

For the prerequisites packages:

To see a description of the feature, click the feature name. In the Details section you see a short description.

Ensure that you leave the default prerequisites features selected by installation process.

For the Tivoli Workload Scheduler package:

Select the following feature:

Dynamic domain manager

9. Click **Next**.

10. The Retrieve data Information panel is displayed with successful operation message or with an error message.

Note: If the upgrade process is unable to retrieve one or more Tivoli Workload Scheduler configuration properties values in the directory you specified, the Retrieve data Information panel is shown. To perform the problem determination, see “Retrieving Tivoli Workload Scheduler instance information data fails with error AWSJIM018E” on page 267.

11. Enter the information in the following panels:

For the Tivoli Workload Scheduler package:

Complete the non greyed fields in the following panels: :

Upgrade Configuration:

See “Upgrade configuration” on page 145.

User information:

See “Tivoli Workload Scheduler user information” on page 145.

Dynamic Domain manager Configuration:

See “Tivoli Workload Scheduler dynamic domain manager configuration” on page 93.

Database Configuration:

See “Database configuration” on page 148.

WebSphere profile Configuration:

See “WebSphere Application Server profile configuration” on page 151.

WebSphere ports Configuration:

See “WebSphere Application Server ports configuration” on page 82.

Disk space check:

See “Disk space check” on page 83.

12. On the Summary page, review your choices before upgrading the product package. To change any choices that you made on previous pages, click **Back** and make the changes. When you are satisfied with your installation choices, click **Install** to install the package.

Upgrade configuration:

Type or **Browse** the path for the backup directory where the Tivoli Workload Scheduler upgrade process saves a backup of your current configuration.

Backup directory

Type the directory:

On Windows operating systems

- The following characters are not valid:

```
'!', '#', '$', '%', '&', '{', '}', '[', ']',
'=', '?', '\', '<', '>', '|', ';', '(, ')',
'*', '/'
```

- The default is the Administrator temporary directory.

On UNIX and Linux operating systems

- The following characters are not valid:

```
'!', '#', '$', '%', '&', '{', '}', '[', ']',
'=', '?', '\', '<', '>', '|', ';', '(, ')',
'*', '/'
```

- The default is \$TEMP.

Browse

Click to select an existing directory in which the Tivoli Workload Scheduler upgrade process saves a backup of your current configuration.

Tivoli Workload Scheduler user information:

Complete the following Tivoli Workload Scheduler fields:

User name

Specify the name of the user for which you want to upgrade or uninstall Tivoli Workload Scheduler.

Validate user

Click to validate that the user was defined successfully and with the correct permissions.

Tivoli Workload Scheduler dynamic domain manager configuration:

Note: This panel appears for the installation and upgrade processes, if you are performing an upgrade, you are not required to insert or you cannot see some of the following fields.

Complete the following Tivoli Workload Scheduler data fields.

Enter the configuration information for the dynamic domain manager installation:

Configure this dynamic domain manager as backup

By default, this box is left clear. If you check this box, the installation process configures the dynamic domain manager installation as backup.

Do you want to connect the Dynamic Domain Manager only to the z/OS controller?

Only for dynamic domain manager.

Select this check box if you want to connect the dynamic domain manager only to the z/OS controller. Leave the check box clear to connect the dynamic domain manager to:

- A master domain manager
- Both a master domain manager and a z/OS controller

If you connect the dynamic domain manager only to a z/OS controller, you must create a lightweight end-to-end scheduling environment where the Tivoli Workload Scheduler for z/OS manages the scheduling workload on distributed systems. To complete this environment you must install a Tivoli Workload Scheduler for z/OS agent. For a detailed explanation about how to install the Tivoli Workload Scheduler for z/OS agent, see the *Tivoli Workload Scheduler for z/OS: Planning and Installation Guide*. If you select the check box the following fields are disabled:

- **Domain name**
- **This workstation name**
- **Master domain manager workstation name**
- **Dynamic domain manager port (used by Netman)**
- **Master domain manager host name**
- **Master domain manager https port**

Domain name

Only for a dynamic domain manager connected to a z/OS controller or to a master domain manager or both. Applies only to dynamic domain manager. Specify the Tivoli Workload Scheduler domain name managed by the dynamic domain manager. The default value is DYNAMICDM.

This workstation name

Only for connecting the Dynamic Domain Manager only to the z/OS controller. The name of the workstation on which you are installing the instance. The default is the hostname of the workstation. Spaces are not allowed and the maximum field length is 16 characters. If the host name is longer than 16 characters, an alternative name must be provided for a successful installation. It can contain alphanumeric, dash (-), and underscore (_) characters. The first character must be a letter. This workstation name and master domain manager workstation name values must not be the same.

dynamic domain manager

The name of the Tivoli Workload Scheduler workstation known in the database as **fta**. Configure it as **manager** by

performing the procedure described in “Configuring a dynamic domain manager” on page 215.

dynamic domain manager configured as backup

The name of the Tivoli Workload Scheduler workstation known in the database as **fta**. Configure it as **fta** by performing the procedure described in “Configuration steps for a dynamic domain manager configured as backup” on page 215.

Master domain manager workstation name

Only for dynamic domain manager connected to a z/OS controller and a distributed environment or a distributed environment. The name of the master domain manager workstation. Spaces are not allowed and the maximum field length is 16 characters. The first character cannot be numeric. This workstation name and master domain manager workstation name values must not be the same.

Dynamic domain manager port (used by Netman)

Only for dynamic domain manager connected to a z/OS controller and a distributed environment or a distributed environment The port used by the Netman process to manage distributed environment. Netman is the network process that controls the production environment. The default value is **31111**. The valid range is from 1 to 65535.

Note: If you change this value, all default port number values in the application server port information panel are changed to reflect the new range. For example, if you specify 42111 as TCP/IP port number, the default for HTTP transport becomes 42125, the default for HTTPS becomes 42126, and so on.

Master domain manager host name

Only for dynamic domain manager connected to a z/OS controller and a distributed environment or a distributed environment The fully qualified host name on which the dynamic domain manager contacts the master domain manager.

Master domain manager HTTPS port

Only for dynamic domain manager connected to a z/OS controller and a distributed environment or a distributed environment. The port for the secure HTTP transport. The dynamic agent component installed on the dynamic domain manager instance uses this port to connect to the dynamic workload broker installed on the master domain manager instance. The default value is **31116**. If you leave the field blank, it defaults to **0**. The valid range is from 1 to 65535.

Enter the configuration information for the dynamic scheduling

Host name or IP address

The host name or IP address of the dynamic agent component installed in the dynamic domain manager instance. The Tivoli dynamic workload broker and the Tivoli Workload Scheduler for z/OS controller use this address to connect to the dynamic agent.

Dynamic agent workstation name

The name of the dynamic agent workstation definition.

JobManager port number

The dynamic agent secure port number (SECUREADDR). The Tivoli Workload Scheduler for z/OS controller and the Dynamic

workload broker use this port to connect to the Tivoli Workload Scheduler dynamic agent. The default value is **31114**. The valid range is from 1 to 65535.

Enable HTTPS communication for the JobManager port

This option enables HTTPS communication between the local Dynamic workload broker and the dynamic agent. For secure connections, it is recommended that you use HTTPS. To use HTTP communication, leave this box clear.

Enter the information to identify the Dynamic workload broker scheduling component. This is used by Tivoli Workload Scheduler to run jobs dynamically

Only for dynamic domain manager.

Dynamic workload broker workstation name

Only for dynamic domain manager. The definition of the Dynamic workload broker workstation created in the Tivoli Workload Scheduler database. Spaces are not allowed and the maximum field length is 16 characters. It can contain alphanumeric, dash (-), and underscore (_) characters. The first character must be a letter.

The Dynamic workload broker workstation acts as the communication bridge between the dynamic domain manager and the local Dynamic workload broker component. In your job or job stream definitions, it is the workstation on which the jobs run. In this way, you submit your workload through this workstation to the Dynamic workload broker component.

Dynamic workload broker Netman port

Only for dynamic domain manager. The port used by the Tivoli Workload Scheduler dynamic domain manager to communicate with the local Dynamic workload broker component. The default value is **41114**. The valid range is from 1 to 65535.

Database configuration:

The upgrade process retrieves automatically the RDBMS you used in the previous version of the Tivoli Workload Scheduler.

To complete the Database configuration panel, perform the following steps:

1. In the **Database path** field, specify the installation path if you are using Oracle RDBMS.

Note: The DB2 installation path is discovered automatically by the upgrade process.

2. Press the **Retrieve database information** to load the information for the database systems selected. For more information about how to insert the required RDBMS values, see the following sections:
 - “Upgrading for a DB2 database server” on page 148.
 - “Upgrading for a DB2 database client” on page 149.
 - “Upgrading for an Oracle database” on page 151.

Upgrading for a DB2 database server:

The following list describes the fields that you must complete during the upgrade:

Remote database server

The value is automatically retrieved. The IP address or host name of the workstation where the DB2 server is installed.

Remote database port

The value is automatically retrieved. The TCP/IP port number that the remote DB2 server instance uses to communicate.

DB2 server administrator user (administrator of the DB2 instance)

The value is automatically retrieved. The user name of the administrator of the DB2 server instance.

If the DB2 administrator already created the database tables using the "Creating or upgrading the database tables if you are using DB2" on page 46 procedure, the user name is the one that the DB2 administrator specified in the `DB_USER` property in the `customizeDB2SQL.properties` file.

On Windows operating systems

The default value is `db2admin`.

On UNIX and Linux operating systems

The default value is `db2inst1`.

DB2 server administrator password

The password of the DB2 server administrator user or of the user with `SYSADM` or `SYSCTRL` authority.

Use a different user on the server to access the database

Select this option when the DB2 server user used to access Tivoli Workload Scheduler database is different from the DB2 Server Administration User. Provide the following data:

Tivoli Workload Scheduler DB2 user

The user name of the Tivoli Workload Scheduler DB2 user.

Tivoli Workload SchedulerDB2 password

The password of the Tivoli Workload Scheduler DB2 user.

Database name

The value is automatically retrieved. The name of the DB2 database.

Test connection

Click to check that the configuration was successful.

Table space that is used to store scheduling objects and event rules

Check the following advanced parameters:

Table space name

The value is automatically retrieved. The name of the DB2 instance table space.

Table space path

The value is automatically retrieved. The relative path of the DB2 table space.

Table space that is used to store the plan

Only for master domain manager and its backup. Specify the name and path of the DB2 table space where Tivoli Workload Scheduler plan information is to be stored.

Plan table space name

The name of the table space for storing planning data. The default name is `TWS_PLAN`.

Plan table space path

The path of the table space for storing planning data. The default path is `TWS_PLAN`. The path can be a relative or a fully qualified

path. When the table space path is a fully qualified path the DB2 administrator user must have complete access rights to the directory where the table space is installed. Note that the plan table space path cannot be the same as the table space path.

Table space used to store event logs

Only for master domain manager and its backup. Check the name and path of the DB2 table space where Tivoli Workload Scheduler event logs are to be stored. These logs are used to create reports.

Report table space name

The value is automatically retrieved. The name of the table space for storing report data.

Upgrading for a DB2 database client:

The following list describes the fields that you must complete during the upgrade:

Remote database server

The value is automatically retrieved. The IP address or host name of the workstation where the DB2 server is installed.

Remote database port

The value is automatically retrieved. The TCP/IP port number that the remote DB2 server instance uses to communicate.

DB2 server administrator user (administrator of the DB2 instance)

The value is automatically retrieved. The user name of the administrator of the DB2 server instance.

If the DB2 administrator already upgraded the database tables using the procedure “Creating or upgrading the database tables if you are using DB2” on page 46, the user name is the one that the DB2 administrator specified in the **DB_USER** property in the `customizeDB2SQL.properties` file.

On Windows operating systems

The default value is **db2admin**.

On UNIX and Linux operating systems

The default value is **db2inst1**.

DB2 server administrator password

The password of the DB2 server administrator user or of the user with SYSADM or SYSCTRL authority.

DB2 local administrator user

The user name of the DB2 administrator of the DB2 client instance.

Use a different user on the server to access the database

Select this option when the DB2 server user that you used to access Tivoli Workload Scheduler database is different from the DB2 Server Administration user. Provide the following data:

Tivoli Workload Scheduler DB2 user

The user name of the Tivoli Workload Scheduler DB2 user.

Tivoli Workload Scheduler DB2 password

The password of the Tivoli Workload Scheduler DB2 user.

Database name

The value is automatically retrieved. The name of the DB2 database.

Test connection

Click to check that the configuration was successful.

Table space used to store scheduling objects and event rules

Check the following advanced parameters:

Table space name

The value is automatically retrieved. The name of the DB2 instance table space.

Table space path

The value is automatically retrieved. The relative path of the DB2 table space.

Table space used to store the plan

Only for master domain manager and its backup. Specify the name and path of the DB2 table space where Tivoli Workload Scheduler plan information is to be stored.

Plan table space name

The name of the table space for storing planning data. The default name is **TWS_PLAN**.

Plan table space path

The path of the table space for storing planning data. The default path is **TWS_PLAN**. The path can be a relative or a fully qualified path. When the table space path is a fully qualified path the DB2 administrator user must have complete access rights to the directory where the table space is installed. Note that the plan table space path cannot be the same as the table space path.

Table space used to store event logs

Only for master domain manager and its backup. Check the name and path of the DB2 table space where Tivoli Workload Scheduler event logs are to be stored. These logs are used to create reports.

Report table space name

The value is automatically retrieved. The name of the table space for storing report data.

Upgrading for an Oracle database:

The following list describes the fields that you must complete during the upgrade.

Net service name

The value is automatically retrieved. The name that is used by clients to identify an Oracle NetServer and the specific system identifier or database for the Oracle Net connection. A net service name is mapped to a port number and protocol. It is also known as a connect string, database alias, host string, or service name.

Oracle administrator user

The database administrator user name (such as SYSTEM) required to authenticate to the Oracle database.

If the Oracle administrator already upgraded the database tables using the “Creating or upgrading the database tables if you are using Oracle” on page 55, the user name is the Oracle administrator that is specified in the **MDL_USER** property of the `customizeWinOracleSql.properties` file on Windows operating systems and the `customizeUnixOracleSql.properties` file on UNIX operating systems.

Oracle administrator user password

The database administrator user password that is required to authenticate to the Oracle database.

Tivoli Workload Scheduler Oracle user

The value is automatically retrieved. The owner of the Tivoli Workload Scheduler schema.

Tivoli Workload Scheduler Oracle user password

The password for the Tivoli Workload Scheduler Oracle user. It must comply with the Oracle naming rules.

Create the Tivoli Workload Scheduler schema using the Oracle Partitioning option

If you are installing on Oracle Enterprise Edition, you can choose to implement the Oracle Partitioning option to improve the performance of event-driven workload automation. For more information about event-driven workload automation feature, see *Overview*.

Tivoli Workload Scheduler plan table space

Only for master domain manager and its backup. Insert the name that identifies the Tivoli Workload Scheduler planning table space. This table space must have been previously created by the database administrator. The default for this field is **USERS**.

Tivoli Workload Scheduler Reports table space

Only for master domain manager and its backup. The value is automatically retrieved. The name that identifies the Tivoli Workload Scheduler table space where report data is to be stored.

This table space must have been previously created by the database administrator. The default value for this field is **USERS**.

WebSphere Application Server profile configuration:

The upgrade process creates a profile in the external WebSphere Application Server instance. The WebSphere Application Server profile is created by using the data of the profile that is installed in the WebSphere Application Server embedded in the Tivoli Workload Scheduler instance old version.

The following fields are provided for WebSphere Application Server profile configuration data.

WebSphere installation location

Type or **Browse** for the directory where the external WebSphere Application Server instance is installed. Click **Browse** to find the appropriate location.

Profile deployment type

Create WebSphere Application Server profile. You create a profile on the external WebSphere Application Server.

Profile details**Profile location**

Enter the name of the directory where the new WebSphere Application Server profile is located. Click **Browse** to find the appropriate location. The default value:

On Windows operating systems

c:\Program Files\IBM\TWA\WAS\TWSPProfile

On UNIX operating systems

/opt/IBM/TWA/WAS/TWSPProfile

Note: Do not use any of the following characters in the profile path field:

|
|
|
|

On Windows:

!"#\$%&{}[]=?'<>,,*:

On UNIX:

!"#\$%&{}[]=?'<>,,*

Profile name

The name of the profile that is defined in the WebSphere Application Server embedded in the Tivoli Workload Scheduler instance.

Node name

The name of the node that is defined in the WebSphere Application Server embedded in the Tivoli Workload Scheduler instance.

Server name

The name of the server that is defined in the WebSphere Application Server embedded in the Tivoli Workload Scheduler instance.

User name

Enter the name of the user that can access the WebSphere Application Server profile. The name of the WebSphere Application Server administrator that is defined in the WebSphere Application Server profile that is embedded in the Tivoli Workload Scheduler instance.

Password

Enter the password of the WebSphere Application Server user you specified.

Validate

Click **Validate** to validate that the information you entered are correct.

Note: The upgrade process checks the credentials that you entered in the WebSphere Application Server instance that is embedded in the previous versions of the Tivoli Workload Scheduler instance.

WebSphere Application Server ports configuration:

This panel appears during installation or upgrade processes. If you are performing an upgrade, you are not required to insert or you cannot see some of the following fields.

The following fields are provided for WebSphere Application Server data. The installation procedure checks for the availability of the ports in the specified port range. If one or more ports are being used by other applications, you are prompted to enter a new port number.

Automatically generate WebSphere ports

Select if you changed the *JobManager* port and you want to automatically generate the ports listed starting from this port.

HTTP transport

The port for the HTTP transport. It is used by the **composer** command line and the Dynamic workload broker when this protocol is selected. The default value is **31115**. The valid range is from 1 to 65535.

HTTPS transport

The port for the secure HTTP transport. It is used by the **composer**

command line and the Dynamic workload broker when this protocol is selected. The default value is **31116**. The valid range is from 1 to 65535.

Bootstrap

The port for the bootstrap or RMI. It is used by the graphical user interfaces. The default value is **31117**. The valid range is from 1 to 65535.

SOAP connector

The port for the application server protocol SOAP connector. The default value is **31118**. The valid range is from 1 to 65535.

SAS Server Authentication Listener

The port used by the Secure Association Services (SAS) to listen for inbound authentication requests. The default value is **31119**. The valid range is from 1 to 65535.

CSIV2 Server Authentication Listener

The port on which the Common Secure Interoperability Version 2 (CSIV2) service listens for inbound server authentication requests. The default value is **31120**. The valid range is from 1 to 65535.

CSIV2 Client Authentication Listener

The port on which the Common Secure Interoperability Version 2 (CSIV2) service listens for inbound client authentication requests. The default value is **31121**. The valid range is from 1 to 65535.

ORB Listener

The port used for RMI over IIOP communication. The default value is **31122**. The valid range is from 1 to 65535.

Administration HTTP transport

The administrative console port. The default value is **31123**. The valid range is from 1 to 65535

Administration HTTPS transport

The administrative console secure port. The default value is **31124**. The valid range is from 1 to 65535.

Disk space check:

The installation process checks if there is enough disk space available to install a master domain manager or its backup, a dynamic domain manager or its backup. The installation or upgrade process does not check the space required to install table spaces. Before you click install, verify there is enough space to install table spaces in the indicated path.

In the Disk space check panel, you can see the log for the disk space check operation. If the operation failed because of insufficient disk space, you must free the disk space that is shown in the log and then click **Retry**.

Upgrading using the silent installation:

To upgrade your Tivoli Workload Scheduler dynamic domain manager or its backup instance and follow the procedure described in “Performing a silent installation” on page 83.

Table 17 lists the response files for the upgrade process:

Table 17. Upgrade response files

Type of installation	Response file to use
Upgrading on UNIX	

Table 17. Upgrade response files (continued)

Type of installation	Response file to use
Upgrade dynamic domain manager configured as backup	TWS91_UPGRADE_DDM_from86_UNIX.xml
Upgrade dynamic domain manager	TWS91_UPGRADE_DDM_from86_UNIX.xml
Upgrading on Windows	
Upgrade dynamic domain manager configured as backup	TWS91_UPGRADE_DDM_from86_WIN.xml
Upgrade dynamic domain manager	TWS91_UPGRADE_DDM_from86_WIN.xml

Performing a parallel upgrade

This section describes the procedure to follow to perform the dynamic domain manager upgrade using the parallel upgrade procedure.

Install a new dynamic domain manager configured as backup or upgrade your existing backup dynamic domain manager

Install a new dynamic domain manager configured as backup

To install a new dynamic domain manager configured as backup, see “Installing a dynamic domain manager or its backup” on page 90.

After the installation, performs the following steps:

1. **Define the new dynamic domain manager configured as backup in the database:** Define your new dynamic domain manager configured as backup as a full status agent in the domain of your dynamic domain manager, using the **composer** command line interface.
2. **Distribute the Symphony file to the new dynamic domain manager configured as backup:**
 - a. Ensure that the **optman cf** option is set to *all*.
 - b. To distribute the Symphony file to the new dynamic domain manager configured as backup, run **JnextPlan -for 0000** or wait until the end of the production plan.
 - c. Restore the previous setting of the **optman cf** option, if you previously modified the value.

Upgrade the old backup dynamic domain manager

To upgrade your old backup dynamic domain manager, perform the following steps:

1. From the dynamic domain manager, unlink the old backup dynamic domain manager workstation

```
conman "unlink old_bddm_wks"
```

where *old_bddm_wks* is the backup dynamic domain manager workstation name.

2. Upgrade your old backup dynamic domain manager to the current version using the procedure described in “Upgrading a dynamic domain manager or its backup instance” on page 166.
3. Link the upgraded dynamic domain manager configured as backup to the network:

```
conman "link old_bddm_wks"
```

where *old_bddm_wks* is the dynamic domain manager configured as backup workstation name.

Switch the dynamic domain manager to the new or upgraded dynamic domain manager configured as backup

Switch to your new dynamic domain manager configured as backup, which now becomes your dynamic domain manager, by performing these steps:

1. Stop the workload broker server on the dynamic domain manager, by running the following command:

On Windows operating systems

```
stopBrokerApplication.bat  
-user <username> -password <password>  
[-port <portnumber>]
```

On UNIX and Linux operating systems

```
stopBrokerApplication.sh  
-user <username> -password <password>  
[-port <portnumber>]
```

where *<username>* and *<password>* are the values specified during the dynamic domain manager installation. The parameter *<portnumber>* is optional, if it is not specified, the default is used.

2. Switch the dynamic domain manager to its backup workstation. Use either the Dynamic Workload Console or run the command:

```
conman  
switchmgr <dyn_dom>;new_mgr_cpu
```

where *<dyn_dom>* is the domain where you installed the dynamic domain manager configured as backup and the dynamic domain manager instances and the *new_mgr_cpu* is the dynamic domain manager configured as backup workstation name.

3. Start the workload broker server on the dynamic domain manager configured as backup. Run the wastool:

On Windows operating systems

```
startBrokerApplication.bat  
-user <username> -password <password>  
[-port <portnumber>]
```

On UNIX and Linux operating systems

```
startBrokerApplication.sh  
-user <username> -password <password>  
[-port <portnumber>]
```

where *<username>* and *<password>* are the values specified during the backup dynamic domain manager installation. The parameter *<portnumber>* is optional, if is not specified, the default is used.

4. Link the workload broker server in the dynamic domain manager configured as backup by running the following command:

```
conman "link broker_workstation_name"
```

where *broker_workstation_name* is the broker workstation defined in the dynamic domain manager configured as backup. Typically the *broker_workstation_name* is *dynamic_domain_manager_configured_as_backup_workstation_DWB*.

Install a new dynamic domain manager or upgrade your existing dynamic domain manager

Install a new dynamic domain manager:

See “Installing a dynamic domain manager or its backup” on page 90.

Upgrade the old dynamic domain manager:

To upgrade your old dynamic domain manager that now has the backup role, perform the following steps:

1. From the dynamic domain manager configured as backup, unlink the old dynamic domain manager workstation:

```
conman "unlink old_ddm_wks"
```

where *old_ddm_wks* is the old dynamic domain manager workstation name that now has the backup role.

2. Upgrade your existing dynamic domain manager to the current version using the procedure described in “Upgrading a dynamic domain manager or its backup instance” on page 166.

3. Link the upgraded dynamic domain manager to the network

```
conman "link old_ddm_wks"
```

where *old_ddm_wks* is the old dynamic domain manager workstation name that now has the backup role.

Switching back to the old dynamic domain manager (optional)

This step is optional. You can switch back to your old dynamic domain manager that has now been upgraded.

To do this, perform the following steps:

1. Stop the workload broker server on the new dynamic domain manager by running the following command:

On Windows operating systems

```
stopBrokerApplication.bat  
-user <username> -password <password>  
[-port <portnumber>]
```

On UNIX and Linux operating systems

```
stopBrokerApplication.sh  
-user <username> -password <password>  
[-port <portnumber>]
```

where <username> and <password> are the values specified during the backup dynamic domain manager installation. The parameter <portnumber> is optional, if it is not specified, the default is used.

2. From the old upgraded dynamic domain manager run the command:

```
conman  
switchmgr <dyn_dom>;old_mgr_cpu
```

where <dyn_dom> is the domain where the dynamic domain manager configured as backup and the dynamic domain manager instances are installed and the *old_mgr_cpu* is the old dynamic domain manager workstation name

3. Start the workload broker server on the upgraded dynamic domain manager, by running the following command::

On Windows operating systems

```
startBrokerApplication.bat
-user <username> -password <password>
[-port <portnumber>]
```

On UNIX and Linux operating systems

```
startBrokerApplication.sh
-user <username> -password <password>
[-port <portnumber>]
```

where <username> and <password> are the values specified during the dynamic domain manager installation. The parameter <portnumber> is optional, if it is not specified, the default is used.

4. Link the workload broker server in the dynamic domain manager by running the following command:

```
conman "link broker_workstation_name"
```

where the *broker_workstation_name* is the broker workstation defined in the dynamic domain manager. The default *broker_workstation_name* value is *dynamic domain manager_workstation_DWB*.

Upgrading agents and domain managers

This section describes how to upgrade Tivoli Workload Scheduler agents and domain managers in your distributed, z/OS, or end-to-end network. During the upgrade, you can add dynamic scheduling capabilities or the Java runtime to run job types with advanced options to the agent. The runtime environment is used to:

- Run job types with advanced options, both those supplied with the product and the additional types implemented through the custom plug-ins on the agent.
- Enable the capability to run remotely, from the agent, the Tivoli dynamic workload broker resource command on the server.

If you are upgrading from a version earlier than 8.5.1 you can add new features during the upgrade process.

If you are upgrading from version 8.5.1 and during the installation you did not install any features like the dynamic capabilities or the Java runtime to run job types with advanced options, you cannot add them during the upgrade process. To add them, perform the procedure described in the following section:

- “Enabling dynamic scheduling after installation” on page 221

The product performs the upgrade in safe mode by performing all the checks detailed in “Performing a safe upgrade” on page 165 before starting. To ensure that the upgrade can run without stopping, perform manually the steps described in “Unlinking and stopping Tivoli Workload Scheduler when upgrading agent workstations” on page 184 before starting the upgrade.

The upgrade process changes some files and folders. For the complete list, see “Files and folders changed during the upgrade” on page 127.

Note: When the upgrade procedure has completed successfully, it is not possible to roll back to the previous version.

Unlinking and stopping Tivoli Workload Scheduler when upgrading agent workstations

The product performs the upgrade in safe mode by performing all the checks detailed in “Performing a safe upgrade” on page 165 before starting. To ensure that the upgrade can run without stopping, perform manually the steps indicated in the procedure before starting the upgrade.

Before you perform an upgrade on an agent workstation, ensure that all Tivoli Workload Scheduler processes and services are stopped. If you have jobs that are currently running, the related processes must be stopped manually or you must wait until the jobs complete.

Note: Do not use the UNIX **kill** command to stop Tivoli Workload Scheduler processes.

To stop Tivoli Workload Scheduler processes and services, follow these steps:

1. Unlink the target workstation by entering the following command from the command line of the master domain manager:

```
conman "unlink workstationname;noask"
```
2. To stop the target workstation, from the command line of the master domain manager log in as *TWS_user* and enter the following command:

```
conman "stop workstationname;wait"
```
3. Stop the **netman** process as follows:
 - On Windows operating systems, from the Tivoli Workload Scheduler home directory, run the command:

```
shutdown.cmd
```
 - On UNIX operating systems, run the command:

```
conman "shut;wait workstationname"
```
4. If you are updating an agent, remove (unmount) any NTFS mounted directories from the master domain manager.

To check if any services and processes are still running:

- On Windows operating systems, enter the command:

```
<drive>unsupported\listproc.exe
```

Verify that the following processes are not running: netman, mailman, batchman, writer, jobman, stageman, JOBMON, tokensrv, batchup.

Also, ensure that there are no system programs accessing the directory or subdirectories, including the command prompt. In Windows Explorer, the Administrative Tools→Services panel must be closed.

Note:

1. If you are upgrading in a Windows environment, the Tivoli Token Server must be running.
 2. Before you upgrade, make sure that the **conman** command line is not running.
- On UNIX operating systems, enter the command:

```
ps -u TWS_user
```

Running the upgrade

The upgrade process meets the following objectives:

Performs the upgrade in a safe way

It checks for any processes that are running before starting. It does not perform the upgrade if there are command lines currently running and advises you if there are jobs running. In this case you can decide to wait before performing the upgrade or quit the upgrade. For detailed information, see “Performing a safe upgrade” on page 165.

Saves time, disk space, and RAM when upgrading the product

It performs the agent upgrade in 30% less time than the upgrade wizard. It saves disk space and RAM because it is not Java-based.

Uses a very simple command

It consists of a single line command.

Manages both Windows and UNIX operating system workstations

It runs on both Windows and UNIX agents.

Use the **twinst** script to upgrade the Tivoli Workload Scheduler agent in your distributed or end-to-end network and add dynamic scheduling capabilities or the Java runtime to run job types with advanced options to the agent. The runtime environment:

- Runs, on the agent, job types with advanced options, both those supplied with the product and the additional types implemented through the custom plug-ins.
- Enables the capability to run remotely, from the agent, the Tivoli dynamic workload broker resource command on the server.

To add dynamic scheduling capabilities, specify the **tdwport** and **tdwhostname** parameters as described in “Agent installation parameters” on page 107. To add the Java runtime to run job types with advanced options to the agent, specify the **-addruntime** parameter as described in “Agent installation parameters” on page 107.

For information about agents installed using the **twinst** script, see “Installing agents” on page 104.

For a list of supported operating systems and requirements, see <http://www.ibm.com/support/docview.wss?rs=672&uid=swg27012175>.

Procedure

1. Before starting to install, upgrade, or uninstall, verify that the user running the installation process has the following authorization requirements:

Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or domain administrators with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

UNIX and Linux operating systems

root access

2. Ensure that you inserted the DVD for your operating system or that you downloaded the Tivoli Workload Scheduler agent eImage (for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).

3. Ensure that you have enough temporary space before starting the installation process. If you have not much space in the temporary directory and you cannot free the space, see “*twinsinst* needs long time to run if the machine does not have enough temporary space” on page 247.

To upgrade agents using the **twinsinst** script, perform the following steps:

On Windows operating systems

1. Insert the DVD for your operating system. See “Installation media” on page 31.
2. Log in as administrator on the workstation where you want to upgrade the product.
3. From the *DVD_root/TWS/operating_system* directory of the DVD, run the **twinsinst** using the synopsis described below.

Note: **twinsinst** for Windows is a Visual Basic Script (VBS) that you can run in CScript and WScript mode.

If you enabled the Security Warning, a dialog box is displayed during the upgrade. In this case answer **Run** to continue.

On UNIX and Linux operating systems

1. Insert the installation DVD for your operating system. See “Installation media” on page 31.
2. From the *DVD_root/TWS/operating_system* directory, run the **twinsinst** script as described in Synopsis.

A successful upgrade using the **twinsinst** script issues the return code RC = 0. If the upgrade fails, to understand the cause of the error see Synopsis.

Synopsis:

On Windows operating systems

Show command usage and version

```
twinsinst -u | -v
```

Upgrade an instance

```
twinsinst -update -uname user_name
        -password user_password
        [-addjruntime true]
        [-backup_dir backup_dir]
        [-create_link]
        [-displayname agentname]
        [-hostname host_name]
        [-inst_dir install_dir]
        [-jport port_number]
        [-jportssl boolean]
        [-lang lang_id]
        [-nobackup]
        [-recovInstReg true]
        [-skip_usercheck]
        [-tdwhostname host_name]
        [-tdwport port_number]
        [-wait minutes]
        [-work_dir working_dir]
```

On UNIX and Linux operating systems

Show command usage and version

```
./twinsinst -u | -v
```

Upgrade an instance

```
./twsinst -update -uname user_name  
[-addjruntime true]  
[-backup_dir backup_dir]  
[-create_link]  
[-displayname agentname]  
[-hostname host_name]  
[-inst_dir install_dir]  
[-jimport port_number]  
[-jimportssl boolean]  
[-lang lang-id]  
[-nobackup]  
[-reset_perm]  
[-recovInstReg true]  
[-skip_usercheck]  
[-tdwhostname host_name]  
[-tdwport port_number]  
[-wait minutes]  
[-work_dir working_dir]
```

-addjruntime true

Adds the Java runtime to run job types with advanced options to the agent. The runtime environment is used to run application job plug-ins on the agent and to enable the capability to run remotely, from the agent, the Tivoli dynamic workload broker resource command on the server.

By default, if the Java runtime was already installed on the agent, it is upgraded to version 9.1.

If the Java runtime was not installed on the agent, it is not installed during the upgrade, unless you specify `-addjruntime true`.

If you decided not to install the Java runtime when you upgrade, you can add this feature later, as described in "Part 2. Tivoli Workload Scheduler -> Chapter 7. Configuring -> Adding a feature" in *Tivoli Workload Scheduler Planning and Installation*.

-backup_dir backup_dir

The directory, which must be created manually, in which to store the backup copy of a previous version. If the upgrade fails, you cannot restore your previous version using the files stored here; you must call IBM Software Support and provide this path.

If you do not specify this option when running an upgrade, the following default value is used:

```
$BACKUP_DIR = $INST_DIR_backup_$TWS_USER
```

where:

- `$INST_DIR` is the installation path (the user home directory on UNIX and Linux).
- `$TWS_USER` is the user name.

For example:

```
$INST_DIR=/opt/TWS/TWS91  
$TWS_USER=user91  
$BACKUP_DIR=/opt/TWS/TWS86_backup_user86  
$BACKUP_SUBDIR=/opt/TWS/TWS86_backup_user86/TWS91
```

-create_link

UNIX operating systems only. Create the **symlink** between `/usr/bin/at` and `<install_dir>/TWS/bin/at`. For more information, see Table 4 on page 35.

-displayname

The name to assign to the dynamic agent. The default is the host name of this computer.

Note: If you are upgrading a dynamic agent from V8.5.1 that you already registered to the dynamic workload broker server, any value you specify for this parameter is ignored and the old dynamic agent name is used.

-hostname

The fully qualified hostname on which the agent is contacted by the Tivoli dynamic workload broker.

-inst_dir *install_dir*

The directory where you installed Tivoli Workload Scheduler. When upgrading, the directory **inst_dir** is used if:

- The upgrade process cannot retrieve the product install location from the registries.
- You need to create the Tivoli Workload Scheduler registries again before upgrading. See “Re-creating registry files using twsinst” on page 208 for details.

If you do not provide the **inst_dir** directory and Tivoli Workload Scheduler cannot retrieve it from the installation registries, the product is installed in the user home directory.

On Windows operating systems:

If you specify a path that contains blanks, enclose it in double quotes. If not specified, the path is set to %ProgramFiles%\IBM\TWA.

On UNIX and Linux operating systems:

The path cannot contain blanks. If not specified, the path is set to the *user_name* home directory.

-jport

The port used by the Tivoli Workload Scheduler for z/OS server or the Tivoli dynamic workload broker to connect to the Tivoli Workload Scheduler agent. The default value is **31114**. The valid range is from 1 to 65535.

-jportssl

The port used by the Tivoli Workload Scheduler for z/OS controller or by the dynamic workload broker to connect to the Tivoli Workload Scheduler agent. This number is registered in the *ita.ini* file located in the directory *ITA\cpa\ita* on Windows systems and the directory *ITA/cpa/ita* on UNIX systems. For communication using SSL, set *jportssl* to *true*. To communicate with the Tivoli dynamic workload broker, it is recommended that you set the value to **true**. In this case, the port specified in **jport** communicates in HTTPS. If you specify **true**, ensure that you also configure the HTTPS communication on the z/OS controller. Specify **false** for HTTP communication. In this case the port specified in **jport** communicates in HTTP. The default value is **true**. For communication without using SSL, set *jportssl* to *false*. To increase the performance of the Tivoli Workload Scheduler for z/OS server, it is recommended that you set this value to false.

-lang

The language in which the *twsinst* messages are displayed. If not specified, the system LANG is used. If the related catalog is missing, the default C language catalog is used.

Note: The **-lang** option does not relate to the supported language packs. By default, all supported language packs are installed when you install using the **twinst** script.

-nobackup

The upgrade process does not back up the instance that you are upgrading.

-recovInstReg *true*

To re-create the registry files. Specify if you tried to upgrade a stand-alone, fault-tolerant agent (an agent that is not shared with other components or does not have the connector feature) and you received an error message that states that an instance of Tivoli Workload Scheduler cannot be found. This error can be caused by a corrupt registry file. See “Upgrading when there are corrupt registry files” on page 208.

-password *user_password*

Windows systems only. The password of the user for which you are upgrading Tivoli Workload Scheduler.

-reset_perm

UNIX systems only. Reset the permissions of the **libatrc** library.

-skip_usercheck

Enable this option if the authentication process within your organization is not standard, thereby disabling the default authentication option. On UNIX and Linux operating systems if you specify this parameter, the program skips the check of the user in the `/etc/passwd` file or the check you perform using the **su** command. On Windows operating systems if you specify this parameter, the program does not create the user you specified in the **-uname** *username* parameter. If you specify this parameter you must create the user manually before running the script.

-tdwbhostname

The Tivoli dynamic workload broker fully qualified host name. It is used together with the **-tdwbport** *tdwbport_number* parameter. It adds and starts the capabilities to run workload dynamically to Tivoli Workload Scheduler. If not specified you cannot run your workload dynamically and this parameter assumes the **localhost** default value. This value is registered in the **ResourceAdvisorUrl** property in the `JobManager.ini` file.

-tdwbport

The Tivoli dynamic workload broker HTTP or HTTPS port number used to add dynamic scheduling capabilities to your distributed or end-to-end environment. It is used together with the **-tdwbhostname** *host_name* parameter. This number is registered in the **ResourceAdvisorUrl** property in the `JobManager.ini` file. The default value is **0**, however, if you leave the value as **0**, you cannot run your workload dynamically. Specify a nonzero value to add dynamic capability. The valid range is from 0 to 65535.

-uname *username*

The name of the user for which Tivoli Workload Scheduler is being updated. The software is updated in this user’s home directory. This user name is not to be confused with the user performing the upgrade.

-update

Upgrades an existing agent that was installed using the **twinst** script.

-wait *minutes*

The number of minutes that the product waits for jobs that are running to complete before starting the upgrade. If the jobs do not complete during this

interval the upgrade does not proceed and an error message is displayed. Valid values are integers or **-1** for the product to wait indefinitely. The default is **60**.

-work_dir *working_dir*

The temporary directory used for the Tivoli Workload Scheduler upgrade process files deployment.

On Windows operating systems:

If you specify a path that contains blanks, enclose it in double quotes.

If you do not manually specify a path, the path is set to

%temp%\TWA\tws91, where %temp% is the temporary directory of the operating system.

On UNIX and Linux operating systems:

The path cannot contain blanks. If you do not manually specify a path, the path is set to /tmp/TWA/tws91.

Examples

This section contains examples of **twsinst** scripts that you can use to upgrade an agent.

To upgrade an agent installed in the user home directory that does not have the dynamic scheduling capabilities and the Java runtime to run job types with advanced options:

```
./twsinst -update -uname twsuser
```

To upgrade a version 8.5 agent installed in the path /opt/IBM/TWA and give it dynamic scheduling capabilities, but not the Java runtime to run job types with advanced options:

On Windows operating systems:

```
twsinst -update -uname TWS_user -password qaz12qaz  
-tdwbhostname mybroker.mycompany.com -tdwbport 31116  
-inst_dir "c:\Program Files\IBM\TWA"
```

On UNIX and Linux operating systems:

```
./twsinst -update -uname twsuser -tdwbhostname mybroker.mycompany.com  
-tdwbport 31116 -inst_dir /opt/IBM/TWA
```

To upgrade a version 8.5 agent and give it both dynamic scheduling capabilities and the Java runtime to run job types with advanced options. The runtime environment is used to run application job plug-ins on the agent and to enable the capability to remotely run, from the agent, the Tivoli dynamic workload broker resource command on the server:

On Windows operating systems:

```
twsinst -update -uname TWS_user -password qaz12qaz  
-tdwbhostname mybroker.mycompany.com -tdwbport 31116 -addruntime true  
-inst_dir "c:\Program Files\IBM\TWA"
```

On UNIX and Linux operating systems:

```
./twsinst -update -uname twsuser -tdwbhostname mybroker.mycompany.com  
-tdwbport 31116 -addruntime true
```

Upgrading agents using IBM Endpoint Manager

Use the IBM Endpoint Manager analyses and Fixlets for IBM Tivoli Workload Scheduler agents upgrade management to take advantage of:

- The IBM Endpoint Manager functions to view and analyze Tivoli Workload Scheduler information about all the agents installed on IBM Endpoint Manager endpoints.
- The Fixlets to automatically find all the Tivoli Workload Scheduler agents on which to install Tivoli Workload Scheduler V9.1 upgrades. When the Fixlets become relevant, you can choose to schedule or run immediately a Tivoli Workload Scheduler upgrade installation.

IBM Endpoint Manager provides unified, real-time visibility and enforcement to deploy and manage upgrades to all endpoints from a single console.

Software requirements

You can use IBM Endpoint Manager analyses and Fixlets for Tivoli Workload Scheduler agents upgrade management in a distributed environment, by installing:

- Tivoli Workload Scheduler V8.6, V8.5.1, or V8.5 agents (fault-tolerant, dynamic, z/OS agent).
- IBM Endpoint Manager for Lifecycle Management V8.2.

Upgrading remarks

Before you begin to upgrade agents using IBM Endpoint Manager, consider the following items:

- Make sure that you have at least 2 GB of free space under the root directory or filesystem (depending on your operating system).
- If on an agent there is more than one Tivoli Workload Scheduler instance, more than one baseline or Fixlet might be relevant for that agent. Make sure that you apply the baseline or Fixlet in the correct order and that you wait for an action to complete before starting a new one, because only one single action can be taken on the same agent at the same time.
- If there is more than one Tivoli Workload Scheduler instance installed on an agent; when you run a Fixlet to upgrade to a later level, this upgrade is made on one instance at a time, starting with the first one listed in the Tivoli Workload Scheduler registry. You cannot select a specific agent.

Customizing IBM Endpoint Manager to manage Tivoli Workload Scheduler agent upgrades

To customize IBM Endpoint Manager to manage a Tivoli Workload Scheduler agent upgrade, perform the following steps:

1. Open the IBM Endpoint Manager Console.
2. Log in to the IBM Endpoint Manager server by using the administrative credentials and perform the steps listed in the next sections to configure and customize the IBM Endpoint Manager environment to automate the Tivoli Workload Scheduler upgrade installation.

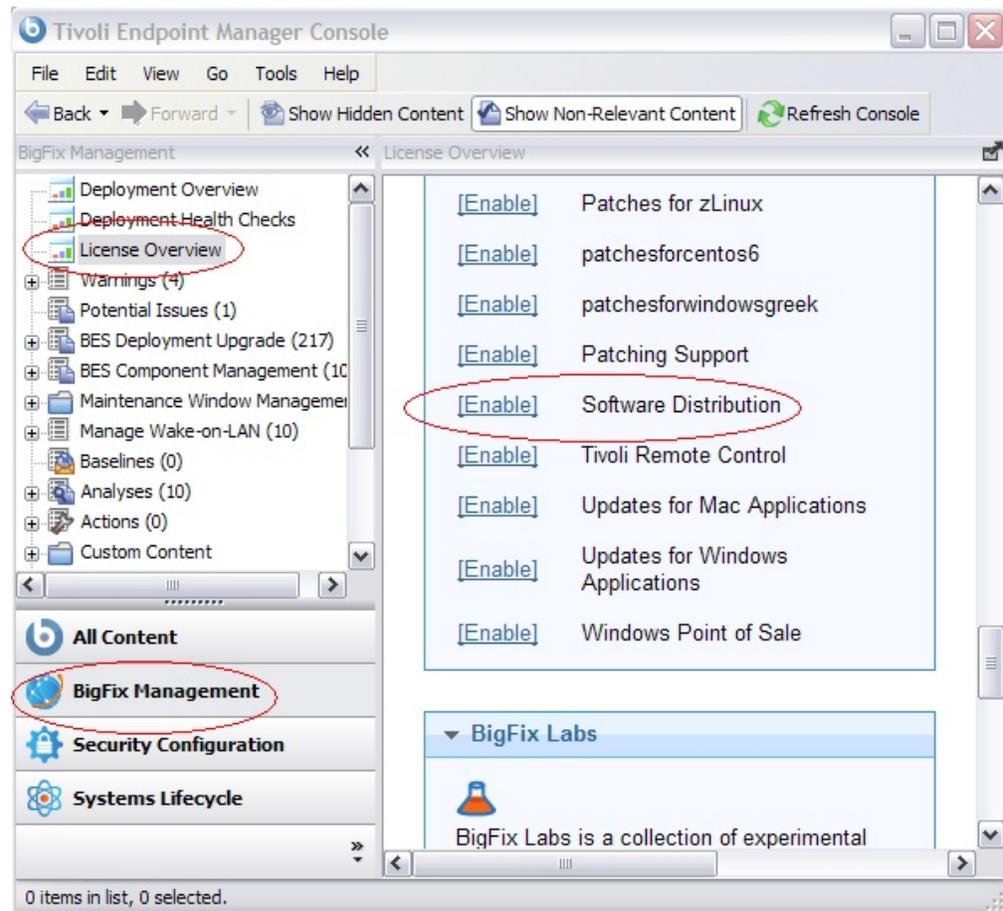
Note: The screen shots used are to be intended as a reference only, and do not reflect the current version of the product.

Enabling and subscribing to the Software Distribution external site:

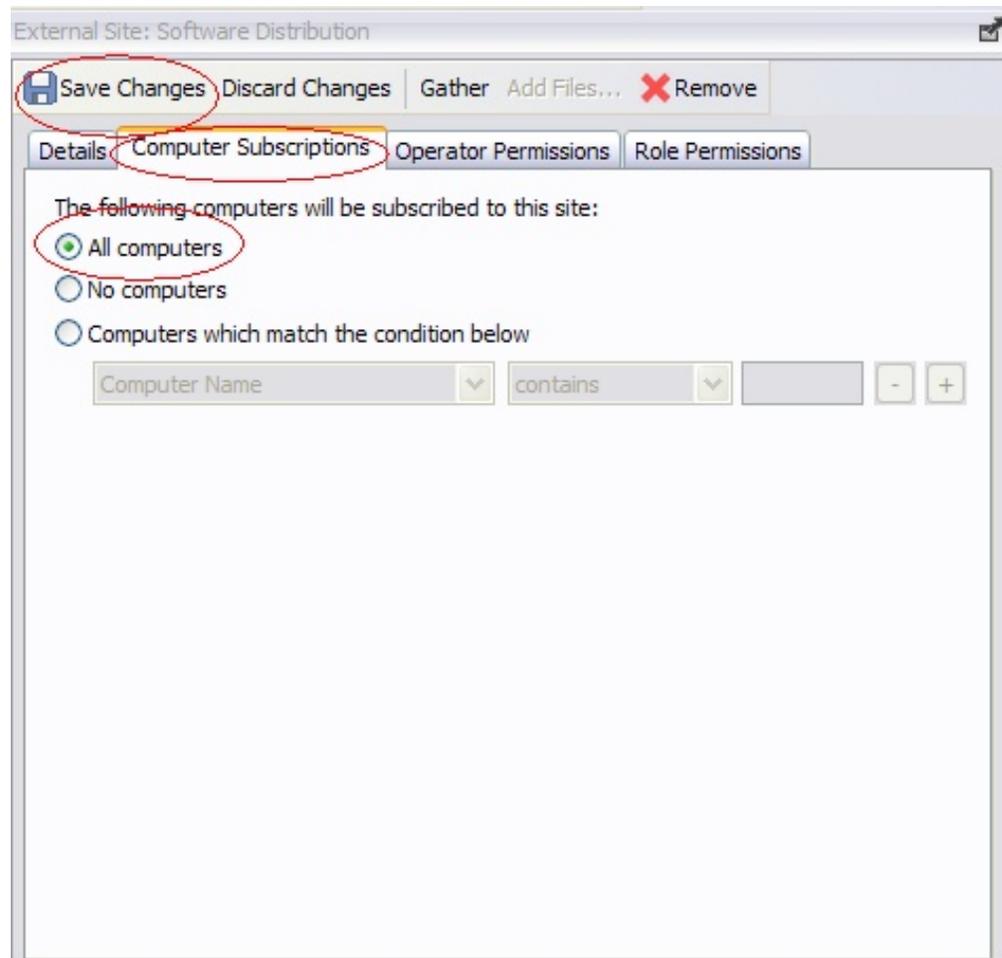
To enable and subscribe all the computers to the Software Distribution site using the IBM Endpoint Manager Console, perform the following steps:

1. Open the BigFix Management domain and scroll to the top to view the associated dashboards.

2. From the Licensing Dashboard, click the Software Distribution site from the list of enabled sites to enable it, if not already enabled.



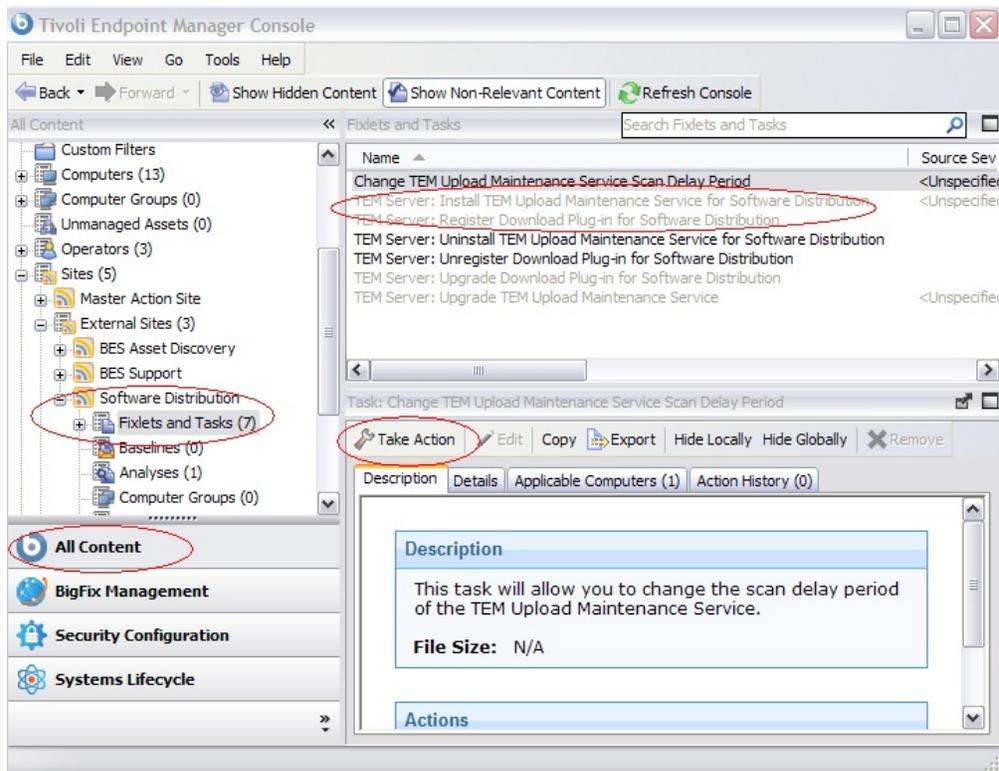
1. In the properties panel of the site, select the **Computer Subscriptions** tab, and click **All computers** to subscribe all the computers in the IBM Endpoint Manager environment to the Software Distribution site.
2. Click **Save Changes** to save the subscription settings.



Installing and registering the Download Plug-in for Software Distribution:

To install and register the Download Plug-in for Software Distribution using the IBM Endpoint Manager Console, perform the following steps:

1. From the navigation tree in the All Content domain, click **Sites->External Sites->Software Distribution->Fixlets and Tasks**.
2. From the resulting list panel on the right, click the **TEM Server: Install TEM Upload Maintenance Service for Software Distribution** Fixlet to open it. Ensure that the **Description** tab is selected.
3. From the **Description** tab, click the link or button corresponding to the Fixlet action. The **Take Action** dialog box is displayed.
4. If needed, you can refine the action settings using the appropriate tabs.
5. Click **OK** at the bottom of the **Take Action** dialog box to propagate the action to all the computers listed in this dialog box.
6. Repeat the procedure for the Fixlet: **TEM Server: Register Download Plug-in for Software Distribution**.



Uploading the Tivoli Workload Scheduler eImages and tools on the IBM Endpoint Manager server:

To upload the Tivoli Workload Scheduler V9.1 product eImages and the tools to unpack and deploy the product on the IBM Endpoint Manager server using the IBM Endpoint Manager Console, perform the following steps:

1. Download the Tivoli Workload Scheduler V9.1 product eImages from Passport Advantage, depending on your platform and agent, as in the following tables:

Table 18. Tivoli Workload Scheduler fault-tolerant agent and dynamic agent V9.1

Platform	Elmage name	Part number
AIX	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for AIX, Multilingual	CIKR2ML
HP-UX on Itanium	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for HP-UX on Itanium, Multilingual	CIKR5ML
IBM i	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for IBM i, Multilingual	CIKT2ML
Linux on x86	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for Linux on x86-32, Multilingual	CIKS5ML
Linux x86-64	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for Linux on x86-64, Multilingual	CIKS7ML

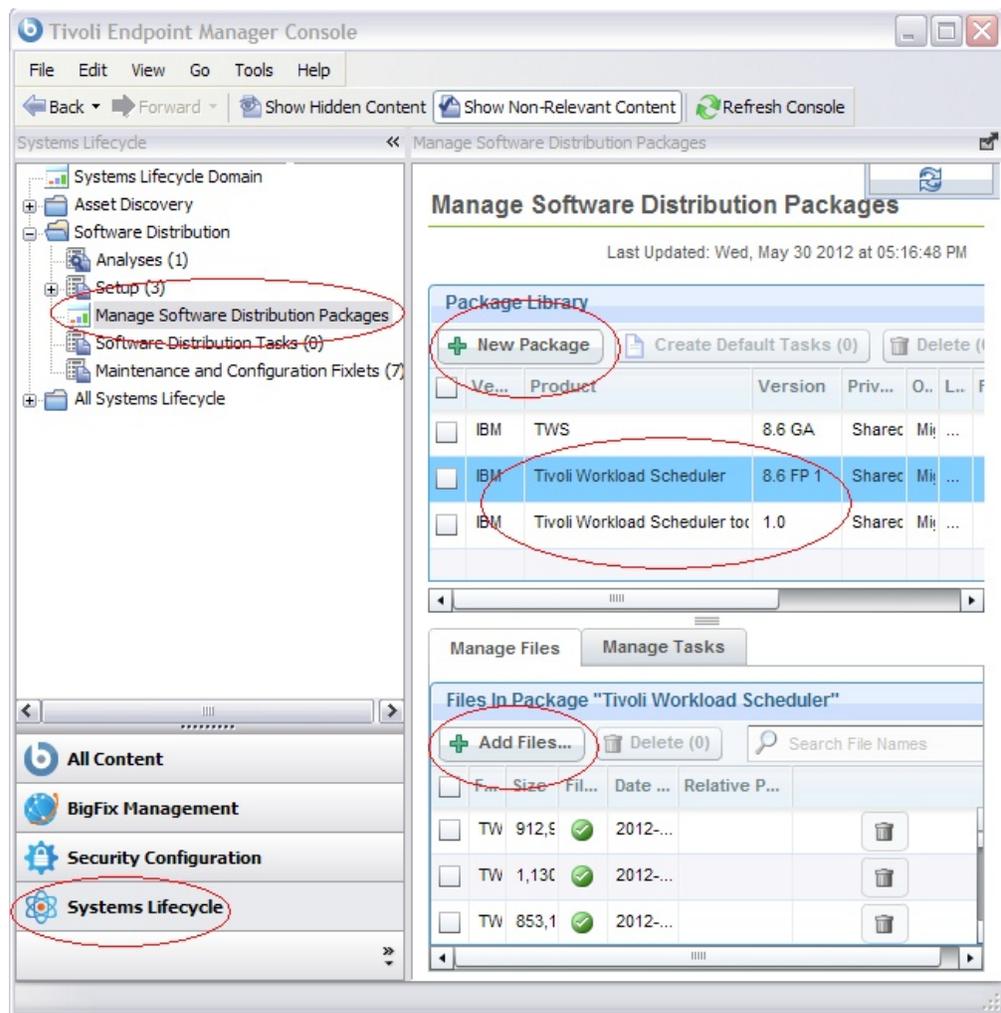
Table 18. Tivoli Workload Scheduler fault-tolerant agent and dynamic agent V9.1 (continued)

Platform	Elmage name	Part number
Linux on System z	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for Linux on System z9 and System z, Multilingual	CIKU1ML
Solaris SPARC	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for Solaris SPARC, Multilingual	CIKR8ML
Solaris x64	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for Solaris x64, Multilingual	CIKS2ML
Windows (32-bit)	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for Windows-32, Multilingual	CIKT5ML
Windows x64	IBM Tivoli Workload Scheduler Agent V9.1 and remote CLI for Windows x64, Multilingual	CIKT7ML

Table 19. Tivoli Workload Scheduler for z/OS Agent V9.1

Platform	Elmage name	Part number
AIX	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for AIX, Multilingual	CIL00ML
HP-UX on Itanium	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for HP-UX on Itanium, Multilingual	CIL06ML
IBM i	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for IBM i, Multilingual	CIL04ML
Linux on x86	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for Linux on x86, Multilingual	CIL03ML
Linux x86-64	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for Linux on x86-64, Multilingual	CIL08ML
Linux on System z	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for Linux on System z9 and System z, Multilingual	CIL05ML
Solaris SPARC	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for Solaris SPARC, Multilingual	CIL01ML
Solaris x64	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for Solaris x64, Multilingual	CIL07ML
Windows (32-bit)	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for Windows-32, Multilingual	CIL02ML
Windows x64	IBM Tivoli Workload Scheduler for z/OS Agent V9.1 for Windows x64, Multilingual	CIL09ML

2. In the navigation tree of the Systems Lifecycle domain panel, click **Software Distribution ->Manage Software Distribution Packages**.
3. From the resulting **Package Library** list panel on the right, double-click **New Package** to create the package for the Tivoli Workload Scheduler V9.1 GA eImages and the package for the tools. Using the same panel, you can customize all the properties for these packages.
4. From the **Package Library** list panel, select the Tivoli Workload Scheduler V9.1 GA package.
5. In the **Manage Files** tab at the bottom, click **Add Files** to upload the Tivoli Workload Scheduler V9.1 GA eImages on the Tivoli Endpoint Manager server, one file at a time.

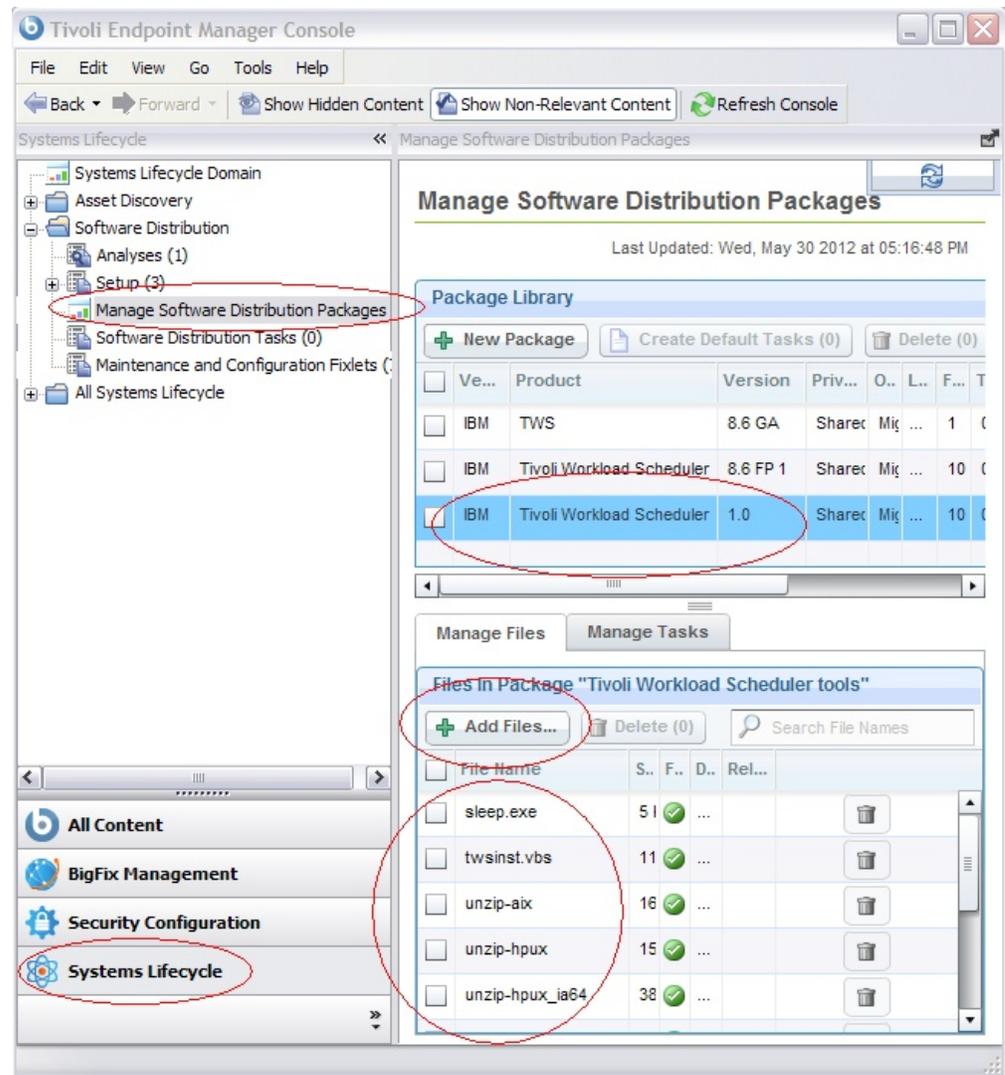


1. From the **Package Library** list panel, select the Tivoli Workload Scheduler V9.1 tools package.
2. In the **Manage Files** tab at the bottom, click **Add Files** to upload the Tivoli Workload Scheduler V9.1 tools on the IBM Endpoint Manager server, one file at a time.

Note: You must add the unzip tools for every platform that you need. The unzip tools are located in the IBM Tivoli Workload Scheduler V9.1 utility tools

Multiplatform eImage that you downloaded from Passport Advantage. The following naming convention, specific for each operating system, was used:

- unzip-aix
- unzip-hpux_ia64
- unzip-linux_s390
- unzip-linux_x86
- unzip-solaris
- unzip-solaris_i386
- unzip-windows.exe.



Enabling and subscribing to the IBM Workload Scheduler external site:

The IBM Workload Scheduler external site hosts the Tivoli Workload Scheduler Fixlets, actions, baselines, and analyses that are pertinent to your network. To enable and subscribe all the computers to the IBM Workload Scheduler site using the IBM Endpoint Manager Console, perform the following steps:

1. Open the IBM Workload Scheduler Management domain and scroll to the top to view the associated dashboards.

2. In the Licensing dashboard, click **IBM Workload Scheduler** and enable the IBM Workload Scheduler site, if not already enabled, by clicking IBM Workload Scheduler in the list of sites.
3. In the properties panel of the IBM Workload Scheduler site, select the **Computer subscriptions** tab and click **All computers** to subscribe all the computers in the IBM Endpoint Manager environment to the IBM Workload Scheduler site.
4. Click **Save Changes** to save the site subscription settings.

Using IBM Endpoint Manager analyses to receive information about the Tivoli Workload Scheduler agents installed

An analysis is a collection of property expressions that allow operators to view and summarize various properties of IBM Endpoint Manager client computers in a network. These properties are grouped together to be labeled, edited, and activated against groups of computers whose results must be displayed together. For example, suppose you have a custom application deployed in your network, and you want to create an analysis to have important information about the state of the workstations related to that custom application, you might build an analysis with several properties, such as:

- If the custom application is installed.
- The version of the custom application.
- If the application is running.

Tivoli Workload Scheduler analyses are grouped by supported platforms. Using the IBM Workload Scheduler site you can browse and analyze the information related to the Tivoli Workload Scheduler instance installed on each computer connected to the IBM Endpoint Manager server.

To display a Tivoli Workload Scheduler analysis using the IBM Endpoint Manager Console, perform the following steps:

1. In the Domain panel, click **Sites->External Sites->IBM Workload Scheduler->Analyses**.
2. Click any **TWS agent (platform)** entry in the resulting **Analyses** list panel. The body of the analysis is displayed in the area below the list. Click the **Description** tab if it is not already selected.
3. The Analysis: TWS agent (*platform*) area has the following tabs:

Description

This is an HTML page providing a description of the analysis.

Details

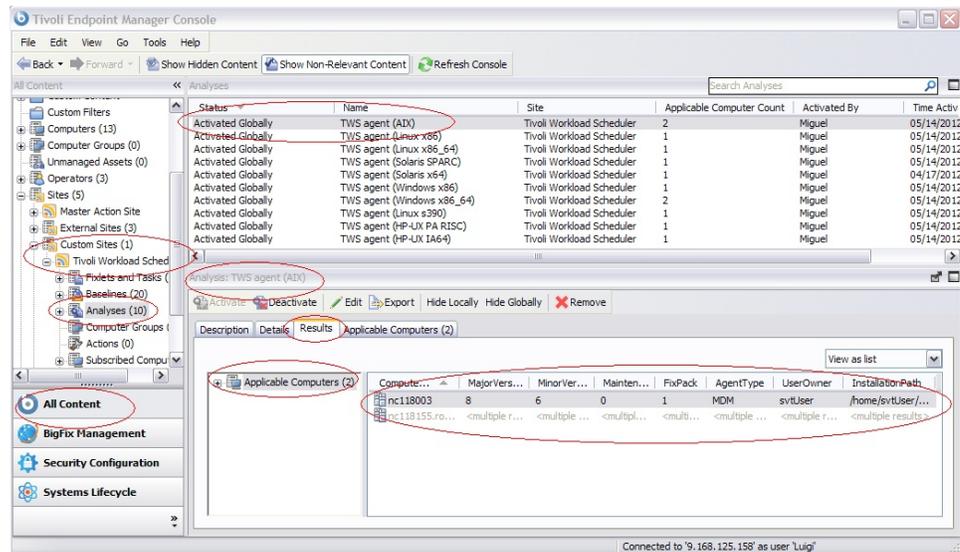
This panel provides a property listing for the chosen analysis, as well as the relevance statement used to target the chosen computers. A text box is provided to enter comments relevant to this analysis.

Results

This panel lists the actual results of the analysis, which can be filtered and sorted by the preassigned properties. This tab is available only if the analysis is active. For each Tivoli Workload Scheduler agent analysis, the following information is provided for every instance installed:

- Computer name
- Tivoli Workload Scheduler version (Major, Minor, Maintenance, Fix Pack)

- Tivoli Workload Scheduler agent type
 - Tivoli Workload Scheduler user owner
 - Tivoli Workload Scheduler installation path
4. **Applicable Computers:** This is a list of all the computers on which the selected analysis is applicable. You can filter the list by selecting items from the folders on the left, and sort the list by clicking the column headers.



Using IBM Endpoint Manager relevant Fixlets to upgrade Tivoli Workload Scheduler agents

Fixlets and tasks are central to IBM Endpoint Manager. Using Relevance statements, they target specific computers, remediating only those IBM Endpoint Manager clients affected by an issue. They are both packaged with an action script that can resolve the issue with a simple mouse-click.

For example, Tivoli Workload Scheduler Fixlets find, if relevant, only the Tivoli Workload Scheduler agents that have installed a version earlier than V9.1. The related actions then prepare the instance to install the upgrade and then upgrade the agent.

Fixlets and tasks differ mainly on how they get resolved.

A Fixlet is triggered by a Relevance clause that detects a vulnerability, for example a version earlier than V9.1 applied to agents. When an action is invoked to solve the vulnerability, this Fixlet automatically loses relevance and is no longer applicable on that specific IBM Endpoint Manager client. When a Fixlet action propagates through your network, you can track its progress using the Console, Web Reports, and the Visualization Tool. When you remedy every IBM Endpoint Manager client in your network, the Fixlet is no longer relevant and is removed from the list. If the vulnerability returns, the Fixlet is shown again in the list to address the vulnerability again.

A task comes with one or more action scripts that help you to adjust settings or to run maintenance tasks.

At any time, you can open a Fixlet to inspect the underlying Relevance expressions that are used to target clients, as well as the action scripts that are designed to

address the issue. The language used is close to the human language to give you a high degree of confidence in both applicability and efficacy of the remedial action. You can also see precisely which computers in your network are affected by each Fixlet. When propagated, you can view the progress and ultimate history of each action taken on a client basis.

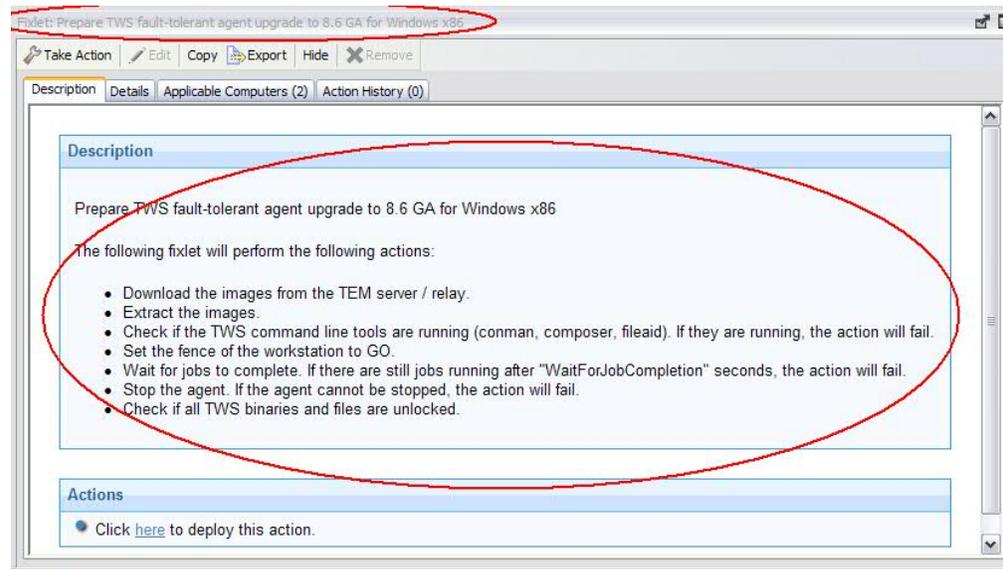
Tivoli Workload Scheduler provides the following Fixlets for each operating system to upgrade agents to V9.1:

1. **Prepare TWS *type_of_agent* agent upgrade to version 9.1 for *platform***
2. **Upgrade TWS *type_of_agent* agent to version 9.1 for *platform***

Where *type_of_agent* can be *fault-tolerant*, *dynamic*, for *z/OS* and *platform* is one of the supported operating systems.

If the first Fixlet is relevant and you click **Take Action**, IBM Endpoint Manager prepares the Tivoli Workload Scheduler agent for the upgrade by performing the following steps:

- Downloads the images from the IBM Endpoint Manager server or relay.
- Extracts the images.
- Checks if the Tivoli Workload Scheduler command line tools are running (**conman**, **composer**, **fileaid**). If they are running, the action fails.
- Sets the fence of the workstation to GO.
- Waits for jobs to complete. If there are still jobs running after `WaitForJobCompletion` seconds, the action fails.
- Stops the agent. If the agent cannot be stopped, the action fails.
- Checks if all Tivoli Workload Scheduler binaries and files are unlocked.

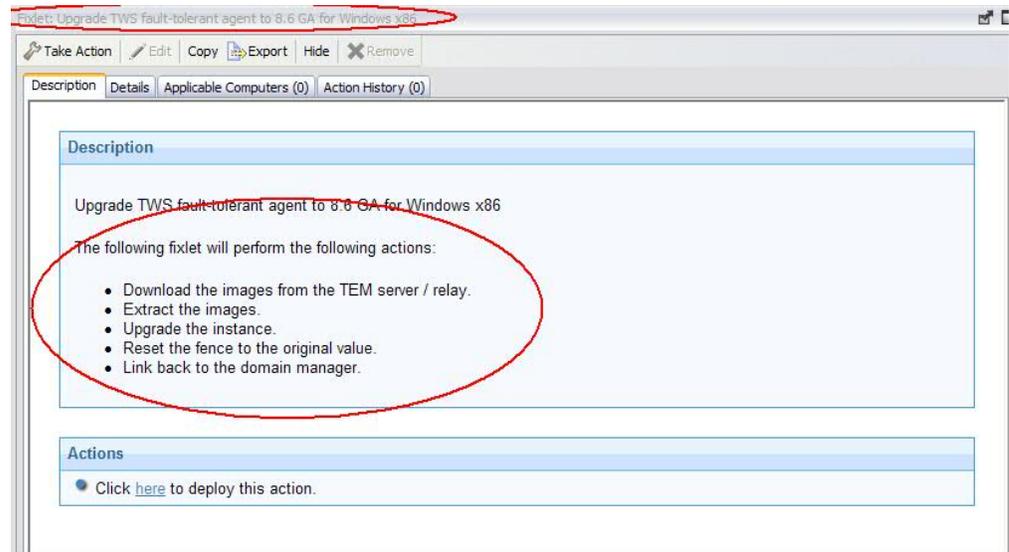


If one of the actions fails, the Fixlet fails and remains relevant. You can check the failed action by using the **Status** tab of the action. Perform the necessary steps to solve the problems on the agents and rerun the action.

If all the actions succeed, the Fixlet is no longer relevant and the next Fixlet becomes relevant. If you click **Take Action** for the new one, it upgrades the previously prepared agent instance to V9.1, performing the following steps:

- Downloads the images from the IBM Endpoint Manager server or relay.
- Extracts the images.
- Upgrades the instance.
- Resets the fence to the original value.
- Links back to the domain manager.

Also in this case you can check the status of the action through the relative tab and, in case of errors, solve the problems and rerun the action until it succeeds.



Displaying relevant Tivoli Workload Scheduler Fixlets:

To display a Tivoli Workload Scheduler Fixlet using the IBM Endpoint Manager Console, perform the following procedure:

1. From the navigation tree in the **Domain** Panel, click the icon labeled **Fixlets and Tasks**. The list panel is displayed on the right.
2. From the list panel, click any Tivoli Workload Scheduler Fixlet to open it. The body of the Fixlet message is displayed in the work area.
3. Click the **Description** tab if not already selected. When selected, each Fixlet has its own window. Each Fixlet contains a work area with the following four tabs:

Description

This page provides a descriptive explanation of the problem and one or more actions to fix it. The actions are represented by links at the bottom of the description page. Click an action to open the **Take Action** dialog, to choose other targets, or to schedule the action. If you click by mistake an action hyperlink before the actual deployment, you always have the chance to modify or cancel the action.

Details

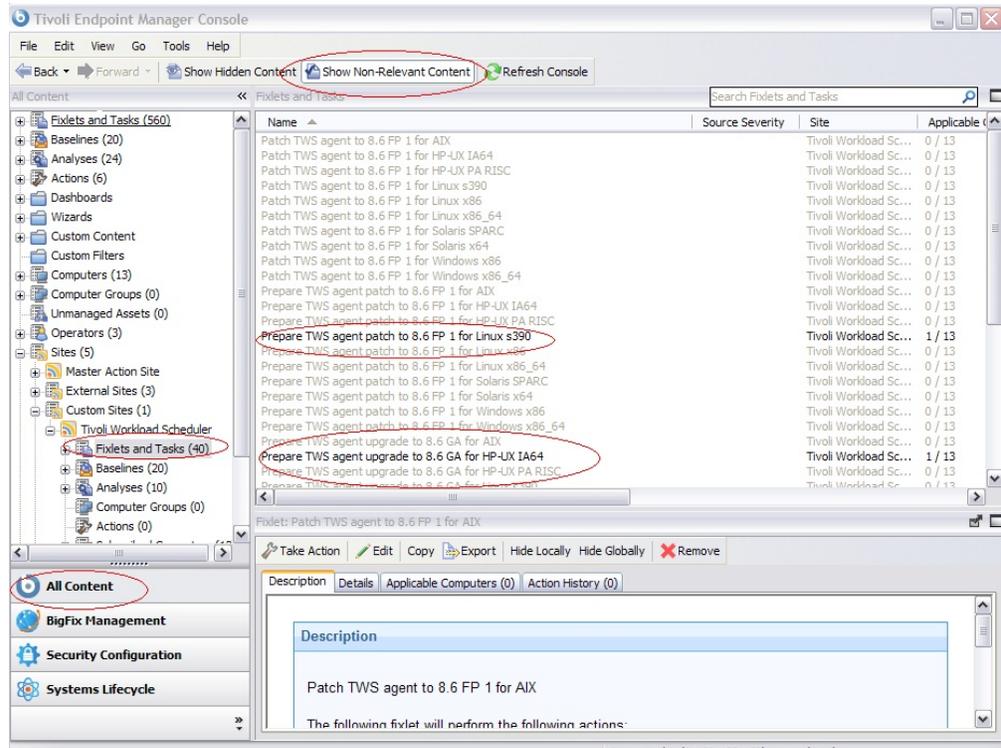
This dialog contains the Fixlet and task properties such as category, security ID, download size, source, severity, and date. It also lists the code behind the Relevance expressions and the actions. In a text box at the bottom of this dialog, you can type a comment that remains attached to this item.

Applicable Computers

This is a list of all the computers targeted by the selected Fixlet or task. You can filter the list by selecting items from the folders on the left, and sort the list by clicking the column headers.

Action History

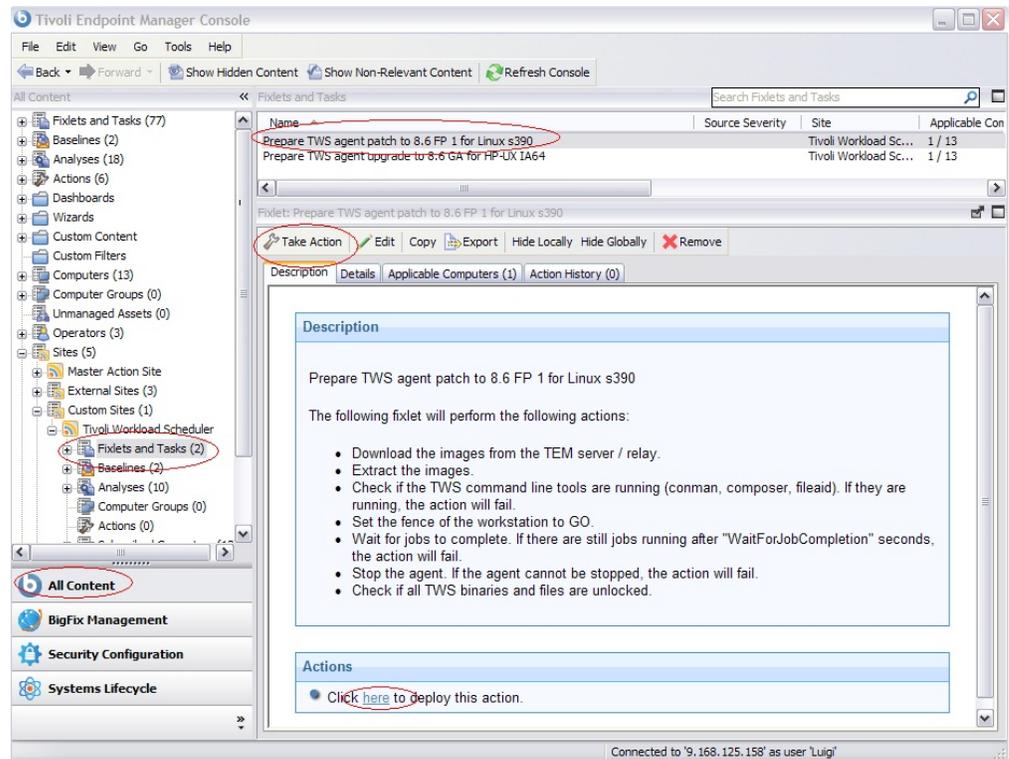
This is a list of actions that have been deployed by this Fixlet or task. If this item is new, the list is empty. You can filter the actions using the left panel, and sort them by clicking the column headers above the right-hand list.



Deploying Tivoli Workload Scheduler actions:

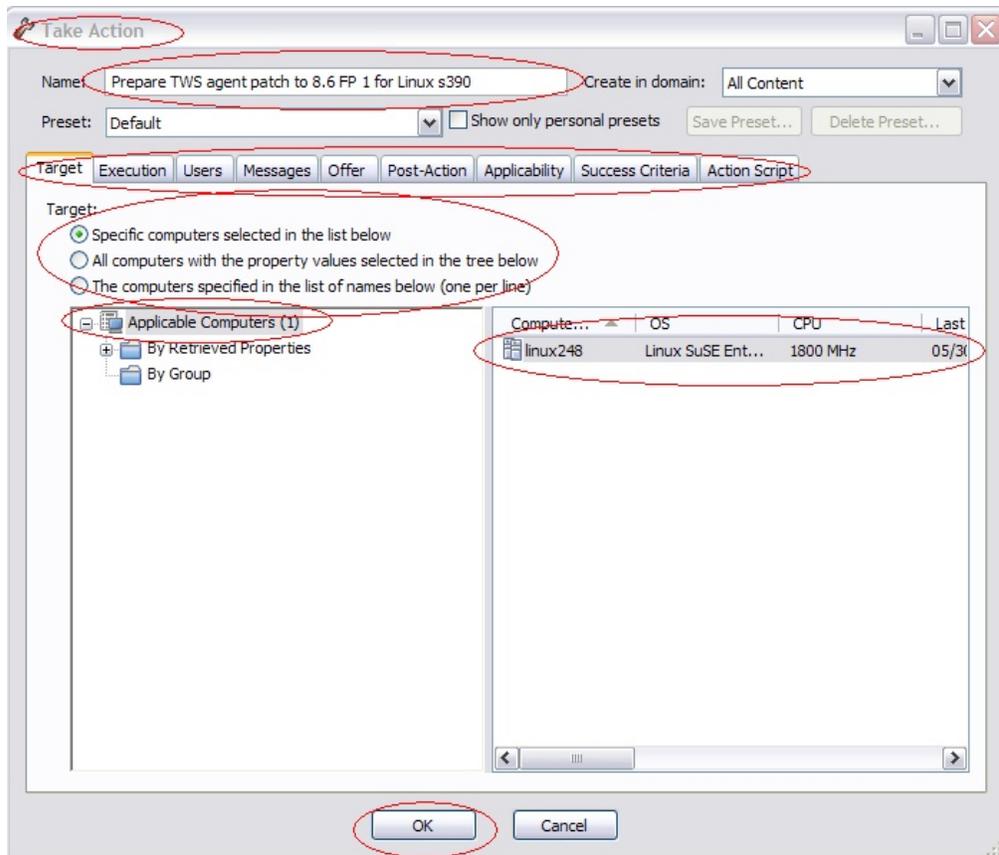
To deploy a Tivoli Workload Scheduler action using the IBM Endpoint Manager Console, perform the following procedure:

1. Click the list panel to open a relevant Fixlet or task. Make sure the **Description** tab is selected.
2. Read the description carefully. Scroll down to see the suggested actions.
3. Click the **Details** tab and search the action. Examine the Relevance section and the action script itself.



1. In the **Description** tab, click the link, button corresponding to the Fixlet action. In the **Take Action** dialog box you can provide the necessary action parameters. Click the **Execution** tab to view the scheduling constraints related to the action execution.
2. In the **Preset** pull-down menu, you can accept the default settings or select **Policy** to set an action with no expiration date. For more information about presets, see the section about **Custom Actions**.
3. You can refine the list of targeted computers using the **Target** tab. Use the computer tree in the left panel to filter the list of workstations in the right panel.
4. In the **Messages** tab, you can create an optional message to be shown on the IBM Endpoint Manager client computers.
5. In the **Execution** tab, you can set various scheduling constraints and behaviors. Use the other interface tabs to further modify the Action settings.
6. In the **Action Script** tab, operators with Custom Authoring permissions can modify the action script.
7. Click **OK**.

Note: If you are taking an action that applies to different computers, when you are prompted to insert values for the action parameters, you must leave the default values; you must not specify other values.



The action is propagated to all the computers targeted in the **Take Action** dialog. After the action ends successfully and the targeted computers are fixed, those computers no longer report this Fixlet as relevant.

Monitoring Tivoli Workload Scheduler actions:

When you decide to take a proposed action, you have several deployment options. For example, you might schedule the action to run unattended after midnight or to run with user involvement during the day.

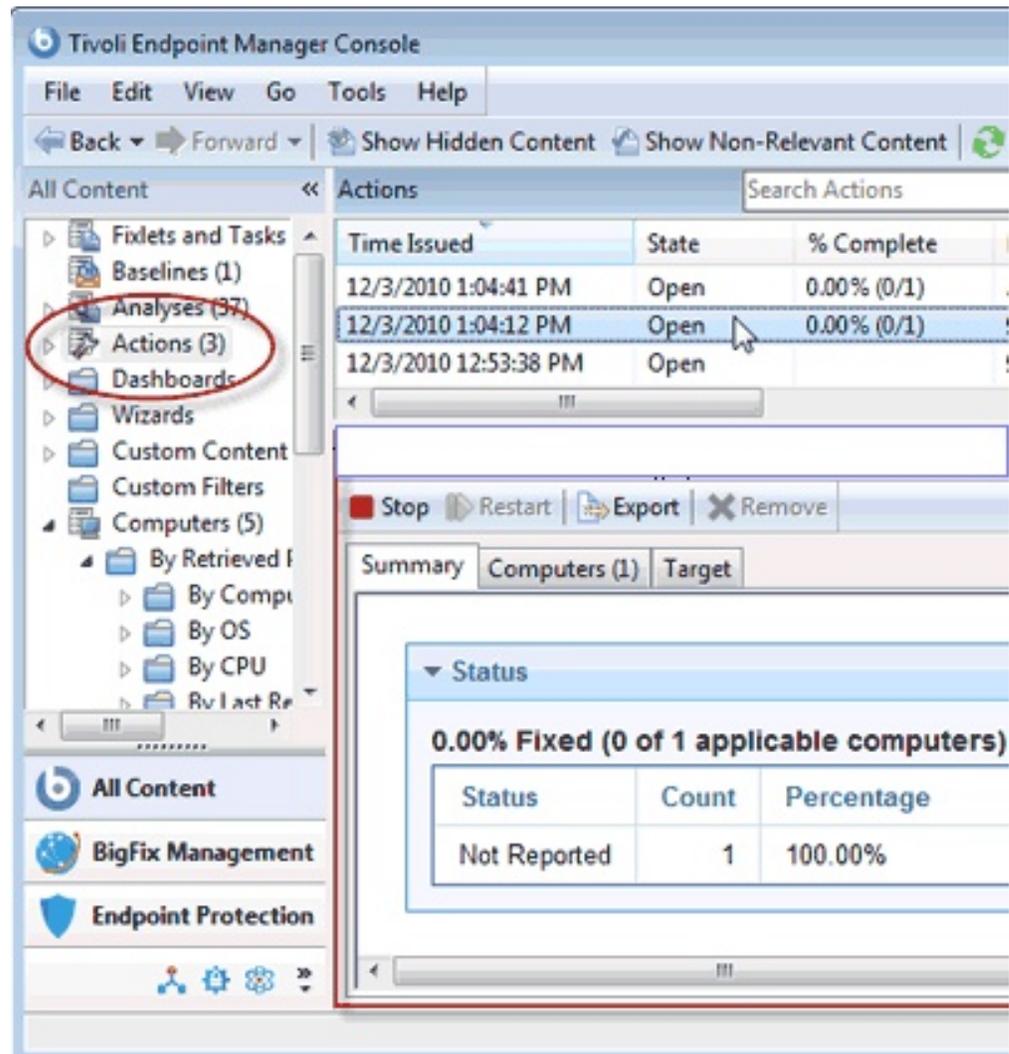
After you schedule the actions, the IBM Endpoint Manager server attempts to identify the computers suitable for those actions. Ideally, the IBM Endpoint Manager client gathers the action information from the action site and performs it immediately. However, some computers might be powered off and others might be mobile devices undocked when the action is deployed. As soon as these computers become available, the remedial action is applied.

To monitor a deployed action, using the IBM Endpoint Manager Console, click the **Actions** icon in the Domain panel navigation tree.

If you have not yet deployed an action or all the actions completed, this list is empty. Otherwise, click any action to view its status, whether it is evaluating, waiting, running, fixed, or failed. You can also add comments to the action.

Actions might go through several states as they are collected, evaluated, and run by clients.

Note: If an action failed for any reason and its state is Open, before running it again, make sure to stop it and that it is not listed in the actions list.



Using IBM Endpoint Manager relevant baselines to upgrade Tivoli Workload Scheduler agents

Baselines are collections of Fixlet messages and tasks. They provide a powerful way to deploy a group of actions across an entire network with a single command.

Baselines provide a way to maintain a common operating environment, making sure that all users in any given domain have the same software, patches, and drivers. Baselines are easy to set up, by selecting the Fixlet messages, tasks, and other baselines that you want to be a part of the group. To limit the scope of a baseline, a Relevance expression can be used to target any subset of your network, using IP addresses, computer names, operating systems, and many other qualifiers.

For example, you might make a baseline named "All critical hot fixes," and populate it with all the current critical hot fixes available in the Fixlet list. Alternatively, you might create one baseline named "Finance department baseline," to keep that particular group of computers updated with the latest financial programs, financial tables, updates, and patches.

Tivoli Workload Scheduler provides a baseline for every platform supported. The provided baselines group together the Tivoli Workload Scheduler Fixlets described in “Using IBM Endpoint Manager relevant Fixlets to upgrade Tivoli Workload Scheduler agents” on page 199 that prepare the agent instance for the upgrade and then upgrade the agent. In this way you can manage the agent upgrade with a single click.

The Tivoli Workload Scheduler baselines provided are named: **Upgrade TWS *type_of_agent* agent to version 9.1 for *platform***, where *type_of_agent* can be fault-tolerant, dynamic, for z/OS and *platform* is the operating system of the agent to upgrade.

Viewing Tivoli Workload Scheduler baselines:

With baselines you can group Fixlet messages and tasks for simple, one-click deployment. To display an existing baseline, perform the following steps:

1. Click the **Baselines** icon in the Domain panel navigation tree.
2. Click an item in the list panel. The body of the baseline is shown in the work area below.

The baseline display region contains the following tabs:

Description

This page provides a descriptive explanation of the problem and an action to fix it.

Details

This dialog lists the baseline properties, a section detailing the code behind the Relevance expressions, and the baseline actions. You can enter a comment in a text box at the bottom of this dialog.

Components

This dialog lists the baseline components, such as Fixlet messages, tasks, and other baselines that are grouped into this baseline. Baselines make a copy of their components, so it is possible for one of these copies to get out of synchronization with the underlying Fixlet or task that propagated it. In this case, a message is displayed alerting you that the source differs from the copy and you can synchronize it with the current source.

Applicable Computers

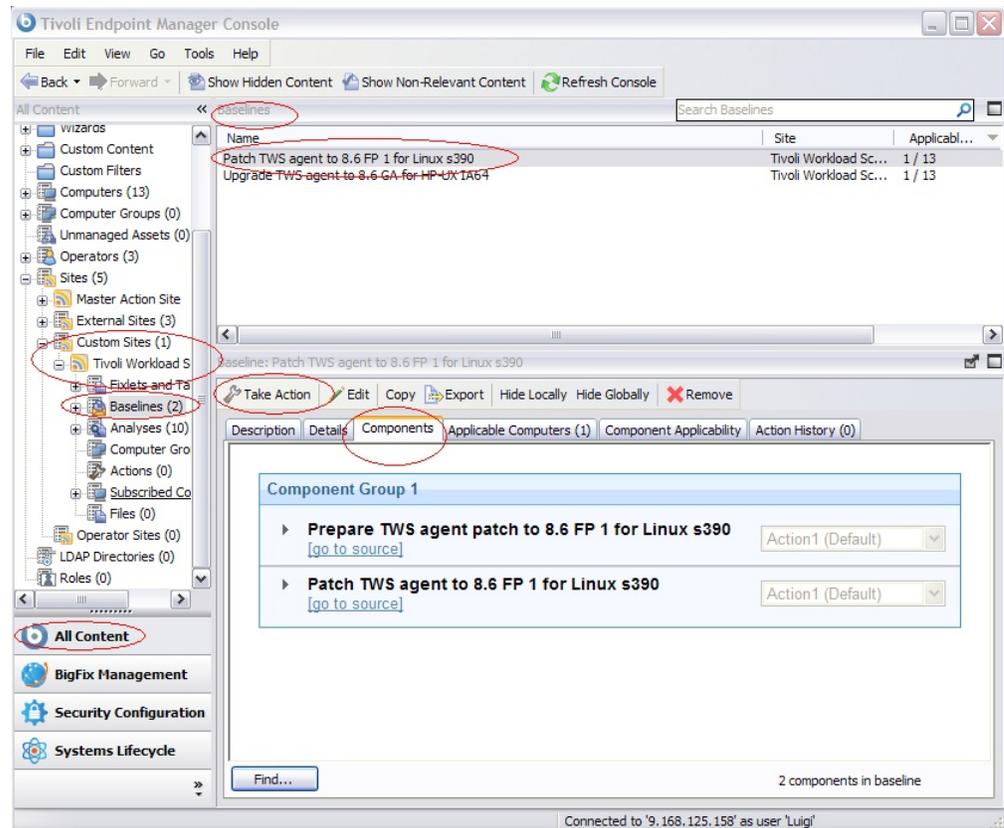
This is a list of all the computers targeted by the selected baseline. You can filter the list by selecting items from the folders on the left, and sort the list by clicking the column headers.

Component Applicability

This is a list of the various components of the baseline. It displays two numbers separated by a slash. The first one is the number of computers where the baseline is currently applicable; the second one is the number of computers where it is not. Double-click an item in the list to display its details.

Action History

This is a list of actions that have been deployed by this baseline. If the baseline is new, there are no actions in the list. As for other lists in the Console, you can filter the actions using the left panel, and sort them by clicking the column headers.



Monitoring relevant Tivoli Workload Scheduler baselines:

When baselines become relevant in your network, the IBM Endpoint Manager Console adds them to the list of baselines to be displayed under the baselines icon in the domain panel navigation tree. You can filter this list by opening the icon and selecting one of the subsets. In the resulting list panel on the right, you can sort the baselines by clicking one of the column headings, which can include the following fields:

Name The name assigned to the baseline by the author.

ID A numerical identification assigned to the baseline by the author.

Site The name of the site that is generating the relevant baseline.

Applicable Computer Count

The number of IBM Endpoint Manager clients in the network currently targeted by the baseline.

Open Action Count

The number of actions open for the given baseline.

If you do not see one of the columns listed above, right-click the baseline header and select the column from the pop-up menu.

Deploying and Monitoring Tivoli Workload Scheduler actions related to baselines:

See the “Deploying Tivoli Workload Scheduler actions” on page 202 and “Monitoring Tivoli Workload Scheduler actions” on page 204 sections for further information.

Upgrading when there are corrupt registry files

If you have tried to upgrade a stand-alone, fault-tolerant agent (an agent that is not shared with other components or does not have the connector feature) and received an error message that states that an instance of Tivoli Workload Scheduler cannot be found, this can be caused by a corrupt registry file. It is possible to upgrade a stand-alone, fault-tolerant agent that has a corrupt registry files without having to reinstall the product. Tivoli Workload Scheduler has a recovery option you can run to recreate the necessary files. You can also use this option when upgrading nodes in clusters, where the node on which you want to perform the upgrade is not available or is in an inconsistent state. The recovery option re-creates the registry files and the Software Distribution information without having to reinstall the complete product.

You can run the recovery option using the **twsinst** script.

Re-creating registry files using twsinst

To re-create the registry files while upgrading an agent using the **twsinst** script, perform the following steps:

On Windows operating systems

1. Insert the DVD for your operating system.
2. Log in as administrator on the workstation where you want to upgrade the product.
3. From the *TWS/operating_system* directory of the DVD, where *operating_system* is the operating system where you want to upgrade Tivoli Workload Scheduler, run **twsinst** using the synopsis described below.

On UNIX and Linux operating systems

1. Insert the installation DVD according to the operating system.
2. From the *TWS/operating_system* directory, where *operating_system* is the operating system where you want to upgrade Tivoli Workload Scheduler, run the **twsinst** script using the synopsis described below.

Synopsis:

On Windows operating systems:

Show command usage and version

```
twsinst -u | -v
```

Upgrade an instance

```
twsinst -update -uname user_name  
-password user_password  
[-domain user_domain]  
[-recovInstReg true]  
[-inst_dir install_dir]
```

Example

```
twsinst -update -uname twsuser -password qaz12qaz  
-inst_dir "C:\Program Files\IBM\TWA" -recovInstReg true
```

On UNIX and Linux operating systems

Show command usage and version

```
./twsinst -u | -v
```

Upgrade an instance

```
./twsinst -update -uname user_name  
[-inst_dir install_dir  
[-recovInstReg true]]
```

Example

```
./twsinst -update -uname twsuser -inst_dir /opt/IBM/TWA  
-recovInstReg true
```

For information about the **twsinst** parameters, see “Procedure” on page 185.

Chapter 8. Configuring

You must configure Tivoli Workload Scheduler components after installation.

Setting the environment variables

Before you configure your Tivoli Workload Scheduler components, you must set the environment variables.

On Windows operating systems, run the **twc_env.cmd** shell script to set up both the *PATH* and *TWS_TISDIR* variables. For example, if Tivoli Workload Scheduler is installed in the %ProgramFiles%\IBM\TWA\TWS directory, the *PATH* variable is set as follows:

```
c:\Program Files\IBM\TWA\TWS;c:\Program Files\IBM\TWA\TWS\bin
```

Note: If you have more than one version of Tivoli Workload Scheduler installed on your computer, make sure *TWS_TISDIR* points to the latest one. This ensures that the most recent character set conversion tables are used.

On UNIX and Linux operating systems, source the **twc_env.sh** shell script to set up both the *PATH* and *TWS_TISDIR* variables. For example, if Tivoli Workload Scheduler is installed in the default directory /opt/IBM/TWA/TWS directory, **twc_env.sh** sets the variables as follows:

```
PATH=/opt/IBM/TWA/TWS:/opt/IBM/TWA/TWS/bin:$PATH
export PATH
```

```
TWS_TISDIR=/opt//opt/IBM/TWA/TWS
export TWS_TISDIR
```

The **twc_env** script has two versions:

- **twc_env.sh** for Bourne and Korn shell environments
- **twc_env.csh** for C Shell environments

Configuring a master domain manager

After you installed a master domain manager, if you did not select to automatically add the final job stream during installation, follow the steps in this section to add the *FINAL* and *FINALPOSTREPORTS* job streams to the database.

The *FINAL* job stream is placed in production every day and runs **JnextPlan** before the start of a new day.

The *FINALPOSTREPORTS* job stream, responsible for printing post production reports, follows the *FINAL* job stream and starts only when the last job listed in the *FINAL* job stream (*SWITCHPLAN*) is completed successfully.

The installation creates the <TWS_INST_DIR>\TWS\Sfinal file that contains the *FINAL* and *FINALPOSTREPORTS* job stream definitions.

You can use the <TWS_INST_DIR>\TWS\Sfinal or create a customized new file for the *FINAL* job stream. For details about customizing the final job stream, see *Tivoli Workload Scheduler: User's Guide and Reference*.

The following steps gives an example of how to configure a master domain manager after the installation:

1. Log in as `<TWS_user>` or as administrator.
2. Set the environment variables. See “Setting the environment variables” on page 211.
3. Add the `FINAL` and `FINALPOSTREPORTS` job stream definitions to the database by running the following command from the `/opt/IBM/TWA/TWS` directory:

```
composer add Sfinal
```

where `Sfinal` is the name of the file that contains the `FINAL` and `FINALPOSTREPORTS` job stream definitions.

4. Add the `FINAL` and the `FINALPOSTREPORTS` job streams to the plan by running:

```
JnextPlan
```

You can automate this step after installation. See *Tivoli Workload Scheduler: User's Guide and Reference*.

5. When **JnextPlan** completes, check the status of Tivoli Workload Scheduler:

```
conman status
```

If Tivoli Workload Scheduler started correctly, the status that is returned by the command is `Batchman LIVES`.

6. Change the workstation limit value to run jobs. The default job limit after installation is 0, so no jobs run at any time. Raise the job limit to allow jobs to run, for example, to run 10 jobs at the same time:

```
conman "limit ;10"
```

If no workstation name is specified for the limit command, the default value is the current login workstation.

Note: If the priority of jobs is HI (100) or GO (101), the limit is ignored and the jobs run even if the limit is 0, unless the workstation fence is greater than or equal to the priority.

Additionally, the following configuration procedures might be necessary. For information about these procedures, see *Tivoli Workload Scheduler: Administration Guide*.

- Customizing and configuring global, local, and user options.
- Customizing and configuring user authentication to allow users authorization on actions and objects, and to configure LDAP.
- Setting connection security to enable SSL or GSKit for inter-component communications.

Configuration steps for a master domain manager configured as backup

After you install a master domain manager configured as backup, perform the following additional configuration steps:

1. Log in as `<TWS_user>` on your master domain manager

2. Add the username and password for the master domain manager configured as backup to the useropts file. See *Tivoli Workload Scheduler: User's Guide and Reference*.
3. Set the environment variables by running **tw_s_env** as described in "Setting the environment variables" on page 211.
4. Define the master domain manager configured as backup as a full status autolink fault-tolerant agent in the Tivoli Workload Scheduler database, using the **composer** command interface or the Dynamic Workload Console. In this example, using **composer**:

```
composer
new
```

5. Type the workstation definition in the text editor, for example:

```
CPUNAME BDM1
DESCRIPTION "Backup master domain manager"
OS UNIX
NODE 1ab777
TCPADDR 31111
FOR MAESTRO
  TYPE FTA
  AUTOLINK ON
  BEHINDFIREWALL OFF
  FULLSTATUS ON
end
```

For more information about workstation definitions, see the *Tivoli Workload Scheduler: User's Guide and Reference*.

6. Run **JnextPlan -for 0000** to include the master domain manager configured as backup workstation in the plan and to send the Symphony® file to it.

Note: Ensure that the global option **carryforward** is set to **all** or only the not completed job streams are carried forward.

7. Change the workstation limit to allow jobs to run on the workstation. For example, set the number of jobs to run concurrently on the workstation to 10:
conman "limit **DM1**;10"

Note: If you are logged into the master domain manager configured as backup, DM1 is not required.

Additionally, the following configuration procedures might be necessary. For information about these procedures, see *Tivoli Workload Scheduler: Administration Guide*.

- Customizing and configuring global, local, and user options.
- Customizing and configuring user authentication to allow users authorization on actions and objects, and to configure LDAP.
- Setting connection security to enable SSL or GSKit for inter-component communications.

Configuring a domain manager

After you install a domain manager, perform the following configuration steps:

1. Log in as `<TWS_user>` on your master domain manager.
2. Set the environment variables by running **tw_s_env** as described in "Setting the environment variables" on page 211.

3. Define the domain manager as a full status autolink fault-tolerant agent in the Tivoli Workload Scheduler database, using the **composer** command interface or the Dynamic Workload Console. In this example, using **composer**, type:

```
composer  
new
```

4. Type the workstation definition in the text editor, for example:

```
CPUNAME DDM1  
DESCRIPTION "domain manager"  
OS UNIX  
NODE 1ab0777  
TCPADDR 31111  
DOMAIN MDM  
FOR MAESTRO  
TYPE MANAGER  
AUTOLINK ON  
BEHINDFIREWALL OFF  
FULLSTATUS ON  
END
```

For more information about workstation definitions, see the *Tivoli Workload Scheduler: User's Guide and Reference*.

5. Run **JnextPlan -for 0000** to include the domain manager workstation in the plan and to send the Symphony file to it.

Note: Ensure that the global option **carryforward** is set to **all** or only the not completed job streams are carried forward.

6. Change the workstation limit to allow jobs to run on the workstation. For example, set the number of jobs to run concurrently on the workstation to 10:

```
conman "limit;10"
```

Configuring a backup domain manager

After you install a backup domain manager, perform the following configuration steps:

1. Log in as `<TWS_user>` on your master domain manager.
2. Set the environment variables by running **tws_env** as described in "Setting the environment variables" on page 211.
3. Define the backup domain manager as a full status autolink fault-tolerant agent in the Tivoli Workload Scheduler database, using the **composer** command interface or the Dynamic Workload Console. In this example, using **composer**, type:

```
composer  
new
```

4. Type the workstation definition in the text editor, for example:

```
CPUNAME DDM1  
DESCRIPTION "backup domain manager"  
OS UNIX  
NODE 1ab0777  
TCPADDR 31111  
DOMAIN MDM  
FOR MAESTRO  
TYPE FTA  
AUTOLINK ON  
BEHINDFIREWALL OFF  
FULLSTATUS ON  
END
```

For more information about workstation definitions, see the *Tivoli Workload Scheduler: User's Guide and Reference*.

5. Run **JnextPlan -for 0000** to include the backup domain manager workstation in the plan and to send the Symphony file to it.

Note: Ensure that the global option **carryforward** is set to **all** or only the not completed job streams are carried forward.

6. Change the workstation limit to allow jobs to run on the workstation. For example, set the number of jobs to run concurrently on the workstation to 10:
`conman "limit;10"`

Configuring a dynamic domain manager

After you install a dynamic domain manager, perform the following configuration steps:

1. Log in as `<TWS_user>` on your master domain manager.
2. Set the environment variables by running **twc_env** as described in "Setting the environment variables" on page 211.
3. Run **JnextPlan -for 0000** to include the dynamic domain manager workstation in the plan and to send the Symphony file to it.

Note: Ensure that the global option **carryforward** is set to **all** or only the not completed job streams are carried forward.

4. Change the workstation limit to allow jobs to run on the workstation. For example, set the number of jobs to run concurrently on the workstation to 10:
`conman "limit;10"`

Configuration steps for a dynamic domain manager configured as backup

After you install a dynamic domain manager as backup, perform the following configuration steps:

1. Log in as `<TWS_user>` on your master domain manager.
2. Set the environment variables by running **twc_env** as described in dynamic domain manager.
3. Define the dynamic domain manager as backup as a full status autolink fault-tolerant agent in the Tivoli Workload Scheduler database, using the **composer** command interface or the Dynamic Workload Console. In this example using **composer**, type:

```
composer  
new
```

4. Type the workstation definition in the text editor, for example:

```
CPUNAME BDDM1  
DESCRIPTION "backup dynamic domain manager"  
OS UNIX  
NODE 1ab00777  
TCPADDR 31111  
DOMAIN DYNAMICDM  
FOR MAESTRO  
TYPE FTA  
AUTOLINK ON  
BEHINDFIREWALL OFF  
FULLSTATUS ON
```

```
END
```

For more information about workstation definitions, see the *Tivoli Workload Scheduler: User's Guide and Reference*.

5. Run **JnextPlan -for 0000** to include the dynamic domain manager as backup workstation in the plan and to send the Symphony file to it.

Note: Ensure that the global option **carryforward** is set to **all** or only the not completed job streams are carried forward.

6. Change the workstation limit to allow jobs to run on the workstation. For example, set the number of jobs to run concurrently on the workstation to 10:
conman "limit;10"

Configuring a fault-tolerant agent

After installing a fault-tolerant agent, define the workstation in the database and link the workstation from the master. You can perform this task by using the Dynamic Workload Console or the command line interface. For information, see the *Tivoli Workload Scheduler: User's Guide and Reference*. The following is an example of how to configure a fault-tolerant agent after installation using the command line interface:

1. Log in to the master domain manager as `<TWS_user>`.
2. Set the environment variables by running **tw_s_env.sh**.
3. Create the workstation definition in the Tivoli Workload Scheduler database. Open a command line window and enter the following commands:

```
composer  
new
```

4. Type the workstation definition in the text editor. For example:

```
CPUNAME F235007_00  
DESCRIPTION "fault-tolerant agent"  
OS UNIX  
NODE 1ab235007  
TCPADDR 31111  
DOMAIN MASTERDM  
FOR MAESTRO  
TYPE FTA  
AUTOLINK ON  
BEHINDFIREWALL OFF  
FULLSTATUS OFF  
END
```

Run **JnextPlan** with the option **-for 0000** to add the agent workstation definition to the plan and to send the Symphony file to it. For more information about workstation definitions, see the *Tivoli Workload Scheduler: User's Guide and Reference*.

Note: Ensure that the global option **carryforward** is set to **all** or only the not completed job streams are carried forward.

5. If you set the autolink parameter to OFF, issue the link command from the master domain manager to link the agent and to download the Symphony file to it:

```
conman "link workstation"
```

6. Change the workstation limit to allow jobs to run on the workstation. For example, set the number of jobs to run concurrently on the workstation to 10:
conman "limit **F235007_00**;10"

Additionally, the following configuration procedures might be necessary. For information about these procedures, see *Tivoli Workload Scheduler: Administration Guide*.

- Customizing and configuring global, local, and user options.
- Customizing and configuring user authentication to allow users authorization on actions and objects, and to configure LDAP.
- Setting connection security to enable SSL or GSKit for inter-component communications.

Configuring a dynamic agent

After installing a dynamic agent, perform the following steps:

1. Run **JnextPlan** with the option **-for 0000** to add the dynamic agent workstation definition to the plan and to send the Symphony file to it. For more information about workstation definitions, see *Tivoli Workload Scheduler: User's Guide and Reference*.

Note: Ensure that the global option **carryforward** is set to **all** otherwise only the not completed job streams are carried forward.

2. Change the workstation limit to allow jobs to run on the workstation. For example, set the number of jobs that can run concurrently on the workstation to 10:

```
conman "limit F235007_00;10"
```

Additionally, the following configuration procedures might be necessary. For information about these procedures, see *Administration Guide*.

- Customizing and configuring `jobmanager.ini` and user options.
- Customizing and configuring user authentication to allow users authorization for actions and objects, and to configure LDAP.
- Setting connection security to enable GSKit for inter-component communications.

Configuring a remote command-line client

To configure a remote command-line client that is automatically installed in a fault-tolerant agent instance, perform the following steps:

1. Log on as Administrator on Windows operating systems, or as root on UNIX and Linux operating systems, on the machine where the remote command-line client is installed with a fault-tolerant agent.
2. Open the `localopts` configuration file in the fault-tolerant agent instance.
3. Complete the `# Attributes` for CLI connections configuration section to connect the remote command-line client to the command-line server in the master domain manager:

HOST The IP address or host name of the workstation where the master domain manager is installed.

PROTOCOL

The protocol that is used by the command-line client to connect to the workstation where the master domain manager is installed. The possible values are `http` and `https`. The default protocol that is used by the command-line client to establish a connection with the master is `https`.

PORT The HTTP or HTTPS port number that is used to connect to the

workstation where the master domain manager is installed. This port number must match the values that are defined for the master domain manager instance.

TIMEOUT

The timeout in seconds to wait for a master domain manager response.

CLISLSSERVERAUTH

Specify whether or not the connection to the master domain manager is SSL or not. If you set this value to true, perform the steps described in “Configuring SSL connection between remote command-line client and master domain manager.”

CLISLSSERVERCERTIFICATE

Specify only if *CLISLSSERVERAUTH* is set to true. The absolute path of the .arm file of the server public certificate. For more information about this value, see “Configuring SSL connection between remote command-line client and master domain manager.”

CLISLSTRUSTEDDIR

Specify only if *CLISLSSERVERAUTH* is set to true. The path of all the .arm files that the remote CLI must trust. For more information about this value, see “Configuring SSL connection between remote command-line client and master domain manager.”

DEFAULTWS

The master domain manager workstation name.

USEROPTS

The file that contains the user name and password to use to connect to the master domain manager workstation. This user must be a valid user that is listed in the Security file on the master domain manager.

4. Save the localopts.
5. Restart the fault-tolerant agent processes to accept the localopts changes.

Configuring SSL connection between remote command-line client and master domain manager

Before starting with the procedure to configure the SSL connection between the remote command-line client and the master domain manager, ensure that you set the *CLISLSSERVERAUTH* property to true in the *localopts* file of the fault-tolerant agent instance.

To configure a remote command-line client to connect to a master domain manager in SSL mode, perform the following steps:

1. Extract the certificate on the master domain manager instance by running the following procedure:
 - a. Log on as Administrator on Windows operating systems, or as root on UNIX and Linux operating systems, on the machine where the master domain manager is installed.
 - b. Extract the server.crt base 64 certificate by running:

```
keytool -export
-alias server
-rfc
-file server.crt
-keystore <TWS_INST_DIR>/WAS/profile/TWSServerKeyFile.jks
-storepass default
```

2. Log on as Administrator on Windows operating systems, or as root on UNIX and Linux operating systems, on the machine where the remote command-line client is installed with a fault-tolerant agent.
3. Perform a binary FTP of the `server.crt` certificate from the machine where you installed the master domain manager instance to the machine where you installed the remote command-line client in the directory `<FTA_INST_DIR>\ssl`.
4. Rename the `<FTA_INST_DIR>\ssl\server.crt` file to `<FTA_INST_DIR>\ssl\server.arm`.
5. Open the `localopts` configuration file in the fault-tolerant agent instance.
6. Complete one of the following attributes in the # Attributes for CLI connections configuration section and perform the actions:

CLISLSERVERCERTIFICATE

Specify the absolute path of the `server.arm` file on the fault-tolerant agent machine. In this example, `<FTA_INST_DIR>\ssl\server.arm`.

CLISLTRUSTEDDIR

Specify the path of the directory that contains all the `<certificates>.arm` files also the `<FTA_INST_DIR>\ssl\server.arm` that the remote command-line client can trust.

Note: Do not set simultaneously the `CLISLSERVERAUTH` and `CLISLTRUSTEDDIR` values. For more information about the SSL configuration, see *Administration Guide*.

7. Save the `localopts` file.
8. Restart the fault-tolerant agent processes to accept the `localopts` changes.

Adding a feature

Use the `twinst` script to add the following feature to the Tivoli Workload Scheduler agent in your distributed or end-to-end network:

Add the Java runtime to an agent

During the installation or the upgrade of the agent you might have chosen not to add the Java runtime that supports the running of job types advanced options. This option provides your agent with the following capabilities:

- Run job types with advanced options, both those types supplied with the product and the additional types implemented through the custom plug-ins.
- Enable the capability to run remotely, from the agent, the Tivoli dynamic workload broker resource command on the server.

If you later decide that you require this function, you can add the Java runtime separately, as described in “Procedure.”

If you already installed your environment and you want to enable dynamic scheduling capabilities, see “Enabling dynamic scheduling after installation” on page 221.

Procedure

To modify agents by using the `twinst` script, perform the following steps:

On Windows operating systems

1. Insert the DVD for your operating system. See “Installation media” on page 31.

2. Log in as administrator on the workstation where you want to upgrade the product.
3. From the *DVD_root/TWS/operating_system* directory of the DVD, run **twinst** by using the synopsis described below.

Note: **twinst** for Windows is a Visual Basic Script (VBS) that you can run in CScript and WScript mode.

On UNIX and Linux operating systems

1. Insert the installation DVD according to the operating system. See “Installation media” on page 31.
2. From the *DVD_root/TWS/operating_system* directory, run the **twinst** script by using the synopsis described below.

A successful modify by using the **twinst** script issues the return code RC = 0. If the operation fails, to understand the cause of the error, see “Analyzing return codes for agent installation, upgrade, restore, and uninstallation” on page 243.

Synopsis:

On Windows operating systems:

Show command usage and version

```
twinst -u | -v
```

Modify an instance

```
twinst -modify -uname user_name
      -password user_password
      -addjruntime true
      [-inst_dir install_directory]
      [-recovInstReg boolean]
```

On UNIX and Linux operating systems

Show command usage and version

```
./twinst -u | -v
```

Modify an instance

```
./twinst -modify -uname user_name
      -addjruntime true
      [-inst_dir install_directory]
      [-recovInstReg boolean]
```

-addjruntime true

Adds the Java runtime to run job types with advanced options to the agent. The runtime environment is used to run application job plug-ins on the agent and to enable the capability to run remotely, from the agent, the Tivoli dynamic workload broker resource command on the server. With the **-modify** option, the only valid value for this parameter is **true**.

-inst_dir install_directory

The installation directory for Tivoli Workload Scheduler. The default is the home directory of the user for which Tivoli Workload Scheduler is being installed.

-modify

Modifies an existing agent that was installed by using **twinst**.

-password user_password

Windows operating systems only. The password of the user for which you are upgrading Tivoli Workload Scheduler.

| **-recovInstReg** *boolean*

| Select this option to recover workstations that have corrupt registry files
| without reinstalling the product. If you specify this option, Tivoli Workload
| Scheduler re-creates the installation registries. Valid values are **true** and **false**.
| The default value is **false**.

| You can use this option also to recover registry files in a cluster environment;
| in this case you can run the command on any node of the cluster and not
| necessarily on the node where you installed Tivoli Workload Scheduler. This is
| useful when the cluster node where the product is installed is unavailable or in
| an inconsistent state.

| **-uname** *username*

| The name of the user for which Tivoli Workload Scheduler is being updated.
| The software is updated in this user's home directory. This user name is not to
| be confused with the user that performs the upgrade.

Configuring WebSphere Application Server

If, after installing, you have more than one instance of WebSphere Application Server managing any Tivoli Workload Automation products, you must ensure that they have the same LTPA token_keys. See the *Tivoli Workload Scheduler: Administration Guide*.

Enabling dynamic scheduling after installation

This section describes the procedure that you must follow to enable dynamic scheduling if you upgrade the product, both the master and the agent, without enabling the dynamic scheduling capabilities. For example, you upgraded the product in the following ways:

Using the installation wizard

You did not select one or both of the following options:

- **Enable the dynamic scheduling capabilities**, when upgrading the master
- **Dynamic agent**, when upgrading the agent.

Using twsinst, when upgrading the agent

You did not specify the **-tdwbport** *tdwbport_number* and **-tdwbhostname** *host_name*.

To enable dynamic scheduling, perform the following steps:

1. In the *tws_home*/TDWB/config/BrokerWorkstation.properties file, modify the values of the following properties according to the values that you specified at upgrade time:

```
Broker.Workstation.Name= workstation_name_DWB  
Broker.Workstation.Port= port_number  
MasterDomainManager.HostName= host_name  
MasterDomainManager.Name= workstation_name  
Broker.AuthorizedCNS=server1; ... ;servern
```

where:

Broker.Workstation.Name=workstation_name_DWB

It is the master domain manager workstation name followed by _DWB.
You can modify this value including the _DWB suffix.

Broker.Workstation.Port=port_number

It is the port on the workload broker workstation used by the Tivoli

Workload Scheduler master domain manager to communicate with dynamic workload broker. You can specify any value. The default value is **41114** if the Netman port number is **31111**. The valid range is from 1 to 65535. If you changed the Netman port number, the `Broker.Workstation.Port` *port_number* is calculated as:

`netman_port_number+10003`

MasterDomainManager.HostName=*host_name*

It is the fully qualified host name on which the master domain manager will be contacted by the agents.

MasterDomainManager.Name=*workstation_name*

It is the master domain manager workstation name.

Broker.AuthorizedCNS=*server1; ... ;servern*

It is the list of prefixes of common names included in the master domain manager certificates authorized to communicate with the broker server. For more information about authorizing the connection to the server, see sections Customizing the SSL connection to the master domain manager and dynamic domain manager section in the *Tivoli Workload Scheduler: Administration Guide*.

2. On the master domain manager, verify the current value of the **httpsPort** by running the **showHostProperties** wastool. The default value is **31116**. The following is an example output:

```
#####
# Ports Configuration Panel
#####
bootPort=31117
bootHost=nynewhost.romelab.ibm.it.com
soapPort=31118
soapHost=mynewhost.romelab.it.ibm.com
httpPort=31115
httpHost=*
httpsPort=31116
.....
```

3. On the master domain manager and on every agent that is connected to the workload broker server, update the **JobManager.ini** configuration file located under:

- On Windows operating systems:
`tws_home\TWS\ITA\cpa\config\JobManager.ini`
- On UNIX and Linux operating systems:
`tws_home/TWS/ITA/cpa/config/JobManager.ini`

by assigning to the `tdwb_hostname` and `tdwb_httpsport` variables contained in the **ResourceAdvisorUrl** property, the following values:

tdwb_hostname

Specify the fully qualified host name of the workload broker server

tdwb_httpsport

Specify the value that the **httpsPort** has on the master domain manager as shown by the **showHostProperties** wastool. The default is **31116**, which is the dynamic workload broker port number. The port is currently set to zero because at installation time you specified that you would not use the dynamic workload broker.

The **ResourceAdvisorUrl** property has the following syntax:

`ResourceAdvisorUrl = https://<tdwb_hostname>:<tdwb_httpsport>/JobManagerRESTWeb/JobScheduler/resource`

4. Start the Tivoli dynamic workload broker component by running the **startBrokerApplication.sh** wastool as follows:

```
<TWS_home>/wastools/startBrokerApplication.sh -user user_name  
-password password
```

where:

user_name

Specifies the name of the WebSphere® Application Server.

password

Specifies the password of the WebSphere Application Server.

5. On the master domain manager and on every agent of your network that you want to connect to the workload broker server, start the Tivoli Workload Scheduler agent by running the following command from the *TWS_home* directory:
 - On Windows operating systems:
StartUpLwa.cmd
 - On UNIX and Linux operating systems:
StartUpLwa

This is an example of BrokerWorkstation.properties file.

```
# -----  
# Broker Workstation Configuration  
# -----  
  
# This file can be used to configure the local Dynamic Workload Broker Workstation.  
# Jobs submitted or scheduled on this workstation are routed to TWS agents  
# according to available resources.  
#-----  
  
# Use this switch to enable or disable the Dynamic Workload Broker Workstation  
Broker.Workstation.Enable=true  
  
# Name of the Dynamic Workload Broker Workstation in the TWS production plan  
Broker.Workstation.Name=NC926121_DWB  
  
# Port on which the Dynamic Workload Broker Workstation listens (equivalent to  
# Netman port)  
Broker.Workstation.Port=41114  
  
# Seconds between following attempts to link the Dynamic Workload Broker  
# Workstation  
Broker.Workstation.RetryLink=600  
  
# Name of the Master Domain Manager Workstation  
MasterDomainManager.Name=NC926121  
  
# Name of the Master Domain Manager Host Name  
MasterDomainManager.HostName=localhost  
  
# HTTPS Port on which the Master Domain Manager listens  
MasterDomainManager.HttpsPort=31116  
  
# Cpu Type of the Dynamic Workload Broker Workstation  
Broker.Workstation.CpuType=MDM  
  
Broker.AuthorizedCNS=Server;ServerNew  
  
# Domain of the Domain Manager Workstation  
DomainManager.Workstation.Domain=MASTERDM  
  
# Name of the Domain Manager Workstation in the TWS production plan
```

```
DomainManager.Workstation.Name=NC926121

# Port on which the Domain Manager Workstation listens (equivalent to Netman
# port)
DomainManager.Workstation.Port=31111

# Name of the Dynamic Master Domain Manager Host Name
DomainManager.Workstation.Address=nc926121.romelab.it.ibm.com

# Name of the Dynamic Master Domain Manager OS Type
DomainManager.Workstation.OS=UNIX
```

Chapter 9. Uninstalling

Uninstalling the product does not remove files created after Tivoli Workload Scheduler was installed, nor files that are open at the time of uninstallation. If you do not need these files, you must remove them manually. If you intend to reinstall and therefore need to use the files, make a backup before starting the installation process. The uninstallation does not remove your DB2 or Oracle database.

Note: To manually uninstall Tivoli Workload Scheduler, see “Uninstalling Tivoli Workload Scheduler manually” on page 282

Uninstalling the main components

This section describes how to uninstall the following components:

- master domain manager or its backup
- dynamic domain manager or its backup
- agents

Selecting uninstallation methods

You can uninstall Tivoli Workload Scheduler using one of the methods described in this section:

Uninstallation wizard

Uninstall Tivoli Workload Scheduler components by using the Installation Manager interactive wizard for each supported platform. To start uninstallation by using this method, see “Uninstallation wizard.”

Silent installation

In silent mode, a response file provides the relevant information to the uninstallation process, which is run in background. To start uninstallation by using this method, see “Performing a silent uninstallation” on page 228.

Uninstallation wizard

1. Before starting to uninstall, verify that the user running the installation process has the following authorization requirements:

Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or domain administrators with the right, **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

UNIX and Linux operating systems root access

2. Ensure that all Tivoli Workload Scheduler processes, services and the WebSphere Application Server process are stopped, and that there are no active or pending jobs. For information about stopping the processes and services see *Administration Guide*.

By using the Installation Manager wizard, you can uninstall the installed packages from a single package group, or you can uninstall all installed packages from every package group.

The uninstallation program removes the product files, the registry keys, and on Windows operating systems also the services. It also removes the binaries related to the installed Tivoli Workload Scheduler agent.

The uninstallation program does not remove the Tivoli Workload Scheduler configuration files.

To start the uninstallation program, perform the following steps:

1. Start the Installation Manager program.
2. On the Installation Manager Start page wizard, click **Uninstall**.

Uninstalling a master domain manager or its backup

1. Before starting to install, to upgrade or to uninstall, verify that the user running the installation process has the following authorization requirements:

Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or domain administrators with the right, **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

UNIX and Linux operating systems root access

2. Ensure that all Tivoli Workload Scheduler processes, services and the WebSphere Application Server process are stopped, and that there are no active or pending jobs. For information about stopping the processes and services see *Administration Guide*.

To uninstall a master domain manager or its backup, perform the following steps:

1. Run the uninstallation process as described in “Uninstallation wizard” on page 225.
2. In the Product package Installation Manager panel, select the packages that you want to uninstall.
3. Click **Next**.
4. Specify the name of the user for which you want to uninstall the product and click **Validate user**. You do not need to specify the user password.
5. On the Summary page, review the packages that you selected to uninstall. Click **Back** if you want to make some changes. If you are satisfied with your choices, click **Uninstall**. A progress indicator bar shows the percentage of the uninstallation completed.
6. When the uninstallation process completes, the Complete page opens and confirms success of the uninstallation process.

Uninstalling a dynamic domain manager or its backup

1. Before starting to uninstall, verify that the user running the installation process has the following authorization requirements:

Windows operating system

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or domain administrators group with the rights, **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

UNIX and Linux operating systems

root access

2. Ensure that all Tivoli Workload Scheduler processes, services and the WebSphere Application Server process are stopped, and that there are no active or pending jobs. For information about stopping the processes and services see *Administration Guide*.

Before uninstalling a dynamic domain manager, to maintain a correct hierarchy of the Tivoli Workload Scheduler network, see “Uninstalling a dynamic domain manager maintaining a correct hierarchy in the network.”

To uninstall a dynamic domain manager or its backup, perform the following steps:

1. Run the uninstallation process as described in “Uninstallation wizard” on page 225.
2. In the Product package Installation Manager panel, select the packages that you want to uninstall.
3. Click **Next**.
4. Specify the name of the user for which you want to uninstall the product and click **Validate user**. You do not need to specify the user password.
5. On the Summary page, review the packages that you selected to uninstall. Click **Back** if you want to make some changes. If you are satisfied with your choices, click **Uninstall**. A progress indicator bar shows the percentage of the uninstallation completed.
6. When the uninstallation process completes, the Complete page opens and confirms success of the uninstallation process.

Uninstalling a dynamic domain manager maintaining a correct hierarchy in the network

To correctly uninstall a dynamic domain manager, perform the following steps:

1. Uninstall the dynamic agents connected to the dynamic domain manager you want to uninstall by using one of the procedures described in this section.
2. In the database, delete the definitions of the workstations of type AGENT that are connected to the dynamic domain manager that you are uninstalling. You can use either the Dynamic Workload Console workload designer or run the following command:

```
composer del ws agent_workstation_name
```
3. Delete the definitions of the workstations of type REM-ENG connected to the dynamic domain manager that you are uninstalling. You can use either the Dynamic Workload Console workload designer or run the following command:

```
composer del ws rem_eng_workstation_name
```
4. Delete the definitions of the workstations of type POOL connected to the dynamic domain manager that you are uninstalling. You can use either the Dynamic Workload Console workload designer or run the following command:

```
composer del ws pool_workstation_name
```

5. Delete the definitions of the workstations of type D-POOL connected to the dynamic domain manager that you are uninstalling. You can use either the Dynamic Workload Console workload designer or run the following command:

```
composer del ws dpool_workstation_name
```

6. Uninstall the dynamic domain manager by using the “Uninstalling a dynamic domain manager or its backup” on page 226 or the “Performing a silent uninstallation” procedure.

7. Delete the definition of the workstations of type X-AGENT hosted by the dynamic domain manager that you are uninstalling. You can use either the Dynamic Workload Console workload designer, or run the following command:

```
composer del ws x-agent_workstation_name
```

8. Delete the definitions of the workstations of type BROKER of the dynamic domain manager that you are uninstalling. You can use either the Dynamic Workload Console workload designer or run the following command:

```
composer del ws broker_workstation_name
```

Performing a silent uninstallation

For a silent uninstallation of a master domain manager, a backup master domain manager, a dynamic domain manager, or a backup dynamic domain manager, customize a response file provided on the installation DVDs to satisfy your uninstallation requirements.

To perform a silent uninstallation by using a response file template listed in Table 20 on page 229, perform the following steps:

1. Ensure that all Tivoli Workload Scheduler processes and services are stopped, and that there are no active or pending jobs. For information about stopping the processes and services, see *Administration Guide*.
2. Copy the relevant response file to a local directory `<local_dir>` and edit the file to meet the needs of your environment.
3. Save the file with your changes.
4. Open a command-line utility.
5. Go to the Installation Manager tools directory.

The default tools directory is:

On Windows operating systems

```
C:\Program Files\IBM\Installation Manager\eclipse\tools
```

On UNIX and Linux operating systems

```
/opt/IBM/InstallationManager/eclipse/tools
```

6. Run the following command:

On Windows operating systems

```
imcl.exe input <local_dir>\response_file.xml  
-log <local_dir>\log_file.xml  
-acceptLicense
```

On UNIX and Linux operating systems

```
./imcl input /<local_dir>/response_file.xml  
-log /<local_dir>/log_file.xml  
-acceptLicense
```

where

- The `response_file.xml` is the name of the response file to be used for uninstallation.

- The `log_file` is the name of the log file that records the result of the silent uninstall action. For more information about Installation Manager silent log files, see the Installation Manager information center.

Note: For more information about the Installation Manager silent uninstall command, see http://pic.dhe.ibm.com/infocenter/install/v1r6/index.jsp?topic=/com.ibm.silentinstall12.doc/topics/r_silent_prefs.html.

Table 20 lists the response files to be used for the uninstallation process by platform:

Table 20. Uninstallation response files

Type of installation	Response file to use
Uninstalling on Windows operating systems	
Backup master domain manager	TWS91_UNINST_MDM.xml
Master domain manager	TWS91_UNINST_MDM.xml
dynamic domain manager	TWS91_UNINST_DDM.xml
Backup dynamic domain manager	TWS91_UNINST_DDM.xml
Uninstalling on UNIX operating systems	
Backup master domain manager	TWS91_UNINST_MDM.xml
Master domain manager	TWS91_UNINST_MDM.xml
dynamic domain manager	TWS91_UNINST_DDM.xml
Backup dynamic domain manager	TWS91_UNINST_DDM.xml

Note:

- Ensure that the response file contains the package group that you want to uninstall:

Backup master domain manager, master domain manager, backup dynamic domain manager, or dynamic domain manager

```
<profile id='Tivoli Workload Scheduler'
installLocation='/opt/IBM/TWA'>
```

- Ensure that the response file contains the correct component value that you want to uninstall in the feature property:

Backup master domain manager or master domain manager

```
<offering id='com.ibm.tws'
profile='Tivoli Workload Scheduler'
features='tws.mdm'/>
```

Backup dynamic domain manager or dynamic domain manager

```
<offering id='com.ibm.tws'
profile='Tivoli Workload Scheduler'
features='tws.ddm'/>
```

Uninstalling agents using the `twsinst` script

Before you begin

1. Before starting to uninstall, verify that the user running the installation process has the following authorization requirements:

Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or domain administrators with the right, **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation, you must run the installation as **administrator**.

UNIX and Linux operating systems

root access

2. Ensure that you have enough temporary space before starting the uninstallation process. If you have not much space in the temporary directory and you cannot free the space, see “*twinsinst* needs long time to run if the machine does not have enough temporary space” on page 247.
3. Ensure that all Tivoli Workload Scheduler processes and services are stopped, and that there are no active or pending jobs. For information about stopping the processes and services, see *Administration Guide*.

Follow these steps to uninstall Tivoli Workload Scheduler agents using the **twinsinst** script. Depending on the operating system, proceed as follows:

- On Windows operating systems:
 1. Ensure that all Tivoli Workload Scheduler processes and services are stopped, and that there are no active or pending jobs. For information about stopping the processes and services see *Administration Guide*.
 2. Log on as administrator on the workstation where you want to uninstall the product.
 3. From the *installation_dir*\TWS (for example, c:\Program Files\IBM\TWA), run the **twinsinst** script as follows:

```
twinsinst -uninst -uname username [-wait minutes]  
[-lang lang_id]  
[-work_dir working_dir]
```

Note: **twinsinst** for Windows is a Visual Basic Script (VBS) that you can run in CScript and WScript mode.

The uninstallation is performed in the language of the locale and not the language set during the installation phase. If you want to uninstall agents in a language other than the locale of the computer, run the **twinsinst** script from the *installation_dir*\TWS (for example, c:\Program Files\IBM\TWA) as follows:

```
twinsinst -uninst -uname user_name -lang language
```

where *language* is the language set during the uninstallation.

- On UNIX and Linux operating systems:
 1. Log on as root and change your directory to *installation_dir*/TWS (for example: /home/user1/TWS where user1 is the name of Tivoli Workload Scheduler user.)
 2. From the TWS directory, run the **twinsinst** script as follows:

```
twinsinst -uninst -uname username [-wait minutes]  
[-lang lang_id] [-work_dir working_dir]
```

The uninstallation is performed in the language of the locale and not the language set during the installation phase. If you want to uninstall agents in a language other than the locale of the computer, run the **twinsinst** script from the *installation_dir*/TWS (for example, /home/user1/TWS) as follows:

```
./twinsinst -uninst -uname user_name -lang language
```

where *language* is the language set during the uninstallation.

-uninst

Uninstalls the Tivoli Workload Scheduler agent.

-uname *username*

The name of the user for which the Tivoli Workload Scheduler agent is uninstalled. This user name is not to be confused with the user performing the uninstallation logged on as **administrator** on Windows operating systems and as **root** on UNIX and Linux operating systems.

-wait *minutes*

The number of minutes that the product waits for jobs that are running to complete before starting the uninstallation. If the jobs do not complete during this interval, the uninstallation stops and an error message is displayed. Valid values are integers or **-1** for the product to wait indefinitely. The default is **60** minutes.

-lang *lang_id*

The language in which the `twinst` messages are displayed. If not specified, the system LANG is used. If the related catalog is missing, the default C language catalog is used.

Note: The **-lang** option is not to be confused with the Tivoli Workload Scheduler supported language packs.

-work_dir *working_dir*

The temporary directory used for the Tivoli Workload Scheduler installation process files deployment.

On Windows operating systems:

If you specify a path that contains blanks, enclose it in double quotes. If you do not manually specify a path, the path is set to `%temp%\TWA\tws91`, where `%temp%` is the temporary directory of the operating system.

On UNIX and Linux operating systems:

The path cannot contain blanks. If you do not manually specify a path, the path is set to `/tmp/TWA/tws91`.

The following is an example of a `twinst` script that uninstalls the Tivoli Workload Scheduler agent, originally installed for user named **twuser**:

On Windows operating systems:

```
twinst -uninst -uname TWS_user
```

On UNIX and Linux operating systems:

```
./twinst -uninst -uname TWS_user
```

Uninstalling additional components

This section describes how to uninstall additional plug-ins using Tivoli Workload Scheduler for Additional Plug-ins.

Uninstalling the additional plug-ins using the Tivoli Workload Scheduler for Additional Plug-ins

You can uninstall the additional plug-ins using either the wizard or the silent method.

When you uninstall the additional plug-ins, you can uninstall one or more plug-ins simultaneously.

To uninstall an additional plug-in, you can use any of the following procedures:

Wizard

For details, see “Uninstalling by using the wizard.”

Silent For details, see “Uninstalling by using the silent uninstallation” on page 233.

Note: You can uninstall only additional plug-ins installed by using Tivoli Workload Scheduler for Additional Plug-ins.

Uninstalling by using the wizard

You can uninstalling the additional plug-ins by using the wizard.

You can uninstall one or more plug-ins at a time.

Note: If you installed the product using the installation wizard, you can uninstall it either using the uninstallation wizard or the silent uninstallation. If you installed the product using the silent installation you must use the silent uninstallation to uninstall it.

To uninstall one or more plug-ins, perform the following steps:

1. Insert the Tivoli Workload Scheduler for Applications DVD or eImages, for the operating system where you are uninstalling, run the **setup** command:

On Windows operating systems:

From the `\PLUGIN_INSTALLER` directory,
`setup.bat`

On UNIX and Linux operating systems:

From the `/PLUGIN_INSTALLER` directory,
`./setup.sh`

The uninstallation program starts.

2. Select the language for the wizard and click **OK**. The Welcome panel is displayed.
3. Read the welcome information and click **Next**. The Operations panel is displayed
4. Select the *Uninstall* radio button. Click **Next**. The Plug-in list panel is displayed.
5. Select the additional plug-ins that you want to uninstall and click **Next**. The summary of the plug-ins that you selected to uninstall is displayed.
6. The uninstallation process starts. When the uninstallation completes, a panel showing the results is displayed.
7. Click **Finish** to exit the wizard.

If you received any error messages, analyze the uninstallation log files listed in Table 21 on page 233.

Table 21. Uninstallation log files

Log file name	Content	Directory
tws4plugins_status.log	The additional plug-in uninstallation status log file is created only for silent uninstallation. It reports if the uninstallation completed successfully or with errors. In case of errors it indicates if the error is due to an incorrect field value or to a failed step.	At the begin of the uninstallation process this log file is created in the following directory: On Windows operating systems: %TEMP%\TWA\tws4apps On UNIX and Linux operating systems: \$tmp\TWA\tws4apps and copied to directory <i>Tivoli Workload Scheduler_installation_dir</i> \logs at the end of the uninstallation process.
tws4plugins_ia_uninstall.log	Additional plug-in log file for InstallAnywhere errors.	<i>Tivoli Workload Scheduler_installation_dir</i> \logs
tws4plugins_uninstall.log	The additional plug-in uninstallation log file.	At the begin of the uninstallation process this log file is created in the following directory: On Windows operating systems: %TEMP%\TWA\tws4apps On UNIX and Linux operating systems: \$tmp\TWA\tws4apps and copied to directory <i>Tivoli Workload Scheduler_installation_dir</i> \logs at the end of the uninstallation process.

Note: If you are uninstalling in silent mode and you need to see the logs files, check the tws4plugins_status.log file to verify the installation process status and then check the tws4plugins_install.log file for details.

Uninstalling by using the silent uninstallation

Use the silent uninstallation process to uninstall the additional plug-ins without the user intervention. Using the silent method you can uninstall all the installed plug-ins simultaneously or one plug-in at a time.

Note: If you installed the plug-in using the installation wizard, you can uninstall it either using the uninstallation wizard or the silent uninstallation. If you installed the plug-ins by using the silent installation you must use the silent method to uninstall it.

When running the uninstallation in silent mode, no messages are displayed. The messages are written in the silent installation log files listed in Table 21. If the silent uninstallation fails, you can verify the messages written in the log files.

To uninstall one or more plug-ins at a time, run the following command:

On Windows operating systems:

From the */PLUGIN_INSTALLER* directory of the DVD or eImages product,
`setup.bat -i silent -f <response file>`

Where *response file* is a template file that you can customize to indicate the list of the plug-ins you want to uninstall. The default response file is TWSPlug-ins_RespFile_Uninst_windows.txt. It is located under the RESPONSE_FILE directory.

On UNIX and Linux operating systems:

From the /PLUGIN_INSTALLER directory of the DVD or elimages product,
./setup.sh -i silent -f <response file>

Where *response file* is a template file that you can customize to indicate the list of the plug-ins you want to uninstall. The default response file is TWSPlug-ins_RespFile_Uninst_unix.txt. It is located under the RESPONSE_FILE directory

Table 22 lists the options you can specify when uninstalling.

Table 22. Options to perform a silent uninstallation

Option	Required	Description	Value
USER_INSTALL_DIR="<path>"	Yes	Specify the Tivoli Workload Scheduler installation path from where you want to uninstall one or more additional plug-ins.	A fully qualified path. For example, to uninstall the additional plug-ins under C:\Program Files\IBM\TWA86, specify: USER_INSTALL_DIR="C:\Program Files\IBM\TWA86" On Windows operating systems: The default uninstallation path is "c:\Program Files\IBM\TWA" On UNIX and Linux operating systems: The default uninstallation path is /opt/IBM/TWA
PLUGINS_TO_UNDEPLOY=<plug-in_1>,<plug-in_2>,<plug-in_n>	Yes	Specify the plug-ins ID that corresponds to the plug-ins you want to uninstall, separated by comma.	To find the plug-in ID, perform the following actions: 1. Open the <TWA_HOME>\InstallData\Plugins\plugin_<plug-in_name>.xml file 2. Identify the value of the id="<plug-in_id>" attribute of the plug-in: <pluginInfo version="<plug-in-version>" name="<plug-in_name>" id="<plug-in_id>" /> For example, to uninstall the following plug-in: <pluginInfo version="1.0.0.01" name="plug-in_test_diskpace" id="plug-in_test_ds" /> specify the value: PLUGINS_TO_UNDEPLOY= plug-in_test_ds

Table 22. Options to perform a silent uninstallation (continued)

Option	Required	Description	Value
ACTION_TYPE=<value>	Yes	Specify the action that uninstallation process performs on plug-in. In this case the value must be set to UNDEPLOY.	The value must be set to UNDEPLOY.

The following shows the command you run from the directory */PLUGIN_INSTALLER*, to perform a silent uninstallation on a UNIX workstation, by using the response file *TWSPlug-ins_RespFile_uninst_UNIX.txt*:

```
./setup.sh -i silent -f TWSPlug-ins_RespFile_uninst_UNIX.txt
```

The following example shows a response file that uninstalls the *plug-in_test_ds* on a Windows workstation:

```
USER_INSTALL_DIR=c:\\Program Files\\IBM\\TWA86
FEATURE_UNINSTALL_LIST=plug-in_test_ds
```

Chapter 10. Troubleshooting installation, migration, and uninstallation

This chapter describes issues dealing with the installation, removal, and configuration of Tivoli Workload Scheduler and its prerequisites.

For information about issues on the DB2 installation, see the DB2 product documentation.

Installation log files

The type of log files you find on your system depends on the type of installation you performed. This section describes the logs associated with the different installations.

If a problem occurs during the installation process, read the following logs files:

master domain manager or dynamic domain manager and its backup

- All files created by Installation Manager process, as described in “Installation Manager wizard and silent installation and uninstallation log files.”
- All files and subdirectories in the `<tempDir>/TWA/tws91` directory.
- All WebSphere Application Server files created by installation process, see “WebSphere Application Server profile log files” on page 239.
- If you are installing for DB2 RDBMS, for more information about the DB2 logs, see “DB2 installation log files” on page 240.

Dynamic agents and fault-tolerant agents

All files created by `twsinst` script, see “The twsinst log files” on page 112.

Integration Workbench

For Software Developers Kit, all files and subdirectories in the `/tmp/TWA/sdk91` directory.

Job Brokering Definition Console

For the Job Brokering Definition Console, all files and subdirectories in the `/tmp/TWA/jbdc91` directory.

For more information about log files, see the *Administration Guide*.

Installation Manager wizard and silent installation and uninstallation log files

Installation Manager creates the following installation and uninstallation logs files common to any package installation, regardless of which components you choose to install:

On Windows operating system

`<INSTALLATION_MANAGER_LOGS_DIR>\<YYYYMMDD_HHMM>.xml`

On UNIX and Linux operating systems

`<INSTALLATION_MANAGER_LOGS_DIR>/<YYYYMMDD_HHMM>.xml`

where <INSTALLATION_MANAGER_LOGS_DIR> is the directory where Installation Manager creates the log files, YYYYMMDD is the date and HHMM is the time when the log file is created.

Tivoli Workload Scheduler installation process creates the following Installation Manager native logs files:

On Windows operating system

<INSTALLATION_MANAGER_LOGS_DIR>\native\<YYYYMMDD_HHMM>.log

On UNIX and Linux operating systems

<INSTALLATION_MANAGER_LOGS_DIR>/native/<YYYYMMDD_HHMM>.log

where <INSTALLATION_MANAGER_LOGS_DIR> is the directory where Installation Manager creates the logs files, and YYYYMMDD is the date and HHMM is the time when the log file is created.

The <INSTALLATION_MANAGER_LOGS_DIR> default value is:

On Windows operating system

C:\ProgramData\IBM\InstallationManager\logs

On UNIX and Linux operating systems

/var/ibm/InstallationManager/logs

If more than one native log have the same timestamp, Installation Manager creates the log files with the following name:

On Windows operating system

<INSTALLATION_MANAGER_LOGS_DIR>\native\<YYYYMMDD_HHMMLETTER>.log

On UNIX and Linux operating systems

<INSTALLATION_MANAGER_LOGS_DIR>/native/<YYYYMMDD_HHMMLETTER>.log

where <INSTALLATION_MANAGER_LOGS_DIR> is the directory where Installation Manager creates the logs files, YYYYMMDD is the date, HHMM is the time when the log file is created, and LETTER is a letter of the alphabet.

For more information about to access the log files by using the Installation Manager wizard, see “Accessing Installation Manager log files via wizard.”

For more information about to create a .zip file of the native log directory, see “Packaging Installation Manager log files via wizard” on page 239

Accessing Installation Manager log files via wizard

By using the Installation Manager wizard, you can access the Installation Manager log files in the following log directory:

<INSTALLATION_MANAGER_LOGS_DIR>

where <INSTALLATION_MANAGER_LOGS_DIR> is the directory where Installation Manager creates the logs files. The <INSTALLATION_MANAGER_LOGS_DIR> default value is:

On Windows operating systems

C:\ProgramData\IBM\InstallationManager\logs

On UNIX and Linux operating systems

/var/ibm/InstallationManager/logs

To access the log files by using the wizard, perform the following steps:

1. Open the Installation Manager Start page.
2. Select **File>View Log**.
3. The Installation Log panel shows you all the log files saved on your machine. Select the log file whose name is the correct timestamp for your installation process.
4. Depending on the action that you want to perform, click the **Export log file** icon or **Open log file** icon on the upper right side.

Packaging Installation Manager log files via wizard

By using the Installation Manager wizard, you can create a *.zip* file that contains the following log files:

- Native log files in the <INSTALLATION_MANAGER_LOGS_DIR>\native directory.
- xml log files in the <INSTALLATION_MANAGER_LOGS_DIR> directory.

Where <INSTALLATION_MANAGER_LOGS_DIR> is the directory where Installation Manager creates the log files.

The <INSTALLATION_MANAGER_LOGS_DIR> default value is:

On Windows operating systems

C:\ProgramData\IBM\InstallationManager\logs

On UNIX and Linux operating systems

/var/ibm/InstallationManager/logs

To create a *.zip* file of the *native* log directory, perform the following steps:

1. Open the Installation Manager Start page.
2. Select **Help>Export Data for Problem Analysis**.
3. Enter the name of the directory where you want to create the *.zip* file and the *.zip* file name.
4. Press **Ok**. A *.zip* file that contains all log files is created in the directory you specified.

WebSphere Application Server profile log files

The Tivoli Workload Scheduler installation process creates its own profile in the WebSphere Application Server instance.

The WebSphere Application Server log files is located in the following path:

/<WAS_profile_creation_path>/logs/<SERVER_NAME>

where <WAS_profile_creation_path> is the Tivoli Workload Scheduler installation directory and <SERVER_NAME> is the server name specified during the installation process.

The default value is:

/<TWS_INST_DIR>/WAS/TWSPProfile/logs/<SERVER_NAME>

where <TWS_INST_DIR> is the Tivoli Workload Scheduler installation directory and <SERVER_NAME> is the server name specified during installation process.

The log for the WebSphere Application Server start can be found at:

/<TWS_INST_DIR>/WAS/TWSPProfile/logs/<SERVER_NAME>/startServer.log

where <TWS_INST_DIR> is the Tivoli Workload Scheduler installation directory and <SERVER_NAME> is the server name specified during installation process.

DB2 installation log files

For information about DB2 installation log files, see the DB2 documentation.

The twsinst log files

The **twsinst** log file is as follows:

<tempDir>/twsinst_<operating_system>_<TWS_user>^9.1.0.00.log, where:

<tempDir>

The user temporary directory:

Windows operating systems

%Temp%\TWA\tws91

UNIX /tmp/TWA/tws91

<operating_system>

The operating system.

<TWS_user>

The name of the user for which Tivoli Workload Scheduler was installed (the name you supplied during installation)

Packaging log files for support

If a problem occurs with an installation that you cannot resolve, IBM Software Support might ask you to send them all of the installation log files.

For more information about log files, see “Installation log files” on page 237.

Note: Do not remove, add, or modify files in the <tempDir>/TWA/tws91 directory because this might cause an installation to fail, or prevent the recovery of a failed installation.

Analyzing return codes for Tivoli Workload Scheduler for Additional Plug-ins silent installation

Check the error and warning messages issued by Tivoli Workload Scheduler for Additional Plug-ins, during the silent installation process.

This section lists the **errors** and the **warnings** messages returned by InstallAnywhere during the silent installation process.

The **errors** and **warnings** are organized into two tables:

- Default InstallAnywhere error messages, Table 23 on page 241
- Additional plug-in installation error messages, Table 24 on page 242

When running the installation in silent mode, no messages are displayed. The messages are written in the silent installation log files listed in Table 12 on page 122.

If the response file you specify in the command line does not exist or the file name is incorrect, the silent installation process does not write the log files. To have the correct return code for the silent installation process, issue:

```
start /w <silent command>
```

where:<*silent command*> is the command you launch to perform silent installation.

You can check the error codes found in the installation log files during the silent installation process, with the codes in the following tables to obtain the specific description of the error message. Table 23 shows the default InstallAnywhere error messages written in the log files during the silent installation execution.

Table 23. Default InstallAnywhere error messages

Error Code	Description
0	Success: The installation completed successfully without any warnings or errors.
1	The installation completed successfully, but one or more of the actions from the installation sequence caused a warning or a non-fatal error.
8	The silent installation failed because there is an error in one or more installation steps.
-1	One or more of the actions from the installation sequence caused a fatal error.
1000	The installation was canceled by the user.
1001	The installation includes an invalid command-line option.
2000	Unhandled error.
2001	The installation failed the authorization check. It might indicate an expired version.
2002	The installation failed a rules check. A rule placed on the installer itself failed.
2003	An unresolved dependency in silent mode caused the installer to exit.
2004	The installation failed because not enough disk space was detected while running the Install action.
2005	The installation failed while trying to install on a Windows 64-bit system, because the installation does not include support for Windows 64-bit systems.
2006	The installation failed because it was launched in a UI mode that is not supported by this installer.
3000	Unhandled error specific to a launcher.
3001	The installation failed due to an error specific to the lax.main.class property.
3002	The installation failed due to an error specific to the lax.main.method property.
3003	The installation was unable to access the method specified in the lax.main.method property.
3004	The installation failed due to an exception error caused by the lax.main.method property.
3005	The installation failed because no value was assigned to the lax.application.name property.
3006	The installation was unable to access the value assigned to the lax.nl.java.launcher.main.class property.

Table 23. Default InstallAnywhere error messages (continued)

Error Code	Description
3007	The installation failed due to an error specific to the lax.nl.java.launcher.main.class property.
3008	The installation failed due to an error specific to the lax.nl.java.launcher.main.method property.
3009	The installation was unable to access the method specified in the lax.nl.launcher.java.main.method property.
4000	A Java executable could not be found at the directory specified by the java.home system property.
4001	An incorrect path to the installer jar caused the relaucher to launch incorrectly.

Table 24 shows the error messages issued during Tivoli Workload Scheduler for Additional Plug-ins silent installation of the plug-ins.

Table 24. InstallAnywhere error messages for additional plug-ins

Error Code	Description
11	The required parameter does not contain a value.
12	The file specified in response file does not exist.
13	The plug-in file specified is not a zip file.
14	The plug-in you specified does not contain the plugin.xml file.
15	The installation process does not find a Tivoli Workload Automation instance on this system.
16	You cannot perform the action you specified on the selected instance.
17	You are performing the installation on a workstation that does not have enough disk space.
18	The path you specified does not contain a valid installation of Tivoli Workload Scheduler.
19	The operating system, where you are performing installation, is not supported.
20	The plug-in you specified contains a plugin.xml file with syntax errors.
21	The plugin.xml file you specified, lists some files that are not contained in the plug-in.
22	You do not specify a plug-in in the response file.
23	An higher version of the selected plug-in is already installed on this instance.
24	The plug-in (zip file) you are installing does not contain the required jar file or the jar file is not located in the correct path.
25	You cannot install the selected plug-in using the current plug-in installer version.
26	The plug-in (zip file) you are installing does not contain the required licences or the licences are not located in the correct path.
27	The ACTION_TYPE parameter value specified in the response file, must be DEPLOY or UNDEPLOY.
28	You cannot accepted the license agreement in the response file.
29	The installation process cannot save the updates for TWARegistry.dat file.

Table 24. InstallAnywhere error messages for additional plug-ins (continued)

Error Code	Description
30	The installation process is unable to update the config.ini file.
31	The installation process is unable to copy plug-in files on the target system.
32	Cannot install the selected plug-in on the Tivoli Workload Scheduler instance because the Java extension is not installed

Analyzing return codes for agent installation, upgrade, restore, and uninstallation

Check how your operation completed by analyzing the return codes that are issued by twsinst.

Return codes that you can receive when you are installing, upgrading, restoring, or uninstalling agents. To analyze them and take corrective actions, run the following steps:

On Windows operating systems

1. Display the operation completion return code, by using the following command:

```
echo %ERRORLEVEL%
```
2. Analyze the following table to verify how the operation completed:

Table 25. Windows operating system agent return codes

Error Code	Description	User action
0	Success: The operation completed successfully without any warnings or errors.	None.
1	Generic failure	Check the messages that are displayed on the screen by the script. Correct the error and rerun the operation. If the error persists, search the IBM Support database for a solution at http://www.ibm.com/software/sysmgmt/products/support .
2	The installation cannot create the Tivoli Workload Scheduler user or assign the correct permission to it.	Verify the operating system policies and configuration. Verify the input values. If necessary, create the user manually before you run the installation.
3	The password is not correct or the installation cannot verify it.	Verify the operating system policies and configuration. Verify the input values.
4	The Tivoli Workload Scheduler installation directory is not empty. You specified as installation folder a directory that exists.	Empty it or specify a different directory.
5	An error occurred checking the Tivoli Workload Scheduler prerequisites on the workstation.	Check the product system requirements at the following link: http://www.ibm.com/support/docview.wss?rs=672&uid=swg27023736 .

Table 25. Windows operating system agent return codes (continued)

Error Code	Description	User action
6	The Tivoli Workload Scheduler registry is corrupted.	Use the <code>recovInstReg</code> option to recover the registry. Then, rerun the operation.
7	The upgrade or restore operation cannot retrieve the information from the configuration files.	Check that the previous installation and the <code>localopts</code> , the <code>globalopts</code> , the <code>ita.ini</code> , and the <code>JobManager.ini</code> files are not corrupted. Correct the errors and try again the operation.
8	The upgrade, restore, or uninstallation cannot proceed because there are jobs that are running.	Stop the jobs that are running or wait for these jobs to complete. Restart the operation.
9	The upgrade, restore, or uninstallation cannot proceed because there are files that are locked.	Stop all the processes that are running and close all the activities that can block the installation path. Restart the operation.
10	The upgrade, restore, or uninstallation cannot proceed because there are command lines opened.	Close the command lines. Restart the operation.

On UNIX and Linux operating systems:

1. Display the installation completion return code, by using the following command:

```
echo $?
```
2. Analyze the following table to verify how the installation completed:

Table 26. UNIX or Linux operating system agent return codes

Error Code	Description	User action
0	Success: The installation completed successfully without any warnings or errors.	None.
1	Generic failure.	Check the messages that are displayed on the video by the script. Correct the error and rerun the operation. If the error persists, search the IBM Support database for a solution at http://www.ibm.com/software/sysmgmt/products/support .
2	The installation did not find the Tivoli Workload Scheduler user or its home directory. The Tivoli Workload Scheduler user that you specified either does not exist or does not have an associated home directory.	Verify the operating system definition of the Tivoli Workload Scheduler user.
3	Not applicable	
4	The Tivoli Workload Scheduler installation directory is not empty. You specified as installation folder a directory that exists.	Empty it or specify a different directory.

Table 26. UNIX or Linux operating system agent return codes (continued)

Error Code	Description	User action
5	An error occurred checking the Tivoli Workload Scheduler prerequisites on the workstation.	Check the product system requirements at the following link: http://www.ibm.com/support/docview.wss?rs=672&uid=swg27023736 .
6	The Tivoli Workload Scheduler registry is corrupted.	Use the <code>recovInstReg</code> option to recover the registry. Then, rerun the operation.
7	The upgrade or restore operation cannot retrieve the information from the configuration files.	Check that the previous installation and the <code>localopts</code> , the <code>globalopts</code> , the <code>ita.ini</code> , and the <code>JobManager.ini</code> files are not corrupted. Correct the errors and try again the operation.
8	The upgrade, restore, or uninstallation cannot proceed because there are jobs that are running.	Stop the jobs that are running or wait for these jobs to complete. Restart the operation.
9	The upgrade, restore, or uninstallation cannot proceed because there are files that are locked.	Stop all the processes that are running and close all the activities that can block the installation path. Restart the operation.
10	The upgrade, restore, or uninstallation cannot proceed because there are command lines opened.	Close the command lines. Restart the operation.

Problem scenarios: install, reinstall, upgrade, migrate, and uninstall

This section contains known problem scenarios that could occur with the install, reinstall, upgrade, migrate, and uninstall of Tivoli Workload Scheduler components.

Problems installing on Windows operating systems

The following sections describe problems that could occur when installing on Windows, and their workaround:

Error AWSJIM963E while creating the Tivoli Workload Scheduler user or while assigning the user policies

While you are installing a master domain manager or a dynamic domain manager, you receive the error AWSJIM963E.

During the installation of a master domain manager or a dynamic domain manager, you receive the following error:

AWSJIM963E

An error occurred while creating the Tivoli Workload Scheduler user *user_name* or while assigning the user policies.

Verify the operating system policies and configuration. Verify the input values. If necessary, create the user manually before running the installation.

On Windows operating systems, the installation automatically creates the Tivoli Workload Scheduler user with the appropriate rights, if the user does not already exist. However, if the installation encountered problems with the creation of the user, you can perform the following steps.

1. Back out of the installation.

2. Create a local user account with a name of your choice on the workstation where you want to install Tivoli Workload Scheduler.

Note: You can also use an existing user account. Ensure, however, that this user is a member of the Windows **Administrators** group.

3. Grant to this <TWS_user> the following advanced user rights:

Act as part of the operating system

Adjust memory quotas

Log on as batch job

Log on as a service

Log on locally

Replace a process level token

4. Rerun the installation, citing the name of the account you created when requested.

On Windows systems a dialog box is displayed when you install or upgrade

You are installing or upgrading on Windows systems and a dialog box is displayed.

If you enabled the Security Warning, a dialog box is displayed during the installation or upgrade. In this case answer **Run** to continue.

Installing or upgrading on Windows a dialog box is displayed.

Cause and solution

This problem occurs if you enabled the Security Warning for the operating system.

Answer **Run** to continue the upgrade.

Installing or upgrading on Windows the prerequisite scan fails with error AWSJIM1001W

You are installing or upgrading on a Windows operating systems and the prerequisite scan fails with the error AWSJIM1001W.

You are installing or upgrading on a Windows operating system. The prerequisite scan fails with the following error even if you have more than 5 MB in the temporary directory:

```
AWSJIM1001W: Error while running the Prerequisite Scan.  
The Prerequisite Scan does not run.  
Before proceeding with the installation,  
check that you have at least 5 MB on your temporary directory  
and analyze the Installation Manager log files.  
61INF000:32.93com.ibm.tws.validator.CreateNewWasProfileValidator  
- Execute location check for silent
```

Cause and solution

This problem occurs because the Windows command line is not correctly configured. To solve the problem, run the following steps:

1. Configure the command line properly, by running the following command:
`%systemroot%\system32\regsvr32 %systemroot%\system32\scrrun.dll`
2. Rerun the installation.

Installing a Master Domain Manager on Windows 64-bit might fail

Installing a Master Domain Manager on Windows 64-bit might fail.

You are installing a Master Domain Manager, or a Backup Master Domain Manager, or a Dynamic Master Domain Manager, or Backup Dynamic Master Domain Manager on a Windows 64-bit operating system using Installation Manager V1.6.1. The installation might fail because of a corrupted Windows script and the following error is displayed.

```
twinst.vbs(557, 2) (null): Library not registered.
```

Cause and solution

This problem occurs because Installation Manager V1.6.1 makes only 32-bit installations, and if you run a vbs script that uses the element Scripting.FileSystemObject in a 64-bit command shell you might have this issue because of a corrupted Windows registry. For more information, see the following link: <http://support.microsoft.com/kb/949140>. To solve the problem, perform the following steps:

1. Start `c:\windows\syswow64\cmd.exe`.
2. From this shell launch the following commands:

```
%systemroot%\syswow64\regsvr32 %systemroot%\syswow64\vbscript.dll
%systemroot%\syswow64\regsvr32 %systemroot%\syswow64\jscript.dll
%systemroot%\syswow64\regsvr32 %systemroot%\syswow64\dispex.dll
%systemroot%\syswow64\regsvr32 %systemroot%\syswow64\scrobj.dll
%systemroot%\syswow64\regsvr32 %systemroot%\syswow64\scrrun.dll
%systemroot%\syswow64\regsvr32 %systemroot%\syswow64\wshext.dll
%systemroot%\syswow64\regsvr32 %systemroot%\syswow64\wshom.ocx
```
3. Rerun the installation.

To check that the problem is fixed, you can create and run the following script `check.vbs`:

```
Option Explicit

Dim objFSO

Set objFSO = CreateObject("Scripting.FileSystemObject")

Wscript.Echo "FullName: " & Wscript.FullName _
    & vbCrLf & "Name: " & Wscript.Name _
    & vbCrLf & "Path: " & Wscript.Path _
    & vbCrLf & "ScriptFullName: " & Wscript.ScriptFullName _
    & vbCrLf & "ScriptName: " & Wscript.ScriptName _
    & vbCrLf & "Version: " & Wscript.Version _
    & vbCrLf & "GetAbsolutePathName: " & objFSO.GetAbsolutePathName(".")

cscript check.vbs
```

Other installation problems

Some miscellaneous problems might occur.

twinst needs long time to run if the machine does not have enough temporary space

Problem:

If the machine does not have enough temporary space, the agent installation performed by using the **twinst** script needs a long time to run, due to

concomitant use of the temporary directory by the **twsinst** script and by the check prerequisites script started by the **twsinst** script.

Cause and solution:

You can solve the long time execution problem by manually running the **prereq_checker.sh** script on UNIX and Linux operating systems and **prereq_checker.bat** script on Windows operating systems, that performs the check prerequisites process before running the **twsinst**.

You can manually run the check prerequisites script, by performing the following steps:

On Windows operating systems:

1. Log on as Administrator on the machine where you want to install the agent.
2. Go to the <CD-ROM>\Prerequisites directory where <CD-ROM> is the directory where you mounted the CD-ROM.
3. Run:

Dynamic agent or Tivoli Workload Scheduler for z/OS Agent

```
prereq_checker.bat "DA1 09010000"  
-p "DA1.inst_dir=<TWS_INST_DIR>,DA1.work_dir=<TEMP_DIR>"
```

where <TWS_INST_DIR> is the Tivoli Workload Scheduler installation directory and <TEMP_DIR> is the temporary directory.

Fault tolerant-agent

```
prereq_checker.bat "FTA 09010000"  
-p "FTA.inst_dir=<TWS_INST_DIR>,,FTA.work_dir=<TEMP_DIR>"
```

where <TWS_INST_DIR> is the Tivoli Workload Scheduler installation directory and <TEMP_DIR> is the temporary directory.

On UNIX and Linux operating systems:

1. Log on as root on the machine where you want to install the agent.
2. Go to the <CD-ROM>\Prerequisites directory where <CD-ROM> is the directory where you mounted the CD-ROM.
3. Run:

Dynamic agent or Tivoli Workload Scheduler for z/OS Agent

```
./prereq_checker.sh "DA1 09010000,TWA 09010000"  
-p "DA1.inst_dir=<TWS_INST_DIR>,DA1.work_dir=<TEMP_DIR>"
```

where <TWS_INST_DIR> is the Tivoli Workload Scheduler installation directory and <TEMP_DIR> is the temporary directory.

Fault tolerant-agent

```
./prereq_checker.sh "FTA 09010000,TWA 09010000"  
-p "FTA.inst_dir=<TWS_INST_DIR>,FTA.work_dir=<TEMP_DIR>"
```

where <TWS_INST_DIR> is the Tivoli Workload Scheduler installation directory and <TEMP_DIR> is the temporary directory.

On UNIX operating systems twsinst fails with exit value 2 while running the "Start up Tivoli Workload Scheduler" step

Problem:

On UNIX operating systems, **twsinst** fails with the following error:

```
twsinst -uname TWS_user -inst_dir TWS_user_inst_path .....
```

```
.....  
.....  
.....
```

```
ACTION STEP: AWSFAB067I Start up Tivoli Workload Scheduler  
EXIT VALUE: 2
```

FAILED:

```
*****
```

```
\ntebctl-tws_cpa_agent_TWS_user agent not installed properly
```

```
*****
```

Cause and solution:

If the TWS_user for which you are installing the Tivoli Workload Scheduler instance does not have read and run privileges in the TWS_user_inst_path installation path, the agent installation fails.

You can solve the problem by manually giving read and run privileges to the TWS_user in the TWS_user_inst_path installation path and then rerunning the installation.

Miscellaneous failures

The installation fails and the cause is not immediately obvious from the log messages.

Cause and solution

The cause of the failure could be any of the following:

The FTP transfer of the files to the node was not done in binary mode

You copied the install directory from the DVD to the local hard disk using FTP, but did not specify the binary option. Make sure the entire directory is transferred by FTP in binary mode.

Note: The directory on the local hard disk can have any name, but it is important to have a parent directory available for the twsinst installation, because some temporary files need to be located there.

For example:

```
/temp/HP-UX
```

or

```
/temp/TWS84/HP-UX
```

There is not enough disk space available for the installation

Check that there is enough disk space for the installation on your chosen fileset.

For more information about the amount of space required for installation, see the Tivoli Workload Scheduler System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

File names did not retain their original case

On UNIX, check that file names retain their case. For example, the file "TWS_size.txt" cannot be "tws_size.txt".

One or more required files were not copied from the root of the installation DVD

Check that the number of files copied from the DVD is the same as that on the DVD. If not, copy the files again.

The installation of additional plug-in by does not have enough temporary space

The installation of an additional plug-in using the Tivoli Workload Scheduler for Additional Plug-ins fails with the message:

```
WARNING:/tmp does not have enough disk space!  
Attempting to use / for install base and tmp dir
```

Cause and solution

If the temporary directory does not have enough space, redirect the installation process to another temporary directory, set the InstallAnywhere variable *IATEMPDIR*:

Windows operating systems

1. set IATEMPDIR=<new_temp_dir>
2. Start the installation.

UNIX operating systems

1. export IATEMPDIR=<new_temp_dir>
2. Start the installation.

Dynamic Domain Manager installation fails due to missing license plug-in

While you are installing a dynamic domain manager, you receive the error CRIMC1017E.

During the installation of a dynamic domain manager, you receive the following error:

```
CRIMC1017E: Failed to locate plug-in com.ibm.tws.enginepanels_9.1.0.201212100746.  
Cannot find the table of contents file for an artifact in the repository.  
Table of contents files are located under the atoc directory in the repository.  
If the repository files were transferred from a different location,  
verify that the files were not altered during the transfer operation.  
Copy the repository files to a different location and install from that location.  
CRIMC1086E: Failed to read artifact table of contents  
at '/mnt/swrep/TWS_9.1/IM/20121210'.  
Cannot read the table of contents file from the repository.  
You might have an issue with your network connection.  
A table of contents file located under the atoc directory  
in the source repository might be corrupted. If you retrieve  
the file from a machine or a network in your environment,  
the file system might be mounted incorrectly.  
Verify your network connection.  
If the source repository files were transferred  
from a different location before the installation,  
verify that the files were not altered during the transfer operation.  
Copy the source files to a different file system and install from that file system.  
java.io.IOException: No locks available
```

Cause and solution

This problem can happen if the `cic.repo.locking` option is set to **true** or it does not exist in the IBM Installation Manager `config.ini` file.

To solve the problem, add the option `cic.repo.locking=false` in the IBM Installation Manager `config.ini` file. The file is located:

On Windows operating systems:

```
C:\Program Files\IBM\Installation Manager\eclipse\configuration\
config.ini
```

On UNIX and Linux operating systems:

```
/opt/IBM/InstallationManager/eclipse/config.ini or
/opt/IBM/InstallationManager/eclipse/configuration
```

This option stops IBM Installation Manager from trying to lock the repository. Usually during the installation IBM Installation Manager locks the repository so that no one can modify it. This action is not run if you set the option `cic.repo.locking=false`.

Master domain manager or dynamic domain manager DB2 installation fails with error AWSJIM923E

While you are installing a master domain manager or a dynamic domain manager, you receive the error AWSJIM923E.

During the installation of a master domain manager or a dynamic domain manager, you receive the following error:

```
AWSJIM923E
An error occurred while installing the database database_name.
The database exists, but it is not in the catalog.
```

Cause and solution

This error occurs because the database was not cataloged.

To solve the problem, run the following steps:

1. Verify whether the node is in the cataloged and is pointing to the correct database server workstation. If you used the TWS default value as database name, the node name is TWS_ND. Do the following actions:
 - a. If the node is incorrectly cataloged, uncatalog it by using the following command:

```
db2 uncatalog node
```
 - b. If the node is not cataloged or you uncataloged it, catalog it again by using the following command:
 - If the database is remote, that is you are using a DB2 client, run the following command:

```
db2 catalog tcpip node node_name remote db2_hostname server db2_port
```

In case you did not change the default TWS value as database name, use the following command:

```
db2 catalog tcpip node TWS_ND remote db2_hostname server db2_port
```

- If the database is local, that is you are using a DB2 server, run the following command:

```
db2 catalog local node node_name instance db2_instance
db2 catalog tcpip node LBNODE remote 127.0.0.1 server db2_port
```

2. Catalog the database by using the following command:

- If the database is remote, that is you are using a DB2 client, run the following command:

```
db2 catalog db db_name as db_name_DB at node node_name
db2 catalog db db_name at node node_name
```
- If the database is local, that is you are using a DB2 server, run the following command:

```
db2 catalog db db_name as db_name_DB at node LBNODE
db2 catalog db db_name
```

Master domain manager or dynamic domain manager installation fails with error AWSJIM924E

While you are installing a master domain manager or a dynamic domain manager, you receive the error AWSJIM924E.

During the installation of a master domain manager or a dynamic domain manager, you receive the following error:

```
AWSJIM924E
An error occurred while installing the database database_name.
You are installing either a master domain manager
or a dynamic domain manager as a backup,
but the database already exists in the catalog.
```

Cause and solution

This error occurs because the database exists in the catalog.

To solve the problem, run the following steps:

1. Verify that the database specified in the message, for example TWS if you did not change the default at installation time, is present in the catalog by running the following command:

```
db2 list db directory
```
2. If it is present in the catalog, run the following command to uncatalog it:

```
db2 uncatalog db DB_NAME
```
3. Uncatalog the node by running the following command:

```
db2 uncatalog node NODE_NAME
```

Master domain manager or dynamic domain manager installation fails with error AWSJIM928E

While you are installing a master domain manager or a dynamic domain manager, you receive the error AWSJIM928E.

During the installation of a master domain manager or a dynamic domain manager, you receive the following error:

```
AWSJIM928E
An error occurred while creating the Windows service
for the Tivoli Workload Scheduler WebSphere Application Server profile.
Check the status of the Windows Service Manager.
```

Cause and solution

This error occurs because the installation cannot create the WebSphere Application Server Windows service.

To solve the problem, run the following steps:

1. Check the status of the Windows Service Manager and Windows Events.

2. Solve the errors and restart the installation. If you did not find any errors, reboot the workstation.

Master domain manager or dynamic domain manager installation fails with warning AWSJIM970W

While you are installing a master domain manager or a dynamic domain manager, you receive the warning AWSJIM970W.

During the installation of a master domain manager or a dynamic domain manager, you receive the following warning:

```
AWSJIM970W
The installation completed, but errors occurred
while adding the FINAL job stream to the database;
add it manually.
```

Cause and solution

You can find the cause of the problem in the WebSphere Application Server log files.

To complete the installation, run the following procedure:

1. Analyze the WebSphere Application Server log files. Find the error that caused the problem and resolve it.
2. Go to the TWS directory, by using the following command:
`-cd installation_dir/TWS`
3. Set the Tivoli Workload Scheduler environment, by using the following command:

Windows operating systems:

```
tw_s_env.cmd
```

UNIX and Linux operating systems:

```
. ./tw_s_env.sh
```

4. Add the FINAL and FINALPOSTREPORTS job streams definition to the database, by using the following command:
`composer add Sfinal`

where `Sfinal` is the name of the file that contains the FINAL and FINALPOSTREPORTS job stream definitions.

Master domain manager or dynamic domain manager warning AWSJIM971W starting the WebSphere Application Server

After you install or upgrade a master domain manager or a dynamic domain manager, you receive the warning AWSJIM971W.

During the installation or the upgrade of a master domain manager or a dynamic domain manager, you receive the following warning:

```
AWSJIM971W
The installation completed, but errors occurred while starting
the WebSphere Application Server.
Verify the WebSphere Application Server log files.
```

Cause and solution

This problem typically occurs for a timeout problem.

To complete the installation or the upgrade, start the WebSphere Application Server using the following command:

Windows operating systems:

```
startWas.bat
```

UNIX and Linux operating systems:

```
./startWas.sh
```

Warning AWSJIM974W while starting the Tivoli Workload Scheduler instance

After you install or upgrade a master domain manager or a dynamic domain manager, you receive the warning AWSJIM974W.

During the installation or the upgrade of a master domain manager or a dynamic domain manager, you receive the following warning:

```
AWSJIM974W
```

```
An error occurred while starting the Tivoli Workload Scheduler instance.  
Analyze the files in the stdlist folder for further details.
```

Cause and solution

To understand the cause of the problem, analyze the log files that are located in the following directory:

Windows operating systems:

```
TWA_installation_dir\TWS\stdlist\logs
```

A possible cause of the problem is that both the **Tivoli Token service** and the **Tivoli Workload Scheduler for <TWS_user>** service (backup) fail to start for the first time (after a successful installation).

UNIX and Linux operating systems:

```
TWA_installation_dir/TWS/stdlist/logs
```

To complete the installation or the upgrade, start the Tivoli Workload Scheduler instance, by running the following command from the *TWA_installation_dir*/TWS directory:

Windows operating systems:

```
Startup
```

UNIX and Linux operating systems:

```
StartUp
```

Warning AWSJIM975W while starting the dynamic agent embedded in the Tivoli Workload Scheduler instance

After you install or upgrade a master domain manager or a dynamic domain manager, you receive the warning AWSJIM975W.

During the installation or the upgrade of a master domain manager or a dynamic domain manager, you receive the following warning:

```
AWSJIM975W
```

```
An error occurred while starting  
the dynamic agent embedded in the instance.  
Analyze the files in the stdlist/JM folder for further details.
```

Cause and solution

To understand the cause of the problem, analyze the log files that are located in the following directory:

Windows operating systems:

TWA_installation_dir\TWS\stdlist\JM

UNIX and Linux operating systems:

TWA_installation_dir/TWS/stdlist/JM

To complete the installation or the upgrade, start the Tivoli Workload Scheduler dynamic agent, by running the following command from the *TWA_installation_dir/TWS* directory:

Windows operating systems:

StartupLwa

UNIX and Linux operating systems:

StartUpLwa

Master domain manager or dynamic domain manager installation fails with warning AWSJIM976W

You receive a AWSJIM976W commit action failure when you are installing a master domain manager or a dynamic domain manager.

The following warning is displayed (commit action failure) when you are installing a master domain manager or a dynamic domain manager specifying Oracle as database:

AWSJIM976W

The installation completed, but an error occurred while adding the master domain manager workstation definition to the database. Analyze the WebSphere Application Server logs for further details

Cause and solution

To understand the cause of the problem, analyze the WebSphere Application Server log files located in the */<WAS_profile_creation_path>/logs/<SERVER_NAME>* path and run:

- The procedure described in "**Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError**", if in the log file you find the following error:

```
Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError:
<ORACLE_HOME>/lib/<ORACLE_LIB> (<ORACLE_HOME>/lib/<ORACLE_LIB>:
wrong ELF class: ELFCLASS32)
```

where:

WAS_profile_creation_path

Specify the path where you created the WebSphere Application Server profile.

server_name

Specify the name of the server you used during the installation process.

The default WebSphere Application Server path is */<TWS_INST_DIR>/WAS/TWSPProfile/logs/<SERVER_NAME>*.

- The procedure described in "**Any other error in the WebSphere Application Server log file**", if you find any other error in the WebSphere Application Server log.

Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError

This problem occurs because Tivoli Workload Scheduler uses 64-bit libraries and the Oracle database you specified during the installation uses 32-bit libraries.

To solve the problem, perform the following procedure:

1. Change the Oracle JDBC from **Type2** to **Type4** using the **changeDataSourceProperties** WebSphere Application Server tool. Do the following:

On Windows operating systems:

- a. Log on as administrator.
- b. Go to the <TWA_home>\wastools directory.
- c. Run **showDataSourceProperties.bat**
- d. Save the output to a file using the following command:
showDataSourceProperties.bat > DataSourceProperties.txt
- e. Edit the DataSourceProperties.txt file.
- f. Change the line:

```
OracleType2JndiName=jdbc/twsdb
to
OracleType2JndiName=jdbc/twsdb_old
```

- g. Change the line:

```
OracleType4JndiName=
to
OracleType4JndiName=jdbc/twsdb
```

- h. Set:

```
OracleType4URL=jdbc:oracle:thin:@//host_name:
oracle_listener_port/database_instance_name
```

where:

host_name

Specify the host name or TCP/IP address of the ORACLE server.

oracle_listener_port

Specify port number of the ORACLE listener on the ORACLE server.

database_instance_name

Specify the database instance name (SID) that is connected to Tivoli Workload Scheduler

You can find this information in the <ORACLE_HOME>\NETWORK\ADMIN\tnsnames.ora file located on the workstation where you installed Tivoli Workload Scheduler. The information corresponds to the information in the following section:

```
<hostname> =
(DESCRIPTION =
(AADDRESS_LIST =
(ADDRESS = (PROTOCOL = TCP)(HOST = host_name)
(PORT = oracle_listener_port))
)
CONNECT_DATA =
(SERVICE_NAME = database_instance_name)
)
)
```

- i. Save the DataSourceProperties.txt file.

- j. Stop the WebSphere Application Server using the "**conman stopappserver;wait**" command.
- k. Run the following command to apply the change:
changeDataSourceProperties.bat DataSourceProperties.txt
- l. Start the WebSphere Application Server using the **conman startappserver** command.
- m. Verify that the change has been implemented by running the **showDataSourceProperties.bat** command and verifying the output.
- n. Perform the steps that the product could not run:
 - 1) Add the workstation definition using the following command:
composer add cpundef_wnt
 - 2) Manually create the Windows user, by using the following command:
composer new user

The text editor opens. Write the following information:

```
USERNAME<master>#<domain>\<user>
PASSWORD "<password>"
END
```

```
USERNAME <master>#<user>
PASSWORD "<password>"
END
```

```
USERNAME <user>
PASSWORD "<password>"
END
```

Where:

master

Specify the master domain manager workstation name.

user

Specify the Tivoli Workload Scheduler user.

password

Specify the password of the Tivoli Workload Scheduler user.

domain

Specify the Windows domain if the Tivoli Workload Scheduler user is a domain account. Otherwise specify the hostname of the workstation you are installing.

- o. Perform a replication between the Symphony file and the plan data stored in the database, by running the following command:

planman resync

- p. Copy the useropts file for the Tivoli Workload Scheduler user, by running the following command:

```
copy <TWSUSER_HOME>\.TWS\useropts_<TWS_USER>
%userprofile%\.TWS\useropts_<TWS_USER>
```

where:

TWSUSER_HOME

Specify the Tivoli Workload Scheduler user home directory.

TWS_USER

Specify Tivoli Workload Scheduler user.

%userprofile%

Specify the environment variable of the user that is installing the Tivoli Workload Scheduler product.

On UNIX and Linux operating systems:

- a. Log on as root.
- b. Go to the TWA_home/wastools directory.
- c. Run **showDataSourceProperties.sh**
- d. Save the output to a file using the following command:
./showDataSourceProperties.sh > DataSourceProperties.txt
- e. Edit the DataSourceProperties.txt file.
- f. Change the line:

```
OracleType2JndiName=jdbc/twsdb  
to  
OracleType2JndiName=jdbc/twsdb_old
```

- g. Change the line:

```
OracleType4JndiName=  
to  
OracleType4JndiName=jdbc/twsdb
```

- h. Set:

```
OracleType4URL=jdbc:oracle:thin:@//host_name:  
oracle_listener_port/database_instance_name
```

where:

host_name

Specify the host name or TCP/IP address of the ORACLE server.

oracle_listener_port

Specify port number of the ORACLE listener on the ORACLE server.

database_instance_name

Specify the database instance name (SID) that is connected to Tivoli Workload Scheduler

You can find this information in the <ORACLE_HOME>/NETWORK/ADMIN/tnsnames.ora file located on the workstation where you installed Tivoli Workload Scheduler. The information corresponds to the information in the following section:

```
<hostname> =  
(DESCRIPTION =  
(ADDRESS_LIST =  
(ADDRESS = (PROTOCOL = TCP)(HOST = host_name)  
(PORT = oracle_listener_port))  
)  
CONNECT_DATA =  
(SERVICE_NAME = database_instance_name)  
)  
)
```

- i. Save the DataSourceProperties.txt file.
- j. Stop the WebSphere Application Server using the "**conman stopappserver;wait**" command
- k. Run the following command to apply the change:
changeDataSourceProperties.sh DataSourceProperties.txt

- l. Start the WebSphere Application Server using the **conman startappserver** command.
- m. Verify that the change has been implemented by running the command and verifying the output.


```
./showDataSourceProperties.sh
```
- n. Add the workstation definition using the following command:


```
composer add cpudev_unix
```
- o. Perform a replication between the Symphony file and the plan data stored in the database, by running the following command:


```
planman resync
```
- p. Assign the files ownership to the Tivoli Workload Scheduler user by using the following command:


```
<INSTALL_DIR>/TWS/_uninstall/ACTIONTOOLS/twsServerRightsAction.sh  
<INSTALL_DIR> <TWS_USER> <TWS_GROUP> <ROOT_GROUP>
```

where:

INSTALL_DIR

Specify the Tivoli Workload Scheduler installation directory.

TWS_USER

Specify Tivoli Workload Scheduler user.

TWS_GROUP

Specify the Tivoli Workload Scheduler group.

ROOT_GROUP

Specify the group of the root user.

- q. Copy the useropts file for the Tivoli Workload Scheduler user, by running the following command:

```
cp <TWSUSER_HOME>/TWS/useropts_<TWS_USER>  
$HOME/TWS/useropts_<TWS_USER>
```

where:

TWSUSER_HOME

Specify the Tivoli Workload Scheduler user home directory.

TWS_USER

Specify Tivoli Workload Scheduler user.

\$HOME

Specify the \$HOME environment variable of the root user.

Any other error in the WebSphere Application Server log file

To understand the cause of the problem, analyze the WebSphere Application Server log files located in the `/<WAS_profile_creation_path>/logs/<SERVER_NAME>` path. This problem can occur if you have database connection problems. Correct the error and run the following procedure:

On Windows operating systems:

1. Stop the WebSphere Application Server using the "**conman stopappserver;wait**" command.
2. Start the WebSphere Application Server using the **conman startappserver** command.
3. Perform the steps that the product could not run:

- a. Add the workstation definition using the following command:
composer add cpudev_wnt
- b. Manually create the Windows user, by using the following command:
composer new user

The text editor opens. Write the following information:

```
USERNAME<master>#<domain>\<user>
PASSWORD "<password>"
END
```

```
USERNAME <master>#<user>
PASSWORD "<password>"
END
```

```
USERNAME <user>
PASSWORD "<password>"
END
```

Where:

master

Specify the master domain manager workstation name.

user

Specify the Tivoli Workload Scheduler user.

password

Specify the password of the Tivoli Workload Scheduler user.

domain

Specify the Windows domain if the Tivoli Workload Scheduler user is a domain account. Otherwise specify the hostname of the workstation you are installing.

4. Perform a replication between the Symphony file and the plan data stored in the database, by running the following command:
planman resync
5. Copy the useropts file for the Tivoli Workload Scheduler user, by running the following command:
**copy <TWSUSER_HOME>\.TWS\useropts_<TWS_USER>
%userprofile%\.TWS\useropts_<TWS_USER>**

where:

TWSUSER_HOME

Specify the Tivoli Workload Scheduler user home directory.

TWS_USER

Specify Tivoli Workload Scheduler user.

%userprofile%

Specify the environment variable of the user that is installing the Tivoli Workload Scheduler product.

On UNIX and Linux operating systems:

1. Stop the WebSphere Application Server using the "**conman stopappserver;wait**" command
2. Start the WebSphere Application Server using the **conman startappserver** command.
3. Add the workstation definition using the following command:

```
composer add cpudev_unix
```

4. Perform a replication between the Symphony file and the plan data stored in the database, by running the following command:

```
planman resync
```

5. Assign the files ownership to the Tivoli Workload Scheduler user by using the following command:

```
<INSTALL_DIR>/TWS/_uninstall/ACTIONTOOLS/twsServerRightsAction.sh  
<INSTALL_DIR> <TWS_USER> <TWS_GROUP> <ROOT_GROUP>
```

where:

INSTALL_DIR

Specify the Tivoli Workload Scheduler installation directory.

TWS_USER

Specify Tivoli Workload Scheduler user.

TWS_GROUP

Specify the Tivoli Workload Scheduler group.

ROOT_GROUP

Specify the group of the root user.

6. Copy the useropts file for the Tivoli Workload Scheduler user, by running the following command:

```
cp <TWSUSER_HOME>/TWS/useropts_<TWS_USER>  
$HOME/.TWS/useropts_<TWS_USER>
```

where:

TWSUSER_HOME

Specify the Tivoli Workload Scheduler user home directory.

TWS_USER

Specify Tivoli Workload Scheduler user.

\$HOME

Specify the \$HOME environment variable of the root user.

Warning AWSJIM977W while adding the Windows user definition to the database

After you install or upgrade a master domain manager or a dynamic domain manager, you receive the warning AWSJIM977W.

During the installation of a master domain manager or a dynamic domain manager, you receive the following warning:

```
AWSJIM977W
```

```
The installation completed, but an error occurred while adding  
the Windows User definition to the database.
```

```
Analyze the WebSphere Application Server logs for further details.
```

Cause and solution

To understand the cause of the problem, analyze the WebSphere Application Server log files located in the `/<WAS_profile_creation_path>/logs/<SERVER_NAME>` path and run:

- The procedure described in "**Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError**", if in the log file you find the following error:

Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError:
<ORACLE_HOME>/lib/<ORACLE_LIB> (<ORACLE_HOME>/lib/<ORACLE_LIB>:
wrong ELF class: ELFCLASS32)

where:

WAS_profile_creation_path

Specify the path where you created the WebSphere Application Server profile.

server_name

Specify the name of the server you used during the installation process.

The default WebSphere Application Server path is /<TWS_INST_DIR>/WAS/
TWSPProfile/logs/<SERVER_NAME>.

- The procedure described "**Any other error in the WebSphere Application Server log file**", if you find any other error in the WebSphere Application Server log.

Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError

This problem occurs because Tivoli Workload Scheduler uses 64-bit libraries and the Oracle database you specified during the installation uses 32-bit libraries.

To solve the problem, perform the following procedure:

1. Change the Oracle JDBC from **Type2** to **Type4** using the **changeDataSourceProperties** WebSphere Application Server tool.
2. Log on as administrator.
3. Go to the <TWA_home>\wastools directory
4. Run **showDataSourceProperties.bat**
5. Save the output to a file using the following command:
showDataSourceProperties.bat > DataSourceProperties.txt
6. Edit the DataSourceProperties.txt file.
7. Change the line:
OracleType2JndiName=jdbc/twsdb
to
OracleType2JndiName=jdbc/twsdb_old
8. Change the line:
OracleType4JndiName=
to
OracleType4JndiName=jdbc/twsdb
9. Set:
OracleType4URL=jdbc:oracle:thin:@//host_name:
oracle_listener_port/database_instance_name

where:

host_name

Specify the host name or TCP/IP address of the ORACLE server.

oracle_listener_port

Specify port number of the ORACLE listener on the ORACLE server.

database_instance_name

Specify the database instance name (SID) that is connected to Tivoli Workload Scheduler

You can find this information in the <ORACLE_HOME>\NETWORK\ADMIN\tnsnames.ora file located on the workstation where you installed Tivoli Workload Scheduler. The information corresponds to the information in the following section:

```
<hostname> =
(DESCRIPTION =
(AADDRESS_LIST =
(AADDRESS = (PROTOCOL = TCP)(HOST = host_name)
(PORT = oracle_listener_port))
)
CONNECT_DATA =
(SERVICE_NAME = database_instance_name)
)
)
```

10. Save the DataSourceProperties.txt file.
11. Stop the WebSphere Application Server using the **"conman stopappserver;wait"** command.
12. Run the following command to apply the change:
changeDataSourceProperties.bat DataSourceProperties.txt
13. Start the WebSphere Application Server using the **conman startappserver** command.
14. Verify that the change has been implemented by running the **showDataSourceProperties.bat** command and verifying the output.
15. Manually create the Windows user, by using the following command:
composer new user

The text editor opens. Write the following information:

```
USERNAME<master>#<domain>\<user>
PASSWORD "<password>"
END
```

```
USERNAME <master>#<user>
PASSWORD "<password>"
END
```

```
USERNAME <user>
PASSWORD "<password>"
END
```

Where:

master

Specify the master domain manager workstation name.

user

Specify the Tivoli Workload Scheduler user.

password

Specify the password of the Tivoli Workload Scheduler user.

domain

Specify the Windows domain if the Tivoli Workload Scheduler user is a domain account. Otherwise specify the hostname of the workstation you are installing.

16. Perform a replication between the Symphony file and the plan data stored in the database, by running the following command:
planman resync
17. Copy the useropts file for the Tivoli Workload Scheduler user, by running the following command:

```
cp <TWSUSER_HOME>/TWS/useropts_<TWS_USER>  
$HOME/TWS/useropts_<TWS_USER>
```

where:

TWSUSER_HOME

Specify the Tivoli Workload Scheduler user home directory.

TWS_USER

Specify Tivoli Workload Scheduler user.

\$HOME

Specify the \$HOME environment variable of the root user.

Any other error in the WebSphere Application Server log file

To understand the cause of the problem analyze the WebSphere Application Server log files located in the `/<WAS_profile_creation_path>/logs/<SERVER_NAME>` path. This problem can occur if you have database connection problems. Correct the error and run the following procedure:

1. Stop the WebSphere Application Server using the **"conman stopappserver;wait"** command.
2. Start the WebSphere Application Server using the **conman startappserver** command.
3. Manually create the Windows user, by using the following command:
`composer new user`

The text editor opens. Write the following information:

```
USERNAME<master>#<domain>\<user>  
PASSWORD "<password>"  
END
```

```
USERNAME <master>#<user>  
PASSWORD "<password>"  
END
```

```
USERNAME <user>  
PASSWORD "<password>"  
END
```

Where:

master

Specify the master domain manager workstation name.

user

Specify the Tivoli Workload Scheduler user.

password

Specify the password of the Tivoli Workload Scheduler user.

domain

Specify the Windows domain if the Tivoli Workload Scheduler user is a domain account. Otherwise specify the hostname of the workstation you are installing.

4. Perform a replication between the Symphony file and the plan data stored in the database, by running the following command:
planman resync
5. Copy the useropts file for the Tivoli Workload Scheduler user, by running the following command:

```
cp <TWSUSER_HOME>/.TWS/useropts_<TWS_USER>
$HOME/.TWS/useropts_<TWS_USER>
```

where:

TWSUSER_HOME

Specify the Tivoli Workload Scheduler user home directory.

TWS_USER

Specify Tivoli Workload Scheduler user.

\$HOME

Specify the \$HOME environment variable of the root user.

Warning AWSJIM979W while setting the ownership for the Tivoli Workload Scheduler server files

After you install a master domain manager or a dynamic domain manager, you receive the warning AWSJIM979W.

During the installation of a master domain manager or a dynamic domain manager, you receive the following warning:

AWSJIM979W

The installation completed, but an error occurred while setting the ownership for the Tivoli Workload Scheduler Server files. The instance is working, but some files still belong to the root owner instead of belonging to *TWS_user*. Analyze the log files for details.

Cause and solution

To complete the installation or the upgrade, run the following procedure as root:

1. Assign the files ownership to the Tivoli Workload Scheduler user by running the following command :

```
<INSTALL_DIR>/TWS/_uninstall/ACTIONTOOLS/twsServerRightsAction.sh
<INSTALL_DIR> <TWS_USER> <TWS_GROUP> <ROOT_GROUP>
```

where:

INSTALL_DIR

Specify the Tivoli Workload Scheduler installation directory. The default is /opt/IBM/TWA/TWS.

TWS_USER

Specify Tivoli Workload Scheduler user.

TWS_GROUP

Specify the Tivoli Workload Scheduler group.

ROOT_GROUP

Specify the group of the root user.

2. Copy the useropts file for the Tivoli Workload Scheduler user, by running the following command:

```
cp <TWSUSER_HOME>/.TWS/useropts_<TWS_USER>
$HOME/.TWS/useropts_<TWS_USER>
```

where:

TWSUSER_HOME

Specify the Tivoli Workload Scheduler user home directory.

TWS_USER

Specify Tivoli Workload Scheduler user.

\$HOME

Specify the \$HOME environment variable of the root user.

Reinstallation problems

The following problems might be encountered during the upgrade process.

Reinstalling a master domain manager or dynamic domain manager pointing to a remote Tivoli Workload Scheduler database fails

You are reinstalling a master domain manager or dynamic domain manager on a workstation that points to a remote Tivoli Workload Scheduler database, and your local DB2 client was not configured.

Cause and solution

The installation fails because your DB2 client must be manually configured. To configure it, perform the following steps as DB2 administrator:

1. Create a node:

```
db2 catalog tcpip node <TWS_db_name>_ND remote <hostname_db_server>  
server <port_db_server>
```

2. Attach the node:

```
db2 attach to <TWS_db_name>_ND user <TWS_admin_user> using <TWS_admin_pwd>
```

3. Catalog the TWS database:

```
db2 catalog db <TWS_db_name> at node <TWS_db_name>_ND
```

4. Catalog the TWS_DB database:

```
db2 catalog db <TWS_db_name> as <TWS_db_name>_DB at node <TWS_db_name>_ND
```

Reinstalling a master domain manager or dynamic domain manager with a corrupted WebSphere Application Server registry file

You are reinstalling a master domain manager or dynamic domain manager and the reinstallation fails because of a corrupted WebSphere Application Server registry file.

Cause and solution

It might happen that the reinstallation fails because the previous uninstallation left a corrupted WebSphere Application Server registry file. To solve this issue, before reinstalling, you must clean the corrupted WebSphere Application Server registry file by running the following command:

- **On Windows operating systems:**

```
<WebSphere_installation_path>\manageprofiles.bat -validateAndUpdateRegistry
```

- **On UNIX and Linux operating systems:**

```
<WebSphere_installation_path>/manageprofiles.sh -validateAndUpdateRegistry
```

where <WebSphere_installation_path> is the full path to the directory where WebSphere is installed.

Upgrade problems

The following problems might be encountered during the upgrade process.

Retrieving Tivoli Workload Scheduler instance information data fails with error AWSJIM018E

You are performing a wizard master domain manager or dynamic domain manager upgrade.

In the Installation Manager Install Package panel, after you entered the *Installation Directory* field and click **Next** and in the Feature panel after you check the correct feature selection and click **Next**, you have the following error message:

AWSJIM018E The product cannot retrieve the <TWS_PROPERTIES> parameter from the Tivoli Workload Scheduler instance you want to upgrade. Check the Installation Manager log for details on the error. Check the BrokerWorkstation.properties, JobManager.ini, TWSConfig.properties, ita.ini, localopts, globalopts files, and the registry to verify if the parameter was correctly defined.

Where <TWS_PROPERTIES> is the Tivoli Workload Scheduler properties for which the installation properties is unable to retrieve the correct value. The <TWS_PROPERTIES> is contained in one of the following Tivoli Workload Scheduler properties files:

- BrokerWorkstation.properties.
- JobManager.ini.
- TWSConfig.properties.
- ita.ini.
- localopts.
- globalopts.
- Installation Registry file.

Cause and solution

This problem has occurred because the installation process is unable to retrieve the information data in the installation directory that you specified, in one of the following Tivoli Workload Scheduler properties files:

- BrokerWorkstation.properties.
- JobManager.ini.
- TWSConfig.properties.
- ita.ini.
- localopts.
- globalopts.
- Registry file.

If you entered the correct installation directory value, check whether the Tivoli Workload Scheduler properties files are corrupted or incomplete.

Registry file information not found during upgrade

You have tried to upgrade a stand-alone, fault-tolerant agent (an agent that is not shared with other components and does not have the connector feature) but the upgrade fails. If you were upgrading using the **twinsinst** script, you may have seen the following error message:

```
AWSFAB025E You are performing an update or uninstall operation, but the installation script has failed to find a previous instance of Tivoli Workload Scheduler in the Tivoli Workload Scheduler registry file. The script expected to find an entry belonging to the following user:user_name. and in the following registry file: registry_file_name.
```

If you were performing a silent installation, you may have seen the following error message:

```
AWSJIS165E No valid instance of Tivoli Workload Automation has been specified. Specify a valid instance or install the component in a new instance.
```

Cause and solution

This problem has occurred because of the following possible reasons:

- You have defined specified an incorrect installation path and the registry file cannot be found.
- You have used a user name that is not associated with the specific instance of Tivoli Workload Scheduler agent that you are upgrading.
- You are upgrading a stand-alone, fault-tolerant agent that has a corrupt registry file.

If you are sure you are using the correct installation path and user name, you can upgrade this agent without having to reinstall the product by using the Tivoli Workload Scheduler registry file recovery option, which re-creates the necessary files. See “Upgrading when there are corrupt registry files” on page 208 for the procedures on how to use the recovery option according to your upgrade method.

The pobox files increase in size after you performed a parallel migration

After you migrate your environment, the pobox files increase in size.

Cause and solution

This problem occurs when performing a parallel migration for the following reasons:

- In Step “Switch the master domain manager to the new or upgraded backup master” on page 162 using the backup master domain manager V8.6 you define agent, pool, or dynamic pool workstations.
- In Step “Install a new master domain manager or upgrade your old master domain manager” on page 164 you did not set them to **ignore**, the agent, pool, or dynamic pool workstations you defined in Step “Switch the master domain manager to the new or upgraded backup master” on page 162

To solve the problem, perform the following steps:

1. From the backup master domain manager V8.6, set the workstation to **ignore**.
2. From the previous version master domain manager, run:

```
JnextPlan -for 0000
```

Insufficient memory message when you upgrade the product on Windows systems

Upgrading on Windows systems an insufficient memory message is present in the Installation Manager log file.

Upgrading on Windows you receive an error similar to the following in the Installation Manager log files:

```
-installDir "C:\Program Files\IBM\TWA851GA"  
-backupDir C:\Users\ADMINI~1\AppData\Local\Temp\tws91UpgradeBackup  
INSTALLDIR="C:\Program Files\IBM\TWA851GA"  
BACKUPDIR=C:\Users\ADMINI~1\AppData\Local\Temp\tws91UpgradeBackup  
Insufficient memory  
1855 File(s) copied  
Possible error, errorlevel=4, Backupping C:\Program Files\IBM\TWA851GA files,  
check system stderr/stdout.
```

Cause and solution

This problem occurs if the workstation where you are upgrading does not have enough RAM to complete the operation.

To solve the problem, verify whether there are processes that are consuming the RAM. In this case, stop them, and rerun the upgrade.

AWSJIM267E Unable to query the database to retrieve some table information

You are upgrading and receive the "Unable to query the database to retrieve some table information" error.

Upgrading you receive the following error on the window:

```
AWSJIM267E:  
Unable to query the database to retrieve some table information.  
Check the logs for details.
```

and find the following error in the Installation Manager log files:

```
SQL0443N Routine "SYSPROC.SNAPSHOT_CONTAINER"  
(specific name "SNAPSHOT_CONTAINER")  
has returned an error SQLSTATE with diagnostic text "".  
SQLSTATE=38553
```

Cause and solution

This problem occurs during an upgrade for the following reasons:

- The mode setting for the DB2 /home/db2inst1/sqllib/.ftok file is not correct.
- There is a connection problem with DB2.
- Upgrading you specified in the following fields an incorrect name:
 - DB2 server administrator user
 - DB2 client administrator user

To solve the problem, run one of the following procedures:

To change the mode setting for the DB2 /home/db2inst1/sqllib/.ftok, perform the following steps:

1. Open the db2diag.log file and search for entries similar to the following entry:

```
"<DATE TIME STAMP> E538283E857 LEVEL: Error (0S)  
PID : 21077 TID : 140205009344256PROC : db2fmp  
INSTANCE: db2inst1 NODE : 000  
FUNCTION: DB2 UDB, oper system services, sqllopenp, probe:80  
MESSAGE : ZRC=0x840F0001=-2079391743=SQL0_ACCD "Access Denied"  
DIA8701C Access denied for resource "",  
operating system return code was "".  
CALLED : OS, -, open OSERR: EACCES (13)
```

```
DATA #1 : Codepath, 8 bytes
4:12:18:25:37
DATA #2 : File name, 27 bytes
/home/db2inst1/sqllib/.ftok
```

2. Change the file mode of the /home/db2inst1/sqllib/.ftok file to 644, running the following command:

```
$ chmod 644 /home/db2inst1/sqllib/.ftok
```

3. Rerun the upgrade

To solve the connection problem with DB2, perform the following steps:

- Resolve the issue by stopping and restarting DB2 by using the **db2stop** and the **db2start** commands.

- If the DB2 does not stop, run the following command:

```
"db2stop force
```

- When DB2 starts, ensure that you can establish a connection by using the following command:

```
$ db2 connect to database_name user
DB2_instance_owner using DB2_instance_owner_password
```

- After you established the connection, upgrade.

On Windows systems a dialog box is displayed when you install or upgrade

You are installing or upgrading on Windows systems and a dialog box is displayed.

If you enabled the Security Warning, a dialog box is displayed during the installation or upgrade. In this case answer **Run** to continue.

Installing or upgrading on Windows a dialog box is displayed.

Cause and solution

This problem occurs if you enabled the Security Warning for the operating system.

Answer **Run** to continue the upgrade.

After upgrading a master domain manager or a dynamic domain manager you cannot perform any operation

You cannot perform any operation after upgrading a master domain manager or a dynamic domain manager

After you upgraded a master domain manager or a dynamic domain manager, you cannot use the product. Moreover the WebSphere Application Server log files located in the */<WAS_profile_creation_path>/logs/<SERVER_NAME>* path, contains the following error:

```
Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError:
<ORACLE_HOME>/lib/<ORACLE_LIB> (<ORACLE_HOME>/lib/<ORACLE_LIB>:
wrong ELF class: ELFCLASS32)
```

Cause and solution

This problem occurs because the version of Tivoli Workload Scheduler to which you are upgrading, uses 64-bit libraries and the Oracle database uses 32-bit libraries.

To solve the problem, perform the following procedure:

1. Change the Oracle JDBC from **Type2** to **Type4** using the **changeDataSourceProperties** WebSphere Application Server tool. Do the following:

On Windows operating systems:

- a. Log on as administrator.
- b. Go to the <TWA_home>\wastools directory
- c. Run **showDataSourceProperties.bat**
- d. Save the output to a file using the following command:
showDataSourceProperties.bat > DataSourceProperties.txt
- e. Edit the DataSourceProperties.txt file.
- f. Change the line:
OracleType2JndiName=jdbc/twsdb
to
OracleType2JndiName=jdbc/twsdb_old
- g. Change the line:
OracleType4JndiName=
to
OracleType4JndiName=jdbc/twsdb
- h. Set:
OracleType4URL=jdbc:oracle:thin:@//host_name:
oracle_listener_port/database_instance_name

where:

host_name

Specify the host name or TCP/IP address of the ORACLE server.

oracle_listener_port

Specify port number of the ORACLE listener on the ORACLE server.

database_instance_name

Specify the database instance name (SID) that is connected to Tivoli Workload Scheduler

You can find this information in the <ORACLE_HOME>\NETWORK\ADMIN\tnsnames.ora file located in the workstation where you installed Tivoli Workload Scheduler. The information corresponds to the information in the following section:

```
<hostname> =  
(DESCRIPTION =  
(ADDRESS_LIST =  
(ADDRESS = (PROTOCOL = TCP)(HOST = host_name)  
(PORT = oracle_listener_port))  
)  
CONNECT_DATA =  
(SERVICE_NAME = database_instance_name)  
)  
)
```

- i. Save the DataSourceProperties.txt file.
- j. Stop the WebSphere Application Server using the "**conman stopappserver;wait**" command.
- k. Run the following command to apply the change:
changeDataSourceProperties.bat DataSourceProperties.txt

- l. Start the WebSphere Application Server using the **conman startappserver** command.
- m. Verify that the change has been implemented by running the command and verifying output.


```
showDataSourceProperties.bat
```

On UNIX and Linux operating systems:

- a. Log on as root.
- b. Go to the TWA_home/wastools directory
- c. Run **showDataSourceProperties.sh**
- d. Save the output to a file using the following command:


```
./showDataSourceProperties.sh > DataSourceProperties.txt
```
- e. Edit the DataSourceProperties.txt file.

- f. Change the line:

```
OracleType2JndiName=jdbc/twsdb
to
OracleType2JndiName=jdbc/twsdb_old
```

- g. Change the line:

```
OracleType4JndiName=
to
OracleType4JndiName=jdbc/twsdb
```

- h. Set:

```
OracleType4URL=jdbc:oracle:thin:@//host_name:
oracle_listener_port/database_instance_name
```

where:

host_name

Specify the host name or TCP/IP address of the ORACLE server.

oracle_listener_port

Specify port number of the ORACLE listener on the ORACLE server.

database_instance_name

Specify the database instance name (SID) that is connected to Tivoli Workload Scheduler

You can find this information in the <ORACLE_HOME>/NETWORK/ADMIN/tnsnames.ora file located in the workstation where you installed Tivoli Workload Scheduler. The information corresponds to the information in the following section:

```
<hostname> =
(DESCRIPTION =
 (ADDRESS_LIST =
 (ADDRESS = (PROTOCOL = TCP)(HOST = host_name)
 (PORT = oracle_listener_port))
 )
CONNECT_DATA =
 (SERVICE_NAME = database_instance_name)
 )
 )
```

- i. Save the DataSourceProperties.txt file.
- j. Stop the WebSphere Application Server using the **"conman stopappserver;wait"** command
- k. Run the following command to apply the change:

- ```
changeDataSourceProperties.sh DataSourceProperties.txt
```
- l. Start the WebSphere Application Server using the **conman startappserver** command.
  - m. Verify that the change has been implemented by running the command and verifying output.

```
./showDataSourceProperties.sh
```

### **On AIX and Linux PPC the user and password validation hangs when you upgrade**

You are trying to upgrade the master domain manager, dynamic domain manager, backup master domain manager, or backup dynamic domain manager on AIX and Linux PPC operating systems, but the user and password validation hangs.

Perform the following steps:

1. Identify the process ID (pid) of the `twstopAction.sh` and `twcheckInstance.sh` processes by running the following command:

```
ps -ef | grep tws
```
2. Stop `twstopAction.sh` and `twcheckInstance.sh` by running the following command for each process:

```
kill -9 <pid>
```
3. Edit `twstopAction.sh` and `twcheckInstance.sh` located in `TWS/_uninstall/ACTIONTOOLS` by inserting the following command as the first line:

```
exit 0
```
4. Stop Tivoli Workload Scheduler.

You can now proceed with the user and password validation required to upgrade your system.

### **When upgrading from Tivoli Workload Scheduler V8.6 or later, the dynamic agent workstation name is not correct**

You are upgrading the master domain manager, backup master domain manager, dynamic domain manager, or backup dynamic domain manager from Tivoli Workload Scheduler V8.6 or later to V9.1, and the dynamic agent workstation name is not correct.

#### **Cause and solution**

This problem has occurred because the `ComputerSystemDisplayName` property in the `<TWA_Home>/TWS/ITA/cpa/config/JobManager.ini` file is not the same as the value set in the Tivoli Workload Scheduler database.

Manually set the correct value for `ComputerSystemDisplayName` and run the upgrade process again.

### **When upgrading a backup dynamic domain manager the connection to the database does not work**

You are trying to upgrade a backup dynamic domain manager from V8.6 and later to V9.1, but the connection to the remote dynamic domain manager database does not work.

#### **Cause and solution**

This problem has occurred because the database of the remote dynamic domain manager is not cataloged on the backup dynamic domain manager. To resolve the

| problem, before upgrading the backup dynamic domain manager, catalog the  
| database by issuing the following command:

```
| db2 catalog db <dynamic_dom_mgr_dbname> at node <dynamic_dom_mgr_dbname>_ND
```

| where <dynamic\_dom\_mgr\_dbname> is the name of the database of the remote  
| dynamic domain manager.

### **Master domain manager or dynamic domain manager upgrade fails with error AWSJIM931E**

While you are upgrading a master domain manager or a dynamic domain manager, you receive the error AWSJIM931E.

During the installation of a master domain manager or a dynamic domain manager, you receive the following error:

```
AWSJIM931E
An error occurred while creating the Windows service
for the Tivoli Workload Scheduler WebSphere Application Server profile.
Check the status of the Windows Service Manager.
If no more errors occur the instance is rolled back to the previous version.
```

#### **Cause and solution**

This error occurs because the installation cannot create the WebSphere Application ServerWindows service.

To solve the problem, run the following steps:

1. Check the status of the Windows Service Manager and Windows Events.
2. Solve the errors and restart the installation. If you did not find any errors, reboot the workstation.

### **Master domain manager or dynamic domain manager upgrade fails with error AWSJIM967E**

While you are upgrading a master domain manager or a dynamic domain manager, you receive the error AWSJIM967E.

During the upgrade of a master domain manager or a dynamic domain manager, you receive the following error:

```
AWSJIM967E
An error occurred while validating the instance against
the Tivoli Workload Scheduler installation registry.
Re-create it using the twsClusInstEnabler command.
```

#### **Cause and solution**

This error occurs because the installation registry for the selected instance is corrupted and the operation cannot proceed. Use the **twsClusInstEnabler** command to fix the registry and then try the operation again.

To re-create the installation registry, run the following steps:

1. Run the following command:

#### **Windows operating systems:**

```
<Image>\utilities\twsClusInstEnabler.cmd -twsPath installation_dir
```

For example:

```
<Image>\utilities\twsClusInstEnabler.cmd
-twsPath "C:\Program Files\IBM\TWA"
```

### UNIX and Linux operating systems:

```
<Image>/utilities/twsClusInstEnabler.sh -twsPath installation_dir
```

For example:

```
<Image>/utilities/twsClusInstEnabler.sh -twsPath /opt/IBM/TWA
```

## Master domain manager or dynamic domain manager warning AWSJIM971W starting the WebSphere Application Server

After you install or upgrade a master domain manager or a dynamic domain manager, you receive the warning AWSJIM971W.

During the installation or the upgrade of a master domain manager or a dynamic domain manager, you receive the following warning:

```
AWSJIM971W
The installation completed, but errors occurred while starting
the WebSphere Application Server.
Verify the WebSphere Application Server log files.
```

### Cause and solution

This problem typically occurs for a timeout problem.

To complete the installation or the upgrade, start the WebSphere Application Server using the following command:

### Windows operating systems:

```
startWas.bat
```

### UNIX and Linux operating systems:

```
./startWas.sh
```

## Master domain manager or dynamic domain manager warning AWSJIM972W removing the Windows service

After you upgrade a master domain manager or a dynamic domain manager, you receive the warning AWSJIM972W.

During the upgrade of a master domain manager or a dynamic domain manager, you receive the following warning:

```
AWSJIM972W
The upgrade completed, but errors occurred while removing
the Windows service for the old installation.
Remove it manually.
```

### Cause and solution

This problem occurs because the upgrade program cannot not remove the Windows service of the previous Tivoli Workload Scheduler version.

To complete the upgrade, run the following steps:

1. Open the Windows Service Manager by using the following command:

```
services.msc
```

The Services windows is displayed.

2. Identify the Windows service that is related to the WebSphere Application Server of the previous installation.
3. Right click it and select **Properties**.
4. In the General tab, read the value that is contained in the **Service name** field.

5. Delete the *service\_name* by using the following command:

```
sc delete "service_name"
```

## Upgrading a fault-tolerant agent installed on a shared instance fails

After installing a shared instance that contains a fault-tolerant agent and other components, you uninstalled the other components then tried to upgrade the fault-tolerant agent but the upgrade fails.

### Cause and solution

This problem has occurred because the `eWAS/profiles/<profile_name>/installedApps/<cell_name>/<ear_file>` directory was not deleted. Delete the directory, then upgrade the fault-tolerant agent.

## Warning AWSJIM974W while starting the Tivoli Workload Scheduler instance

After you install or upgrade a master domain manager or a dynamic domain manager, you receive the warning AWSJIM974W.

During the installation or the upgrade of a master domain manager or a dynamic domain manager, you receive the following warning:

AWSJIM974W

An error occurred while starting the Tivoli Workload Scheduler instance. Analyze the files in the `stdlist` folder for further details.

### Cause and solution

To understand the cause of the problem, analyze the log files that are located in the following directory:

#### Windows operating systems:

```
TWA_installation_dir\TWS\stdlist\logs
```

A possible case of the problem is that both the **Tivoli Token service** and the **Tivoli Workload Scheduler for <TWS\_user>** service (backup) fail to start for the first time (after a successful installation).

#### UNIX and Linux operating systems:

```
TWA_installation_dir/TWS/stdlist/logs
```

To complete the installation or the upgrade, start the Tivoli Workload Scheduler instance, by running the following command from the `TWA_installation_dir/TWS` directory:

#### Windows operating systems:

```
Startup
```

#### UNIX and Linux operating systems:

```
StartUp
```

## Warning AWSJIM975W while starting the dynamic agent embedded in the Tivoli Workload Scheduler instance

After you install or upgrade a master domain manager or a dynamic domain manager, you receive the warning AWSJIM975W.

During the installation or the upgrade of a master domain manager or a dynamic domain manager, you receive the following warning:

AWSJIM975W  
An error occurred while starting  
the dynamic agent embedded in the instance.  
Analyze the files in the stdlist/JM folder for further details.

### Cause and solution

To understand the cause of the problem, analyze the log files that are located in the following directory:

#### Windows operating systems:

*TWA\_installation\_dir*\TWS\stdlist\JM

#### UNIX and Linux operating systems:

*TWA\_installation\_dir*/TWS/stdlist/JM

To complete the installation or the upgrade, start the Tivoli Workload Scheduler dynamic agent, by running the following command from the *TWA\_installation\_dir*/TWS directory:

#### Windows operating systems:

StartupLwa

#### UNIX and Linux operating systems:

StartUpLwa

### Warning AWSJIM977W while adding the Windows user definition to the database

After you install or upgrade a master domain manager or a dynamic domain manager, you receive the warning AWSJIM977W.

During the installation of a master domain manager or a dynamic domain manager, you receive the following warning:

AWSJIM977W  
The installation completed, but an error occurred while adding  
the Windows User definition to the database.  
Analyze the WebSphere Application Server logs for further details.

### Cause and solution

To understand the cause of the problem, analyze the WebSphere Application Server log files located in the */<WAS\_profile\_creation\_path>/logs/<SERVER\_NAME>* path and run:

- The procedure described in "**Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError**", if in the log file you find the following error:

```
Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError:
<ORACLE_HOME>/lib/<ORACLE_LIB> (<ORACLE_HOME>/lib/<ORACLE_LIB>:
wrong ELF class: ELFCLASS32)
```

where:

#### **WAS\_profile\_creation\_path**

Specify the path where you created the WebSphere Application Server profile.

#### **server\_name**

Specify the name of the server you used during the installation process.

The default WebSphere Application Server path is */<TWS\_INST\_DIR>/WAS/TWSPProfile/logs/<SERVER\_NAME>*.

- The procedure described "**Any other error in the WebSphere Application Server log file**", if you find any other error in the WebSphere Application Server log.

**Caused by: java.lang.RuntimeException: java.lang.UnsatisfiedLinkError**

This problem occurs because Tivoli Workload Scheduler uses 64-bit libraries and the Oracle database you specified during the installation uses 32-bit libraries.

To solve the problem, perform the following procedure:

1. Change the Oracle JDBC from **Type2** to **Type4** using the **changeDataSourceProperties** WebSphere Application Server tool.
2. Log on as administrator.
3. Go to the <TWA\_home>\wastools directory
4. Run **showDataSourceProperties.bat**
5. Save the output to a file using the following command:  
**showDataSourceProperties.bat > DataSourceProperties.txt**
6. Edit the DataSourceProperties.txt file.
7. Change the line:

```
OracleType2JndiName=jdbc/twsdb
to
OracleType2JndiName=jdbc/twsdb_old
```

8. Change the line:

```
OracleType4JndiName=
to
OracleType4JndiName=jdbc/twsdb
```

9. Set:

```
OracleType4URL=jdbc:oracle:thin:@//host_name:
oracle_listener_port/database_instance_name
```

where:

**host\_name**

Specify the host name or TCP/IP address of the ORACLE server.

**oracle\_listener\_port**

Specify port number of the ORACLE listener on the ORACLE server.

**database\_instance\_name**

Specify the database instance name (SID) that is connected to Tivoli Workload Scheduler

You can find this information in the <ORACLE\_HOME>\NETWORK\ADMIN\tnsnames.ora file located on the workstation where you installed Tivoli Workload Scheduler. The information corresponds to the information in the following section:

```
<hostname> =
(DESCRIPTION =
(ADDRESS_LIST =
(ADDRESS = (PROTOCOL = TCP)(HOST = host_name)
(PORT = oracle_listener_port))
)
CONNECT_DATA =
(SERVICE_NAME = database_instance_name)
)
)
```

10. Save the DataSourceProperties.txt file.

11. Stop the WebSphere Application Server using the "**conman stopappserver;wait**" command.
12. Run the following command to apply the change:  
changeDataSourceProperties.bat DataSourceProperties.txt
13. Start the WebSphere Application Server using the **conman startappserver** command.
14. Verify that the change has been implemented by running the **showDataSourceProperties.bat** command and verifying the output.
15. Manually create the Windows user, by using the following command:  
composer new user

The text editor opens. Write the following information:

```
USERNAME<master>#<domain>\<user>
PASSWORD "<password>"
END
```

```
USERNAME <master>#<user>
PASSWORD "<password>"
END
```

```
USERNAME <user>
PASSWORD "<password>"
END
```

Where:

**master**

Specify the master domain manager workstation name.

**user**

Specify the Tivoli Workload Scheduler user.

**password**

Specify the password of the Tivoli Workload Scheduler user.

**domain**

Specify the Windows domain if the Tivoli Workload Scheduler user is a domain account. Otherwise specify the hostname of the workstation you are installing.

16. Perform a replication between the Symphony file and the plan data stored in the database, by running the following command:

```
planman resync
```

17. Copy the useropts file for the Tivoli Workload Scheduler user, by running the following command:

```
cp <TWSUSER_HOME>/ .TWS/useropts_<TWS_USER>
$HOME/.TWS/useropts_<TWS_USER>
```

where:

**TWSUSER\_HOME**

Specify the Tivoli Workload Scheduler user home directory.

**TWS\_USER**

Specify Tivoli Workload Scheduler user.

**\$HOME**

Specify the \$HOME environment variable of the root user.

## Any other error in the WebSphere Application Server log file

To understand the cause of the problem analyze the WebSphere Application Server log files located in the `/<WAS_profile_creation_path>/logs/<SERVER_NAME>` path. This problem can occur if you have database connection problems. Correct the error and run the following procedure:

1. Stop the WebSphere Application Server using the "**conman stopappserver;wait**" command.
2. Start the WebSphere Application Server using the **conman startappserver** command.
3. Manually create the Windows user, by using the following command:  
`composer new user`

The text editor opens. Write the following information:

```
USERNAME<master>#<domain>\<user>
PASSWORD "<password>"
END
```

```
USERNAME <master>#<user>
PASSWORD "<password>"
END
```

```
USERNAME <user>
PASSWORD "<password>"
END
```

Where:

**master**

Specify the master domain manager workstation name.

**user** Specify the Tivoli Workload Scheduler user.

**password**

Specify the password of the Tivoli Workload Scheduler user.

**domain**

Specify the Windows domain if the Tivoli Workload Scheduler user is a domain account. Otherwise specify the hostname of the workstation you are installing.

4. Perform a replication between the Symphony file and the plan data stored in the database, by running the following command:

```
planman resync
```

5. Copy the useropts file for the Tivoli Workload Scheduler user, by running the following command:

```
cp <TWSUSER_HOME>/TWS/useropts_<TWS_USER>
$HOME/.TWS/useropts_<TWS_USER>
```

where:

**TWSUSER\_HOME**

Specify the Tivoli Workload Scheduler user home directory.

**TWS\_USER**

Specify Tivoli Workload Scheduler user.

**\$HOME**

Specify the \$HOME environment variable of the root user.

## When upgrading Tivoli Workload Scheduler the Sfinal file is updated

When you upgrade Tivoli Workload Scheduler, your FINAL job stream, if any, is not modified. However, the upgrade process changes the FINAL job stream definition that is contained in the <TWA\_home>/TWS/Sfinal file.

### Cause and solution

After upgrading Tivoli Workload Scheduler, the Sfinal file is updated and need to be imported in your database. If you customized your old Sfinal and want to merge the two versions, perform the following steps:

1. From the composer, extract your old Sfinal file to a new <Sfinal definition file> by issuing the command:

```
composer extract <Sfinal_definition_file> from js=sfinal
```

2. Merge the content of the old Sfinal file to the new Sfinal file.

3. Import the new Sfinal file by issuing the command:

```
composer replace Sfinal
```

## Uninstallation problems

This section lists the problems you can find when uninstalling.

### On Linux uninstalling the master domain manager does not delete some directories

After uninstalling the master domain manager on Linux, the log files store some warning messages about directories that were not deleted.

### Cause and solution

You uninstalled the master domain manager on Linux, and the log files show some warning messages about the /opt/IBM/TWA/ and /opt/IBM/TWA/TWS directories that were not deleted.

This behaviour is correct, because some files in the /opt/IBM/TWA/ and /opt/IBM/TWA/TWS directories are not to be deleted. You can ignore the warning messages.

### Uninstallation fails at any stage of the process

You are uninstalling a master domain manager or backup master domain manager, a dynamic domain manager or backup dynamic domain manager, or the Dynamic Workload Console, and the uninstallation process fails at some stage.

### Cause and solution

If the uninstallation fails at any stage of the process, you must complete it by performing a manual uninstallation.

For details about how to manually uninstall the master domain manager or dynamic master domain manager, see “Uninstalling Tivoli Workload Scheduler manually” on page 282.

For details about how to manually uninstall the Dynamic Workload Console, see “Manually uninstall the Dynamic Workload Console and the zConnector on Windows systems” on page 375 and “Manually uninstall the Dynamic Workload Console and the zConnector on UNIX systems” on page 376.

## Fix pack installation problems

This section describes problems and solutions for problems that might occur during the installation of a fix pack.

The following problem could be encountered:

---

### Uninstalling Tivoli Workload Scheduler manually

This section describes how to manually remove the Tivoli Workload Scheduler master domain manager.

Run the steps listed in the following topics to properly uninstall manually a Tivoli Workload Scheduler instance:

- “Uninstalling manually on Windows operating systems”
- “Uninstalling manually on UNIX operating systems” on page 284

Read the following topic to learn about known workaround for problems that might affect the Tivoli Workload Scheduler uninstall:

- “Problems during manual uninstall” on page 286

### Uninstalling manually on Windows operating systems

Run the following steps to manually remove a Tivoli Workload Scheduler master domain manager.

**Note:** If your RDBMS is based on Oracle, run the `showDataSource wastools` command before uninstalling the master domain manager and take note of the net service name used for your database.

#### 1. Shut down all Tivoli Workload Scheduler operations and processes

1. On a system prompt, go to the Tivoli Workload Scheduler installation path.
2. Set the environment by running the `twa_env.cmd` command.
3. Stop the dynamic agent by running the `ShutDownLwa` command.
4. Stop **netman**, **conman** and their child processes by running the `conman "shut;wait"` command.
5. Stop the event process by running the `conman stopmon` command.
6. Stop the application server process by running the `conman stopappservman` command.
7. In the task manager, verify that the following processes are inactive:

```
netman
appserrvman
java
mailman
monman
```

As an alternative, you can also stop all processes by shutting down the related Tivoli Workload Scheduler and IBM WebSphere Application Server services from the services panel.

#### 2. Delete the Tivoli Workload Scheduler profile on WebSphere Application Server

1. Go to the `bin` subdirectory under the installation path, for example `C:\Program Files\IBM\WebSphere\AppServer\bin`, and run the command:

manageprofiles.bat -delete -profileName *your\_profile\_name*

2. Check the name of the profile used by your Tivoli Workload Scheduler instance by running these steps:
  - a. Go to the C:\WINDOWS\TWA directory. This directory contains several files, one for each Tivoli Workload Scheduler instance that is installed.
  - b. Look for the file whose properties include the path of the profile to delete. The *profile\_name* property contains the name of the profile to delete.
3. Verify in the log file that the profile was deleted successfully.
4. Delete manually the **TWSPProfile** from the WebSphere Application Server directory under the installation path.

### 3. Delete the Tivoli Workload Scheduler services

If you are uninstalling the master domain manager, you must delete the following services:

```
tws_tokensrv_TWS_user
tws_maestro_TWS_user
tws_ssm_agent_TWS_user
tws_netman_TWS_user
tws_cpa_agent_TWS_user
IBMVAS85Service - TWS_user
```

The command to delete a service is:

```
sc delete service_name
```

When you finished, check that the following services are no longer listed in the active services for the *TWS\_user*:

Tivoli Workload Scheduler  
Tivoli Netman  
Tivoli token service  
IBM Common Platform agent  
IBM Websphere Application Server

If any of these services is still in the list, reboot the system and check again.

### 4. Delete the registry in the Installation Manager (IM)

1. Launch IBM Installation Manager.
2. Select the Tivoli Workload Scheduler package that you want to uninstall.

### 5. Delete the Tivoli Workload Automation and the Tivoli Workload Scheduler registries

1. Edit the C:\Windows\TWSRegistry.dat file.
2. Delete the lines tagged with *TWS\_user*.
3. Go to the C:\Windows\TWA directory, which contains two files for each Tivoli Workload Scheduler instance installed.
4. Look for the properties file that applies to the Tivoli Workload Scheduler instance to remove.
5. Delete that properties file and the file with the same filename and extension *.ext*.
6. Delete the C:\Windows\teb directory.

## 6. Delete the Tivoli Workload Scheduler files

Delete all the files under the `TWA_install_dir` directory.

## 7. Drop the Tivoli Workload Scheduler tables to the RDBMS

### On DB2:

Run the following steps:

1. From the program menu, open the DB2 command line processor (CLP).
2. Look for the database name by running the command:  
`list db directory`
3. If you see an entry named *your\_db\_name* associated to the Tivoli Workload Scheduler instance, run the command:  
`drop db your_db_name`
4. If you see an entry named *your\_db\_name\_DB* associated to the Tivoli Workload Scheduler instance, run the command:  
`uncatalog db your_db_name_DB`
5. To see which node is attached to the master domain manager system run the command:  
`list node directory`
6. Run the command:  
`uncatalog node your_node`

If the master domain manager was installed on the DB2 client, run steps 1 and 5 also on the system where the master domain manager is installed.

### On ORACLE:

Run the following steps:

1. Access the ORACLE command line.
2. Run the command:  
`sqlplus system/password@net_service_name`
3. Delete all the tables related to the Tivoli Workload Scheduler instance by running the command:  
`drop user ORACLE_TWS_user cascade;`

## Uninstalling manually on UNIX operating systems

Run the following steps to manually remove a Tivoli Workload Scheduler master domain manager.

**Note:** If your RDBMS is based on Oracle, run the `showDataSource wastools` command before uninstalling the master domain manager and take note of the net service name used for your database.

### 1. Shut down all Tivoli Workload Scheduler operations and processes

1. On a system prompt, go to the Tivoli Workload Scheduler installation path.
2. Set the environment by running the `twc_env.sh` command.
3. Stop the dynamic agent by running the `ShutDownLwa` command.
4. Stop **netman**, **conman**, and their child processes by running the `conman "shut;wait"` command.
5. Stop the event process by running the `conman stopmon` command.

6. Stop the application server process by running the conman stopappservman command.
7. To verify that the following processes are inactive run the command `ps -ef | grep process_name`.
  - netman
  - appservman
  - java
  - mailman
  - monman

## 2. Delete the Tivoli Workload Scheduler profile on WebSphere Application Server

1. Go to the bin subdirectory under the Tivoli Workload Scheduler installation path, and run the command:
 

```
manageprofiles.sh -delete -profileName your_profile_name
```
2. Check the name of the profile used by your Tivoli Workload Scheduler instance by running these steps:
  - a. Go to the /etc/TWA directory. This directory contains several files, one for each Tivoli Workload Scheduler instance that is installed.
  - b. Look for the file whose properties include the path of the profile to delete. The `profile_name` property contains the name of the profile to delete.
3. Check in the log file that the profile was deleted successfully.
4. Delete manually the **TWSPProfile** from the WebSphere Application Server directory under the installation path.

## 3. Delete the registry in the Installation Manager (IM)

1. Launch IBM Installation Manager.
2. Select the Tivoli Workload Scheduler package that you want to uninstall.

## 4. Delete the Tivoli Workload Automation and the Tivoli Workload Scheduler registries

1. Edit the /etc/TWS/TWSRegistry.dat file.
2. Delete the lines tagged with `TWS_user`.
3. Go to the /etc/TWA directory which contains two files for each Tivoli Workload Scheduler instance installed.
4. Look for the properties file that applies to the Tivoli Workload Scheduler instance to remove.
5. Delete the properties file and the file with the same filename and extension `.ext`.
6. Delete the /etc/init.d/tebet1-tws\_cpa\_agent\_TWS\_user directory.

## 5. Delete the Tivoli Workload Scheduler files

Delete all the files under the `TWA_install_dir` directory.

## 6. Drop the Tivoli Workload Scheduler tables into the RDBMS

### On DB2:

Run the following steps:

1. Connect as DB2 administrator.
2. Look for the database name by running the command:
 

```
list db directory
```
3. If you see an entry named `your_db_name` associated to the Tivoli Workload Scheduler instance, run the command:

| drop db *your\_db\_name*

- | 4. If you see an entry named *your\_db\_name\_DB* associated to the  
| Tivoli Workload Scheduler instance, run the command:

| uncatalog db *your\_db\_name\_DB*

- | 5. See which is the node attached to the master domain manager  
| system by running the command:

| list node directory

- | 6. Run the command:

| uncatalog node *your\_node*

| If the master domain manager was installed on the DB2 client, run  
| the steps 1 and 5 also on the system where the master domain  
| manager is installed.

| **On ORACLE:**

| Run the following steps:

- | 1. Login as oracle user by running the command `su - oracle`.

- | 2. Run the command:

| `sqlplus system/password@net_service_name`

- | 3. Delete all the tables related to the Tivoli Workload Scheduler  
| instance by running the command:

| `Drop user ORACLE_TWS_user cascade;`

| **7. Remove the Common Platforms Agent configuration file**

| Remove the file named `/etc/teb/teb_tws_cpa_agent_TWS_user.ini`.

## Problems during manual uninstall

The following problem might occur during a manual uninstall:

- "File deletion on Windows too slow"

### File deletion on Windows too slow

When manually deleting files during a manual uninstallation, the deletion of the files in the path `$TWA_DIR\TWS\stdlist\yyyy.mm.dd\0nnnn.hhmm` is unacceptably slow.

#### Cause and solution:

This problem is caused by a known Microsoft issue on Windows operating systems. It occurs when you try to delete the indicated files on the Windows system after having uninstalled the master domain manager. To prevent the problem from occurring use **Shift-Canc** to remove these files instead of using the **Delete** menu option, moving them to the recycle bin, or using the **Canc** key on the keyboard.

---

## **Part 3. Tivoli Workload Scheduler on IBM i systems**

This part describes how to plan, install, configure, and uninstall Tivoli Workload Scheduler on IBM i systems.



---

## Chapter 11. Prerequisites

To install and use the IBM i agent you must have a supported version of the IBM i operating system. For a detailed list of supported operating systems, see the Detailed System Requirements document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>.

---

### Scanning system prerequisites on IBM i systems

Scanning system prerequisites on IBM i systems

Before you install or upgrade the agent, Tivoli Workload Scheduler automatically runs a scan on your system. Having an environment that meets the product system requirements ensures that the installation or upgrade succeeds without any delays or complications.

The scan verifies that:

- The operating system is supported for the product.
- There is enough permanent and temporary disk space to install both the product and its prerequisites.
- There is enough memory and virtual memory swap space.

**Note:** The scan verifies only that the environment meets the requirements of Tivoli Workload Scheduler.

If any of these checks fails, Tivoli Workload Scheduler performs the following action:

- If you specified the **stoponcheckprereq** parameter, the **twinst** script does not proceed. In this case analyze the log file, solve the error, and rerun the installation or upgrade. The log file is in `%TEMP%\TWA\tws91\prerequisites\result.txt`:
- If you did not specify **stoponcheckprereq**, the **twinst** script proceeds. If a problem occurs, an error is displayed, the agent is installed but then can fail to work.

For a detailed list of supported operating systems and product prerequisites, see <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.



---

## Chapter 12. Installing agents on IBM i systems

You install the Tivoli Workload Scheduler agent on an IBM i system by using the `twsinst` installation script.

To install an agent, perform the following steps:

1. Sign on as **QSECOFR** user.
2. Create an IBM i user profile for which the Tivoli Workload Scheduler agent is installed.

**Note:** The user profile is not the same as that for the user performing the installation logged on as **QSECOFR**, but instead is for the user that you specify in the `-uname username` parameter when running the `twsinst` script. For descriptions of the syntax parameters, see “Agent installation parameters on IBM i systems” on page 292. You cannot use an existing IBM i system user profile, an application supplied user profile, or any of the following reserved IBM i user profiles:

- QDBSHR
- QDFTOWN
- QDOC
- QLPAUTO
- QLPINSTALL
- QRJE
- QSECOFR
- QSPL
- QSYS
- QTSTRQS

**Attention:**

Be aware of the following consideration:

- If the user profile is a member of a group, the installation fails. Set the group profile that is associated with the user profile to *\*NONE*.
  - If the *username* is longer than 8 characters, after the installation the agent (and the JobManager component) runs under the **QSECOFR** user instead of under the authority of the installation user. To prevent this problem, set the `PASE_USRGRP_LIMITED` environment variable to N.
3. On the IBM i system, verify that no library exists with the same name as the user profile supplied for the agent user.
  4. Insert the DVD for the IBM i system or download the agent eImage from the Passport Advantage Online website. For more information about the installation media, see “Installation media” on page 31 or the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>.
  5. If you downloaded the eImages, to untar the package, use the *PASE* shell or the *AIXterm* command.

**Using PASE shell:**

- a. Open the *PASE* shell.

- b. Run the command **"CALL QP2TERM"**.
- c. Locate the folder where you downloaded the eImages and run the command:  

```
"tar xvf TWS91_IBM_I.tar"
```
- d. Exit from the *PASE* shell.

**Using *AIXterm* command:**

- a. Start the *Xserver* on your desktop.
  - b. On the iSeries machine, open a *QSH shell* and export the display.
  - c. In *QSH shell*, go to the directory */QopenSys* and run the command **"aixterm -sb"**.
  - d. A pop-up window is displayed on your desktop. By Using this pop-up window, extract the file *TWS91\_IBM\_I.tar*.
6. Open a *QSH shell* and run the **twsinst** script. During the installation process, the product creates an IBM i library and a job description with the same name as the user profile created in Step 2 on page 291.

The installation procedure adds this library to the user profile library list of the dynamic agent user profile and sets this job description as the job description of the dynamic agent user profile. By default, the software is installed in the user's home directory.

**Note:** If you do not run the **twsinst** script from a *QSH shell* the installation fails.

If the installation fails to understand the cause of the error, see "Analyzing return codes for agent installation, upgrade, restore, and uninstallation" on page 243.

After a successful installation, perform the following configuration task:

- "Configuring a dynamic agent" on page 217.

**Command usage and version**

**Show command usage and version**

```
twsinst -u | -v
```

**Install a new instance**

```
twsinst -new -uname username
[-addjruntime true|false]
[-agent dynamic]
[-company company_name]
[-displayname agentname]
[-hostname hostname]
[-inst_dir install_dir]
[-jport port_number]
[-jportssl true|false]
[-lang lang_id]
[-tdwport tdwport_number]
[-tdwhostname host_name]
[-work_dir working_dir]
```

For a description of the installation parameters and options that are related to agent on this operating system, see "Agent installation parameters on IBM i systems."

---

## Agent installation parameters on IBM i systems

The parameters set when using the **twsinst** script to install the dynamic agent on IBM i systems.

| **-addruntime** *true|false*

| Adds the Java runtime to run job types with advanced options, both those  
| types supplied with the product and the additional types implemented  
| through the custom plug-ins. Valid values are **true** and **false**. The default  
| for a fresh installation is **true**.

| If you decided not to install Java runtime at installation time, you can still  
| add this feature at a later time as it is described in "Part 2. Tivoli Workload  
| Scheduler -> Chapter 7. Configuring -> Adding a feature" in the IBM Tivoli  
| Workload Scheduler Planning and installation manual.

| **-company** *company\_name*

| The name of the company. The company name cannot contain blank  
| characters. The name is shown in program headers and reports. The  
| default is COMPANY.

| **-displayname**

| The name to assign to the agent. The default is the host name of this  
| computer.

| **-hostname** *host\_name*

| The fully qualified host name or IP address on which the agent is  
| contacted by the Tivoli dynamic workload broker. The default is the host  
| name of this computer.

| **-inst\_dir** *installation\_dir*

| The directory of the Tivoli Workload Scheduler installation. Always specify  
| an absolute path.

| **Note:** The path cannot contain blanks. If you do not manually specify a  
| path, the path is set to the default home directory, that is, the *user\_*  
| *home\user\_name* directory.

| **-jimport** *port\_number*

| The JobManager port number used by the Tivoli dynamic workload broker  
| to connect to the Tivoli Workload Scheduler dynamic agent. The valid  
| range is from 1 to 65535. The default value is **31114**.

| **-jimportssl** *true|false*

| The JobManager port used by the dynamic workload broker to connect to  
| the Tivoli Workload Scheduler dynamic agent. This number is registered in  
| the *ita.ini* file located in the *ITA/cpa/ita* directory.

| **For communication using SSL or HTTPS**

| Set **jimportssl = true**. To communicate with the Tivoli dynamic  
| workload broker, it is recommended that you set the value to **true**.  
| If the value is set to *true*, the port specified in **jimport**  
| communicates in HTTPS.

| **For communication without using SSL, or through HTTP**

| Set **jimportssl = false**. If the value is set to *false*, the port specified  
| in **jimport** communicates in HTTP.

| **-lang** *lang\_id*

| The language in which the **twinst** messages are displayed. If not  
| specified, the system LANG is used. If the related catalog is missing, the  
| default C language catalog is used.

**Note:** This is the language in which the installation log is recorded, and not the language of the installed engine instance. The **twinst** script installs all languages by default.

**-new** A fresh installation of the agent. Installs an agent and all supported language packs.

**-skip\_usercheck**

Enable this option if the authentication process within your organization is not standard, thereby disabling the default authentication option. If you specify this parameter, you must create the user manually before running the script.

**-stoponcheckprereq**

Stop the installation whenever a problem occurs during the prerequisite check.

For a detailed list of supported operating systems and product prerequisites, see <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

**-tdwbhostname** *host\_name*

The fully qualified host name of the dynamic workload broker. It is used together with the **-agent** *dynamic* and the **-tdwbport** *tdwbport\_number* parameters. If not specified, you cannot run your workload dynamically and this parameter uses the **localhost** default value. This value is registered in the **ResourceAdvisorUrl** property in the **JobManager.ini** file.

**-tdwbport** *tdwbport\_number*

The dynamic workload broker HTTP or HTTPS transport port number. It is used together with the **-agent** *dynamic* and the **-tdwbhostname** *host\_name* parameters. The valid range is from 0 to 65535. If you specify **0** or do not specify this parameter, you cannot run workload dynamically. Do not specify **0** if the **-agent** value is **dynamic**. This number is registered in the **ResourceAdvisorUrl** property in the **JobManager.ini** file. The default value is **41114**.

**-thiscpu** *workstation*

The name of the Tivoli Workload Scheduler workstation of this installation. The name cannot exceed 16 characters, cannot contain spaces and cannot be the same as the workstation name of the master domain manager. This name is registered in the **localopts** file. If not specified, the default value is the host name of the workstation.

**-u** Displays command usage information and exits.

**-uname** *username*

The name of the user for which Tivoli Workload Scheduler is installed.

**Note:** This user name is not the same as the user performing the installation logged on as **QSECOFR**.

If *username* is longer than 8 characters, after installation the agent (and the **JobManager** component) erroneously run under the **QSECOFR** user, instead of under the authority of the installation user. To prevent this, set the **PASE\_USRGRP\_LIMITED** environment variable to **N**.

**-work\_dir** *working\_dir*

The temporary directory used for the Tivoli Workload Scheduler installation process files deployment. The path cannot contain blanks. If you do not manually specify a path, the path is set to **/tmp/TWA/tws91**.

-v Displays the command version and exits.

---

## Example installation of an agent on IBM i systems

The following example shows the syntax used when using the **twinst** script to install a new instance of the agent on IBM i system.

```
./twinst -new
-uname TWS_user
-hostname thishostname.mycompany.com
-jmport 31114
-tdwbport 41114
-tdwbhostname mainbroker.mycompany.com
-work_dir "/tmp/TWA/tws91"
```

---

## The twinst script log files on IBM i systems

The **twinst** log file is created in the following directory:

<tempDir>/twinst\_IBM\_i\_<TWS\_user>^9.1.0.00.log, where:

<tempDir>

The user temporary directory:

**IBM i** /tmp and /tmp/TWA/tws91.

<TWS\_user>

The name of the user for which Tivoli Workload Scheduler was installed (the name you supplied during installation).

---

## Analyzing return codes for agent installation, upgrade, restore, and uninstallation

Check how your operation completed by analyzing the return codes that are issued by **twinst**.

Return codes that you can receive when you are installing, upgrading, restoring, or uninstalling agents. To analyze them and take corrective actions, run the following steps:

### On Windows operating systems

1. Display the operation completion return code, by using the following command:  
echo %ERRORLEVEL%
2. Analyze the following table to verify how the operation completed:

Table 27. Windows operating system agent return codes

| Error Code | Description                                                                   | User action |
|------------|-------------------------------------------------------------------------------|-------------|
| 0          | Success: The operation completed successfully without any warnings or errors. | None.       |

Table 27. Windows operating system agent return codes (continued)

| Error Code | Description                                                                                                                      | User action                                                                                                                                                                                                                                                                                                      |
|------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | Generic failure                                                                                                                  | Check the messages that are displayed on the screen by the script. Correct the error and rerun the operation. If the error persists, search the IBM Support database for a solution at <a href="http://www.ibm.com/software/sysmgmt/products/support">http://www.ibm.com/software/sysmgmt/products/support</a> . |
| 2          | The installation cannot create the Tivoli Workload Scheduler user or assign the correct permission to it.                        | Verify the operating system policies and configuration. Verify the input values. If necessary, create the user manually before you run the installation.                                                                                                                                                         |
| 3          | The password is not correct or the installation cannot verify it.                                                                | Verify the operating system policies and configuration. Verify the input values.                                                                                                                                                                                                                                 |
| 4          | The Tivoli Workload Scheduler installation directory is not empty. You specified as installation folder a directory that exists. | Empty it or specify a different directory.                                                                                                                                                                                                                                                                       |
| 5          | An error occurred checking the Tivoli Workload Scheduler prerequisites on the workstation.                                       | Check the product system requirements at the following link: <a href="http://www.ibm.com/support/docview.wss?rs=672&amp;uid=swg27023736">http://www.ibm.com/support/docview.wss?rs=672&amp;uid=swg27023736</a> .                                                                                                 |
| 6          | The Tivoli Workload Scheduler registry is corrupted.                                                                             | Use the <code>recovInstReg</code> option to recover the registry. Then, rerun the operation.                                                                                                                                                                                                                     |
| 7          | The upgrade or restore operation cannot retrieve the information from the configuration files.                                   | Check that the previous installation and the <code>localopts</code> , the <code>globalopts</code> , the <code>ita.ini</code> , and the <code>JobManager.ini</code> files are not corrupted. Correct the errors and try again the operation.                                                                      |
| 8          | The upgrade, restore, or uninstallation cannot proceed because there are jobs that are running.                                  | Stop the jobs that are running or wait for these jobs to complete. Restart the operation.                                                                                                                                                                                                                        |
| 9          | The upgrade, restore, or uninstallation cannot proceed because there are files that are locked.                                  | Stop all the processes that are running and close all the activities that can block the installation path. Restart the operation.                                                                                                                                                                                |
| 10         | The upgrade, restore, or uninstallation cannot proceed because there are command lines opened.                                   | Close the command lines. Restart the operation.                                                                                                                                                                                                                                                                  |

**On UNIX and Linux operating systems:**

1. Display the installation completion return code, by using the following command:  

```
echo $?
```
2. Analyze the following table to verify how the installation completed:

Table 28. UNIX or Linux operating system agent return codes

| Error Code | Description                                                                                                                                                                                                        | User action                                                                                                                                                                                                                                                                                                     |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0          | Success: The installation completed successfully without any warnings or errors.                                                                                                                                   | None.                                                                                                                                                                                                                                                                                                           |
| 1          | Generic failure.                                                                                                                                                                                                   | Check the messages that are displayed on the video by the script. Correct the error and rerun the operation. If the error persists, search the IBM Support database for a solution at <a href="http://www.ibm.com/software/sysmgmt/products/support">http://www.ibm.com/software/sysmgmt/products/support</a> . |
| 2          | The installation did not find the Tivoli Workload Scheduler user or its home directory. The Tivoli Workload Scheduler user that you specified either does not exist or does not have an associated home directory. | Verify the operating system definition of the Tivoli Workload Scheduler user.                                                                                                                                                                                                                                   |
| 3          | Not applicable                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                 |
| 4          | The Tivoli Workload Scheduler installation directory is not empty. You specified as installation folder a directory that exists.                                                                                   | Empty it or specify a different directory.                                                                                                                                                                                                                                                                      |
| 5          | An error occurred checking the Tivoli Workload Scheduler prerequisites on the workstation.                                                                                                                         | Check the product system requirements at the following link: <a href="http://www.ibm.com/support/docview.wss?rs=672&amp;uid=swg27023736">http://www.ibm.com/support/docview.wss?rs=672&amp;uid=swg27023736</a> .                                                                                                |
| 6          | The Tivoli Workload Scheduler registry is corrupted.                                                                                                                                                               | Use the <code>recovInstReg</code> option to recover the registry. Then, rerun the operation.                                                                                                                                                                                                                    |
| 7          | The upgrade or restore operation cannot retrieve the information from the configuration files.                                                                                                                     | Check that the previous installation and the <code>localopts</code> , the <code>globalopts</code> , the <code>ita.ini</code> , and the <code>JobManager.ini</code> files are not corrupted. Correct the errors and try again the operation.                                                                     |
| 8          | The upgrade, restore, or uninstallation cannot proceed because there are jobs that are running.                                                                                                                    | Stop the jobs that are running or wait for these jobs to complete. Restart the operation.                                                                                                                                                                                                                       |
| 9          | The upgrade, restore, or uninstallation cannot proceed because there are files that are locked.                                                                                                                    | Stop all the processes that are running and close all the activities that can block the installation path. Restart the operation.                                                                                                                                                                               |
| 10         | The upgrade, restore, or uninstallation cannot proceed because there are command lines opened.                                                                                                                     | Close the command lines. Restart the operation.                                                                                                                                                                                                                                                                 |



---

## Chapter 13. Configuring a dynamic agent

After installing a dynamic agent, perform the following steps:

1. Run **JnextPlan** with the option **-for 0000** to add the dynamic agent workstation definition to the plan and to send the Symphony file to it. For more information about workstation definitions, see *Tivoli Workload Scheduler: User's Guide and Reference*.

**Note:** Ensure that the global option **carryforward** is set to **all** otherwise only the not completed job streams are carried forward.

2. Change the workstation limit to allow jobs to run on the workstation. For example, set the number of jobs that can run concurrently on the workstation to 10:

```
conman "limit F235007_00;10"
```

Additionally, the following configuration procedures might be necessary. For information about these procedures, see *Administration Guide*.

- Customizing and configuring `jobmanager.ini` and user options.
- Customizing and configuring user authentication to allow users authorization for actions and objects, and to configure LDAP.
- Setting connection security to enable GSKit for inter-component communications.



---

## Chapter 14. Upgrading agents on IBM i systems

You can upgrade the agent on an IBM i system by using the `twsinst` installation script.

To upgrade a Tivoli Workload Scheduler agent, perform the following steps:

1. Sign on as **QSECOFR** user.
2. Insert the DVD for the IBM i system or download the agent eImage from the Passport Advantage Online website. For more information about the installation media, see "Installation media" on page 31 or the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>.
3. If you downloaded the eImages, to extract the package, use the *PASE* shell or the *AIXterm* command.

### Using *PASE* shell:

- a. Open the *PASE* shell.
- b. Run the command **"CALL QP2TERM"**.
- c. Locate the folder where you downloaded the eImages and run the command:  

```
"tar xvf TWS91_IBM_I.tar"
```
- d. Exit from the *PASE* shell.

### Using *AIXterm* command:

- a. Start the *Xserver* on your desktop.
  - b. On the iSeries machine, open a *QSH shell* and export the display.
  - c. In *QSH shell*, go to the directory */QopenSys* and run the command **"aixterm -sb"**.
  - d. A pop-up window is displayed on your desktop. By Using this pop-up window, extract the file *TWS91\_IBM\_I.tar*.
4. Open a *QSH shell* and run the **twsinst** script.

The installation procedure replaces the library to the user profile library list of the dynamic agent user profile and sets this job description as the job description of the dynamic agent user profile. The upgrade process replaces the new version of the agent in the directory where the old agent is installed.

**Note:** If you do not run the **twsinst** script from a *QSH shell* the installation fails.

If the operation fails to understand the cause of the error, see "Analyzing return codes for agent installation, upgrade, restore, and uninstallation" on page 243.

### Command usage and version

#### Show command usage and version

```
twsinst -u | -v
```

### Upgrade an instance

```
./twsinst -update -uname user_name
[-addjruntime true]
[-create_link]
[-hostname host_name]
[-inst_dir install_dir]
```

```

[-jimport port_number]
[-jimportssl boolean]
[-lang lang-id]
[-nobackup]
[-reset_perm]
[-recovInstReg true]
[-skip_usercheck]
[-tdwbhostname host_name]
[-tdwbport port_number]
[-wait minutes]
[-work_dir working_dir]

```

For a description of the installation parameters and options that are related to agent on this operating system, see “Agent upgrade parameters on IBM i systems.”

---

## Agent upgrade parameters on IBM i systems

The parameters set when using the `twsinst` script to upgrade a dynamic agent on IBM i systems.

### **-addjruntime** *true*

Adds the Java runtime to run job types with advanced options to the agent. The runtime environment is used to run application job plug-ins on the agent and to enable the capability to run remotely, from the agent, the Tivoli dynamic workload broker resource command on the server.

By default, if the Java runtime was already installed on the agent, it will be upgraded to version 9.1.

If the Java runtime was not installed on the agent, it will not be installed during the upgrade, unless you specify `-addjruntime true`.

If you decided not to install Java runtime when you upgrade, you can still add this feature later, as described in “Part 2. Tivoli Workload Scheduler -> Chapter 7. Configuring -> Adding a feature” in the *IBM Tivoli Workload Scheduler Planning and installation* manual.

### **-create\_link**

Create the **symlink** between `/usr/bin/at` and `<install_dir>/TWS/bin/at`. See Table 4 on page 35 for more information.

### **-displayname**

The name to assign to the agent. The default is the host name of this computer.

### **-inst\_dir** *installation\_dir*

The directory of the Tivoli Workload Scheduler installation.

**Note:** The path cannot contain blanks. If you do not manually specify a path, the path is set to the default home directory, that is, the `user_home\user_name` directory.

### **-jimport** *port\_number*

The JobManager port number used by the Tivoli dynamic workload broker to connect to the Tivoli Workload Scheduler dynamic agent. The default value is **31114**. The valid range is from 1 to 65535.

### **-jimportssl** *true|false*

The JobManager port used by the dynamic workload broker to connect to the Tivoli Workload Scheduler dynamic agent. This number is registered in the `ita.ini` file located in the `ITA/cpa/ita` directory.

|  
| **For communication using SSL or HTTPS**

| Set **importssl = true**. To communicate with the Tivoli dynamic  
| workload broker, it is recommended that you set the value to **true**.  
| If the value is set to *true*, the port specified in **import**  
| communicates in HTTPS.

| **For communication without using SSL, or through HTTP**

| Set **importssl = false**. If the value is set to *false*, the port specified  
| in **import** communicates in HTTP.

| **-lang lang\_id**

| The language in which the **twinst** messages are displayed. If not  
| specified, the system LANG is used. If the related catalog is missing, the  
| default C language catalog is used.

| **Note:** This is the language in which the installation log is recorded, and  
| not the language of the installed engine instance. The **twinst** script  
| installs all languages by default.

| **-recovInstReg true**

| To re-create the registry files. Specify it if you have tried to upgrade a  
| stand-alone, fault-tolerant agent (an agent that is not shared with other  
| components or does not have the connector feature) and you received an  
| error message that states that an instance of Tivoli Workload Scheduler  
| cannot be found, this can be caused by a corrupt registry file. See  
| "Upgrading when there are corrupt registry files" on page 208.

| **-skip\_usercheck**

| Enable this option if the authentication process within your organization is  
| not standard, thereby disabling the default authentication option. If you  
| specify this parameter, you must create the user manually before running  
| the script.

| **-stoponcheckprereq**

| Stop the installation whenever a problem occurs during the prerequisite  
| check.

| For a detailed list of supported operating systems and product  
| prerequisites, see [http://www-01.ibm.com/support/docview.wss?rs=672  
&uid=swg27038324](http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324).

| **-tdwbhostname host\_name**

| The Tivoli dynamic workload broker fully qualified host name. It is used  
| together with the **-tdwbport tdwbport\_number** parameter. It adds and starts  
| the capabilities to run workload dynamically to Tivoli Workload Scheduler.  
| If not specified you cannot run your workload dynamically and this  
| parameter assumes the **localhost** default value. This value is registered in  
| the **ResourceAdvisorUrl** property in the **JobManager.ini** file.

| **-tdwbport tdwbport\_number**

| The Tivoli dynamic workload broker HTTP or HTTPS port number used to  
| add dynamic scheduling capabilities to your distributed or end-to-end  
| environment. It is used together with the **-tdwbhostname host\_name**  
| parameter. This number is registered in the **ResourceAdvisorUrl** property  
| in the **JobManager.ini** file. The default value is **0**, however, if you leave the  
| value as **0**, you cannot run your workload dynamically. Specify a nonzero  
| value to add dynamic capability. The valid range is 0 to 65535.

| **-nobackup**

| The upgrade process does not back up the instance you are upgrading.

**-uname** *user\_name*  
The name of the user for which Tivoli Workload Scheduler is being updated. The software is updated in this user's home directory. This user name is not to be confused with the user performing the upgrade.

**Note:** This user name is not the same as the user performing the installation logged on as **QSECOFR**.

**-update**  
Upgrades an existing agent that was installed using **twinst**.

**-wait** *minutes*  
The number of minutes that the product waits for jobs that are running to complete before starting the upgrade. If the jobs do not complete during this interval the upgrade does not proceed and an error message is displayed. Valid values are integers or **-1** for the product to wait indefinitely. The default is **60** minutes.

**-work\_dir** *working\_dir*  
The temporary directory used for the Tivoli Workload Scheduler installation process files deployment. The path cannot contain blanks. If you do not manually specify a path, the path is set to **/tmp/TWA/tws91**.

---

## Example upgrade of an agent on IBM i systems

The following example shows the syntax used when using the **twinst** script to upgrade an instance of the agent on IBM i system.

```
./twinst -update
-uname TWS_user
-nobackup
-work_dir "/tmp/TWA/tws91"
```

---

## The twinst script log files on IBM i systems

The **twinst** log file is created in the following directory:

**<tempDir>/twinst\_IBM\_i\_<TWS\_user>^9.1.0.00.log**, where:

**<tempDir>**

The user temporary directory:

**IBM i** /tmp and /tmp/TWA/tws91.

**<TWS\_user>**

The name of the user for which Tivoli Workload Scheduler was installed (the name you supplied during installation).

---

## Analyzing return codes for agent installation, upgrade, restore, and uninstallation

Check how your operation completed by analyzing the return codes that are issued by **twinst**.

Return codes that you can receive when you are installing, upgrading, restoring, or uninstalling agents. To analyze them and take corrective actions, run the following steps:

**On Windows operating systems**

1. Display the operation completion return code, by using the following command:  

```
echo %ERRORLEVEL%
```
2. Analyze the following table to verify how the operation completed:

*Table 29. Windows operating system agent return codes*

| <b>Error Code</b> | <b>Description</b>                                                                                                               | <b>User action</b>                                                                                                                                                                                                                                                                                               |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0                 | Success: The operation completed successfully without any warnings or errors.                                                    | None.                                                                                                                                                                                                                                                                                                            |
| 1                 | Generic failure                                                                                                                  | Check the messages that are displayed on the screen by the script. Correct the error and rerun the operation. If the error persists, search the IBM Support database for a solution at <a href="http://www.ibm.com/software/sysmgmt/products/support">http://www.ibm.com/software/sysmgmt/products/support</a> . |
| 2                 | The installation cannot create the Tivoli Workload Scheduler user or assign the correct permission to it.                        | Verify the operating system policies and configuration. Verify the input values. If necessary, create the user manually before you run the installation.                                                                                                                                                         |
| 3                 | The password is not correct or the installation cannot verify it.                                                                | Verify the operating system policies and configuration. Verify the input values.                                                                                                                                                                                                                                 |
| 4                 | The Tivoli Workload Scheduler installation directory is not empty. You specified as installation folder a directory that exists. | Empty it or specify a different directory.                                                                                                                                                                                                                                                                       |
| 5                 | An error occurred checking the Tivoli Workload Scheduler prerequisites on the workstation.                                       | Check the product system requirements at the following link: <a href="http://www.ibm.com/support/docview.wss?rs=672&amp;uid=swg27023736">http://www.ibm.com/support/docview.wss?rs=672&amp;uid=swg27023736</a> .                                                                                                 |
| 6                 | The Tivoli Workload Scheduler registry is corrupted.                                                                             | Use the <code>recovInstReg</code> option to recover the registry. Then, rerun the operation.                                                                                                                                                                                                                     |
| 7                 | The upgrade or restore operation cannot retrieve the information from the configuration files.                                   | Check that the previous installation and the <code>localopts</code> , the <code>globalopts</code> , the <code>ita.ini</code> , and the <code>JobManager.ini</code> files are not corrupted. Correct the errors and try again the operation.                                                                      |
| 8                 | The upgrade, restore, or uninstallation cannot proceed because there are jobs that are running.                                  | Stop the jobs that are running or wait for these jobs to complete. Restart the operation.                                                                                                                                                                                                                        |
| 9                 | The upgrade, restore, or uninstallation cannot proceed because there are files that are locked.                                  | Stop all the processes that are running and close all the activities that can block the installation path. Restart the operation.                                                                                                                                                                                |
| 10                | The upgrade, restore, or uninstallation cannot proceed because there are command lines opened.                                   | Close the command lines. Restart the operation.                                                                                                                                                                                                                                                                  |

**On UNIX and Linux operating systems:**

1. Display the installation completion return code, by using the following command:  

```
echo $?
```
2. Analyze the following table to verify how the installation completed:

*Table 30. UNIX or Linux operating system agent return codes*

| <b>Error Code</b> | <b>Description</b>                                                                                                                                                                                                 | <b>User action</b>                                                                                                                                                                                                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0                 | Success: The installation completed successfully without any warnings or errors.                                                                                                                                   | None.                                                                                                                                                                                                                                                                                                           |
| 1                 | Generic failure.                                                                                                                                                                                                   | Check the messages that are displayed on the video by the script. Correct the error and rerun the operation. If the error persists, search the IBM Support database for a solution at <a href="http://www.ibm.com/software/sysmgmt/products/support">http://www.ibm.com/software/sysmgmt/products/support</a> . |
| 2                 | The installation did not find the Tivoli Workload Scheduler user or its home directory. The Tivoli Workload Scheduler user that you specified either does not exist or does not have an associated home directory. | Verify the operating system definition of the Tivoli Workload Scheduler user.                                                                                                                                                                                                                                   |
| 3                 | Not applicable                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                 |
| 4                 | The Tivoli Workload Scheduler installation directory is not empty. You specified as installation folder a directory that exists.                                                                                   | Empty it or specify a different directory.                                                                                                                                                                                                                                                                      |
| 5                 | An error occurred checking the Tivoli Workload Scheduler prerequisites on the workstation.                                                                                                                         | Check the product system requirements at the following link:<br><a href="http://www.ibm.com/support/docview.wss?rs=672&amp;uid=swg27023736">http://www.ibm.com/support/docview.wss?rs=672&amp;uid=swg27023736</a> .                                                                                             |
| 6                 | The Tivoli Workload Scheduler registry is corrupted.                                                                                                                                                               | Use the <code>recovInstReg</code> option to recover the registry. Then, rerun the operation.                                                                                                                                                                                                                    |
| 7                 | The upgrade or restore operation cannot retrieve the information from the configuration files.                                                                                                                     | Check that the previous installation and the <code>localopts</code> , the <code>globalopts</code> , the <code>ita.ini</code> , and the <code>JobManager.ini</code> files are not corrupted. Correct the errors and try again the operation.                                                                     |
| 8                 | The upgrade, restore, or uninstallation cannot proceed because there are jobs that are running.                                                                                                                    | Stop the jobs that are running or wait for these jobs to complete. Restart the operation.                                                                                                                                                                                                                       |
| 9                 | The upgrade, restore, or uninstallation cannot proceed because there are files that are locked.                                                                                                                    | Stop all the processes that are running and close all the activities that can block the installation path. Restart the operation.                                                                                                                                                                               |
| 10                | The upgrade, restore, or uninstallation cannot proceed because there are command lines opened.                                                                                                                     | Close the command lines. Restart the operation.                                                                                                                                                                                                                                                                 |

---

## Chapter 15. Uninstalling agents on IBM i systems

To uninstall Tivoli Workload Scheduler agents on an IBM i system using the **twinst** script, follow these steps:

1. Ensure that all Tivoli Workload Scheduler processes and services are stopped, and that there are no active or pending jobs. For information about stopping the processes and services, see *Administration Guide*.
2. Log on as QSECOFR and change your directory to */installation\_dir/TWS*. For example: */home/user1/TWS* where *user1* is the name of Tivoli Workload Scheduler user.
3. From the Installation directory\TWS directory, run the **twinst** script as follows:

```
twinst -uninst -uname username [-wait minutes]
[-lang lang_id] [-work_dir working_dir]
```

### **-uninst**

Uninstalls Tivoli Workload Scheduler.

### **-uname username**

The name of the user for which Tivoli Workload Scheduler is uninstalled. This user name is not the same as the user performing the installation logged on as QSECOFR.

### **-wait minutes**

The number of minutes that the product waits for jobs that are running to complete before starting the uninstallation. If the jobs do not complete during this intervals the uninstallation stops and an error message is displayed. Valid values are integers or **-1** for the product to wait indefinitely. The default is **60** minutes.

### **-lang lang\_id**

The language in which the **twinst** messages are displayed. If not specified, the system LANG is used. If the related catalog is missing, the default C language catalog is used.

### **-work\_dir working\_dir**

The temporary directory used for the Tivoli Workload Scheduler installation process files deployment. If you do not manually specify a path, the path is set to */tmp/TWA/tws91*.

The following example shows a **twinst** script that uninstalls the Tivoli Workload Scheduler agent, originally installed for **twuser** user:

### On IBM i systems:

```
./twinst -uninst -uname TWS_user
```

---

## The twinst script log files on IBM i systems

The **twinst** log file is created in the following directory:

*<tempDir>/twinst\_IBM\_i\_<TWS\_user>^9.1.0.00.log*, where:

*<tempDir>*

The user temporary directory:

**IBM i** */tmp* and */tmp/TWA/tws91*.

*<TWS\_user>*

The name of the user for which Tivoli Workload Scheduler was installed (the name you supplied during installation).

---

## **Part 4. Dynamic Workload Console**

This part describes how to install, upgrade, configure, and uninstall the Dynamic Workload Console. The part also contains troubleshooting sections.



---

## Chapter 16. Overview of the Dynamic Workload Console

The Dynamic Workload Console is a web-based user interface that is used with the following products:

- Tivoli Workload Scheduler
- Tivoli Workload Scheduler for z/OS
- Tivoli Workload Scheduler for Applications
- Tivoli dynamic workload broker

You can access Tivoli Workload Scheduler and Tivoli dynamic workload broker environments from any location in your network using one of the supported browsers connected to the Dynamic Workload Console. The Dynamic Workload Console must be installed on a system that can reach either the Tivoli Workload Scheduler or the Tivoli dynamic workload broker nodes using network connections.



---

## Chapter 17. Preparing

This chapter gives you an overview of what you need to know to install and use the Dynamic Workload Console.

1. Check the installation prerequisites in the Detailed System Requirements at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038329> to verify that your system is compliant.
2. Choose the installation method that best suits your needs as described in *Selecting your installation method*.
3. Collect the information necessary to fill in the required fields during the installation. See Chapter 19, “Installing,” on page 323.
4. Install the Dynamic Workload Console by following the instructions provided in “Installing components using Installation Manager.”
5. Log in to the Dynamic Workload Console as described in “Accessing the Dynamic Workload Console” on page 335.
6. In the navigation tree on the left, click one of the following:

### **Tivoli Workload Scheduler**

To access the Tivoli Workload Scheduler available functions

### **Tivoli dynamic workload broker**

To access the Tivoli dynamic workload broker available functions

7. To effectively manage the functions available in the Dynamic Workload Console, create *engine connections* to the Tivoli Workload Scheduler and Tivoli dynamic workload broker environments that you want to manage. Without defining engine connections, you can use only a limited set of Dynamic Workload Console functions. For more information, see “Quick steps to define a Tivoli Workload Scheduler engine connection” on page 337 and “Quick steps to define a Tivoli dynamic workload broker connection” on page 337.

---

## Directories created outside of *TWA\_home* at installation time

The following list shows the directories that are created outside of *TWA\_home* when you install the Dynamic Workload Console and Tivoli Workload Scheduler for z/OS connector.

### **On Windows operating systems:**

Dynamic Workload Console:

%WINDIR%\TWA

z/OS connector:

%WINDIR%\TWA

%WINDIR%\system32\TWSRegistry.dat (32 bits)

%WINDIR%\syswow64\TWSRegistry.dat (32 bits on 64 bits)

%WINDIR%\TWSRegistry.dat (64 bits on 64 bits)

### **On UNIX operating systems:**

Dynamic Workload Console:

/etc/TWA

z/OS connector:

/etc/TWA

/etc/TWS

---

## Accessing the installation media

Accessing the installation media

Access the installation media to download the installation files

### Using DVDs

Choose the appropriate DVDs to use depending on what you want to install.

In this installation scenario, you have the DVDs that contain the installation files, and typically, you install the product on your computer.

Install Tivoli Workload Scheduler from DVDs by performing the following steps:

1. Choose the appropriate DVD depending on what you want to install.

*Table 31. Tivoli Workload Scheduler bundles*

| <b>Tivoli Workload Scheduler component to install</b>                                                                                    | <b>DVD to use</b>                    |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <ul style="list-style-type: none"><li>• A dynamic agent</li><li>• A fault-tolerant agent with remote command line</li></ul>              | Agent DVD                            |
| <ul style="list-style-type: none"><li>• A master domain manager or its backup</li><li>• A dynamic domain manager or its backup</li></ul> | Tivoli Workload Scheduler Server DVD |
| Dynamic Workload Console                                                                                                                 | Tivoli Workload Scheduler Server DVD |
| Integration Workbench                                                                                                                    | Tivoli Workload Scheduler Server DVD |
| Batch reports                                                                                                                            | Tivoli Workload Scheduler Server DVD |
| Job Brokering Definition Console                                                                                                         | Tivoli Workload Scheduler Server DVD |

For a complete list of the installation media, see the Tivoli Workload Scheduler Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>.

2. Insert the product installation DVD into the drive.

For more information about the media structure, see “Installation media” on page 31.

### Installation media

The content of the installation media depends on the image that you downloaded.

#### Agents DVD

Depending on the operating system, the installation DVD contains some or all of the following directories:

**TWS** Contains the files required to install a Tivoli Workload Scheduler dynamic agent or a fault-tolerant agent with remote command line.

#### JavaExtension

Contains the files to install Java extension or to add Java extension to an installed Tivoli Workload Scheduler instance.

#### Tivoli Workload Scheduler Server DVD

Depending on the operating system, the installation DVD contains some or all of the following directories:

**dbtools**

Contains the files required to create or update the Tivoli Workload Scheduler database before installing or upgrading the product. For more information about managing Tivoli Workload Scheduler database before the installation process, see Chapter 5, “Creating or upgrading the Tivoli Workload Scheduler database tables before installing or upgrading,” on page 45.

**FULL** Contains the repository required to install the product by using Installation Manager.

**iim** Contains the files required to install Installation Manager by using the launchpad or manually.

**Launchpad**

Contains the launchpad code.

**response\_files**

Contains the response files that install the Tivoli Workload Scheduler master domain manager, the backup master domain manager, the dynamic domain manager, the backup dynamic domain manager, or the Dynamic Workload Console.

**DWC** Contains the files required to install the Dynamic Workload Console.

**TWS** Contains the files required to install the Tivoli Workload Scheduler master domain manager or its backup, the dynamic domain manager or its backup.

**Prerequisites**

Contains the files needed to scan your system to verify that your environment has all the product system requirements necessary to perform a successful installation.

**Integration Workbench**

Contains the files required to install Tivoli Workload Scheduler Integration Workbench.

**DB2 images**

Contains the files required to install DB2.

**WebSphere Application Server images**

Contains the files required to install WebSphere Application Server.

**Jazz for Service Management extension for WebSphere images**

Contains the files required to install Jazz for Service Management extension for WebSphere.

## Downloading images on your workstation

Steps on downloading images on your workstation

You can download images by performing the following steps:

1. Ensure that your workstation has sufficient space to store both the files you must download from IBM Passport Advantage® and the extracted installation image. For more information about Systems requirements, see System Requirements Document.
2. From IBM Passport Advantage, download all the required parts for the product image listed in Table 3 on page 33 to a temporary directory.

Table 32. Required eImages

| Tivoli Workload Scheduler components to install                                                                                             | eImages to download                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• A dynamic agent</li> <li>• A fault-tolerant agent with remote command line</li> </ul>              | Agent eImage.                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• A master domain manager or its backup</li> <li>• A dynamic domain manager or its backup</li> </ul> | <ul style="list-style-type: none"> <li>• Tivoli Workload Scheduler eImage.</li> <li>• WebSphere Application Server eImage.</li> <li>• DB2 eImage if you want to install and use the DB2 relational database.</li> </ul> |
| Dynamic Workload Console                                                                                                                    | <ul style="list-style-type: none"> <li>• Tivoli Workload Scheduler eImage.</li> <li>• WebSphere Application Server eImage.</li> </ul>                                                                                   |
| Integration Workbench                                                                                                                       | Integration Workbench eImages.                                                                                                                                                                                          |
| Batch reports                                                                                                                               | Tivoli Workload Scheduler eImage.                                                                                                                                                                                       |
| Job Brokering Definition Console                                                                                                            | Tivoli Workload Scheduler eImage.                                                                                                                                                                                       |

3. Extract the installation image from the downloaded file and verify that the installation image is complete.

For more information about eImages, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&tuid=swg24034807>.

## Creating a network repository

This scenario is valid only for master domain manager or dynamic domain manager and their backups, or Dynamic Workload Console that are installed by using the Installation Manager infrastructure.

Use the Installation Manager **Package Utility** to create the Tivoli Workload Scheduler DVDs or eImages in network repository format. For more information about the **Package Utility** wizard, see *Installation Manager > Installing > Managing packages with Packaging Utility* in the Installation Manager Information center <http://pic.dhe.ibm.com/infocenter/install/v1r6/index.jsp>.

After you use the **Packaging Utility** to create a repository from the ESD images, you can use the Installation Manager to define this location as a repository. You can save the repository on a UNC drive on Windows operating systems or on a web server to make the directories and files available over HTTP.

To create a Tivoli Workload Scheduler network repository, perform the following procedure:

1. Download the eImages as described in “Downloading eImages on your workstation” on page 32 or use the DVDs as described in “Using DVDs” on page 31.
2. Install Installation Manager on your workstation.
3. Install the **Package Utility** using Installation Manager on your workstation.
4. To create the ESD images in network format, run the following steps:
  - a. Start the **Package Utility**.
  - b. Click **Point to the ESD image**.
  - c. Run the wizard. For more information about the **Package Utility** wizard, see *Installation Manager > Installing > Managing packages with Packaging Utility*.

After you created a repository in network format, define this location as an Installation Manager repository. To add a repository, run the following steps:

1. Open the Installation Manager wizard.
2. Select **File > Preferences**. The Repositories page is displayed and shows available repositories, repository locations, and the connection status for the repositories.
3. Select **Add Repository**. The Add Repository page is displayed.
4. Enter the repository location or select **Browse**.
5. Go to the repository location where you saved the eImages or the DVD content in network format and select the URL related to the product that you want to install.
6. Click **OK**. If you provided an HTTPS or restricted FTP repository location, you are prompted to enter a user ID and password. The new repository location is added to the list. If the repository is not connected, a red box is shown in the Connection column.
7. Click **OK**.

After you defined an Installation Manager repository, install the product::

**Tivoli Workload Scheduler**

See "Installing main components" on page 65.

**Dynamic Workload Console**

See "Installing the Dynamic Workload Console" on page 323.



---

## Chapter 18. Dynamic Workload Console prerequisites

Prerequisite information for installing a Dynamic Workload Console

Dynamic Workload Console installation has the following prerequisites:

### **WebSphere Application Server**

If you do not have this product installed, the installation process automatically installs it.

### **Jazz for Service Management extension for WebSphere**

If you do not have this product installed, the installation process automatically installs it.

### **Dashboard Application Services Hub**

If you do not have this product installed, the installation process automatically installs it.

### **WebSphere SDK Java Technology Edition**

If you do not have this product installed, the installation process automatically installs it.

To install the prerequisites, choose one of the following options:

- Use the launchpad. See "Launchpad".
- Manually launch the Jazz for Service Management extension for WebSphere installation on the product DVD.
- Download the appropriate eImages. See the product Download Document.

For a complete list of the correct versions to install, see the <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>.

---

## Supported operating systems

To produce a dynamic report that lists the supported operating systems, perform the following actions:

1. Go to the web page: <http://publib.boulder.ibm.com/infocenter/prodguid/v1r0/clarity/index.html>.
2. Click the *"Operating systems for a specific product"* report.
3. In the window "Operating systems for a specific product", fill in the field *Enter a full or partial product name* with the value **IBM Tivoli Workload Scheduler** and click *Search*.
4. In the *Select version* drop-down list, select version **9.1** and click *Submit to run the report*.

For a complete list of system requirements (disk spaces, temporary spaces and RAM usage), see System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

---

## Scanning system prerequisites for Tivoli Workload Scheduler

Before you install or upgrade the product, Tivoli Workload Scheduler automatically runs a scan on your system. Having an environment that meets the product system requirements ensures that an installation or upgrade succeeds without any delays or complications.

The scan verifies that:

- The operating system is supported for the product.
- On UNIX operating systems, the necessary product libraries are installed.
- There is enough permanent and temporary disk space to install both the product and its prerequisites.
- There is enough memory and virtual memory.

**Note:** The scan verifies only that the environment meets the requirements of Tivoli Workload Scheduler. It does not check the requirements for other components, such as DB2. To verify the requirements for Installation Manager use the procedure described in “Scanning system prerequisites for Installation Manager” on page 43.

If any of these checks fails, Tivoli Workload Scheduler performs the following action:

### **For all the components installed by using Installation Manager:**

Displays a notification of the requirement that was not met. In this case, stop the installation or the upgrade, analyze the log files, solve the error, and rerun the installation or upgrade. If you are performing an interactive installation, the errors are displayed on the screen. If you are performing a silent installation, the errors are written in the Installation Manager log files. For more information about log files, see “Installation Manager wizard and silent installation and uninstallation log files” on page 237.

### **For agents**

If you specified the **stoponcheckprereq** parameter, the **twinst** script does not proceed. In this case, analyze the log file, solve the error, and rerun the installation or upgrade. The log files are located:

#### **On Windows operating systems:**

`%TEMP%\TWA\tws91\result.txt`

#### **On UNIX and Linux operating systems:**

`$tmp/TWA/tws91/result.txt`

If you did not specify **stoponcheckprereq**, the **twinst** script proceeds. If a problem occurs, an error is displayed, the agent is installed or upgraded, but might not work.

For a detailed list of supported operating systems and product prerequisites, see the System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

## Scanning system prerequisites for Installation Manager

Before you install or upgrade the Tivoli Workload Scheduler, if you have not installed Installation Manager, run a scan on your system to verify that your workstation has all the system requirements needed for a successful installation. Having an environment that meets the product system requirements ensures that an installation succeeds without any delays or complications.

You can run a prerequisite scan for Installation Manager by using:

**“Launchpad” on page 29**

From the DVD or from the eImage, launch it and select **Prerequisites Scan**.

**checkPrereq**

**On Windows operating systems:**

Run the following command:

```
checkPrereq.bat
```

**On UNIX or Linux operating systems:**

Run the following command:

```
checkPrereq.sh
```

Specify the **-silent** option if you are not interested in installing Installation Manager by using the wizard. If you use the **-silent** option, the program does not check that the graphical libraries exist. If the scan fails, the program displays a notification of the requirement that was not met. In this case, stop the installation, solve the error, and rerun the installation.



---

## Chapter 19. Installing

Install this component if you want to manage your static and dynamic workload both in distributed and end-to-end environments using a web interface.

---

### Installing the Dynamic Workload Console

By default the Dynamic Workload Console installation process installs the z/OS connector component. During installation process, you might also configure the z/OS connector instance to connect to the z/OS system.

---

### Selecting your installation method

You can install the Dynamic Workload Console using one of the following methods:

#### Launchpad

Use the launchpad to guide you through the installation of the Dynamic Workload Console, and the Tivoli Workload Scheduler components, from a single interface. For more information about how to install using the launchpad, see “Launchpad” on page 29.

#### Installation wizard

Install the Dynamic Workload Console and the z/OS connector by using the wizard for each supported platform. The wizard guides you through the installation steps. For more information, see “Installation wizard.”

#### Silent mode

Using this method, you run the installation unattended and in the background. A response file provides the relevant information to the installation process, which is run in background. Customize the *response file* by adding all the configuration settings to be used during the installation. Then, from the command line, run the Installation Manager command. For more information, see “Silent installation” on page 330.

### Installation wizard

1. Before starting to install, verify that the user running the installation process has the following authorization requirements:

#### Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or domain administrators group with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

#### UNIX and Linux operating systems root access

2. Ensure that you inserted the DVD for your operating system or you downloaded the Dynamic Workload Console eImage (for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).

To start the installation program, perform the following steps:

1. From the eImage that contains the component you want to install, run:

**Windows operating systems:**

From the root directory of the DVD, run `setupDWC.bat`.

**UNIX operating systems:**

From the root directory of the DVD, run `setupDWC.sh`.

The installation wizard opens and shows you the Dynamic Workload Console and its prerequisites you want to install already selected.

2. Proceed with the installation of the selected Dynamic Workload Console, follow the instructions described in "Installation procedure for Dynamic Workload Console" on page 325.

**Note:** If you want to install Tivoli Workload Scheduler and a Dynamic Workload Console at the same time, run

**Windows operating systems:**

From the root directory of the DVD or the eImage, run `setupALL.bat`.

**UNIX operating systems:**

From the root directory of the DVD or the eImage, run `setupALL.sh`.

and follow the procedure described for the Tivoli Workload Scheduler master domain manager or its backup in "Installation procedure for master domain manager or its backup" or for Tivoli Workload Scheduler dynamic domain manager or its backup in "Installation procedure for dynamic domain manager or its backup" and the Dynamic Workload Console in "Installation procedure for Dynamic Workload Console".

---

## Changing temporary directory when installing using Installation Manager

When you install the Dynamic Workload Console using Installation Manager, you can change the default path of the temporary directory.

To change the location of the default directory where temporary files are stored during the installation of the Dynamic Workload Console using the IBM Installation Manager, perform the following actions:

1. Go to the Installation Manager installation path, edit the `IBMIM.ini` file and add after line:

```
-vmargs
```

the following line:

```
-Djava.io.tmpdir=<new_temp_folder>
```

where `<new_temp_folder>` is the full path to the new temporary directory.

2. Restart the Installation Manager and install the Dynamic Workload Console.

**Examples:**

**On Windows operating systems:**

```
-vmargs
-Djava.io.tmpdir=C:\NewDir
```

## On UNIX operating systems:

```
-vmargs
-Djava.io.tmpdir=/tmp/NewDir
```

---

## Installation procedure for Dynamic Workload Console

To install a Dynamic Workload Console and its prerequisites, perform the following steps:

1. After you start the installation process either by using the launchpad as described in "Installing from the launchpad." or by using the wizard as described in "Installation Wizard", the Installation Manager wizard starts.
2. In the Installation Packages Installation Manager panel, the installation process selected all the Dynamic Workload Console prerequisites packages and the "Tivoli Dynamic Workload Console" > "Version 9.1.0.0" product package.

**Note:** If you have already installed the Dynamic Workload Console or its prerequisites products, a warning window is displayed. Click **Continue** to install the package in a new group or click **Cancel** to clear the package that is already installed.

3. Click **Next**.
4. On the Licenses page, read the license agreement for the selected package. If you selected to install the Dynamic Workload Console package and the Dynamic Workload Console prerequisites packages, you must accept the license agreement for each package. On the left side of the License page, click each package to see its license agreement. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements**.
5. Click **Next**.
6. On the Location panel, the Dynamic Workload Console and the Dynamic Workload Console prerequisites packages are listed:

### For each prerequisite package:

Accept the default path, or type, or **Browse** for the path to use as the installation directory in which to install the prerequisite instance.

### For Dynamic Workload Console package:

Accept the default path, or type, or **Browse** for the path to use as the installation directory in which you install the Dynamic Workload Console:

### Installation directory

The maximum field length is 46 characters. You cannot use national characters.

### On Windows operating systems:

- The following characters are not valid:  
`'!', '#', '$', '%', '&', '{', '}', '[', ']', '=',  
'?', '\\', '<', '>', '|', ';', '(', ')'`
- The name must be longer than three characters, the second character must be '.', the third character must be '\\.
- The default directory is C:\Program Files\IBM\TWAUI

### On UNIX and Linux operating systems:

- The following characters are not valid:

'!', '\\', '#', '\$', '%', '&', '{', '}', '[', ']', '=',  
'?', '\\', '<', '>', '(', ')', ' '.

- The name must be longer than one character and the first character must be '/'.
- The default directory is /opt/IBM/TWAUI

**Note:** If you are installing on a Windows server 2008 follow the instructions in the message about virtualized directories.

7. Click **Next**. On the Features page, select the languages for which the corresponding WebSphere Application Server packages will be installed. The language translations for the user interface and documentation are installed. You have the option to select languages only the first time that you install a package to a package group. You can install other language translations for all the packages in a package group with the Modify wizard.
8. Click **Next**.
9. On the Features page, perform the following actions:

**For the prerequisites packages:**

To see a description of a feature, click the feature name. In the Details section you see a short description.

Ensure that you leave the default prerequisites features selected by installation process.

**For the Dynamic Workload Console package:**

Leave selected

**Dynamic Workload Console**

10. Click **Next**.
11. In the following panels, enter the following information:

**For each prerequisite package:**

On the prerequisites product panels, enter the information related to the product you are installing. For more information about the field values, see the prerequisite product documentation.

The following panels are presented:

**WebSphere Application Server profile configuration:**

“Core Services in Jazz for Service Management - WebSphere Application Server profile configuration” on page 327

**WebSphere Application Server ports configuration:**

“Core Services in Jazz for Service Management - ports configuration” on page 328

**Configuration for IBM Dashboard Application Services Hub:**

“Configuration for IBM Dashboard Application Services Hub” on page 329

Leave the **Registry Services** checkbox blank unless you plan to run workload integrating with OSLC.

**For the Dynamic Workload Console package:**

Optionally, check the box related to the configuration of z/OS connector and provide the requested information:

**z/OS connector configuration:**

“z/OS connector configuration” on page 329.

12. Click **Next**.

13. On the Summary page, review your choices before installing the product package and its prerequisites. To change any choices that you made on previous pages, click **Back** and make the changes. Click **Install** to install the Dynamic Workload Console package and its prerequisites.

**Note:** When the installation completes, a summary panel is displayed asking which program you want to start. If you installed the WebSphere Application Server prerequisite, and any of the Profile Management Tool radio buttons appear selected, unselect them because the installation process already created its own profile. Select either **None** or **Log on to the IBM Dashboard Application Services Hub**.

After a successful installation, to configure the Dynamic Workload Console, see “Accessing the Dynamic Workload Console” on page 335.

## Core Services in Jazz for Service Management - WebSphere Application Server profile configuration

The following fields are provided for WebSphere Application Server profile configuration data. The fields you complete depend upon whether you are using an existing profile for Dashboard Application Services Hub or another profile.

### WebSphere installation location

Type or **Browse** for the directory where the WebSphere Application Server instance is installed. Click **Browse** to find the appropriate location.

### Use an existing WebSphere Application Server profile

You use a WebSphere Application Server profile that you have already created.

### Profile details

#### Profile location

Enter the name of the directory where the WebSphere Application Server profile is located. Click **Browse**, to find the appropriate location. The default is:

#### On Windows operating systems:

C:\Program Files\IBM\JazzSM\profile

#### On UNIX operating systems:

/opt/IBM/JazzSM/profile

**Note:** Do not use any of the following characters in the profile path field:

#### On Windows operating systems:

! " # \$ % & { } [ ] = ? ' < > , ; \* :

#### On UNIX operating systems:

! " # \$ % & { } [ ] = ? ' < > , ; \* :

### Profile name

Enter the name of the file where the WebSphere Application Server profile is defined. The default is **JazzSMProfile**.

### Node name

Enter the name of the node contained in the WebSphere Application Server profile. The default is **JazzSMNode01**.

### Server name

Enter the name of the server contained in the WebSphere Application Server profile. The default is **server1**.

**User name**

Provide the user that can access the WebSphere Application Server profile. The default is **wasadmin**.

**Password**

Provide the WebSphere Application Server password for the user you specified. The password must comply with the password policy in your Local Security settings.

**Password confirmation**

Enter the password again.

**Validate**

Click validate the information you entered are correct.

## Core Services in Jazz for Service Management - ports configuration

This panel appears during installation or upgrade processes. If you are performing an upgrade, you are not required to insert or you cannot see some of the following fields.

The following fields are provided for WebSphere Application Server data. The installation procedure checks for the availability of the ports in the specified port range. If one or more ports are being used by other applications, you are prompted to enter a new port number.

**HTTP transport**

The port for the HTTP transport. It is used by the **composer** command line and the Dynamic workload broker when this protocol is selected. The default value is **16310**. The valid range is from 1 to 65535.

**HTTPS transport secure**

The port for the secure HTTP transport. It is used by the **composer** command line and the Dynamic workload broker when this protocol is selected. The default value is **16311**. The valid range is from 1 to 65535.

**Bootstrap**

The port for the bootstrap or RMI. It is used by the graphical user interfaces. The default value is **16312**. The valid range is from 1 to 65535.

**SOAP connector**

The port for the application server protocol SOAP connector. The default value is **16313**. The valid range is from 1 to 65535.

**IPC connector**

The port for the InterProcess Connector. The default value is **16314**. The valid range is from 1 to 65535.

**Administrative console**

The administrative console port. The default value is **16315**. The valid range is from 1 to 65535

**Administrative console secure**

The administrative console secure port. The default value is **16316**. The valid range is from 1 to 65535.

**High availability manager communication**

The port used by the High availability manager to communicate with other WebSphere Application Servers that are part of the same high availability group. The default value is **16318**. The valid range is from 1 to 65535.

**ORB Listener**

The port used for RMI over IIOP communication. The default value is **16320**. The valid range is from 1 to 65535.

**SAS SSL server authentication**

The port used by the Secure Association Services (SAS) to listen for inbound authentication requests. The default value is **16321**. The valid range is from 1 to 65535.

**CSIV2 client authentication listener**

The port on which the Common Secure Interoperability Version 2 (CSIV2) service listens for inbound client authentication requests. The default value is **16322**. The valid range is from 1 to 65535.

**CSIV2 server authentication listener**

The port on which the Common Secure Interoperability Version 2 (CSIV2) service listens for inbound server authentication requests. The default value is **16323**. The valid range is from 1 to 65535.

**REST notification**

The Representational State Transfer (REST) notification port. The default value is **16324**. The valid range is from 1 to 65535.

## Configuration for IBM Dashboard Application Services Hub

Accept the given default or specify a different name for the context root of the Dashboard Application Services Hub. The default value is `/ibm/console`.

The context root is combined with other data to compose the full URL used to access the Dynamic Workload Console. For example, if you accept the default, the URL is:

```
https://host_name:port/ibm/console
```

Click Next.

## z/OS connector configuration

Specify the information to connect to a Tivoli Workload Scheduler for z/OS system.

**Configure connection for z/OS connector**

Select it if you want to create a connection to a Tivoli Workload Scheduler for z/OS controller.

**z/OS engine name**

Specify the name of the Tivoli Workload Scheduler for z/OS engine which you are connecting to.

**z/OS host name**

Specify the host name or TCP/IP address of the remote z/OS system where the Tivoli Workload Scheduler for z/OS controller is installed.

**z/OS port**

Specify the number of the TCP/IP port of the z/OS system used to communicate with the Tivoli Workload Scheduler for z/OS controller.

**Enable SSL**

Select to enable the SSL communication between the z/OS connector and the remote z/OS system. By default, this box is unchecked and the communication is not SSL.

---

## Silent installation

1. Ensure that you inserted the DVD for your operating system or that you downloaded the Dynamic Workload Console eImage (for details, see the Download Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg24034807>).
2. Before starting to install, verify that the user running the installation process has the following authorization requirements:

### Windows operating systems

If you set the Windows User Account Control (UAC), your login account must be a member of the Windows **Administrators** group or domain administrators group with the rights **Act as Part of the Operating System**.

If you set the Windows User Account Control (UAC) on the workstation you must run the installation as **administrator**.

### UNIX and Linux operating systems

**root** access

When you run a silent installation, you have the Installation Manager already installed and you use an XML response file that contains parameters required to install the product package.

The response file includes all the installation information required to run the installation without user intervention.

To silently install Dynamic Workload Console product package you can have one of the following scenarios:

#### Installing the Dynamic Workload Console package:

The Dynamic Workload Console prerequisites are already installed. For more information about performing the silent installation of Dynamic Workload Console package, see “Performing a Dynamic Workload Console silent installation.”

#### Installing the Dynamic Workload Console package and its prerequisites:

For more information about performing the silent installation of the Dynamic Workload Console package and Dynamic Workload Console prerequisites packages, see “Performing a Dynamic Workload Console and its prerequisites silent installation” on page 332.

#### Installing the Dynamic Workload Console and master domain manager packages and their prerequisites:

For more information about performing the silent installation of the Dynamic Workload Console package, Dynamic Workload Console prerequisites packages, master domain manager package, master domain manager prerequisites packages, see “Performing a Tivoli Workload Scheduler and its prerequisites and a Dynamic Workload Console and its prerequisites silent installation” on page 86.

## Performing a Dynamic Workload Console silent installation

You must install Installation Manager before you perform a silent installation of the Dynamic Workload Console package.

For detailed information about how to install Installation Manager, see the Installation Manager documentation.

To perform a silent installation of the Dynamic Workload Console package, by using one of the response files listed in “Dynamic Workload Console response file templates,” perform the following steps:

1. Copy the relevant response file to a local directory.
2. Edit the Dynamic Workload Console section. For details about the response file properties, see Appendix C, “The Dynamic Workload Console response file properties,” on page 409.

**Note:** Ensure that all the passwords that you specify in the response file are encrypted as described in “Encrypting user passwords for response files” on page 88.

3. Save the file with your changes.
4. Open a command-line prompt.
5. Go to the Installation Manager tools directory.

The default tools directory is:

**On Windows operating systems**

C:\Program Files\IBM\Installation Manager\eclipse\tools

**On UNIX and Linux operating systems**

/opt/IBM/InstallationManager/eclipse/tools

6. Run the following command:

**On Windows operating systems**

```
imcl.exe input <local_dir>\response_file.xml
-log <local_dir>\log_file.xml
-acceptLicense
```

**On UNIX and Linux operating systems**

```
./imcl input /<local_dir>/response_file.xml
-log /<local_dir>/log_file.xml
-acceptLicense
```

where

- The response\_file.xml is the name of the response file to be used for installation.
- The log\_file is the name of the log file that records the result of the silent installation execution. For more information about Installation Manager silent log files, see the Installation Manager information center.

**Note:** For more information about the Installation Manager silent install command, see Installation Manager documentation.

After a successful installation, perform the configuration tasks as described in the *Dynamic Workload Console User's Guide*.

## Dynamic Workload Console response file templates

Edit the response file templates provided on the installation DVDs in the \response\_files\ directory. Instructions for customizing the files are included in the files as commented text.

Table 33 on page 332 lists the response files and the types of installation each performs by platform:

Table 33. Installation response files

| Type of installation                           | Response file to use     |
|------------------------------------------------|--------------------------|
| <b>Installing on Windows operating systems</b> |                          |
| Fresh Dynamic Workload Console                 | TWS91_FRESH_DWC_WIN.xml  |
| <b>Installing on UNIX operating systems</b>    |                          |
| Fresh Dynamic Workload Console                 | TWS91_FRESH_DWC_UNIX.xml |

For details about response file properties, see Appendix C, “The Dynamic Workload Console response file properties,” on page 409.

**Note:** Remember not to modify the following lines at the end of the response file. Be sure that the response file contains the correct component value you want to uninstall in the feature property:

```
<install modify='false'>
<offering id='com.ibm.tws.tdwc'
 profile='Tivoli Dynamic Workload Console'
 features='tws.tdwc' installFixes='none' />
</install>
```

## Performing a Dynamic Workload Console and its prerequisites silent installation

You must install Installation Manager before you perform a silent installation of the Dynamic Workload Console package and its prerequisites.

For detailed information about how to install Installation Manager, see the Installation Manager documentation.

You can silently install the Dynamic Workload Console package at the same time as its prerequisites packages, by using a global response file that is provided on the installation DVDs in the `\response_files\` directory. For a list of response files, see Table 34 on page 333.

The silent installation process:

- Assigns the correct order to the package installation.
- Manages the prerequisites package installation.

The response file contains one section for each prerequisite package that you have to install and one section related to the Dynamic Workload Console package installation.

Perform the following steps:

1. Copy the response file to a local directory.
2. Edit the following sections:

### **Dynamic Workload Console prerequisites packages sections:**

For more information about how to fill in this section see the response file properties description provided as commented text or see the prerequisites product documentation.

### **Dynamic Workload Console section:**

For more information about how to complete the Dynamic Workload Console section properties, see Appendix C, “The Dynamic Workload Console response file properties,” on page 409.

**Note:** Ensure that all the passwords that you specify in the response file are encrypted as described in “Encrypting user passwords for response files” on page 88.

3. Save the file with your changes.
4. Open a command-line prompt.
5. Go to the Installation Manager tools directory.

The default tools directory is:

**On Windows operating systems**

C:\Program Files\IBM\Installation Manager\eclipse\tools

**On UNIX and Linux operating systems**

/opt/IBM/InstallationManager/eclipse/tools

6. Run the following command:

**On Windows operating systems:**

```
imcl.exe input <local_dir>\response_file.xml
-log <local_dir>\log_file.xml
-acceptLicense
```

**On UNIX and Linux operating systems:**

```
./imcl input /<local_dir>/response_file.xml
-log /<local_dir>/log_file.xml
-acceptLicense
```

Where:

- The response\_file.xml is the name of the response file to be used for installation.
- The log\_file is the name of the log file that records the result of the silent installation.

**Note:** For more information about Installation Manager silent installation command and Installation Manager silent log files, see the Installation Manager information center.

Table 34 lists the response files and the types of installation that each one performs by platform:

*Table 34. Global installation response files*

Packages that you are installing:	Response file to use
<b>Installing on Windows operating systems</b>	
WebSphere Application Server, Jazz for Service Management extension for WebSphere, and Dynamic Workload Console.	TWS91_FRESH_FULL_DWC_WIN.xml
<b>Installing on UNIX operating systems</b>	
WebSphere Application Server, Jazz for Service Management extension for WebSphere, and Dynamic Workload Console.	TWS91_FRESH_FULL_DWC_UNIX.xml

After a successful installation, perform the configuration tasks as described in the *Dynamic Workload Console User's Guide*.

## Encrypting user passwords for response files

You must encrypt each password string stored in the response files by using Installation Manager.

You can perform the password encryption by using one of the following procedures:

### Installation Manager String encryption utility interface

To encrypt the password string for the response files, perform the following steps:

1. Go to the eclipse directory of the Installation Manager installation directory. The default eclipse directory is:

#### Windows operating systems

```
C:\Program Files\IBM\Installation Manager\eclipse
```

#### UNIX and Linux operating systems

```
/opt/IBM/InstallationManager/eclipse
```

2. To open the **String encryption utility interface**, run the following command:

#### Windows operating systems

```
IBMIM.exe encryptString <stringToEncrypt>
```

where <stringToEncrypt> is the value to be encrypted.

#### UNIX and Linux operating systems

```
./IBMIM encryptString <stringToEncrypt>
```

where <stringToEncrypt> is the value to be encrypted.

3. In the **String encryption utility** window, note the Encrypted version of the String field value related to the String to be encrypt field value.
4. Copy the Encrypted version of the String value in the password entry of the response file.

### Installation Manager command line tool

To encrypt the password string for the response files, perform the following steps:

1. Go to the eclipse directory of the Installation Manager installation directory. The default eclipse directory is:

#### Windows operating systems

```
C:\Program Files\IBM\Installation Manager\eclipse
```

#### UNIX and Linux operating systems

```
/opt/IBM/InstallationManager/eclipse
```

2. Run the following command:

#### Windows operating systems

```
IBMIM.exe -silent -noSplash encryptString <stringToEncrypt> >
<Encryptedpwd>.txt
```

where <stringToEncrypt> is the value to be encrypted and the <Encryptedpwd>.txt is the file where there is the encrypted value of the password.

#### UNIX and Linux operating systems

```
./IBMIM -silent -noSplash encryptString <stringToEncrypt> >
<Encryptedpwd>
```

where <stringToEncrypt> is the value that is encrypted and the <Encryptedpwd> is the file where there is the encrypted value of the password.

3. Open the file <Encryptedpwd> and copy the value contained into the file in the data key of the response file.
4. Remove the file <Encryptedpwd>.

This example shows you how to write the section USER INFORMATION of the TWS91\_FRESH\_MDM\_WIN.xml response file, setting the Tivoli Workload Scheduler user value to *twsuser* and the user password value to *passwd* on Windows operating systems.

By using the Installation Manager command line tool, encrypt the password *passwd* saving the encrypted value to the file *my\_pwd.txt*:

```
IBMIM.exe -silent -noSplash encryptString passwd > my_pwd.txt
```

The file *my\_pwd.txt* contains the following value:

```
rbN1IaMAWYYtQxLf6KdNyA==
```

Complete the USER INFORMATION section of the TWS91\_FRESH\_MDM\_WIN.xml response file as follows:

```
<!--USER INFORMATION
Supply the Tivoli Workload Scheduler credentials information -->
<data key='user.userName,com.ibm.tws' value='twsuser' />
<data key='user.password,com.ibm.tws' value='rbN1IaMAWYYtQxLf6KdNyA==' />
```

**Note:** For security reasons, remove the file *my\_pwd.txt* after using it.

---

## Accessing the Dynamic Workload Console

From a supported browser, access one of the following links provided by the installation program:

```
http://dynamic_workload_console_system:http_port/DASH_context_root
```

```
https://dynamic_workload_console_system:https_port/DASH_context_root
```

where:

*dynamic\_workload\_console\_system*

The hostname or IP address of the system where you installed the Dynamic Workload Console.

*http\_port*

The port number used to access the Dynamic Workload Console using an unsecure connection over HTTP. The default value for this port number is **16310**.

*https\_port*

The port number used to access the Dynamic Workload Console using a secure connection over HTTPS. The default value for this port number is **16311**.

When connecting to the Dashboard Application Services Hub using an HTTPS connection, if you receive a security alert, proceed with the

Dynamic Workload Console working session. If you receive security information windows while navigating through the Dashboard Application Services Hub, choose to display nonsecure items to proceed. If you are using Internet Explorer, you can prevent these windows from opening by setting **Display mixed content** to **Enable** in the Security settings.

#### *DASH\_context\_root*

It is the Dashboard Application Services Hub context root defined at installation time. The context root determines the URL of a deployed application and by default is identical with the application directory or archive structure. In this case, the default is `ibm/console`.

In the Dashboard Application Services Hub login portlet, enter the user ID and password you specified during the installation, and click **Log in**.

For a quick and rapid overview of the portal and of its use, after logging in to the Dashboard Application Services Hub, click one of the hyperlinks displayed on the welcome page to launch videos and a tutorial that help you find the information you need.

Several products might be integrated in this portal and their related entries are listed together with those belonging to the Dynamic Workload Console in the toolbar displayed on the left. Use these icons to perform your tasks.

Use the toolbar on the left to work with the Dynamic Workload Console to perform the Tivoli Workload Scheduler tasks.

To effectively use the functions of the Tivoli Workload Scheduler and the Tivoli dynamic workload broker, you must define connections to the Tivoli Workload Scheduler engines and the Tivoli dynamic workload broker servers.

If you do not define engine connections, you can perform only this limited set of operations:

#### **On Tivoli Workload Scheduler:**

- Create monitor tasks
- Create report tasks
- Create event management tasks
- Define user preferences

#### **On Tivoli dynamic workload broker**

Define user preferences

If the user ID you used to connect to the Dynamic Workload Console has been assigned a role different from **TWSWEBUIAdministrator** and **TDWBAdministrator**, you will see a subset of the available panels. This subset depends on the authorizations assigned to the role associated to your user ID. For more information about roles, see the information about configuring the Dynamic Workload Console in the *Tivoli Workload Scheduler: Administration Guide*.

If the user ID you used to connect to the Dynamic Workload Console has no role assigned, you do not see the entries for Tivoli Workload Scheduler and Tivoli dynamic workload broker in the Dashboard Application Services Hub navigation tree.

## Quick steps to define a Tivoli Workload Scheduler engine connection

After logging in to the Dynamic Workload Console using the administrator user ID or another user ID with assigned **TWSWEBUIAdministrator** or **TWSWEBUIConfigurator** roles, use the following steps to create an engine connection to one of your supported Tivoli Workload Scheduler engines.



1. From the navigation toolbar, click **System Configuration > Manage Engines**.
2. From the displayed panel you can create, edit, delete, or share an engine connection, and test the connection to the remote server where Tivoli Workload Scheduler is installed. You can order the list of engine connections displayed in this panel by using sorting criteria that you select with the buttons at the top left corner of the table.
3. Click **New Engine**.
4. In the Engine Connection Properties window, assign a name to the engine connection and specify the required information. For more details about fields and options, see the online help by clicking the "?" in the top right corner. If you want to test the connection to the Tivoli Workload Scheduler database (mandatory for managing reporting and event management functions), you must select **Enable reporting** and specify the user credentials.
5. Click **Test Connection** to check that the configuration was successful and that the Dynamic Workload Console is communicating with the selected engine. If the test connection fails, see *Tivoli Workload Scheduler: Troubleshooting Guide*.

## Quick steps to define a Tivoli dynamic workload broker connection

The Dynamic Workload Console supports a single connection to one Tivoli dynamic workload broker engine at any given time for each authorized user. A different connection is supported for each authorized user.

After logging in to the Dynamic Workload Console using the administrator user ID, or another user ID with assigned **TDWBAdministrator** or **TDWBConfigurator** roles, follow these steps to create an engine connection to a supported Tivoli dynamic workload broker engine:

1. In the Dynamic Workload Console, click **Tivoli dynamic workload broker** to expand the tree.
2. Select **Configuration**.
3. Click **Server connection**.
4. In the Server Connection specify:

### Hostname

The host name of the Tivoli dynamic workload broker you want to connect to.

### Non secure port

The non-secure port to be used for connection.

### Secure port

The secure port to be used for connection.

### Use Secure Connection

Specify whether a secure connection must be used. For more information about security, see the *Tivoli Workload Scheduler: Administration Guide*.

### Username

Optionally specify a different user for the server connection. The connection to the new server is enabled using the credentials of the user you specified. Each user has access to only one server connection.

### Password

Specify the password for the authenticated user the connection applies to.

5. Click **OK** to save your changes. The server connection you specified is enabled and is immediately effective.

---

## Starting and stopping the Dynamic Workload Console

To start and stop the Dynamic Workload Console, related to a Jazz for Service Management extension for WebSphere profile, you must start and stop the WebSphere Application Server instance by using one of the following options:

*wastools* installed for the Dynamic Workload Console:

### To Start the Dynamic Workload Console:

#### On Windows operating systems:

```
<DWC_INST_DIR>\wastools\startWas.bat
```

#### On UNIX and Linux operating systems

```
<DWC_INST_DIR>/wastools/startWas.sh
```

### To Stop the Dynamic Workload Console:

#### On Windows operating systems

```
<DWC_INST_DIR>\wastools\stopWas.bat
```

#### On UNIX and Linux operating systems:

```
<DWC_INST_DIR>/wastools/stopWas.sh
```

where <DWC\_INST\_DIR> is the Dynamic Workload Console installation directory.

For more information about the utilities usage, see *Administration Guide: Application server tasks*.

**Note:** When you start or stop the Dynamic Workload Console, related to a Jazz for Service Management extension for WebSphere profile, you are prompted to insert the credentials for the profile. To avoid this behaviour, run the command with `-direct` option.

### WebSphere Application Server native commands:

#### To Start the Dynamic Workload Console:

##### On Windows operating systems:

```
<JAZZSM_INSTALL_DIR>\profile\bin\startServer.bat
<app_server>
```

##### On UNIX and Linux operating systems:

```
<JAZZSM_INSTALL_DIR>/profile/bin/startServer.sh
<app_server>
```

## To Stop the Dynamic Workload Console:

### On Windows operating systems:

```
<JAZZSM_INSTALL_DIR>\profile\bin\stopServer.bat
<app_server>
-user <user_id> -password <user_id_pw>
```

### On UNIX and Linux operating systems:

```
<JAZZSM_INSTALL_DIR>/profile/bin/stopServer.sh
<app_server>
-user <user_id> -password <user_id_pw>
```

where:

#### <JAZZSM\_INSTALL\_DIR>

Is the directory where the Jazz for Service Management extension for WebSphere is installed.

#### <app\_server>

Is the server name specified in the Jazz for Service Management extension for WebSphere profile related to the Dynamic Workload Console. The default is **server1**.

#### <user\_id>

Is the administrator user ID specified when installing the Dynamic Workload Console.

#### <user\_id\_pw>

Is the administrator user ID password specified when installing the Dynamic Workload Console.



---

## Chapter 20. Configuring

The following is a list of links or pointers to places that document the configuration tasks needed for the Dynamic Workload Console. You can perform the following optional configuration steps at any time after the installation.

- Configuring new users to access the Dynamic Workload Console: see in Tivoli Workload Scheduler Administration the section about configuring access to the Dynamic Workload Console.
- Configuring the Dynamic Workload Console to use a user registry:
  - For configuring the Dynamic Workload Console with LDAP - RACF®, see the WebSphere documentation at: Configuring to secure Lightweight Directory Access Protocol user registry using Resource Access Control Facility based on z/OS. Also, see “Post-installation steps to configure the use of Lightweight Third-Party Authentication (LDAP).”
  - For configuring access to the Dynamic Workload Console, see the corresponding section in Tivoli Workload Scheduler Administration.
- Configuring roles to access the Dynamic Workload Console: see the corresponding section in Tivoli Workload Scheduler Administration.
- Configuring the Dynamic Workload Console to use Single Sign-On: see the corresponding section in Tivoli Workload Scheduler Administration.
- Securing your communication with the Secure Socket Layer protocol: see the section about customizing the SSL connection for the Dynamic Workload Console in Tivoli Workload Scheduler Administration.
- Configuring the Dynamic Workload Console to launch in context: see the corresponding section in Tivoli Workload Scheduler Administration.

**Note:** If, after installing, you have more than one instance of WebSphere Application Server managing any Tivoli Workload Automation products, you must ensure that they have the same LTPA token\_keys.

You can find all the information required to configure the product in "Configuring the Dynamic Workload Console" in the *Tivoli Workload Scheduler: Administration Guide* at the following link: [http://pic.dhe.ibm.com/infocenter/tivihelp/v47r1/index.jsp?topic=/com.ibm.tivoli.itws.doc\\_9.1/distr/src\\_ad/awsadconfigdwc.htm](http://pic.dhe.ibm.com/infocenter/tivihelp/v47r1/index.jsp?topic=/com.ibm.tivoli.itws.doc_9.1/distr/src_ad/awsadconfigdwc.htm).

For more information about configuring authentication using the Lightweight Directory Access Protocol (LDAP), see: [http://pic.dhe.ibm.com/infocenter/tivihelp/v47r1/index.jsp?topic=/com.ibm.tivoli.itws.doc\\_9.1/distr/src\\_ad/awsadldapconfig.htm](http://pic.dhe.ibm.com/infocenter/tivihelp/v47r1/index.jsp?topic=/com.ibm.tivoli.itws.doc_9.1/distr/src_ad/awsadldapconfig.htm)

---

### Post-installation steps to configure the use of Lightweight Third-Party Authentication (LDAP)

If the Dynamic Workload Console and the Tivoli Workload Scheduler engine or the Tivoli Workload Scheduler z/OS Connector have been configured with the same LDAP user registry, or are installed on the same computer, you might receive a connection failure. If this happens, use the same Lightweight Third-Party Authentication (LTPA) keys on all servers: the Dynamic Workload Console, the Tivoli Workload Scheduler engine server, and the Tivoli Workload Scheduler z/OS Connector server.

To align the LTPA keys, see the section on configuring the use of Lightweight Third-Party Authentication in the *Administration Guide*.

---

## Chapter 21. Navigating the Dynamic Workload Console

An overview to the Dynamic Workload Console.

For an interactive overview of the product and its features, you can view several demo scenarios, available (in English only) in the Tivoli Workload Scheduler Wiki Media Gallery.

**Note:** To optimize the viewing of the demos, ensure that you have the latest version of Adobe Flash Player installed.

To have a quick and rapid overview of the portal and of its use, after logging in to Dashboard Application Services Hub (DASH), click one of the hyperlinks displayed in the welcome page to launch videos and a tutorial that helps you find the information you need.

Several products can be integrated in this portal and their related entries are listed together with those belonging to the Dynamic Workload Console in the toolbar displayed on the left side. Use these icons to perform your tasks.

In the following sections only pages and tasks relating to the Dynamic Workload Console are described.

Use the toolbar on the left side to work with the Dynamic Workload Console to perform the following tasks:



Click the **Search** icon and enter whole or part of the name of the page you want to open. Search results are dynamically returned and filtered as you type.



Click the **Favorite** icon to create your customized portfolio of pages. To add a task to Favorites, drag it to the Favorites icon. Entries previously displayed in the My Tasks list have been automatically added to Favorites.

The icons displayed in the central part of the toolbar are product-specific and are described in detail in the following section.

The icons located in the bottom part of the toolbar relate to console tasks, for view management, console administration, and help:



Click the **Users** icon to personalize the console, manage your security settings, or log out. Add, remove, and reorder your favorite tasks. Personalize which pages automatically open when you log in with the My Startup Pages task. Manage your credentials used to access other systems or data providers with the Credential Store task.



Click the **Views** icon to change the current view. Views control which product tasks or pages are displayed and which pages open automatically.

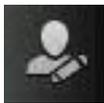


Administrators use the **Console Settings** icon to manage settings. The General section contains tasks to manage pages, create a connection to a data provider, create widgets, and export the console setting for migration and backup. Views and console preference profiles personalize the console for various roles making it more usable. The Role section contains tasks to create and assign roles to users and groups.



Click the **Help** icon to access help contents for the console and to find the release level of the installed product. Click it to open Tivoli Workload Scheduler information center. You can also access the community through the Help icon, where you will find multimedia tutorials and information about upcoming releases.

## Administration - Create and modify workload definitions in the database



Click the **Administration** icon to perform tasks that are run typically by the product administrator.

### Workload Design

You can manage your workload to design and edit objects in the database, to handle events and SAP jobs.

To create and edit the definitions of workload objects in the database, click **Manage Workload Definitions** and open the Workload Designer. From the Workload Designer, you can create and edit the following objects:

Table 35. Workload Designer objects

Distributed environment	z/OS environment
Jobs	Jobs
Job Streams	Job Streams
Prompt	Periods
Resources	Calendars
Users	Variable Tables
Calendars	Operator Instructions
Workstation Classes	Event Tracking Criteria
Variable Tables	Run Cycle Groups
Workload Application templates	
Run Cycle Groups	

Open the event related pages to create a new event rule or to manage the list of all the event rules associated to an engine, and modify their definitions.

Use this section also to manage jobs that run on SAP systems.

### **Submit jobs and job streams not included in the plan:**

#### **Workload Submission**

Use this section to find and submit jobs and job streams that are already defined in the database, but are not included in the current plan.

### **Design and modify workstation and domain definitions in the database:**

Use this section to design and control the topology of your scheduling environment, that is, your workstations and domains.

#### **Workload Environment Design**

Open the pages available under this section to create new workstation definitions, associate them to domains, list all existing workstations associated to an engine, and modify their definitions.

You can also temporarily (for current session only) modify the user password associated to the current plan.

### **Design and modify Broker jobs and resources:**

#### **Broker Design**

Use this section to create new jobs on Broker systems and to modify existing jobs. From this section, you can also create and manage Broker logical resources and resource groups.

## **Planning - View and manage plans**



Click the **Planning** icon to perform planning-related tasks.

#### **Workload Forecast**

Use this section to work with plans, creating and viewing trial and forecast plans and listing archived plans. From this section you can also view your preproduction plan.

## **Reporting - Define and run reports**



Click the **Workload Reporting** icon to define and run reports to gather historical data or details about your plans.

#### **Workload Reporting**

Use this section to create and run reports about your workload. You can also generate and run customized SQL reports.

## **System Configuration - Create and manage engines and configuration settings**



Click the **System Configuration** icon to create new engine connections and manage the existing ones. From this section you can also configure your preferences (time zone, lines per page, layout, dashboard) as well as your settings repository.

### **Workload Scheduling Settings**

Use this section to create and edit your engine connections and your user preferences. Use it also to import and export settings like user preferences, configured tasks, and engine connections to a local file or external repository database. If you want to use a repository database (to share it with other Dynamic Workload Console instances in high availability configuration), you must specify it in this section.

### **Broker Settings**

Use this section to manage Broker server connections and user preferences.

## **System Status and Health - Create and run tasks to monitor workload and environment**



Click the **System Status and Health** icon to define and run customized tasks (reusable queries) and predefined tasks to monitor your workload processing. From this section you can open the Dashboard to view the workload processing in a graphical format on several engines at the same time. From the dashboard, you can browse to view more detailed job information.

Create and run monitor tasks to obtain a list of objects on which you can perform monitoring and control actions. Creating and running a monitor task means creating a filter and running a search on it. From this list, you can click an item to view its properties or to run actions against it. In this way you can easily change some settings and the processing of the plan.

### **Workload Monitoring**

Use this section to create tasks to monitor jobs (on single or multiple engines), critical jobs, job streams, files, resources, prompts and to open a graphical plan view. The result of your queries on jobs and job streams can also be represented in a graphical view.

### **Environment Monitoring**

Use this section to create tasks to monitor workstations and domains.

### **Event Monitoring**

Use this section to create tasks to monitor event rules, operator messages, and the actions triggered by the event rules.

### **Broker Monitoring**

Use this section to monitor jobs, computers, logical resources, and resource groups on Broker systems.

---

## **First actions**

The following sections describe the first and main actions you perform when you connect to the Dynamic Workload Console.

### **Creating a connection to a Tivoli Workload Scheduler engine**

You type the details (such as IP address, user name, and password) to access a Tivoli Workload Scheduler engine, and, optionally, a database to operate with objects defined in plans or stored in the database. From the Dynamic Workload Console you can access the current plan, a trial plan, a forecast plan, or an archived plan for the distributed environment or the current plan for the z/OS® environment. You might want to access the database to perform actions against objects stored in it or generate reports showing historical or statistical data. In addition, working both on the

| database and on plans, you can create and run event rules to define and  
| trigger actions that you want to run in response to events occurring on  
| Tivoli Workload Scheduler nodes.

### **Defining a scheduling environment**

| You define your Tivoli Workload Scheduler network. You create  
| workstation definitions on the database representing the physical machines  
| or computer systems on which your workload is scheduled to run. The  
| Tivoli Workload Scheduler network is made up of the workstations where  
| job and job stream processing occurs. When you design your network, you  
| assign roles to these workstations to suit your specific business  
| requirements. You can design your network with multiple domains, to  
| divide control of a large network into smaller manageable groups. A  
| typical Tivoli Workload Scheduler network consists of a workstation acting  
| as a master domain manager and at least one domain. See Dynamic  
| Workload Console User's Guide, section about Creating and managing  
| engine connections.

### **Defining scheduling objects in the database**

| You define your workload, which consists of jobs that are concatenated in  
| job streams. Then, you specify the calendars and run cycles according to  
| which job streams must run. Moreover, you define possible dependencies  
| to condition the workload processing. All these definitions can be done  
| within the Workload Designer. See Dynamic Workload Console User's  
| Guide, section about Designing your Workload.

### **Creating tasks to manage Tivoli Workload Scheduler objects in the plan**

| You specify some filtering criteria to query a list of scheduling objects  
| whose attributes satisfy the criteria you specified. Starting from this list,  
| you can navigate and modify the content of the plan, switching between  
| objects, opening more lists, and accessing other plans or other Tivoli  
| Workload Scheduler environments. See Dynamic Workload Console User's  
| Guide, section about Monitoring your Workload.

### **Creating a connection to a Tivoli dynamic workload broker scheduling environment**

| You type the details (such as IP address, user name, password, and port) to  
| access a dynamic workload broker workstation. Specify if you want to  
| work in a secure HTTPS or HTTP protocol. After creating the connection,  
| by opening the tracking computer you can view status and details of  
| broker workstations, and define resources and dynamic jobs. For more  
| details about dynamic scheduling, see Tivoli Workload Scheduler  
| Scheduling Workload Dynamically.



---

## Chapter 22. Upgrading

Upgrading the Dynamic Workload Console.

This chapter describes how to upgrade Dynamic Workload Console from version 8.5.0 and later to the current version.

---

### Dynamic Workload Console upgrade limitations

Before you proceed with upgrading the Dynamic Workload Console from either version 8.5.x or 8.6. to version 9.1, read the following limitations.

To ensure a successful upgrade, when performing a parallel upgrade of the Dynamic Workload Console, take note of the problems related to the value of the server name when you specify the WebSphere Application Server profile configuration information during the fresh installation of the Dynamic Workload Console. The value you specify for the server name during the installation of the version 9.x instance must be the same as the value of the version 8.x instance.

#### Upgrading from version 8.5.x

When installing the new version 9.1 instance, the default server name proposed by the installation is `server1`, defined in the Core Services in Jazz for Service Management - WebSphere Application Server profile configuration. You must change this default value to correspond exactly to the value of the server name specified for the 8.5.x instance. You can verify this value by checking the name in place of `twaserver<n>` in the following path:

```
<TWS_home_directory>/eWAS/profiles/twaprofile/config/cells/DefaultNode/nodes/DefaultNode/servers/twaserver<n>,
```

where, `twaserver<n>` is the hardcoded server name used by the installation, `<n>` representing an integer.

#### Upgrading from version 8.6

When installing the new version 9.1 instance, the default server name proposed by the installation is `server1`, defined in the Core Services in Jazz for Service Management - WebSphere Application Server profile configuration. This is also the default value proposed when you installed the version 8.6 instance. If you maintained this value, then the values in the two instances (8.6 and 9.1) are aligned and no changes are necessary. However, if you used a value different from the default value when you installed the version 8.6 instance, then you must necessarily change the default value proposed during the version 9.1 installation to match the version 8.6 instance. You can verify the value of the server name by checking the name in the place of `server1` in the following path:

```
<TWS_home_directory>/eWAS/profiles/TipProfile/config/cells/TIPCell/nodes/TIPNode/servers/server1
```

---

### Upgrading overview

Upgrading the Dynamic Workload Console from version 8.5.0 and later to the current version.

This section provides an overview of the upgrade process of an existing version of Dynamic Workload Console V8.5.0 and later instances.

### Installation process changes

The following changes in V9.1 affect the installation process:

- External WebSphere Application Server prerequisite.
- Jazz for Service Management extension for WebSphere prerequisite.
- Dashboard Application Services Hub prerequisite.

### Upgrade deploy model for single or multiple component instances installed in the directory <TWS\_INST\_DIR>:

#### Single instance:

A *single instance* contains one Dynamic Workload Console component installed in the directory <TWS\_INST\_DIR>.

#### Multiple instance:

A *multiple instance* contains Dynamic Workload Console component and one or two Tivoli Workload Scheduler components installed in the same directory <TWS\_INST\_DIR>.

You must know if the instance you are upgrading is *single* or *multiple* to understand which procedure to use to upgrade the Dynamic Workload Console.

Table 36 shows the procedure to follow in the upgrade deploy model for single or multiple instances of Dynamic Workload Console.

Table 36. Upgrade single or multiple instances

Dynamic Workload Console instance installed in the <TWS_INST_DIR> directory:	Upgrade procedure:
single	“Upgrading Dynamic Workload Console single instance” on page 351
multiple	Upgrading Dynamic Workload Console installed with one or more components in the same directory.

If the existing version of Dynamic Workload Console is configured to use the local operating system user registry, the same users and groups with the same passwords must be created in the local operating system of the workstation where you install the new version of the Dynamic Workload Console.

---

## Scanning system prerequisites for Tivoli Workload Scheduler

Before you install or upgrade the product, Tivoli Workload Scheduler automatically runs a scan on your system. Having an environment that meets the product system requirements ensures that an installation or upgrade succeeds without any delays or complications.

The scan verifies that:

- The operating system is supported for the product.
- On UNIX operating systems, the necessary product libraries are installed.
- There is enough permanent and temporary disk space to install both the product and its prerequisites.
- There is enough memory and virtual memory.

**Note:** The scan verifies only that the environment meets the requirements of Tivoli Workload Scheduler. It does not check the requirements for other components, such as DB2. To verify the requirements for Installation Manager use the procedure described in “Scanning system prerequisites for Installation Manager” on page 43.

If any of these checks fails, Tivoli Workload Scheduler performs the following action:

**For all the components installed by using Installation Manager:**

Displays a notification of the requirement that was not met. In this case, stop the installation or the upgrade, analyze the log files, solve the error, and rerun the installation or upgrade. If you are performing an interactive installation, the errors are displayed on the screen. If you are performing a silent installation, the errors are written in the Installation Manager log files. For more information about log files, see “Installation Manager wizard and silent installation and uninstallation log files” on page 237.

**For agents**

If you specified the **stoponcheckprereq** parameter, the **twinst** script does not proceed. In this case, analyze the log file, solve the error, and rerun the installation or upgrade. The log files are located:

**On Windows operating systems:**

`%TEMP%\TWA\tws91\result.txt`

**On UNIX and Linux operating systems:**

`$tmp/TWA/tws91/result.txt`

If you did not specify **stoponcheckprereq**, the **twinst** script proceeds. If a problem occurs, an error is displayed, the agent is installed or upgraded, but might not work.

For a detailed list of supported operating systems and product prerequisites, see the System Requirements Document at <http://www-01.ibm.com/support/docview.wss?rs=672&uid=swg27038324>.

---

## Upgrading Dynamic Workload Console single instance

Upgrading a Dynamic Workload Console single instance.

You can upgrade a single instance of Dynamic Workload Console in one of the following ways:

**Procedure to upgrade the Dynamic Workload Console on the same workstation where the back-level is installed:**

“Upgrading Dynamic Workload Console V8.5.0, V8.5.1, or V8.6.0 instance on the same workstation” on page 352.

**Procedure to upgrade the Dynamic Workload Console on a new workstation:**

**Dynamic Workload Console V8.5.0 or V8.5.1**

“Upgrading Dynamic Workload Console V8.5.0 or V8.5.1 on a new workstation” on page 354

**Dynamic Workload Console V8.6**

“Upgrading Dynamic Workload Console V8.6.0 on a new workstation” on page 358

**Note:**

You can upgrade a Dynamic Workload Console on a new workstation only if the new workstation has the same operating system type as the old workstation. Ensure that the new workstation has an operating system supported for V9.1. For more information about supported operating systems, see “Supported operating systems” on page 37.

For example, you can upgrade a Dynamic Workload Console installed on a Windows 32bit workstation to a Windows 64bit workstation. You can upgrade a Dynamic Workload Console installed on a Linux workstation to an AIX workstation or to a Solaris workstation or viceversa.

## Upgrading Dynamic Workload Console V8.5.0, V8.5.1, or V8.6.0 instance on the same workstation

Upgrading Dynamic Workload Console V8.5.0, V8.5.1, or V8.6.0 instance on the same workstation.

To upgrade a single instance of Dynamic Workload Console on the same workstation where the back level Dynamic Workload Console is installed, run the following steps:

1. Install a new Dynamic Workload Console in the <DWC\_NEW\_INSTALL\_DIR> directory, on the system where the back-level Dynamic Workload Console is installed.

For information about Dynamic Workload Console installation, see “Installing the Dynamic Workload Console” on page 323.

**Note:** When installing the new Dynamic Workload Console instance, the default server name proposed by the installation is **server1**, defined in the Core Services in Jazz for Service Management - WebSphere Application Server profile configuration. This is also the default value proposed when you installed the Dynamic Workload Console, version 8.6 instance. If you maintained this value, then the values in the two instances (8.6 and current) are aligned and no changes are necessary. However, if you used a value different from the default value when you installed the Dynamic Workload Console, version 8.6 instance, then you must necessarily change the default value proposed during the Dynamic Workload Console, new installation to match the version 8.6 instance. You can verify the value of the server name by checking the name in the place of **server1** in the following path: <TWS\_home\_directory>/eWAS/profiles/twaprofile/config/cells/DefaultNode/nodes/DefaultNode/servers/server1.

2. Ensure that no Dynamic Workload Console user interface is active and that the WebSphere Application Server is up and running.
3. Migrate the data from the back-level to the newly installed Dynamic Workload Console by running the following script:

**On Windows operating systems:**

```
<DWC_INSTALL_DIR>\TDWC\scripts\tdwclUpgrade.bat
-oldwasuser old_user
-oldwaspassword old_password
-oldtwapath old_twa_path
-newwasuser new_user
-newwaspassword new_password
-newtwapath new_twa_path
[-backuppath backup_path]
[-machinechange false]
```

**On UNIX and Linux operating systems:**

```

<DWC_INSTALL_DIR>/TDWC/scripts/tdwcUpgrade.sh
 -oldwasuser old_user
 -oldwaspassword old_password
 -oldtwapath old_twa_path
 -newwasuser new_user
 -newwaspassword new_password
 -newtwapath new_twa_path
 [-backuppath backup_path]
 [-machinechange false]

```

where:

**-oldwasuser** *old\_user*

The Tivoli Integrated Portal administrator user ID specified for the back-level Dynamic Workload Console.

**-oldwaspassword** *old\_password*

The Tivoli Integrated Portal administrator user password specified for the back-level Dynamic Workload Console.

**-oldtwapath** *old\_twa\_path*

The installation directory where the back-level Dynamic Workload Console is installed.

**-newwasuser** *new\_user*

The Dashboard Application Services Hub administrator user ID.

**-newwaspassword** *new\_password*

The password of the Dashboard Application Services Hub administrator.

**-newtwapath** *new\_twa\_path*

The installation directory where you want to install the Dynamic Workload Console. By default the installation directory is:

**On Windows operating systems:**

C:\Program Files\IBM\TWAUI

**On UNIX and Linux operating systems:**

/opt/IBM/TWAUI

**-backuppath** *backup\_path*

The <BACKUP\_DIR> backup directory for the upgrade. By default the backup directory is:

**On Windows operating systems:**

<DWC\_INSTALL\_DIR>\TDWC\tmp\backup

**On UNIX and Linux operating systems:**

<DWC\_INSTALL\_DIR>/TDWC/tmp/backup

This directory contains:

- The **tdwcUpgrade** script log file, `upgrade.log`.
- The files containing the following configuration data exported from the back-level Dynamic Workload Console:
  - The embedded WebSphere Application Server profile in the `UpgradeData.zip` file.
  - The embedded WebSphere Application Server profile registry.
  - The port settings in the `ports.txt` file.
  - The Tivoli Integrated Portal settings.
  - The Dynamic Workload Console settings.

This data is then imported into the newly installed Dynamic Workload Console.

- A compressed file named `backup.zip` containing a saved copy of the configuration data of the newly-installed Dynamic Workload Console. This file is used to roll back to the original configuration if the migration script fails while importing the configuration data from the back-level Dynamic Workload Console.

**Note:** Because the `backup.zip` file is overwritten every time you run the migration script, it might be useful to save a copy of the first `backup.zip` file containing the original configuration.

**-machinechange** *false*

To upgrade on the same workstation you must specify the `false` value. The default value is `false`.

**Note:**

The script replaces any customized data in the new Dynamic Workload Console instance, with the data exported from the old Dynamic Workload Console instance.

A result of `Completed` indicates that the script ran successfully and that the data was correctly imported into the newly-installed Dynamic Workload Console.

If the script fails to import the configuration data into the newly-installed Dynamic Workload Console, a rollback is automatically performed, and the original configuration is restored. To double-check that the rollback ran correctly, ensure that you can access the newly-installed Dynamic Workload Console user interface with the user ID and password specified during the installation.

4. The port numbers used by the two instances of the Dynamic Workload Console are different and they are not automatically migrated by the **tdwcUpgrade** script. Run the following steps to migrate the port numbers of the back-level instance to the newly-installed instance:
  - a. Check that the data was correctly migrated from the old Dynamic Workload Console to the newly-installed Dynamic Workload Console.
  - b. Stop the back-level Dynamic Workload Console.
  - c. Uninstall the back-level Dynamic Workload Console.
  - d. Run the following command:

**On Windows operating systems:**

```
changeHostProperties <BACKUP_DIR>\ports.txt
```

**On UNIX and Linux operating systems:**

```
changeHostProperties <BACKUP_DIR>/ports.txt
```

where `<BACKUP_DIR>` is the backup directory.

For more information about this command, see `Application server - using the utilities that change the properties`.

## Upgrading Dynamic Workload Console V8.5.0 or V8.5.1 on a new workstation

Upgrading Dynamic Workload Console V8.5.0 or V8.5.1 on a new workstation.

To upgrade a Dynamic Workload Console installed in the directory <DWC\_BACKLEV\_INSTALL\_DIR> on your old workstation into the directory <DWC\_INSTALL\_DIR> on the new workstation, run the following steps:

1. Log on as Administrator on Windows operating systems, or as root on UNIX and Linux operating systems, on the new workstation where you want to upgrade the Dynamic Workload Console.
2. Install a new Dynamic Workload Console in the <DWC\_INSTALL\_DIR> directory on the new workstation.

For information about Dynamic Workload Console installation, see “Installing the Dynamic Workload Console” on page 323.

3. Ensure that no Dynamic Workload Console user interface is active and that the WebSphere Application Server is up and running on the workstation where the back-level is installed.
4. From the new workstation perform the following steps:

**On Windows operating systems:**

Map the network drive <DWC\_BACKLEV\_INSTALL\_DIR> of the old workstation where the back-level Dynamic Workload Console is installed.

**On UNIX and Linux operating systems:**

Mount in read-write access the remote file system <DWC\_BACKLEV\_INSTALL\_DIR> where the back-level Dynamic Workload Console is installed. If the mount point name on the new workstation is different from the remote file system name, create a symbolic link between the mount point on the new workstation and the remote file system <DWC\_BACKLEV\_INSTALL\_DIR>, the link name value must be <DWC\_BACKLEV\_INSTALL\_DIR>.

5. Migrate the data from the back-level to the newly-installed Dynamic Workload Console by running the following script from the new workstation:

**On Windows operating systems:**

```
<DWC_INSTALL_DIR>\TDWC\scripts\tdwclUpgrade.bat
-oldwasuser old_user
-oldwaspassword old_password
-oldtwopath old_twa_path
-newwasuser new_user
-newwaspassword new_password
-newtwopath new_twa_path
[-backuppath backup_path]
-machinechange true
```

**On UNIX and Linux operating systems:**

```
<DWC_INSTALL_DIR>/TDWC/scripts/tdwclUpgrade.sh
-oldwasuser old_user
-oldwaspassword old_password
-oldtwopath old_twa_path
-newwasuser new_user
-newwaspassword new_password
-newtwopath new_twa_path
[-backuppath backup_path]
-machinechange true
```

Where:

**-oldwasuser** *old\_user*

The Tivoli Integrated Portal administrator user ID specified for the back-level Dynamic Workload Console.

| **-oldwaspassword** *old\_password*  
 | The Tivoli Integrated Portal administrator user password that is specified  
 | for the back-level Dynamic Workload Console.

| **-oldtwapath** *old\_twa\_path*  
 | The installation directory where the back-level Dynamic Workload Console  
 | is installed.

| **-newwasuser** *new\_user*  
 | The Dashboard Application Services Hub administrator user ID.

| **-newwaspassword** *new\_password*  
 | The password of the Dashboard Application Services Hub administrator.

| **-newtwapath** *new\_twa\_path*  
 | The installation directory where the Dynamic Workload Console must be  
 | installed. By default the installation directory is:

| **On Windows operating systems:**  
 | C:\Program Files\IBM\TWAUI

| **On UNIX and Linux operating systems:**  
 | /opt/IBM/TWAUI

| **-backuppath** *backup\_path*  
 | The <BACKUP\_DIR> backup directory for the upgrade process.  
 |  
 | By default the installation directory is:

| **On UNIX and Linux operating systems:**  
 | <DWC\_INSTALL\_DIR>/TDWC/tmp/backup

| **On Windows operating systems:**  
 | <DWC\_INSTALL\_DIR>\TDWC\tmp\backup

|  
 | This directory contains:

- | • The **tdwcUpgrade** script log file, `upgrade.log`.
- | • The files containing the following configuration data exported from the  
 | back-level Dynamic Workload Console:
  - | – The embedded WebSphere Application Server profile.
  - | – The embedded WebSphere Application Server profile registry.
  - | – The Tivoli Integrated Portal settings.
  - | – The Dynamic Workload Console settings.

| This data is then imported into the newly installed Dynamic Workload  
 | Console.

- | • A compressed file named `backup.zip` containing a saved copy of the  
 | configuration data of the newly-installed Dynamic Workload Console.  
 | This file is used to roll back to the original configuration if the migration  
 | script fails while importing the configuration data from the back-level  
 | Dynamic Workload Console.

| **Note:** Because the `backup.zip` file is overwritten every time you run the  
 | migration script, it might be useful to save a copy of the first `backup.zip`  
 | file containing the original configuration.

| **-machinechange** *true*  
 | You must specify the `true` value to upgrade the Dynamic Workload  
 | Console on the new workstation.

**Note:** The script replaces any customized data in the new Dynamic Workload Console instance, with the data exported from the old Dynamic Workload Console instance. A result of Completed indicates that the script ran successfully and that the data was correctly imported into the newly-installed Dynamic Workload Console.

If the script fails to import the configuration data into the newly-installed Dynamic Workload Console, a rollback is automatically performed and the original configuration is restored. To double-check that the rollback ran correctly, ensure that you can access the newly-installed Dynamic Workload Console user interface with the user ID and password specified during the installation.

6. Check that the data was correctly migrated from the old Dynamic Workload Console to the newly-installed Dynamic Workload Console.
- 7.

**Note:** Perform this step only if the Dynamic Workload Console ports of the instance installed in the new workstation are different from these of the instance installed on the old workstation and you want to have the same values.

The port numbers used by the two instances of the Dynamic Workload Console might be different and they are not automatically migrated by the **tdwcUpgrade** script. If the Dynamic Workload Console ports of the instance installed on the new workstation are different from those installed on the old machine and you want to have the same values, run the following steps to migrate the port numbers of the back level instance on the old machine to the newly-installed instance on a new machine:

- a. Log on as Administrator on Windows operating systems, or as root on UNIX and Linux operating systems, on the workstation where the back-level Dynamic Workload Console is installed.
- b. To save the Dynamic Workload Console ports data, redirect the **showHostProperties** script output to the `HostProperties_file` file:

**On Windows operating systems:**

From the `<DWC_BACKLEV_INSTALL_DIR>\wastools:`

```
showHostProperties.sh
--username old_DWCuser
--password old_DWCpassword
```

> `HostProperties_file`

**On UNIX and Linux operating systems:**

From the `<DWC_BACKLEV_INSTALL_DIR>/wastools:`

```
showHostProperties.bat
--username old_DWCuser
--password old_DWCpassword
```

> `HostProperties_file`

where:

*old\_DWCuser*

The Tivoli Integrated Portal administrator user ID specified for the back-level Dynamic Workload Console.

*old\_DWCpassword*

The Tivoli Integrated Portal administrator user password specified for the back-level Dynamic Workload Console.

- c. Copy the HostProperties\_file created in step 7b on page 357 in the old workstation to the new workstation in the <BACKUP\_DIR> backup directory that you used for the upgrade process. By default the backup directory used in the upgrade process is:

**On Windows operating systems:**

```
<DWC_INSTALL_DIR>\TDWC\tmp\backup
```

**On UNIX and Linux operating systems:**

```
<DWC_INSTALL_DIR>/TDWC/tmp/backup
```

- d. To import the old workstation port values to the Dynamic Workload Console installed on the new workstation, run:

**On Windows operating systems:**

```
changeHostProperties <BACKUP_DIR>\HostProperties_file
```

**On UNIX and Linux operating systems:**

```
changeHostProperties <BACKUP_DIR>/HostProperties_file
```

For more information about this command, see Application server - using the utilities that change the properties.

8. Optionally, uninstall the back-level Dynamic Workload Console on the old machine.

## Upgrading Dynamic Workload Console V8.6.0 on a new workstation

Upgrading Dynamic Workload Console V8.6.0 on a new workstation.

To upgrade a Dynamic Workload Console installed in the directory <DWC\_BACKLEV\_INSTALL\_DIR> of your old workstation in the directory <DWC\_INSTALL\_DIR> of the new workstation, run the following steps:

1. Log on as Administrator on Windows operating systems, or as root on UNIX and Linux operating systems, on the workstation where the back-level Dynamic Workload Console is installed.
2. To save the back-level Tivoli Integrated Portal profile data, run the **preupgrade** script:

**On Windows operating systems:**

```
From <DWC_BACKLEV_INSTALL_DIR>\eWAS\profiles\TIPProfile\upgrade\bin:
```

```
preupgrade.sh
```

```
--username old_DWCuser
--password old_DWCpassword
```

**On UNIX and Linux operating systems:**

```
From <DWC_BACKLEV_INSTALL_DIR>/eWAS/profiles/TIPProfile/upgrade/bin:
```

```
preupgrade.bat
```

```
--username old_DWCuser
--password old_DWCpassword
```

where:

*old\_DWCuser*

The Tivoli Integrated Portal administrator user ID specified for the back-level Dynamic Workload Console.

*old\_DWCpassword*

The Tivoli Integrated Portal administrator user password specified for the back-level Dynamic Workload Console.

**Note:** The **preupgrade** script creates the following .zip file that contains the back-level Tivoli Integrated Portal profile data:

**On Windows operating systems:**

<DWC\_BACKLEV\_INSTALL\_DIR>\eWAS\profiles\TIPProfile\upgrade\data\upgradeData.zip:

**On UNIX and Linux operating systems:**

<DWC\_BACKLEV\_INSTALL\_DIR>/eWAS/profiles/TIPProfile/upgrade/data/upgradeData.zip:

3. To save the Dynamic Workload Console ports data, redirect the **showHostProperties** script output to the `HostProperties_file` file:

**On Windows operating systems:**

From <DWC\_BACKLEV\_INSTALL\_DIR>\wastools:

**showHostProperties.sh**

**--username** *old\_DWCuser*

**--password** *old\_DWCpassword*

> HostProperties\_file

**On UNIX and Linux operating systems:**

From <DWC\_BACKLEV\_INSTALL\_DIR>/wastools:

**showHostProperties.bat**

**--username** *old\_DWCuser*

**--password** *old\_DWCpassword*

> HostProperties\_file

where:

*old\_DWCuser*

The Tivoli Integrated Portal administrator user ID specified for the back-level Dynamic Workload Console.

*old\_DWCpassword*

The Tivoli Integrated Portal administrator user password specified for the back-level Dynamic Workload Console.

4. Log on as Administrator on Windows operating systems, or as root on UNIX and Linux operating systems, on the new workstation where you want to upgrade the Dynamic Workload Console.
5. Install a new Dynamic Workload Console in the <DWC\_INSTALL\_DIR> directory of the new workstation.

For information about Dynamic Workload Console installation, see “Installing the Dynamic Workload Console” on page 323.

**Note:** When installing the new Dynamic Workload Console instance, the default server name proposed by the installation is **server1**, defined in the Core Services in Jazz for Service Management - WebSphere Application Server profile configuration. This is also the default value proposed when you installed the Dynamic Workload Console, version 8.6 instance. If you maintained this value, then the values in the two instances (8.6 and current) are aligned and no changes are necessary. However, if you used a value different from the default value when you installed the Dynamic Workload Console, version 8.6 instance, then you must necessarily change the default

value proposed during the Dynamic Workload Console, new installation to match the version 8.6 instance. You can verify the value of the server name by checking the name in the place of **server1** in the following path:  
<TWS\_home\_directory>/eWAS/profiles/twaprofile/config/cells/DefaultNode/nodes/DefaultNode/servers/server1.

6. Copy the following files created on the old workstation to the new workstation in the <BACKUP\_DIR> backup directory that you want to use for the upgrade process:
  - upgradeData.zip created in step 2 on page 358.
  - HostProperties\_file created in step 3 on page 359.

By default, the backup directory used in the upgrade process is:

**On Windows operating systems:**

<DWC\_INSTALL\_DIR>\TDWC\tmp\backup

**On UNIX and Linux operating systems:**

<DWC\_INSTALL\_DIR>/TDWC/tmp/backup

7. Ensure that no Dynamic Workload Console user interface is active and that the WebSphere Application Server is up and running on the workstation where the back-level Dynamic Workload Console is installed.
8. From the new workstation perform the following steps:

**On Windows operating systems:**

Map the network drive <DWC\_BACKLEV\_INSTALL\_DIR> of the old workstation where the back-level Dynamic Workload Console is installed.

**On UNIX and Linux operating systems:**

Mount in read-write access mode the remote file system <DWC\_BACKLEV\_INSTALL\_DIR> where the back-level Dynamic Workload Console is installed. If the mount point name on the new workstation is different from the remote file system name, create a symbolic link between the mount point on the new workstation and the remote file system <DWC\_BACKLEV\_INSTALL\_DIR>;the link name value must be <DWC\_BACKLEV\_INSTALL\_DIR>.

9. Migrate the data from the back-level to the newly-installed Dynamic Workload Console by running the following script from the new workstation:

**On Windows operating systems:**

```
<DWC_INSTALL_DIR>\TDWC\scripts\tdwclUpgrade.bat
-oldwasuser old_user
-oldwaspassword old_password
-oldtwapath old_twa_path
-newwasuser new_user
-newwaspassword new_password
-newtwapath new_twa_path
[-backuppath backup_path]
-machinechange true
```

**On UNIX and Linux operating systems:**

```
<DWC_INSTALL_DIR>/TDWC/scripts/tdwclUpgrade.sh
-oldwasuser old_user
-oldwaspassword old_password
-oldtwapath old_twa_path
-newwasuser new_user
-newwaspassword new_password
-newtwapath new_twa_path
[-backuppath backup_path]
-machinechange true
```

where:

**-oldwasuser** *old\_user*

The Tivoli Integrated Portal administrator user ID specified for the back-level Dynamic Workload Console.

**-oldwaspassword** *old\_password*

The Tivoli Integrated Portal administrator user password specified for the back-level Dynamic Workload Console.

**-oldtwapath** *old\_twa\_path*

The installation directory where the back-level Dynamic Workload Console is installed.

**-newwasuser** *new\_user*

The Dashboard Application Services Hub administrator user ID.

**-newwaspassword** *new\_password*

The password of the Dashboard Application Services Hub administrator.

**-newtwapath** *new\_twa\_path*

The installation directory where the Dynamic Workload Console must be installed. By default the installation directory is:

**On Windows operating systems:**

C:\Program Files\IBM\TWAUI

**On UNIX and Linux operating systems:**

/opt/IBM/TWAUI

**-backuppath** *backup\_path*

The <BACKUP\_DIR> backup directory for the upgrade where you already copied the upgradeData.zip and HostProperties\_file in step 6 on page 360.

By default, the installation directory is:

**On Windows operating systems:**

<DWC\_INSTALL\_DIR>\TDWC\tmp\backup

**On UNIX and Linux operating systems:**

<DWC\_INSTALL\_DIR>/TDWC/tmp/backup

This directory contains the following files:

- The **tdwcUpgrade** script log file, upgrade.log.
- The files containing the following configuration data exported from the back-level Dynamic Workload Console:
  - The embedded WebSphere Application Server profile.
  - The embedded WebSphere Application Server profile registry.
  - The port settings in HostProperties\_file file.
  - The Tivoli Integrated Portal settings.
  - The Dynamic Workload Console settings.

This data is then imported into the newly-installed Dynamic Workload Console.

- A compressed file named backup.zip that contains a saved copy of the configuration data of the newly-installed Dynamic Workload Console. This file is used to roll back to the original configuration if the migration script fails while importing the configuration data from the back-level Dynamic Workload Console.

**Note:** Because the backup.zip file is overwritten every time you run the migration script, it might be useful to save a copy of the first backup.zip file containing the original configuration.

**-machinechange true**

You must specify the true value to upgrade the Dynamic Workload Console on the new workstation.

**Note:** The script replaces any customized data in the new Dynamic Workload Console instance, with the data exported from the old Dynamic Workload Console instance. A result of Completed indicates that the script ran successfully and that the data was correctly imported into the newly-installed Dynamic Workload Console.

If the script fails to import the configuration data into the newly-installed Dynamic Workload Console, a rollback is automatically performed and the original configuration is restored. To double-check that the rollback ran correctly, ensure that you can access the newly-installed Dynamic Workload Console user interface with the user ID and password specified during the installation.

10. Check that the data was correctly migrated from the old Dynamic Workload Console to the newly-installed Dynamic Workload Console.

11.

**Note:** Perform this step only if the Dynamic Workload Console ports of the instance installed in the new workstation are different from these of the instance installed on the old workstation and you want to have the same values.

The port numbers used by the two instances of the Dynamic Workload Console might be different and they are not automatically migrated by the **tdwcUpgrade** script. If the Dynamic Workload Console ports of the instance installed on the new workstation are different from the Dynamic Workload Console ports of the instance installed on the old machine and you want to have the same values, run the following steps to migrate the port numbers of the back level instance on the old machine to the newly-installed instance on a new machine:

**On Windows operating systems:**

```
changeHostProperties <BACKUP_DIR>\HostProperties_file
```

**On UNIX and Linux operating systems:**

```
changeHostProperties <BACKUP_DIR>/HostProperties_file
```

For more information about this command, see Application server - using the utilities that change the properties.

12. Optionally uninstall the back-level Dynamic Workload Console in the old machine.

---

## Upgrading Dynamic Workload Console installed with one or more components in the same directory

Upgrading Dynamic Workload Console installed with one or more Tivoli Workload Scheduler components in the same directory

Because of Dynamic Workload Console installation infrastructure changes, which are described in “Upgrading overview” on page 349, if you want to upgrade

Dynamic Workload Console installed with one or more components in the same directory <TWS\_INST\_DIR> with the previous versions of the Dynamic Workload Console, you must follow the procedures listed in Table 37.

Table 37 describes the upgrade procedures to version 9.1.0 that you must perform in each different scenario of the multiple components instance installed in the same directory.

*Table 37. Upgrade deployment model for Dynamic Workload Console multiple components instance in the same directory*

<b>Dynamic Workload Console and multiple Tivoli Workload Scheduler components instance, installed in the &lt;TWS_INST_DIR&gt; directory contains:</b>	<b>Procedure to follow to correctly upgrade the multiple components instance:</b>
<b>Fault-tolerant agent</b> V8.5.0, V8.5.1, or V8.6.0 and related Fix Packs  <b>Dynamic Workload Console</b> V8.5.0, V8.5.1, or V8.6.0 and related Fix Packs	“Procedure to upgrade the fault-tolerant agent and the Dynamic Workload Console” on page 133.
<b>Fault-tolerant agent</b> V8.5.0, V8.5.1, or V8.6.0 and related Fix Packs  <b>Dynamic Workload Console</b> V8.5.0, V8.5.1, or V8.6.0 and related Fix Packs  <b>z/OS connector</b> V8.5.0, V8.5.1, or V8.6.0 and related Fix Packs	“Procedure to upgrade the fault-tolerant agent, the Dynamic Workload Console, and the z/OS connector” on page 134.
<b>dynamic domain manager</b> V8.6.0 and related FixPacks  <b>Dynamic Workload Console</b> V8.6.0 and related FixPacks	“Procedure to upgrade the dynamic domain manager and the Dynamic Workload Console” on page 135.
<b>dynamic domain manager</b> V8.6.0 and related FixPacks  <b>Dynamic Workload Console</b> V8.6.0 and related FixPacks  <b>z/OS connector</b> V8.6.0 and related FixPacks	“Procedure to upgrade the dynamic domain manager, the Dynamic Workload Console and the z/OS connector” on page 136.
<b>master domain manager</b> V8.5.0, V8.5.1, or V8.6.0 and related Fix Packs  <b>Dynamic Workload Console</b> V8.5.0, V8.5.1, or V8.6.0 and related Fix Packs	“Procedure to upgrade the master domain manager and the Dynamic Workload Console” on page 138.

Table 37. Upgrade deployment model for Dynamic Workload Console multiple components instance in the same directory (continued)

Dynamic Workload Console and multiple Tivoli Workload Scheduler components instance, installed in the <TWS_INST_DIR> directory contains:	Procedure to follow to correctly upgrade the multiple components instance:
<p><b>master domain manager</b> V8.5.0, V8.5.1 or V8.6.0 and related fix packs</p> <p><b>Dynamic Workload Console</b> V8.5.0, V8.5.1 or V8.6.0 and related fix packs</p> <p><b>z/OS connector</b> V8.5.0, V8.5.1 or V8.6.0 and related fix packs</p>	<p>“Procedure to upgrade the master domain manager, the Dynamic Workload Console, and the z/OS connector” on page 138.</p>
<p><b>Dynamic Workload Console</b> V8.5.0, V8.5.1, or V8.6.0 and related Fix Packs</p> <p><b>z/OS connector</b> V8.5.0, V8.5.1, or V8.6.0 and related Fix Packs</p>	<p>Procedure to upgrade the Dynamic Workload Console and the z/OS connector.</p>

## Procedure to upgrade the fault-tolerant agent and the Dynamic Workload Console

How to upgrade the fault-tolerant agent and the Dynamic Workload Console installed in the same directory.

If you have a multiple components instance that contains a Dynamic Workload Console and a fault-tolerant agent installed in the directory <TWS\_INST\_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC\_NEW\_INST\_DIR> directory, uninstall the old Dynamic Workload Console installed in the <TWS\_INST\_DIR> directory, and then upgrade the fault-tolerant agent in the <TWS\_INST\_DIR> directory.

If you try to upgrade the fault-tolerant agent first, the **twsinst** script stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC\_NEW\_INST\_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS\_INST\_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Upgrade the fault-tolerant agent by using the **twsinst** script, as described in “Upgrading agents and domain managers” on page 183.

## Procedure to upgrade the fault-tolerant agent, the Dynamic Workload Console, and the z/OS connector

How to upgrade the fault-tolerant agent, the Dynamic Workload Console, and the z/OS connector installed in the same directory.

If you installed a multiple components instance that contains a Dynamic Workload Console, a z/OS connector, and a fault-tolerant agent in the directory <TWS\_INST\_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC\_NEW\_INST\_DIR> directory and then upgrade the fault-tolerant agent in the <TWS\_INST\_DIR> directory.

The Dynamic Workload Console upgrade process migrates also the z/OS connector configuration properties.

If you try to upgrade the fault-tolerant agent first, the **twinsinst** script stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC\_NEW\_INST\_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS\_INST\_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Manually uninstall the old z/OS connector instance in the directory <TWS\_INST\_DIR>, by using the z/OS connector previous version uninstallation process.
4. Upgrade the fault-tolerant agent by using the **twinsinst** script as described in “Upgrading agents and domain managers” on page 183.

## Procedure to upgrade the dynamic domain manager and the Dynamic Workload Console

How to upgrade the dynamic domain manager and the Dynamic Workload Console installed in the same directory.

If you installed a multiple components instance that contains a Dynamic Workload Console and a dynamic domain manager installed in the directory <TWS\_INST\_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC\_NEW\_INST\_DIR> directory, uninstall the old Dynamic Workload Console installed in the <TWS\_INST\_DIR> directory, and then upgrade the dynamic domain manager in the <TWS\_INST\_DIR> directory.

If you try to upgrade the dynamic domain manager first, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC\_NEW\_INST\_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.

2. Manually uninstall the old Dynamic Workload Console in the directory <TWS\_INST\_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Upgrade the dynamic domain manager as described in “Upgrading a dynamic domain manager or its backup instance” on page 166.

## **Procedure to upgrade the dynamic domain manager, the Dynamic Workload Console and the z/OS connector**

How to upgrade the dynamic domain manager, the Dynamic Workload Console and the z/OS connector installed in the same directory.

If you installed a multiple component instance that contains a Dynamic Workload Console, a z/OS connector, and a dynamic domain manager in the directory <TWS\_INST\_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC\_NEW\_INST\_DIR> directory and then upgrade the dynamic domain manager in the <TWS\_INST\_DIR> directory.

The Dynamic Workload Console upgrade process migrates also the z/OS connector configuration properties.

If you try to upgrade the dynamic domain manager first, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC\_NEW\_INST\_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS\_INST\_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Manually uninstall the old z/OS connector instance in the directory <TWS\_INST\_DIR>, by using the z/OS connector previous version uninstallation process.
4. Upgrade the dynamic domain manager, as described in “Upgrading a dynamic domain manager or its backup instance” on page 166.

## **Procedure to upgrade the master domain manager and the Dynamic Workload Console**

How to upgrade the master domain manager and the Dynamic Workload Console installed in the same directory.

If you have a multiple components instance that contains a Dynamic Workload Console and a master domain manager installed in the directory <TWS\_INST\_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC\_NEW\_INST\_DIR> directory, uninstall the old Dynamic Workload Console installed in the <TWS\_INST\_DIR> directory, and then upgrade the master domain manager in the <TWS\_INST\_DIR> directory.

If you try to upgrade the master domain manager first, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the shared instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC\_NEW\_INST\_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS\_INST\_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Upgrade the master domain manager as described in “Upgrading a master domain manager instance or its backup” on page 140.

## **Procedure to upgrade the master domain manager, the Dynamic Workload Console, and the z/OS connector**

How to upgrade the master domain manager, the Dynamic Workload Console, and the z/OS connector installed in the same directory.

If you installed a multiple components instance that contains a Dynamic Workload Console, a z/OS connector, and the master domain manager in the directory <TWS\_INST\_DIR>, you must first upgrade the Dynamic Workload Console in the new <DWC\_NEW\_INST\_DIR> directory, and then upgrade the master domain manager in the <TWS\_INST\_DIR> directory.

The Dynamic Workload Console upgrade process migrates also the z/OS connector configuration properties.

If you try to upgrade the master domain manager first, the installation process stops at the beginning and issues an error message that tells you the correct order in which to upgrade the components.

To upgrade the multiple components instance in the correct order, perform the following steps:

1. Upgrade the Dynamic Workload Console instance in the new directory <DWC\_NEW\_INST\_DIR>, as described in “Upgrading Dynamic Workload Console single instance” on page 351.
2. Manually uninstall the old Dynamic Workload Console in the directory <TWS\_INST\_DIR>, by using the Dynamic Workload Console previous version uninstallation process.
3. Manually uninstall the old z/OS connector instance in the directory <TWS\_INST\_DIR>, by using the z/OS connector previous version uninstallation process.
4. Upgrade the master domain manager as described in “Upgrading a master domain manager instance or its backup” on page 140.

---

### **Upgrading the Dynamic Workload Console in High Availability configuration**

If you are upgrading your Dynamic Workload Console and you want to upgrade also the High Availability configuration, perform the following procedure:

1. Run the upgrade procedure on every single Dynamic Workload Console node, as explained in “Upgrading Dynamic Workload Console single instance” on page 351. After completing this step, Dynamic Workload Console V8.6 nodes are still in High Availability configuration, but any change implemented after the upgrade and relating to Dashboard Application Services Hub information (such as roles and views) is not saved. Dynamic Workload Console V9.1 nodes

are not yet in High Availability configuration, but share the settings repository (containing data such as engine connections and tasks) with V8.6 nodes.

2. On each Dynamic Workload Console V8.6 node, except for the last one, run the following commands to stop and disjoin the node:

**Note:** The steps are written for UNIX. If you are running them on Windows systems, replace slash characters (/) with backslash ("\") characters, and .sh file extensions with .bat file extensions.

- a. Browse to TWA\_home/wastools directory and run `./stopWas.sh -direct -user wasprimaryadminuser -password password`
- b. `../ws_ant.sh -f uninstall.ant disjoin -Dusername=dbuser -Dpassword=dbuserpwd`

3. Only on the last node, to disjoin it from the cluster, run the following command:

```
../ws_ant.sh -f uninstall.ant uninstall-Dusername=dbuser -Dpassword=dbuserpwd
```

All Dynamic Workload Console V9.1 nodes must be joined in High Availability configuration and all Dynamic Workload Console V8.6 nodes must be removed.

4. From a command prompt, change to the JazzSM `install_dir/ui/bin/ha` directory and edit the settings in `tipha.properties` file to configure all Dynamic Workload Console V8.6 ports with the new Dynamic Workload Console V9.1 instance, as shown in the following table:

Table 38. Dashboard Application Services Hub properties

Property name	Description
<b>DBHost</b>	Hostname or IP address of the machine where the DB2 database is installed. <b>Example:</b> tipdb.cn.ibm.com
<b>DBPort</b>	Port number of the DB2 server. <b>Example:</b> 50000 (default)
<b>DBName</b>	Name of the database that you created. <b>Example:</b> tipdb
<b>DBProviderClass</b>	Class name of the DB2 provider. <b>Example:</b> com.ibm.db2.jcc.DB2Driver (default)
<b>DBProviderName</b>	Name of the DB2 provider. <b>Example:</b> TIP_Universal_JDBC_Driver (default)
<b>DBDatasource</b>	JNDI name of the datasource. <b>Example:</b> jdbc/tipds
<b>DBDatasourceName</b>	Name of the datasource used. <b>Example:</b> tipds
<b>DBHelperClassName</b>	DB2 Helper class name. <b>Example:</b> com.ibm.websphere.rsadapter.DB2UniversalDataStoreHelper (default)
<b>DBDsImplClassName</b>	DB2 datasource implementation class name. <b>Example:</b> com.ibm.db2.jcc.DB2ConnectionPoolDataSource (default)
<b>DBDriverVarName</b>	WebSphere environment variable name for DB2 JDBC driver class path. <b>Example:</b> TIP_JDBC_DRIVER_PATH
<b>DBJDBCdriverPath</b>	Location of DB2 JDBC driver libraries (for example, db2jcc.jar). <b>Example:</b> JazzSM install_dir/lib/db2

Table 38. Dashboard Application Services Hub properties (continued)

Property name	Description
<b>DBDriverType</b>	JDBC driver type. <b>Example:</b> 4 (default)
<b>DBType</b>	Database type. <b>Example:</b> DB2 (default)
<b>JaasAliasName</b>	JAAS alias name used to store database username and password. <b>Example:</b> TIPAlias (default)
<b>JaasAliasDesc</b>	Description for JAAS alias name. <b>Example:</b> JAAS Alias used for High Availability configuration
<b>LocalHost</b>	Hostname or IP address of the machine on which the console is running. LocalHost and LocalPort uniquely identify the node in the High Availability configuration. <b>Example:</b> tip01.cn.ibm.com
<b>LocalPort</b>	Administrative console secure port. LocalHost and LocalPort uniquely identify the node in the High Availability configuration. <b>Example:</b> When Dynamic Workload Console is installed with default ports, the value of this property in <code>tipha.properties</code> must be 16311.
<b>WasRoot</b>	Full system path to where the application server and console images were extracted during installation. <b>Example:</b> /opt/IBM/WebSphere/AppServer
<b>ProfileName</b>	Profile name that was specified on the <code>manageprofiles</code> command after installation. If no profile name was specified, the default is used. <b>Example:</b> JazzSMProfile (default)
<b>CellName</b>	Cell name that was specified on the <code>manageprofiles</code> command after installation. If no cell name was specified, the default is used. <b>Example:</b> JazzSMNode01Cell (default) This parameter is optional for a single node console installation. For High Availability configuration, however, it is required to ensure all nodes use the same cell name.
<b>NodeName</b>	The application server node name. <b>Example:</b> JazzSMNode01 (default)
<b>ServerName</b>	WebSphere Application Server instance name. <b>Example:</b> server1 (default)
<b>IscAppName</b>	Dashboard Application Services Hub Dashboard Application Services Hub enterprise application name. The Dashboard Application Services Hub enterprise application is installed in the following directory:  <code>JazzSM_profile_dir/installedApps/\${CellName}/\${IscAppName}.ear</code> <b>Example:</b> isc (default)
<b>LoggerLevel</b>	Level of logging required. The default is OFF. <b>Example:</b> FINER
<b>HAEnabled</b>	Indicates if High Availability configuration is enabled.  <b>Attention:</b> Do not edit this value manually.
<b>TipHome</b>	Indicates Dashboard Application Services Hub home directory specified during installation. <b>Example:</b> JazzSM install_dir/ui

Table 38. Dashboard Application Services Hub properties (continued)

Property name	Description
<b>ProfilePath</b>	Indicates JazzSM profile directory specified during installation. <b>Example:</b> JazzSM install_dir/profile

5. Edit the settings in `tippa.properties` or, copy the old `tippa.properties` file located under `TWA_home/profiles/TIPProfile/bin/ha`, modifying or adding the following properties as shown in the table:
  - `DBJDBCdriverPath`
  - `WasRoot`
  - `ProfileName`
  - `CellName`
  - `NodeName`
  - `ServerName`
  - `TipHome` (new property that must be added)
  - `ProfilePath` (new property that must be added)
6. From a command prompt, change to the JazzSM `install_dir/ui/bin/ha` directory and issue the following command:
  - `JazzSM_profile_dir\bin\ws_ant.bat -f install.ant configHA -Dusername=DB2_username -Dpassword=DB2_password`
  - `JazzSM_profile_dir/bin/ws_ant.sh -f install.ant configHA -Dusername=DB2_username -Dpassword=DB2_password`
7. In the `JazzSM_profile_dir/bin` directory, depending on your operating system, enter one of the following commands:
  - `startServer.bat server1`
  - `startServer.sh server1`

---

## Updating authentication

This section describes how you upgrade your configured authentication mechanism.

In versions of Tivoli Workload Scheduler before V8.6, authentication was configured to use stand-alone user registries, managed by the embedded WebSphere Application Server. The available options were:

- Local operating system
- Custom (through PAM - Pluggable Authentication Module)
- LDAP
- File Registry

If you enabled LDAP, you could use one of the following servers:

- IBM Tivoli Directory Server
- Sun ONE
- Microsoft Windows Active Directory
- RACF configured on IBM Tivoli Directory Server

Tivoli Workload Scheduler V8.6 is configured for authentication (through the embedded WebSphere Application Server) in Virtual Member Manager VMM

mode. This creates a *Federated User Registry*, that supports the simultaneous use of more than one user registry. The user registry choices and LDAP server options are similar to those in versions before V8.6.

Tivoli Workload Scheduler V9.1 is configured for authentication (through the WebSphere Application Server) in VMM (Virtual Member Manager) mode. This creates a *Federated User Registry*, which supports the simultaneous use of more than one user registry. The user registry choices and LDAP server options are similar to those in versions before V8.6.

During the upgrade, your existing configuration is migrated, so that when the upgrade is complete the product is configured to use the same authentication mechanism as before, but within a Federated User Registry.

For detailed information, see *Tivoli Workload Scheduler: Administration Guide*.



---

## Chapter 23. Uninstalling

This chapter describes how to uninstall the Dynamic Workload Console.

---

### Uninstalling using the Installation Manager wizard

By using the Installation Manager wizard, you can uninstall the installed packages from a single package group, or you can uninstall all installed packages from every package group.

To uninstall a Dynamic Workload Console, perform the following steps:

1. Start the Installation Manager.
2. On the Installation Manager Start page wizard, click **Uninstall**.
3. In the Uninstall Packages wizard panel, select the Dynamic Workload Console package that you want to uninstall.

**Note:** If you want to uninstall every package from every package group on your workstation, click **Select all**.

4. Click **Next** to continue.
5. Supply the required fields of the following panel:
  - “Core Services in Jazz for Service Management - WebSphere Application Server profile configuration” on page 327.
6. On the Summary page, review the packages that you selected to uninstall. Click **Back** if you want to make some changes. If you are satisfied with your choices, click **Uninstall**. A progress indicator bar shows the percentage of the uninstallation completed.
7. When the uninstallation process is complete, the Complete page opens and confirms success of the uninstallation process.

---

### Uninstalling in silent mode

To perform a silent uninstallation by using a response file template listed in Table 39 on page 374, perform the following steps:

1. Copy the relevant response file to a local directory `<local_dir>` and edit the file to meet the needs of your environment.
2. Save the file with your changes.
3. Open a command-line utility.
4. Go to the Installation Managertools directory.

The default tools directory is:

#### On Windows operating systems

`C:\Program Files\IBM\Installation Manager\eclipse\tools`

#### On UNIX and Linux operating systems

`/opt/IBM/InstallationManager/eclipse/tools`

5. Run the following command:

#### On Windows operating systems

```
imcl.exe input <local_dir>\response_file.xml
-log <local_dir>\log_file.xml
-acceptLicense
```

### On UNIX and Linux operating systems

```
./imcl input /<local_dir>/response_file.xml
-log /<local_dir>/log_file.xml
-acceptLicense
```

where

- The response\_file.xml is the name of the response file to be used for uninstallation.
- The log\_file is the name of the log file that records the result of the silent uninstall execution. For more information about Installation Manager silent log files, see “Installation Manager wizard and silent installation and uninstallation log files” on page 237.

**Note:** For more information about the Installation Manager silent uninstall command, see [http://pic.dhe.ibm.com/infocenter/install/v1r6/index.jsp?topic=/com.ibm.silentinstall12.doc/topics/r\\_silent\\_prefs.html](http://pic.dhe.ibm.com/infocenter/install/v1r6/index.jsp?topic=/com.ibm.silentinstall12.doc/topics/r_silent_prefs.html).

Table 39 lists the response files to be used for the uninstallation process by platform:

*Table 39. Uninstallation response files*

Type of installation	Response file to use
<b>Uninstalling on Windows operating systems</b>	
Dynamic Workload Console	TWS91_UNINST_DWC.xml
<b>Uninstalling on UNIX and Linux operating systems</b>	
Dynamic Workload Console	TWS91_UNINST_DWC.xml

---

## Chapter 24. Troubleshooting the installation, upgrade, and uninstallation

This chapter describes how to troubleshoot the installation, upgrade, and uninstallation of the Dynamic Workload Console.

**Note:** To manually uninstall or recover from a failed installation, see the section “Manually uninstall the Dynamic Workload Console and the zConnector on Windows systems” or “Manually uninstall the Dynamic Workload Console and the zConnector on UNIX systems” on page 376

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### Installation and uninstallation log and trace files

For information about installation log files, see “Installation log files” on page 378.

---

### Manually uninstall the Dynamic Workload Console and the zConnector on Windows systems

Run the following steps to manually remove an instance of the Dynamic Workload Console and the zConnector:

**1. Start the JazzSM WebSphere Application Server profile on the system where the Dynamic Workload Console and the zConnector are installed.**

You can skip this step if the JazzSM WebSphere Application Server profile is already started.

1. In a system prompt, go to the Dynamic Workload Console installation path, for example C:\Program Files\IBM\TWAUI.
2. Go to the `wastools` subdirectory.
3. Run the following command to start the JazzSM WebSphere Application Server profile:

```
startWas.bat -direct
```

**2. Uninstall the zConnector package.**

1. In a system prompt, go to the Dynamic Workload Console installation path, for example C:\Program Files\IBM\JazzSM\profile.
2. Access the `bin` subdirectory.
3. Run the following command to uninstall the zConnector:

```
wsadmin.bat -conntype NONE -c "$AdminApp uninstall ZConnector"
```

**3. Uninstall the zConnector resource adapter.**

1. Go to the `wastools` subdirectory under the Dynamic Workload Console installation path.
2. Run the following command to uninstall the zConnector resource adapter:

```
uninstallResourceAdapter.bat -user <your DWC username>
-password <your DWC password>
```
3. Go to the `%JazzSM_profile_dir%\installedApps\%cell_name%` directory, for example: C:\Program Files\IBM\JazzSM\profile\installedApps\JazzSMNode01Cell\, and ensure that the `ZConnector.ear` directory is deleted. If it still exists, delete it manually.

#### 4. Uninstall the Dynamic Workload Console package

1. Go to the bin subdirectory under the **JazzSM** profile directory, for example, C:\Program Files\IBM\JazzSM\profile.
2. Run the following command to uninstall the Dynamic Workload Console package:

```
wsadmin.bat -connType NONE -lang jython -f
"%tdwc_install_dir%\TDWC\scripts\install_webui.py"
-war "TWSWebUI.war" -contenturi TWSWebUI.war
-contextroot \ibm\TWSWebUI -serverName %server_name%
-operation delete
```
3. Go to the C:\%JazzSM\_profile\_dir%\installedApps\%cell\_name%\isc.ear directory and ensure that the TWSWebUI.war directory is deleted. If it still exists, delete it manually.

#### 5. Uninstall the dynamic workload broker package

1. Run the following command to uninstall the Dynamic Workload Console package:

```
wsadmin.bat -connType NONE -lang jython -f
"%tdwc_install_dir%\TDWC\scripts\install_webui.py"
-war "WebUI.war" -contenturi WebUI.war -contextroot
\ibm\TDWB -serverName %server_name%
-operation delete
```
2. Go to the C:\%JazzSM\_profile\_dir%\installedApps\%cell\_name%\isc.ear directory and ensure that the WebUI.war directory is deleted. If it still exists, delete it manually.

#### 6. Uninstall the dynamic workload broker package

Go to the C:\Windows\TWA directory and ensure that the files named twainstance.twa.properties and twainstance.twa.properties.ext apply to the Dynamic Workload Console instance being deleted. For example, you might check that the TDWC\_basePath key is the same as the %tdwc\_install\_dir% directory. If they do, delete them manually.

#### 7. Delete the Dynamic Workload Console installation directory

Remove manually the %tdwc\_install\_dir% directory, for example C:\Program Files\IBM\TWAUI.

---

## Manually uninstall the Dynamic Workload Console and the zConnector on UNIX systems

Run the following steps to manually remove an instance of the Dynamic Workload Console and the zConnector:

#### 1. Start the JazzSM WebSphere Application Server profile on the system where the Dynamic Workload Console and the zConnector are installed.

You can skip this step if the **JazzSM** WebSphere Application Server profile is already started.

1. In a system prompt, go to the Dynamic Workload Console installation path, for example /opt/IBM/TWAUI.
2. Go to the wastools subdirectory.
3. Run the following command to start the **JazzSM** WebSphere Application Server profile:

```
startWas.sh -direct
```

#### 2. Uninstall the zConnector package.

1. In a system prompt, go to the Dynamic Workload Console installation path, for example /opt/IBM/JazzSM/profile.

2. Access the bin subdirectory.
3. Run the following command to uninstall the zConnector:
 

```
wsadmin.sh -connType NONE -c "\$AdminApp uninstall ZConnector"
```

### 3. Uninstall the zConnector resource adapter.

1. Go to the wastools subdirectory under the Dynamic Workload Console installation path.
2. Run the following command to uninstall the zConnector resource adapter:
 

```
uninstallResourceAdapter.sh -user <your DWC username>
 -password <your DWC password>
```
3. Go to the \$JazzSM\_profile\_dir/installedApps/\$cell\_name directory, for example /opt/IBM/JazzSM/profile/installedApps/JazzSMNode01Cell.
4. Verify that the ZConnector.ear directory is deleted. If it still exists, delete it manually.

### 4. Uninstall the Dynamic Workload Console package.

1. Go to the bin subdirectory under the JazzSM profile directory, for example, /opt/IBM/JazzSM/bin.
2. Run the following command to uninstall the Dynamic Workload Console package:

```
wsadmin.sh -connType NONE -lang jython -f "$tdwc_
install_dir/tdwc/scripts/install_webui.py" -war
"$websphere_install_dir/AppServer/systemApps/WebUI.war"
-contenturi TWSWebUI.war -contextroot /ibm/TWSWebUI
-serverName $server_name -operation delete
```

where:

**\$tdwc\_install\_dir**

Is the directory on the filesystem where the Dynamic Workload Console is installed, for example, /opt/IBM/TWAUI.

**\$server\_name**

Is the name of the Dynamic Workload Console server, for example, **server1**.

3. Go to the \$JazzSM\_profile\_dir/installedApps/\$cell\_name/isc.ear directory.
4. Verify that the TWSWebUI.war directory is deleted. If it still exists, delete it manually.

### 5. Uninstall the dynamic workload broker package

1. Run the following command to uninstall the Dynamic Workload Console package:

```
wsadmin.sh -connType NONE -lang jython -f
"$tdwc_install_dir/tdwc/scripts/install_webui.py"
-war "$websphere_install_dir/AppServer/systemApps/WebUI.war"
-contenturi WebUI.war -contextroot /ibm/TDWB
-serverName $server_name -operation delete
```

2. Go to the \$JazzSM\_profile\_dir/installedApps/\$cell\_name/isc.ear directory and ensure that the WebUI.war directory is deleted. If it still exists, delete it manually.

### 6. Uninstall the dynamic workload broker package

Go to the /etc/TWA directory and ensure that the files named twainstance.twa.properties and twainstance.twa.properties.ext apply

to the Dynamic Workload Console instance being deleted, for example you might check that the `TWC_basePath` key is the same as the `$tdwc_install_dir` directory. If they do, delete them manually.

#### 7. Delete the Dynamic Workload Console installation directory

Remove manually the `$tdwc_install_dir` directory, for example, `/opt/IBM/TWUI`.

---

## Troubleshooting scenarios

The troubleshooting scenarios to manage.

### Installation log files

This section describes the log files created by the installation process.

For more information about log files, see the *Administration Guide*.

#### Interactive wizard installation and uninstallation log files

Installation Manager creates the following installation and uninstallation logs files common to any package installation, regardless of which components you choose to install:

##### On Windows operating systems

`<INSTALLATION_MANAGER_LOGS_DIR>\<YYYYMMDD_HHMM>.xml`

##### On UNIX and Linux operating systems

`<INSTALLATION_MANAGER_LOGS_DIR>/<YYYYMMDD_HHMM>.xml`

where `<INSTALLATION_MANAGER_LOGS_DIR>` is the directory where Installation Manager creates the log files, `YYYYMMDD` is the date and `HHMM` is the time when the log file is created.

The Dynamic Workload Console installation process creates the following Installation Manager native logs files:

##### On Windows operating systems

`<INSTALLATION_MANAGER_LOGS_DIR>\native\<YYYYMMDD_HHMM>.log`

##### On UNIX and Linux operating systems

`<INSTALLATION_MANAGER_LOGS_DIR>/native/<YYYYMMDD_HHMM>.log`

where `<INSTALLATION_MANAGER_LOGS_DIR>` is the directory where Installation Manager creates the logs files, and `YYYYMMDD` is the date and `HHMM` is the time when the log file is created.

The `<INSTALLATION_MANAGER_LOGS_DIR>` default is:

##### On Windows operating systems

`C:\ProgramData\IBM\InstallationManager\logs`

##### On UNIX and Linux operating systems

`/var/ibm/InstallationManager/logs`

If more than one native log have the same timestamp, Installation Manager creates the log files with the following name:

##### On Windows operating systems

`<INSTALLATION_MANAGER_LOGS_DIR>\native\<YYYYMMDD_HHMMLETTER>.log`

### On UNIX and Linux operating systems

<INSTALLATION\_MANAGER\_LOGS\_DIR>/native/<YYYYMMDD\_HHMMLETTER>.log

where <INSTALLATION\_MANAGER\_LOGS\_DIR> is the directory where Installation Manager creates the logs files, YYYYMMDD is the date, HHMM is the time when the log file is created, and LETTER is a letter of the alphabet.

For more information about how to access the log files by using the Installation Manager wizard, see “Accessing Installation Manager log files via wizard” on page 238.

For more information about how to create a .zip file of the native log directory, see “Packaging Installation Manager log files via wizard” on page 239

### Accessing Installation Manager log files via wizard:

By using the Installation Manager wizard, you can access the Installation Manager log files in the following log directory:

<INSTALLATION\_MANAGER\_LOGS\_DIR>

where <INSTALLATION\_MANAGER\_LOGS\_DIR> is the directory where Installation Manager creates the logs files. The <INSTALLATION\_MANAGER\_LOGS\_DIR> default value is:

### On Windows operating systems

C:\ProgramData\IBM\InstallationManager\logs

### On UNIX and Linux operating systems

/var/ibm/InstallationManager/logs

To access the log files by using the wizard, perform the following steps:

1. Open the Installation Manager Start page.
2. Select **File>View Log**.
3. The Installation Log panel shows you all the log files saved on your machine. Select the log file whose name is the correct timestamp for your installation process.
4. Depending on the action that you want to perform, click the **Export log file** icon or **Open log file** icon on the upper right side.

### Packaging Installation Manager log files via wizard:

By using the Installation Manager wizard, you can create a .zip file that contains the following log files:

- Native log files in the <INSTALLATION\_MANAGER\_LOGS\_DIR>\native directory.
- xml log files in the <INSTALLATION\_MANAGER\_LOGS\_DIR> directory.

Where <INSTALLATION\_MANAGER\_LOGS\_DIR> is the directory where Installation Manager creates the log files.

The <INSTALLATION\_MANAGER\_LOGS\_DIR> default value is:

### On Windows operating systems

C:\ProgramData\IBM\InstallationManager\logs

### On UNIX and Linux operating systems

/var/ibm/InstallationManager/logs

To create a .zip file of the *native* log directory, perform the following steps:

1. Open the Installation Manager Start page.

2. Select **Help>Export Data for Problem Analysis**.
3. Enter the name of the directory where you want to create the .zip file and the .zip file name.
4. Press **Ok**. A .zip file that contains all log files is created in the directory you specified.

### **Jazz for Service Management extension for WebSphere profile log files**

The Dynamic Workload Console installation process manages its own profile in the Jazz for Service Management extension for WebSphere instance.

The log for the Jazz for Service Management extension for WebSphere profile management of the application server can be found at:

```
/<JAZZ_SM_HOME>/profile/logs/<SERVER_NAME>
```

where <JAZZ\_SM\_HOME> is the Jazz for Service Management extension for WebSphere installation directory and the <SERVER\_NAME> is the server name related to the Jazz for Service Management extension for WebSphere that you use.

## **Problems with the launchpad**

The following problems might be encountered while using the launchpad to install the Dynamic Workload Console:

- "Warning messages displayed when using the launchpad on Linux systems."
- "Undefined error when using launchpad on Windows operating systems."

### **Warning messages displayed when using the launchpad on Linux systems**

**Problem description:**

Warning messages might be displayed on the standard output when using the launchpad on Linux systems.

#### **Cause and solution**

You can ignore these messages because they do not indicate a malfunction of the launchpad.

### **Undefined error when using launchpad on Windows operating system**

**Problem description:**

You try to install the Dynamic Workload Console on a Windows operating system using the launchpad and you get an "Undefined" error message. The launchpad does not start.

#### **Cause and solution**

Make sure that the path from where you launched the installation does not contain folder names longer than eight characters. If it does, then map the path to the launchpad.exe, and run the launchpad from that new path.

## **Problems with the interactive installation**

This section lists the problems that you might encounter while installing the Dynamic Workload Console interactively.

## **The Dynamic Workload Console installation fails**

### **Problem description:**

The installation of the Dynamic Workload Console does not proceed. This occurs regardless of the method you used to install.

### **Cause and solution**

Make sure an active personal firewall is not preventing the installation process from connecting to the network. If it is, allow the connection and then continue with the installation.

## **Problems with the silent installation**

This section lists the problems that you might encounter while running the Dynamic Workload Console silent installation.

### **The silent uninstallation does not work and an error code is returned**

#### **Problem description:**

If you try to perform a silent uninstall with a response file that does not exist, either because the file name is incorrect or because you specified the wrong directory, an error code is returned and the uninstallation does not run. Nothing is logged in the temporary directory and no messages are issued.

#### **Cause and solution**

Ensure that you specify a valid response file name.



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## Part 5. Tutorials

Installation tutorials



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## Chapter 25. Using the Tivoli Workload Scheduler tutorial utility

This section describes the Tivoli Workload Scheduler tutorial utility and guides you through a set of steps to populate and use a stand-alone test environment. The tutorial utility is intended for first-time users of Tivoli Workload Scheduler who want an overview of the features and capabilities of the product in a real environment. The tutorial utility includes a sample database with predefined scheduling objects and a set of scenarios that use these objects.

The `sampledbsetup.sh` or the `SAMPLEDBSETUP.CMD` script (depending on whether you are in a UNIX or Windows environment) populates your Tivoli Workload Scheduler with a set of scheduling objects. The scenario scripts use these objects in basic scheduling activities. Each scenario is self-contained and can be run in any order, with the exception of the first scenario which is a prerequisite to all others.

The Tivoli Workload Scheduler tutorial utility runs only on a master domain manager. It does not affect any other workstation defined in your Tivoli Workload Scheduler environment. Each scenario is launched as a separate script file which uses the `conman` and `composer` command interfaces. The syntax and usage of each command used in the scenarios is explained in detail in the *Tivoli Workload Scheduler: User's Guide and Reference*. Before you begin using the utility, read an overview of Tivoli Workload Scheduler concepts and tasks in *Tivoli Workload Automation: Overview*.

This chapter is divided into the following sections:

- “Populating your Tivoli Workload Scheduler database”
- “Overview of the scheduling scenarios” on page 387
- “Creating and working with the production plan” on page 387
- “Running the scheduling scenarios” on page 388
- “Removing tutorial objects from the database” on page 392

---

### Populating your Tivoli Workload Scheduler database

This section describes how you use the utility to populate your Tivoli Workload Scheduler database.

After you have installed Tivoli Workload Scheduler on the master domain manager in your test environment you are ready to populate the database.

Follow these steps:

1. Go to the `TWS_home/TWS/TWSTutorial` directory, where `TWS_home` is the home directory of the user for which you installed Tivoli Workload Scheduler.
2. Launch the tutorial utility installation script:
  - In a Windows operating system:  
`SAMPLEDBSETUP.CMD`
  - In a UNIX and Linux operating systems:  
`sampledbsetup.sh`

The script adds a set of scheduling objects with names starting with the string *SMPL*, followed by the object type and scenario number so that all objects used in each scenario are easily identifiable. Some objects are different depending on whether you are using a UNIX or a Windows environment.

The script performs a check on the database. If any objects with the same name are found, you are prompted to specify if these objects can be overwritten.

When processing of the script ends successfully, your Tivoli Workload Scheduler database contains the objects needed to run the scheduling scenarios.

## Objects used by the Tivoli Workload Scheduler tutorial scenarios

After you have successfully installed the Tivoli Workload Scheduler tutorial utility in your test environment, your database is populated with the following scheduling objects:

*Table 40. Objects downloaded by the tutorial utility*

Object type	Object Names (Total objects)
Calendar	SMPCAL6 (1)
Variable	SMPLHOME, SMPLUSER, SMPLWIN1 to SMPLWIN4 or SMPLUNIX1 to SMPLUNIX4, SMPLSLEEP, SMPLTMP, SMPLPATH (6)
Resource	SMPLRES1, SMPLRES2 (2)
Prompt	SMPLPRM4, SMPLPRM5, SMPLPRM6, SMPLPRM7 (4)
Job	SMPL_JOB_3_0_1, SMPL_JOB_3_0_2, SMPL_JOB_3_0_3, SMPL_JOB_4_0_1, SMPL_JOB_4_0_2, SMPL_JOB_4_0_3, SMPL_JOB_5_0_1, SMPL_JOB_5_0_2, SMPL_JOB_7_0_1, SMPL_JOB_7_0_2, SMPL_JOB_7_0_3, SMPL_JOB_9_0_1, SMPL_JOB_9_1_1, SMPL_JOB_EVN, SMPL_JOB_ODD, SMPL_JOB_PAIR, SMPL_JOB_SBJ, SMPL_JOB_7_0_LAST, SMPL_JOB_7_0_RECV (19)
Job Stream	SMPL_SCHED_3_0_1, SMPL_SCHED_3_0_2, SMPL_SCHED_4_0_1, SMPL_SCHED_4_0_2, SMPL_SCHED_4_0_3, SMPL_SCHED_4_0_S, SMPL_SCHED_5_0_1, SMPL_SCHED_5_0_2, SMPL_SCHED_7_0_1, SMPL_SCHED_7_0_2, SMPL_SCHED_7_0_3, SMPL_SCHED_9_0_1, SMPL_SCHED_9_0_2, SMPL_SCHED_9_1_1, SMPL_SCHED_5-ODD, SMPL_SCHED_5_EVN, SMPL_SCHED_SBS (17)
Event Rule	SMPL_FILTER_RULE (1)
Variable table	SMPL_VAR_TABLE_9_0_1, SMPL_VAR_TABLE_9_0_2 (2)

You can display each object by running the **composer** command interface. For specific information about the syntax of the **composer** interface, see the *Tivoli Workload Scheduler: User's Guide and Reference*.

---

## Overview of the scheduling scenarios

The following table describes the topics covered in each scenario. Each scenario is a separate script file.

You must run Scenario 1 first, but you can choose to run the other scenarios in any order.

*Table 41. List of scheduling scenarios*

Scenario name	Script name	Topics
Scenario 1	<b>scenario1.0.bat</b> (Windows) <b>scenario1.0.sh</b> (UNIX)	Creating the production plan and viewing its contents <b>Note:</b> This scenario is a prerequisite for all the other scenarios in your sequence.
Scenario 2	<b>scenario2.0.bat</b> (Windows) <b>scenario2.0.sh</b> (UNIX)	Administrative commands: starting and stopping Tivoli Workload Scheduler processes
Scenario 3	<b>scenario3.0.bat</b> (Windows) <b>scenario3.0.sh</b> (UNIX)	Scheduling basics: how jobs are scheduled, run order of jobs
Scenario 4	<b>scenario4.0.bat</b> (Windows) <b>scenario4.0.sh</b> (UNIX)	Advanced Scheduling: prompt, file, and resource dependencies
Scenario 5	<b>scenario5.0.bat</b> (Windows) <b>scenario5.0.sh</b> (UNIX)	Time dependencies and run cycles
Scenario 6	<b>scenario6.0.bat</b> (Windows) <b>scenario6.0.sh</b> (UNIX)	Job submission (jobs, job streams, ad-hoc jobs)
Scenario 7	<b>scenario7.0.bat</b> (Windows) <b>scenario7.0.sh</b> (UNIX)	Recovery options and recovery jobs
Scenario 8	<b>scenario8.0.bat</b> (Windows) <b>scenario8.0.sh</b> (UNIX)	Event-driven scheduling
Scenario 9	<b>scenario9.0.bat</b> (Windows) <b>scenario9.0.sh</b> (UNIX)	Using variable tables

---

## Creating and working with the production plan

After you have successfully populated the database, you are ready to run the Scenario 1, which creates the production plan. The production plan contains the database objects (jobs and job streams) that are eligible for scheduling.

Scenario 1 is a prerequisite to all other scenarios so you must run it first. The other scenarios can then be run in any order.

Most commands in the scenarios are given in their short form. Where this is the case, the full name of the command is shown in parentheses in each scenario description.

## Scenario 1: Creating the production plan and viewing its contents

The scenario shows you how to:

- Create and extend a production plan
- Understand if a plan was created successfully
- View the contents of a plan

The scenario performs the following actions:

- Creates a production plan with a duration of 24 hours
- Inserts into the plan all the jobs and job streams that the tutorial already added in the database with their dependencies
- Views the contents of the plan

Commands used in the scenario in their run sequence:

1. **JnextPlan**
2. **conman sc** (showcpus)
3. **planman showinfo**
4. **conman ss @#SMPL@** (showschedules)

---

## Running the scheduling scenarios

After creating the plan in Scenario 1, the other scenarios use the tutorial objects in the database by scheduling them in the plan. Each scenario explains different scheduling concepts. For each command used in the scenarios, the output is displayed on the screen.

**Note:** You can run the scenarios in any order because each scenario uses different objects. However, if you want to run the same scenario more than once in your sequence, you must reset the plan and run Scenario 1 again before you rerun the individual scenario. Perform these steps:

1. Run the following command:  
`ResetPlan -scratch`
2. Run the **scenario1.0.bat** in Windows or the **scenario1.0.sh** script in UNIX.

## Scenario 2: Starting and stopping Tivoli Workload Scheduler processes

This scenario performs some basic administrative tasks. After each stop or start command, the status is displayed on the screen.

Scenario tasks and concepts:

- Stopping and starting the Tivoli Workload Scheduler engine
- Stopping and starting the event processor
- Stopping and starting the monitoring agent
- Viewing process status

Commands used in the scenario in their run sequence:

1. **"conman stop"**
2. **"conman status"**
3. **"conman start"**
4. **"conman status"**
5. **"conman stopevtproc"** (stopeventprocessor)
6. **"conman startevtproc"** (starteventprocessor)
7. **"conman sc"** (showcpus)
8. **"conman stopmon;wait"**

9. `"conman startmon"`
10. `"conman sc"` (showcpus)

For a detailed description of Tivoli Workload Scheduler processes and related commands, see the *Tivoli Workload Scheduler: User's Guide and Reference*.

### Scenario 3: Scheduling basics, how jobs are scheduled, and run order of jobs

This scenario performs basic scheduling tasks by showing how you schedule jobs and how you manage the scheduling sequence.

Scenario tasks and concepts:

- Running a job and a job stream on a workstation
- Viewing job status
- Viewing and changing the workstation limit
- Understanding the concept and purpose of dependent job streams and run order (FOLLOWS)
- Viewing dependency resolution during job runs

Commands used in the scenario in their run sequence:

1. `"conman ss @#SMPL_SCHED_3@"` (showschedules)
2. `"composer disp sched=@SMPL_SCHED_3_0_2"`
3. `"conman lc; 10;noask"` (limit)
4. `"conman sc"` (showcpus)
5. `"conman sj @#SMPL_SCHED_3_0_@.SMPL_JOB_3_0_@"` (showjobs)
6. `"conman sj @#SMPL_SCHED_3_0_@.SMPL_JOB_3_0_@"` (showjobs)

### Scenario 4: Advanced scheduling, dependencies from prompts, files, and resources

This scenario performs advanced scheduling tasks by showing different types of dependencies in action.

Scenario tasks and concepts:

- Viewing and managing prompt dependencies
- Viewing and managing resource dependencies
- Viewing and managing file dependencies
- Understanding resource contention between jobs

Commands used in the scenario in their run sequence:

1. `"composer disp sched= @#SMPL_SCHED_4@"`
2. `"conman ss @SMPL_SCHED_4@"` (showschedules)
3. `"conman sp @#SMPLPRM4"` (showprompts)
4. `"conman reply SMLPRM4;y"` (reply)
5. `"conman sp @#SMLPRM4"` (showprompts)
6. `"conman sj @SMPL_SCHED_4_0_@.@"` (showjobs)
7. `"conman sj @SMPL_SCHED_4_0_@.@"` (showjobs)
8. `"conman sj @SMPL_SCHED_4_0_S.@"` (showjobs)

### Scenario 5: Time dependencies and run cycles

This scenario performs advanced scheduling using time dependencies and run cycles.

Scenario tasks and concepts:

- Managing time limits such as AT time and UNTIL time
- Releasing a time dependency
- Using run cycles to plan scheduling activities

Commands used in the scenario in their run sequence:

1. `"conman sj @#SMPL_SCHED_5_0_0.SMPL_JOB_5_0_0"` (showjobs)
2. `"conman ddj @#SMPL_SCHED_5_0_1.SMPL_JOB_5_0_1;at;noask"` (deldep)
3. `"conman sj @#SMPL_SCHED_5_0_1.SMPL_JOB_5_0_1"` (showjobs)
4. `"conman rj @#SMPL_SCHED_5_0_1.SMPL_JOB_5_0_2"` (release)
5. `"conman sj @#SMPL_SCHED_5_0_1.SMPL_JOB_5_0_2"` (showjobs)
6. `"conman ss @#SMPL_SCHED_5-0"` (showschedules)

## Scenario 6: Manual submission of jobs, job streams, and commands

This scenario uses the submit command to insert jobs, job streams, and ad-hoc jobs in the plan.

Scenario tasks and concepts:

- Submitting a job in the current production plan
- Submitting a job stream in the current production plan
- Submitting a command in the current production plan
- Displaying the job, job stream, and command status in the plan

Commands used in the scenario in their run sequence:

1. `"conman sbj @#SMPL_JOB_SBJ;alias=SMPL_SBJ_ALIAS"` (submit)
2. `"conman sj @#JOBS.SMPL_ALIAS"` (showjobs)
3. `"conman sbs @#SMPL_SCHED_SBS;alias=SMPL_SBS_ALIAS"` (submit)
4. `"conman sj @#SMPL_SBS_ALIAS"` (showjobs)
5. `"conman sbd "ver"; logon=^SMPLUSER^;alias=SMPL_SBD_ALIAS"` (submit)
6. `"conman sj @#JOBS.SMPL_SBD_ALIAS"` (showjobs)

**Note:** The value of the logon attribute in step 5 is specified by using a parameter object. For more information about parameters see the *Tivoli Workload Scheduler: User's Guide and Reference*.

## Scenario 7: Recovery options and recovery jobs

This scenario shows some examples of recovery options and recovery jobs.

Scenario tasks and concepts:

- Defining and using the STOP, CONTINUE, and RERUN recovery options
- Understanding the use of recovery jobs to solve scheduling malfunctions

Commands used in the scenario in their run sequence:

1. `"conman reply SMPLPRM7;y"` (reply)
2. `"conman sp SMPLPRM7"` (showprompts)
3. `"conman sj @#SMPL_SCHED_7_0_1.@"` (showjobs)
4. `"conman sj @#SMPL_SCHED_7_0_2.@"` (showjobs)

5. `"conman sj @#SMPL_SCHED_7_0_3.@"` (showjobs)

## Scenario 8: Event-driven scheduling

This scenario shows some examples of event-driven scheduling.

Scenario tasks and concepts:

- Creating a rule and associating an action to the rule
- Understanding the different rule types: Filter, Sequence, and Collection rules
- Processing an action associated to a rule

Commands used in the scenario in their run sequence:

1. `"composer disp erule=SMPL_FILTER_RULE"` (display)
2. `"planman deploy -scratch"`
3. `"conman sj @#JOBS.SMPL_SBJ_ALIAS2"` (showjobs)

## Scenario 9: Using variable tables

This scenario shows how you use variable tables to:

- Change the behavior of jobs and job streams based on why they are scheduled to run. For example, you can create a job that runs different commands for different operating systems.
- Change the behavior of jobs and job streams based on when they are scheduled to run, that is, on which days they run.

Commands used in the scenario in their run sequence:

1. `"composer disp vartable=SMPL_VAR_TABLE_9_0_?"` (display)
2. `"composer disp vartable=MAIN_TABLE"` (display)
3. `"composer disp job=SMPL_JOB_9_1_1"` (display)
4. `"composer disp sched=SMPL_SCHED_9_1_1"` (display)
5. `"conman sj SMPL_SCHED_9_1_1(1000).SMPL_JOB_9_1_1;info"` (showjobs)
6. `"conman sj SMPL_SCHED_9_1_1(1200).SMPL_JOB_9_1_1;info"` (showjobs)

Because the production plan has already been generated, you can see the following results:

- The job stream added for the run cycle associated to the SMPL\_VAR\_TABLE\_9\_0\_2 variable table contains the SMPL\_JOB\_9\_1\_1 job that launches the default command.
- The job stream added for the run cycle associated to the SMPL\_VAR\_TABLE\_9\_0\_1 variable table contains the SMPL\_JOB\_9\_1\_1 job that launches the command specified within the variable table.

### Scenario 9 part 1: Using variable tables to run different commands using the same job definition

This part shows how you use variable tables to create two job streams containing the same job definition to launch two different commands. The scenario performs the following steps:

- Creates two variable tables and defines variables inside them.
- Uses variables inside jobs.
- Defines two job streams
- Associates a different variable table to each job stream.

Commands used in the scenario in their run sequences:

1. `"composer disp vartable=SMPL_VAR_TABLE_9_0_?"` (display)
2. `"composer disp job=SMPL_JOB_9_0_1"` (display)
3. `"composer disp sched=SMPL_SCHED_9_0_?"` (display)
4. `"conman sj SMPL_SCHED_9_0_1.SMPL_JOB_9_0_1;info"` (showjobs)
5. `"conman sj SMPL_SCHED_9_0_2.SMPL_JOB_9_0_1;info"` (showjobs)

Because the production plan has already been generated, you can see the following results:

- The job added with the SMPL\_SCHED\_9\_0\_1 job stream contains the command to list the content of the TWSTutorial directory.
- The job added with the SMPL\_SCHED\_9\_0\_2 job stream contains the command to list the content of the TWS directory.

### Scenario 9 part 2: Using variable tables to run different commands on different days

This part shows how you use variable tables to have the same job stream containing two run cycles to launch two commands based on variable substitution. It create a job stream containing a job definition and two different run cycles that address two different variable tables. The scenario performs the following steps:

- Creates two variable tables and defines variables inside them.
- Uses variables inside jobs.
- Defines a job stream.
- Associates a different variable table to each run cycle.

---

## Removing tutorial objects from the database

You can choose to keep the database objects in your environment to use them as templates for new objects. If, instead, you want to completely remove all tutorial objects from the database, perform the following steps:

1. Go to the `TWS_home/TWS/TWSTutorial` directory, where `TWS_home` is the home directory of the user for which you installed Tivoli Workload Scheduler.
2. Launch the tutorial utility installation script as follows:
  - In a Windows operating system:  
`SAMPLEDBSETUP.CMD -uninstall`
  - In a UNIX and Linux operating systems:  
`sampledbsetup.sh -uninstall`

---

## Part 6. Appendixes



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## Appendix A. Registry file

On UNIX operating systems, when you install Tivoli Workload Scheduler using Installation Manager or the **twinst** script, a check is performed to determine whether there are other Tivoli Workload Scheduler instances already installed. The TWSRegistry.dat file stores the history of all instances installed. On Windows operating systems, this file is stored under the system drive directory, for example, c:\WINDOWS\system32. On UNIX operating systems, this file is stored in the /etc/TWS path. The file contains the values of the following attributes that define a Tivoli Workload Scheduler installation:

Table 42. Registry file attributes

Attribute	Value
ProductID	TWS_ENGINE
PackageName	The name of the software package used to perform the installation.
InstallationPath	The absolute path of the Tivoli Workload Scheduler instance.
UserOwner	The owner of the installation.
MajorVersion	Tivoli Workload Scheduler version number.
MinorVersion	Tivoli Workload Scheduler release number.
MaintenanceVersion	Tivoli Workload Scheduler maintenance version number.
PatchVersion	The latest product patch number installed.
Agent	Any one of the following: standard agent, fault-tolerant agent, master domain manager.
FeatureList	The list of optional features installed.

The following is an example of a TWSRegistry.dat file on a master domain manager:

```
/Tivoli/Workload_Scheduler/twsuser_DN_objectClass=OU
/Tivoli/Workload_Scheduler/twsuser_DN_PackageName=FP_TWS_LINUX_X86_64_
 twsuser.9.1.0.00
/Tivoli/Workload_Scheduler/twsuser_DN_MajorVersion=9
/Tivoli/Workload_Scheduler/twsuser_DN_MinorVersion=1
/Tivoli/Workload_Scheduler/twsuser_DN_PatchVersion=
/Tivoli/Workload_Scheduler/twsuser_DN_FeatureList=
/Tivoli/Workload_Scheduler/twsuser_DN_ProductID=TWS_ENGINE
/Tivoli/Workload_Scheduler/twsuser_DN_ou=twsuser
/Tivoli/Workload_Scheduler/twsuser_DN_InstallationPath=/opt/IBM/TWA/TWS
/Tivoli/Workload_Scheduler/twsuser_DN_UserOwner=twsuser
/Tivoli/Workload_Scheduler/twsuser_DN_MaintenanceVersion=0
/Tivoli/Workload_Scheduler/twsuser_DN_Agent=MDM
```



## Appendix B. The Tivoli Workload Scheduler response file properties

The following tables describe the properties that are used in the Tivoli Workload Scheduler response file:

- General information: Table 43
- User information: Table 44
- Upgrade configuration: Table 45 on page 398
- Master configuration: Table 46 on page 398
- Dynamic domain manager configuration: Table 47 on page 400
- Database configuration: Table 48 on page 401
- WebSphere configuration: Table 49 on page 406
- Offering and features to install: Table 50 on page 408

### Note:

1. All values must be written between single quotation marks ('), for example:  
<data key='user.finalJob,com.ibm.tws' value='false' />
2. Properties are written in mixed case for ease of reading, but are not case-sensitive
3. Keywords (for example, "true") used in values, are not case-sensitive.

Table 43. General information

Name	Description	Permitted values
id	The Tivoli Workload Scheduler profile ID.	The value must be <i>Tivoli Workload Scheduler</i> . Do not modify this value.
installLocation	The Tivoli Workload Scheduler installation directory.	For more information about possible values for the installation directory, see "Installation procedure for master domain manager and its backup" on page 68 or "Installation procedure for a dynamic domain manager or its backup" on page 90.
user.offeringId	The offering ID.	The value must be <i>com.ibm.tws</i> . Do not modify this value.
user.isSilentUpgrade	The value that indicates if you are performing an upgrade or a fresh installation in silent mode.	<b>true</b> Upgrade silent process <b>false</b> Installation silent process

Table 44. User information

Name	Description	Permitted values
user.userName	Specify the Tivoli Workload Scheduler user name.	For more information about Tivoli Workload Scheduler user names, see "Tivoli Workload Scheduler user information" on page 71.

Table 44. User information (continued)

Name	Description	Permitted values
user.password	Specify the Tivoli Workload Scheduler encrypted password. For more information about password encryption, see "Encrypting user passwords for response files" on page 88.	For more information about Tivoli Workload Scheduler user passwords, see "Tivoli Workload Scheduler user information" on page 71.

Table 45. Upgrade configuration (only for upgrade)

Name	Description	Permitted values
user.backupDir	Specify the fully qualified path of the backup directory where you back up the Tivoli Workload Scheduler instance data.	The default value must be:  <b>On Windows operating systems</b> The Administrator temporary directory.  <b>On UNIX and Linux operating systems</b> \$TEMP.  .

Table 46. Master configuration

Name	Description	Permitted values
user.mdmIsBackup	Specify if you want to install the instance as a master domain manager or a backup master domain manager.	<b>true</b> the installation process configure the Tivoli Workload Scheduler installed as backup master domain manager.  <b>false</b> the installation process configure the Tivoli Workload Scheduler installed as master domain manager. By default, the value is set to <i>false</i> .
user.mdmCompany	Company name.	For information related to the master domain manager configuration, see "Tivoli Workload Scheduler master configuration" on page 72.
user.mdmWorkstation	The name of the workstation where you are installing the component.	For information related to the master domain manager configuration, see "Tivoli Workload Scheduler master configuration" on page 72.
user.mdmRemoteWorkstation	The name of the master domain manager workstation.	For information related to the master domain manager, see "Tivoli Workload Scheduler master configuration" on page 72.
user.mdmPort	The port used by the <b>netman</b> process of this workstation.	For information related to the master domain manager configuration, see "Tivoli Workload Scheduler master configuration" on page 72.
user.dynamicAgentHostname	The fully qualified host name or IP address of the dynamic agent.	For information related to the configuration of the dynamic scheduling, see "Tivoli Workload Scheduler master configuration" on page 72.

Table 46. Master configuration (continued)

Name	Description	Permitted values
dynamicAgentWorkstation	The name of the dynamic agent workstation.	For information related to the configuration of the dynamic scheduling, see “Tivoli Workload Scheduler master configuration” on page 72.
dynamicAgentJobManagerPort	The dynamic agent secure port number (SECUREADDR).	For information related to the configuration of the dynamic scheduling, see “Tivoli Workload Scheduler master configuration” on page 72.
user.finalJob	Add the final job stream to the database. This option allows you to perform automatic production plan extension at the end of each current production plan processing. This option is available only if you are installing a master domain manager.	<b>true</b> Add the final job stream <b>false</b> Do not add the final job stream By default, the value is set to false.
user.eventProcessorPort	The port used by the event management processor to receive events.	For information related to the configuration of the Event driven workload automation, see “Tivoli Workload Scheduler master configuration” on page 72.
user.dwbWorkstation	Use only if user.mdmIsBackup is set to <i>false</i> . The definition of the dynamic workload broker workstation created in the Tivoli Workload Scheduler database. The master domain manager name followed by _DWB.	For information related to Tivoli dynamic workload broker scheduling component configuration, see “Tivoli Workload Scheduler master configuration” on page 72.
user.dwbPort	Use only if user.mdmIsBackup is set to <i>false</i> . The port of the dynamic workload broker workstation that you will create in the Tivoli Workload Scheduler database. The Tivoli Workload Scheduler engine and the Tivoli dynamic workload broker component communicate using this port.	For information related to the Tivoli dynamic workload broker scheduling component configuration, see “Tivoli Workload Scheduler master configuration” on page 72.
user.dwbHostname	Use only if user.mdmIsBackup is set to <i>true</i> . The fully qualified host name or IP address of the remote workstation where isdynamic workload broker.	For information related to the Tivoli dynamic workload broker scheduling component configuration, see “Tivoli Workload Scheduler master configuration” on page 72.
user.dwbHttpsPort	Use only if user.mdmIsBackup is set to <i>true</i> . The HTTPS port of the remote dynamic workload broker.	For information related to the Tivoli dynamic workload broker scheduling component configuration, see “Tivoli Workload Scheduler master configuration” on page 72.
user.symbolicLink	<i>Only on UNIX operating systems.</i> Choose whether to create symbolic links to /usr/bin directory (see Table 4 on page 35 for more details).	<b>true</b> Symbolic links are created. <b>false</b> Symbolic links are not created.

Table 47. Dynamic domain manager configuration

Name	Description	Permitted values
user.ddmIsBackup	Specify if you want to install the instance as dynamic domain manager or backup dynamic domain manager.	<p><b>true</b> The installation process configure the Tivoli Workload Scheduler installed as backup dynamic domain manager.</p> <p><b>false</b> The installation process configure the Tivoli Workload Scheduler installed as dynamic domain manager.</p> <p>By default, the value is set to <i>false</i>.</p>
user.ddm2ZosOnly	<i>Only for dynamic domain manager.</i> Specify if you want to connect the dynamic domain manager only to the z/OS controller or to a master domain manager or to both a master domain manager and a z/OS controller.	<p><b>true</b> You connect the dynamic domain manager only to the z/OS controller.</p> <p><b>false</b> You connect the dynamic domain manager to the z/OS controller and master domain manager.</p> <p>By default, the value is set to <i>false</i>.</p>
user.ddmDomainName	<i>Only for both user.ddm2ZosOnly set to "false" and for user.ddmIsBackup set to "false".</i> Specify the Tivoli Workload Scheduler domain name managed by the dynamic domain manager.	The default value is <b>DYNAMICDM</b> . For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.ddmWorkstation	<i>Only for user.ddm2ZosOnly set to "false".</i> The name of the dynamic domain manager workstation. The user.ddmWorkstation and user.ddmMasterWorkstation values must not be the same.	The default is the hostname of the workstation. For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.ddmMasterWorkstation	<i>Only for user.ddm2ZosOnly set to "false".</i> The name of the master domain manager. The user.ddmWorkstation and user.ddmMasterWorkstation values must not be the same.	For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.ddmPort	<i>Only for user.ddm2ZosOnly set to "false".</i> The port used by Netman on the system on which the component is installed.	The default value is <b>31111</b> . The valid range is from 1 to 65535. For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.dwbMasterHostname	<i>Only for both user.ddm2ZosOnly set to "false" and for user.ddmIsBackup set to "false".</i> The fully qualified host name on which the dynamic domain manager contacts the master domain manager.	For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.

Table 47. Dynamic domain manager configuration (continued)

Name	Description	Permitted values
user.dwbMasterHttpsPort	Only for both user.ddm2ZosOnly set to "false" and for user.ddmIsBackup set to "false". The dynamic agent component installed on the dynamic domain manager instance uses this port to connect to the dynamic workload broker installed on the master domain manager instance.	The default value is <b>31116</b> . For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.dynamicAgentHostname	The fully qualified host name or IP address of the dynamic agent component installed on the dynamic domain manager instance. The agents contact the dynamic domain manager by using this address. The Tivoli dynamic workload broker and the Tivoli Workload Scheduler for z/OS controller use this address to connect to the dynamic agent.	For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.dynamicAgentWorkstation	The name of the dynamic agent workstation definition component installed on the dynamic domain manager instance.	For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.dynamicAgentJobManagerPort	The JobManager secure port number. The Tivoli Workload Scheduler for z/OS controller and the Dynamic workload broker use this port to connect to the Tivoli Workload Scheduler dynamic agent.	The default value is <b>31114</b> . For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.ddmEnableJobManagerHttps	This option enables HTTPS communication between the local Dynamic workload broker and the dynamic agent.	For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.dwbWorkstation	Only for dynamic domain manager. The definition of the Dynamic workload broker workstation created in the Tivoli Workload Scheduler database.	For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.
user.dwbPort	Only for dynamic domain manager. The port used by the Tivoli Workload Scheduler dynamic domain manager to communicate with the local Dynamic workload broker component.	The default value is <b>41114</b> . The valid range is from 1 to 65535. For information related to the configuration of the dynamic domain manager, see "Tivoli Workload Scheduler dynamic domain manager configuration" on page 93.

Table 48. Database configuration

Name	Description	Permitted values
user.dbType	Choose which type of RDBMS support you want to use, DB2 or Oracle.	<b>db2</b> DB2 RDBMS <b>oracle</b> Oracle RDBMS

Table 48. Database configuration (continued)

Name	Description	Permitted values
user.dbPath	The installation directory of the DB2 or Oracle database.	For more information about RDBMS configuration, see <b>DB2 Server</b> “Installing for a DB2 database server” on page 74 <b>DB2 Client</b> “Installing for a DB2 database client” on page 76 <b>Oracle</b> “Installing for an Oracle database” on page 79
user.db2IsClient	Specify if the DB2 you use is a server edition or a client edition.	<b>true</b> DB2 client <b>false</b> DB2 server
user.db2UserName	The user name of the administrator of the DB2 server instance.  If the DB2 administrator already created the database tables using the procedure “Creating or upgrading the database tables if you are using DB2” on page 46, the user name is the one that the DB2 administrator specified in the <b>DB_USER</b> property in the <code>customizeDB2SQL.properties</code> file. The default value is: <b>On Windows operating systems</b> <b>db2admin.</b> <b>On UNIX and Linux operating systems</b> <b>db2inst1.</b>  If the DB2 administrator already upgraded the database tables using the procedure “Creating or upgrading the database tables if you are using DB2” on page 46, the user name is the one that the DB2 administrator specified in the <b>DB_UPGRADE_USER</b> field. You must assign SYSMON authority to the user you specified in the <b>DB_UPGRADE_USER</b> field.	For more information about DB2 configuration, see: <b>DB2 Server</b> “Installing for a DB2 database server” on page 74 <b>DB2 Client</b> “Installing for a DB2 database client” on page 76
user.db2Password	The encrypted password of the DB2 server administrator user, or of the user with SYSADM or SYSCTRL authority. For more information about password encryption, see “Encrypting user passwords for response files” on page 88.	For more information about DB2 configuration, see: <b>DB2 Server</b> “Installing for a DB2 database server” on page 74 <b>DB2 Client</b> “Installing for a DB2 database client” on page 76

Table 48. Database configuration (continued)

Name	Description	Permitted values
user.db2Name	The name of the DB2 database. The default is TWS.	For more information about DB2 configuration, see: <b>DB2 Server</b> “Installing for a DB2 database server” on page 74 <b>DB2 Client</b> “Installing for a DB2 database client” on page 76
user.db2LocalAdminUserName	Only if user.db2IsClient is set to <i>true</i> . The DB2 local admin user.	For more information about DB2 configuration, see: <b>DB2 Client</b> “Installing for a DB2 database client” on page 76
user.db2IsDifferentUser	Only if user.db2IsClient is set to <i>true</i> . Specify if the Tivoli Workload Scheduler DB2 user is different from the DB2 Administrator user.	<b>true</b> DB2 user is different from the DB2 Administrator user <b>false</b> DB2 user is NOT different from the DB2 Administrator user
user.db2TWSUserName	Only if user.db2IsDifferentUser is set to <i>true</i> . The name of the Tivoli Workload Scheduler DB2 user different from the DB2 Administrator user.	For more information about DB2 configuration, see: <b>DB2 Client</b> “Installing for a DB2 database client” on page 76
user.db2TWSPassword	Only if user.db2IsDifferentUser is set to <i>true</i> . The encrypted password of the Tivoli Workload Scheduler DB2 user different from the DB2 Administrator user. For more information about password encryption, see “Encrypting user passwords for response files” on page 88.	For more information about DB2 configuration, see: <b>DB2 Client</b> “Installing for a DB2 database client” on page 76
user.db2DataTableName	The name of the DB2 instance tablespace for storing scheduling objects and event rules.	For more information about DB2 configuration, see: <b>DB2 Server</b> “Installing for a DB2 database server” on page 74 <b>DB2 Client</b> “Installing for a DB2 database client” on page 76
user.db2DataTableNamePath	The relative path of the DB2 table space for storing scheduling objects and event rules.	For more information about DB2 configuration, see: <b>DB2 Server</b> “Installing for a DB2 database server” on page 74 <b>DB2 Client</b> “Installing for a DB2 database client” on page 76

Table 48. Database configuration (continued)

Name	Description	Permitted values
user.db2ReportTableSpaceName	The name of the table space for storing report data.	For more information about DB2 configuration, see: <b>DB2 Server</b> "Installing for a DB2 database server" on page 74 <b>DB2 Client</b> "Installing for a DB2 database client" on page 76
user.db2ReportTableSpacePath	The path of the table space for storing report data.	For more information about DB2 configuration, see: <b>DB2 Server</b> "Installing for a DB2 database server" on page 74 <b>DB2 Client</b> "Installing for a DB2 database client" on page 76
user.db2PlanTableSpaceName	The name of the table space for storing planning data.	For more information about DB2 configuration, see: <b>DB2 Server</b> "Installing for a DB2 database server" on page 74 <b>DB2 Client</b> "Installing for a DB2 database client" on page 76
user.db2PlanTableSpacePath	The path of the table space for storing planning data.	For more information about DB2 configuration, see: <b>DB2 Server</b> "Installing for a DB2 database server" on page 74 <b>DB2 Client</b> "Installing for a DB2 database client" on page 76
user.db2InstanceName	The name of the DB2 server instance.	For more information about DB2 configuration, see: <b>DB2 Server</b> "Installing for a DB2 database server" on page 74 <b>DB2 Client</b> "Installing for a DB2 database client" on page 76
user.db2InstancePort	The TCP/IP port number used to communicate with the DB2 instance.	For more information about DB2 configuration, see: <b>DB2 Server</b> "Installing for a DB2 database server" on page 74 <b>DB2 Client</b> "Installing for a DB2 database client" on page 76

Table 48. Database configuration (continued)

Name	Description	Permitted values
user.db2Hostname	Only if user.db2IsClient is set to <i>true</i> . The hostname of the workstation where the DB2 server is installed.	For more information about DB2 configuration, see: <b>DB2 Server</b> "Installing for a DB2 database server" on page 74 <b>DB2 Client</b> "Installing for a DB2 database client" on page 76
user.db2Port	Only if user.db2IsClient is set to <i>true</i> . The port of the remote workstation where the DB2 server is installed.	For more information about DB2 configuration, see: <b>DB2 Server</b> "Installing for a DB2 database server" on page 74 <b>DB2 Client</b> "Installing for a DB2 database client" on page 76
user.oracleNetServiceName	The name used by clients to identify an Oracle Net server and the specific system identifier or database for the Oracle Net connection.	For more information about Oracle configuration, see: "Installing for an Oracle database" on page 79.
user.oracleUserName	The database administrator user name (such as SYSTEM) required to authenticate to the Oracle database.  If the ORACLE administrator already created the database tables using the procedure "Creating or upgrading the database tables if you are using Oracle" on page 55, the user name is the one that the ORACLE administrator specified in the MDL_USER property of the customizeORACLESQL.properties file.	For more information about Oracle configuration, see: "Installing for an Oracle database" on page 79.
user.oraclePassword	The database administrator user encrypted password required to authenticate to the Oracle database. For more information about password encryption, see "Encrypting user passwords for response files" on page 88.	For more information about Oracle configuration, see: "Installing for an Oracle database" on page 79.
user.oracleTWSUserName	The owner of the Tivoli Workload Scheduler schema.	For more information about Oracle configuration, see: "Installing for an Oracle database" on page 79.
user.oracleTWSPassword	The database administrator user password required to authenticate to the Oracle database.	For more information about Oracle configuration, see: "Installing for an Oracle database" on page 79.

Table 48. Database configuration (continued)

Name	Description	Permitted values
user.oraclePartitioningOption	Specify whether the event-driven workload automation database schema is to be created using the Oracle Partitioning feature.	<p><b>true</b> The Oracle Partitioning feature is used when creating the event-driven workload automation database schema.</p> <p><b>false</b> The Oracle Partitioning feature is NOT used when creating the event-driven workload automation database schema.</p>
user.oracleDataTableSpace	The name that identifies the Tivoli Workload Scheduler data table space.	For more information about Oracle configuration, see "Installing for an Oracle database" on page 79.
user.oracleReportTableSpace	The name that identifies the Tivoli Workload Scheduler table space where report data is to be stored.	For more information about Oracle configuration, see "Installing for an Oracle database" on page 79.
user.oraclePlanTableSpace	The name that identifies the Tivoli Workload Scheduler table space where planning data is to be stored.	For more information about Oracle configuration, see "Installing for an Oracle database" on page 79.
user.oracleTempTableSpace	The name that identifies the Tivoli Workload Scheduler temporary table space.	For more information about Oracle configuration, see "Installing for an Oracle database" on page 79.

Table 49. WebSphere configuration

Name	Description	Permitted values
user.wasInstallLocation	The directory where you installed the WebSphere Application Server.	For more information about the configuration of the WebSphere Application Server profile, see "WebSphere Application Server profile configuration" on page 81.
user.createNewWasProfile	Specify if you want to use an existent profile or you want create a new one.	<p><b>true</b> Installation process create a new profile in the WebSphere Application Server.</p> <p><b>false</b> Installation process uses a profile already created and used in the WebSphere Application Server.</p> <p>The default is <b>true</b>.</p>
user.wasProfileLocation	The location where the WebSphere Application Server profile is saved.	For more information about the configuration of the WebSphere Application Server profile, see "WebSphere Application Server profile configuration" on page 81.
user.wasProfileName	The name of the WebSphere Application Server profile you are using.	For more information about the configuration of the WebSphere Application Server profile, see "WebSphere Application Server profile configuration" on page 81.

Table 49. WebSphere configuration (continued)

Name	Description	Permitted values
user.wasHostname	The IP address or fully qualified hostname of the WebSphere Application Server server related to the profile you are using.	For more information about the configuration of the WebSphere Application Server profile, see “WebSphere Application Server profile configuration” on page 81.
user.wasServerName	The name of the WebSphere Application Server server related to the profile you are using.	For more information about the configuration of the WebSphere Application Server profile, see “WebSphere Application Server profile configuration” on page 81.
user.wasNodeName	The name of the WebSphere Application Server node related to the profile you are using.	For more information about the configuration of the WebSphere Application Server profile, see “WebSphere Application Server profile configuration” on page 81.
user.wasCellName	Supply the WebSphere Application Server cell name for the WebSphere Application Server profile that you are using.	For more information about the configuration of the WebSphere Application Server profile, see “WebSphere Application Server profile configuration” on page 81.
user.wasAdminConsolePort	Administration HTTP transport port.	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.
user.wasAdminConsoleSecurePort	Administration HTTPS transport port.	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.
user.wasHTTPPort	HTTP transport port	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.
user.wasHTTPSPort	HTTPS transport port	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.
user.wasCSIV2ClientAuthListenerPort	CSIV2 Client Authentication Listener port	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.
user.wasORBListenerPort	ORB Listener port	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.
user.wasBootstrapPort	Bootstrap port	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.
user.wasSASServerAuthPort	SAS Server Authentication Listener port	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.

Table 49. WebSphere configuration (continued)

Name	Description	Permitted values
user.wasSOAPConnectorPort	SOAP connector port	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.
user.wasCSIV2ServerAuthListenerPort	CSIV2 Server Authentication Listener port	For more information about WebSphere configuration ports, see “WebSphere Application Server ports configuration” on page 82.

Table 50. Offering and features to install

Name	Description	Permitted values
modify	The following property is used by silent installation as-is, and must not be modified. This Boolean field specify if the installation process is modifying the product already installed.	Do not modify the value in the response file.
offering id	The following property is used by silent installation as is, and must not be modified. The offering ID.	Do not modify the value in the response file.
profile	The following property is used by silent installation as is, and must not be modified. The profile name.	The value must be <i>Tivoli Workload Scheduler</i> . Do not modify the value in the response file.
feature	The following property is used by silent installation as is, and must not be modified. The feature name.	The value must be: <b>Master domain manager or backup master domain manager</b> tw.s.mdm <b>Dynamic domain manager or backup dynamic domain manager</b> tw.s.ddm Do not modify the value in the response file.
installFixes	The following property is used by silent installation as is, and must not be modified. This Boolean field specify if the installation process is installing fixes of the product.	Do not modify the value in the response file.

## Appendix C. The Dynamic Workload Console response file properties

The following tables describe the properties used in the Dynamic Workload Console response file:

- General information: Table 51.
- WebSphere configuration: Table 52.
- z/OS connector configuration: Table 53 on page 410.
- Offering and features to install: Table 54 on page 411.

### Note:

1. All values must be written between single quotation marks ('), for example:  

```
<data key='user.wasInstallLocation,com.ibm.tws' value='C:\Program Files\IBM\TWA\' />
```
2. Properties are written in mixed case for ease of reading, but are not case-sensitive.
3. Keywords (for example, "true") used in values, are not case-sensitive.

Table 51. General information

Name	Description	Permitted values
id	The profile ID.	The value must be <i>Tivoli Dynamic Workload Console</i> . Do not modify this value.
installLocation	The Dynamic Workload Console installation directory.	For more information about the installation directory possible values, see "Installation procedure for Dynamic Workload Console" on page 325.
user.offeringId	The offering ID.	The value must be <i>com.ibm.tws.tdwc</i> . Do not modify this value.

Table 52. WebSphere configuration

Name	Description serena	Permitted values
user.wasInstallLocation	The directory where you installed the WebSphere Application Server.	For more information about the configuration of the WebSphere Application Server profile, see "Core Services in Jazz for Service Management - WebSphere Application Server profile configuration" on page 327.
user.wasProfileLocation	The location where the WebSphere Application Server profile is saved.	For more information about the configuration of the WebSphere Application Server profile, see "Core Services in Jazz for Service Management - WebSphere Application Server profile configuration" on page 327.

Table 52. WebSphere configuration (continued)

Name	Description serena	Permitted values
user.wasUserName	Enter the WebSphere Application Server user ID of the WebSphere Application Server profile that you use. This field is optional.	For more information about the configuration of the WebSphere Application Server profile, see "Core Services in Jazz for Service Management - WebSphere Application Server profile configuration" on page 327.
user.wasPassword	Enter the encrypted password of the WebSphere Application Server user ID of the WebSphere Application Server profile that you are using. For more information about password encryption, see "Encrypting user passwords for response files" on page 88.	For more information about the configuration of the WebSphere Application Server profile, see "Core Services in Jazz for Service Management - WebSphere Application Server profile configuration" on page 327.

Table 53. z/OS connector configuration

Name	Description	Permitted values
user.zosConnIsEnabled	Specify if you want to create a connection to a Tivoli Workload Scheduler for z/OS host.	<p><b>true</b> Installation process configures a new connection to a Tivoli Workload Scheduler for z/OS controller.</p> <p><b>none</b> Installation process does not configure a connection to a Tivoli Workload Scheduler for z/OS controller.  <b>Note:</b> After the installation, you can create connections using <i>wastools</i> scripts.                      The default is <b>none</b>.</p>
user.zosConnEngineName	Specify the name of the Tivoli Workload Scheduler for z/OS engine which you are connecting to.	It is a label that identifies the z/OS connector instance.
user.zosConnHostname	Specify the host name or TCP/IP address of the remote z/OS system where the Tivoli Workload Scheduler for z/OS controller is installed.	A valid host name or TCP/IP address.
user.zosConnPort	Specify the number of the TCP/IP port of the remote z/OS system used to communicate with the Tivoli Workload Schedulerz/OS controller.	This value must correspond to the value specified in the SERVOPTS member of the controller. The default value is <b>11111</b> .

Table 53. z/OS connector configuration (continued)

Name	Description	Permitted values
user.zosConnSslIsEnabled	Specify if you want to create the connection to a Tivoli Workload Scheduler for z/OS controller in SSL mode.	<p><b>true</b> Installation process configures the connection to a Tivoli Workload Scheduler for z/OS controller in SSL mode.</p> <p><b>false</b> Installation process does not configure a connection to a Tivoli Workload Scheduler for z/OS controller in SSL mode.  <b>Note:</b> After the installation, you can create connections using <i>wastools</i> scripts.</p>

Table 54. Offering and features to install

Name	Description	Permitted values
modify	The following property is used by silent installation as-is, and must not be modified. In this boolean field the installation process specifies if you are modifying the product already installed.	Do not modify the value in the response file.
offering id	The following property is used by silent installation as-is, and must not be modified. The offering ID.	Do not modify the value in the response file.
profile	The following property is used by silent installation as-is, and must not be modified. The profile name.	Do not modify the value in the response file.
feature	The following property is used by silent installation as-is, and must not be modified. The feature name.	Do not modify the value in the response file.
installFixes	The following property is used by silent installation as-is, and must not be modified. In this boolean field the installation process specifies if you are installing fixes to the product.	Do not modify the value in the response file.



---

## Appendix D. The Job Brokering Definition Console response file properties

This section describes the properties used in the Job Brokering Definition Console response files:

**Note:**

1. All values must be written between double quotation marks (").
2. Property names are written in mixed case for ease of reading, but are not case-sensitive
3. Keywords used in values are not case-sensitive.

Table 55. Job Brokering Definition Console response file properties

Name	Description	Permitted values
licenseAccepted	Accept license agreement  To install the Job Brokering Definition Console using a response file, you must explicitly accept the license agreement, a copy of which is in the License directory of the product install media (DVD or downloaded image).The license must be accepted before installation. This value must equal <b>true</b> for the installation to be successful.	<b>true</b> To accept the license agreement. <b>false</b> To not accept the license agreement. In this event, the Job Brokering Definition Console is <i>not</i> installed.
installLocation	Installation path for the Job Brokering Definition Console.	Any fully qualified path.



---

## Appendix E. DB2 tablespace relative paths

When you create a DB2 tablespace with a relative path, the path is constructed in the following way:

```
DFTDBPATH\DB2_instance\NODE0000\SQLnnnn\TABLESPACE_REL_PATH
```

where:

### **DFTDBPATH**

For Windows operating system, this is the drive where the DB2 instance is installed. For UNIX and Linux operating systems, this is the home instance of the DB2 installation.

### **DB2\_instance**

Is the name of the DB2 instance.

### **NODE0000**

Is the directory where DB2 database instances are located.

### **SQLnnnn**

Is an incremental directory path that depends on the number of database instances.

### **TABLESPACE\_REL\_PATH**

Is the relative path you specified for the tablespace.

For more information about tablespace relative paths, see the DB2 documentation set.



---

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