

IBM Workload Scheduler



Readme File for Fix Pack 3

Version 9.3.0

IBM Workload Scheduler



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Note

Before using this information and the product it supports, read the information in "Notices" on page 67.

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Chapter 1. IBM Workload Scheduler Readme File for Fix Pack 3 for version 9.3.0

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Fix Pack

9.3.0-IBM-IWS-FP0003

Product

IBM® Workload Scheduler version 9.3.0

General Description

IBM Workload Scheduler Fix Pack 3 for version 9.3.0

This readme file provides important information about Fix Pack 3 for IBM Workload Scheduler version 9.3.0.

This readme file is the most current information for the fix pack and takes precedence over all other documentation for IBM Workload Scheduler version 9.3.0 Fix Pack 3. Information which becomes available after the Fix Pack GA date, if any, is published at the following link: <http://www-01.ibm.com/support/docview.wss?uid=swg27049884>.

It is divided into the following sections:

- “About this fix pack”
- “Fix pack structure” on page 24
- “Installing the fix pack” on page 25
- “Documentation updates for Tivoli Workload Scheduler Fix Pack 2 for version 9.3.0” on page 53

IBM Workload Scheduler version 9.3.0 Fix Pack 3 supports all product versions indicated in the IBM Workload Scheduler version 9.3 Release Notes which can be accessed at the following link: http://www-01.ibm.com/support/docview.wss?uid=swg27045180#h3interop_tables.

For the most up-to-date information about supported operating systems, software and hardware requirements, see the Detailed system requirements document at the following URL: <http://www-01.ibm.com/support/docview.wss?uid=swg27045181>.

Review this section thoroughly before installing or using this Fix Pack.

About this fix pack

This section contains information specific for this fix pack including what has been modified or introduced, what has been fixed, product versions or components to which the fix pack applies, and compatibility issues, if any.

Product versions and components to which the fix pack applies

This fix pack can be applied only on top of IBM Workload Scheduler V9.3.0

This section includes the following subsections:

- “Features introduced with Fix Pack 3”
- “Features introduced with Fix Pack 2” on page 3
- “Features introduced with Fix Pack 1” on page 7
- “Problems fixed in IBM Workload Scheduler Fix Pack 3 for version 9.3.0” on page 9
- “Problems fixed in IBM Workload Scheduler Fix Pack 2 for version 9.3.0” on page 16
- “Problems fixed in IBM Workload Scheduler Fix Pack 1 for version 9.3.0” on page 18
- “Known limitations and workarounds” on page 21

Features introduced with Fix Pack 3

The following new product features, enhancements, and changes are introduced with this fix pack:

MSSQL database support extended on Linux AMD64

Microsoft SQL Server Enterprise Edition database is now supported on Linux AMD64.

166128: Fix for “Agent upgrade with minimal scheduling disruption” for dynamic Java™ job plug-ins

With this fix pack, a fix has been delivered so that V9.3 FP3 dynamic agents can be upgraded to the V9.4 level or later, even when the dynamic agents are running Java job plug-ins.

For more information about this feature, see the production documentation in IBM Knowledge Center: https://www-03preprod.ibm.com/support/knowledgecenter/SSGSPN_9.4.0/com.ibm.tivoli.itws.doc_9.4/common/src_gi/eqqg1upgragentmin.htm.

Higher level of control over the What-if Analysis Gantt view

Administrators have more control over the What-If Analysis view through the introduction of a new **optman** global option. By setting the **enWhatIf | wi** global option to *no*, administrators can centrally disable the What-If Analysis feature, which is enabled by default in your environment to simulate and evaluate the impact of changes on the current plan. You have to run "JnextPlan" to make the change effective.

For information about the interaction of the **enWhatIf | wi** global option with the **enWorkloadServiceAssurance | wa** global option, which enables or disables privileged processing of mission-critical jobs and their predecessors, see “Documentation updates for IBM Workload Scheduler Fix Pack 3 for version 9.3.0” on page 53.

Load balancer support for Informatica PowerCenter plug-in

In the properties file for Informatica PowerCenter plug-in (`PowerCenterJobExecutor.properties`) you can specify the parameters to customize the plug-in when the Informatica Web Services Hub is behind a load balancer. For details about the parameters that you can specify, see “Documentation updates for IBM Workload Scheduler Fix Pack 3 for version 9.3.0” on page 53.

Support for the following product releases

- WebSphere® Application Server, version 8.5.5, fix pack 11
- Jazz™ SM, version 1.1.3, cp 2
- Installation Manager, version 1.1.8.6

New optional keywords for defining the secure connection protocol type and the related cipher on fault-tolerant agents

Add the keywords to the `localopts` file to explicitly define the secure connection protocol and the ciphers to be used with that specific protocol.

OpenSSL libraries updated

To address OpenSSL vulnerabilities, the OpenSSL libraries used by IBM Workload Scheduler have been updated from version 1.0.2g to 1.0.2j.

Added support for Windows Server 2016

Fault-tolerant agent and Dynamic Agent are now supported

Added support for CentOS Linux release 7.1, 7.2, and 7.3

Fault-tolerant agent and Dynamic Agent are now supported

Added support for Oracle Linux 7.2

Fault-tolerant agent and Dynamic Agent are now supported

For more information about new features introduced with this fix pack, see:

- The online product documentation in IBM Knowledge Center: IBM Workload Scheduler version 9.3 Fix Pack 2 enhancements.
- The IBM Workload Automation portfolio What's New page at: https://start.wa.ibm.com/serviceengage.com/ibm/TWSSandbox/wa/wa_whatnew_v2.jsp.
- Helpful videos demonstrating new features for IBM Workload Scheduler on the Workload Automation channel.

Features introduced with Fix Pack 2

The following new product features, enhancements, and changes are introduced with this fix pack:

Defining and managing IBM Workload Scheduler security with role-based security model

You can define and update your security file according to the role-based security model, by using the **Manage Workload Security** interface from the Dynamic Workload Console or the **composer** command-line program.

With the role-based security model you can update your *security file* with the security objects that you define in the master domain manager database, in a quick and easy way. You can define your security objects by using the **Manage Workload Security** interface from the Dynamic Workload Console or the **composer** command-line program. Enable the role-based security model by setting the **optman** `enRoleBasedSecurityFileCreation` global option to *yes*.

According to the role-based security model, the security objects that you can define are:

Security roles

Each role represents a certain level of authorization and includes the set of actions that users or groups can do.

Security domains

Each domain represents the set of scheduling objects that users or groups can manage.

Access control lists

Each access control list is defined assigning roles to users or groups, on a certain security domain.

When the security file is updated on the master domain manager, the security settings on the master domain manager are automatically synchronized with the backup master domain manager. For more information see the online product documentation available in Getting started with Security.

Hybrid Workload Automation

Pick a mixture of Workload Automation on Cloud and on Premises and reduce IT costs with hybrid scheduling management. Hybrid Workload Automation allows you to use a common User Interface to manage both on Premises and on Cloud engines.

You can monitor and execute actions in plan on the following objects: job, critical job, workstation, resource, prompt, job stream, file, and domain. The same efficient workload managed in the on premises environment can be scheduled to run in the on cloud environment.

You can transfer your workload from your on premises environment to your Workload Automation on Cloud through a simple import procedure. The workload is instantly reproduced and it is ready to be employed on your agents. Handling your workload in the on Cloud environment is a more cost effective way to utilize resources in the cloud only when you need them without relying on an on premises infrastructure. Workload Automation on Cloud reduces IT infrastructure costs, and it is a solution for utilizing resources only when you have a business need to run your workload. For more information about Hybrid Workload Automation see Hybrid scheduling environment in the online product documentation in IBM Knowledge Center.

New method for updating DB2® and Oracle database schema

When creating, upgrading, or updating the master domain manager and its backup, or the dynamic domain manager and its backup, the database schema must also be created, upgraded, or updated.

If you typically update your database tables manually before updating the IBM Workload Scheduler components in your environment, then you can use this new method which includes a script that quickly generates the required SQL statements in an SQL file and optionally applies them directly to the database in a single step.

The advantages of this new update method are:

- A single script that dynamically generates the SQL statements and applies them directly to the database. Optionally, you can configure the script to generate only and then apply them at a later time but before installing the product component.
- The script can be run and rerun as many times as needed without any cleanup required between runs. For example, if for some reason a database object is corrupt, you can rerun the script to regenerate the SQL file and apply it.
- For DB2 databases, this method eliminates the requirement of installing a DB2 client to update a database located on a remote DB2 server. The script works using the JDBC drivers and connecting directly to the database server minimizing the overhead in installing and maintaining a database client.

Important: If you already use a DB2 client and want to take advantage of this new method and eliminate it, ensure that you do not change the

location of your JDBC driver. If you change the location, then remember to change it also in the WebSphere Application Server. If instead your WebSphere Application Server does not point to the JDBC driver, then you can proceed to uninstall your DB2 client.

- Use this method as a stand-alone tool to check the consistency of the database schema. The database administrator can verify if the database schema has changed and repair any inconsistencies.

Installing, updating, or upgrading the product components using either the Installation Manager wizard or the silent installation methods automatically upgrades the database tables using this same method.

For more information about this method of upgrading the database schema, see “Updating or upgrading the database schema for DB2 or Oracle” on page 31.

Reply to a message for an IBM i job from Dynamic Workload Console

When an IBM i job is in SUSP (suspended) status, waiting for a reply to a message, you can reply to the message directly from the Monitor Workload of the Dynamic Workload Console. For more information see Scheduling jobs on IBM i in the online product documentation available in IBM Knowledge Center.

Automatic reply to waiting messages for an IBM i job

You can define standard rules to automate the reply to waiting messages for an IBM i job. When defining an IBM i job, by using the Dynamic Workload Console or the composer command line, you can specify the list of messages for which you want to set up an automated reply. In the output job log you can see the messages queued by IBM i system and the replies sent automatically by the job. For more information see IBM i jobs in the online product documentation available in IBM Knowledge Center.

Running a script when a job completes

In many scenarios, when a job completes, you might want to run one or more actions, by using the information related to the job completion. For this purpose, you can write a script file and store it in a directory of the agent file system. The script is run every time that a job completes, either successfully or unsuccessfully. The script runs with the same credentials as the agent user that is running the job. For more information see Running a script when a job completes in the online product documentation available in IBM Knowledge Center.

Checking prerequisites before running a silent installation

The silent installation method is an unattended installation that does not require user intervention, however, to ensure that the installation is not halted because of missing or insufficient system requirements, you can now run a script that checks for product system requirements before initiating the installation. The prerequisite check script is available for master domain manager and Dynamic Workload Console installations and checks requirements such as:

- Supported operating system.
- Sufficient RAM.
- Sufficient swap file space.
- Disk space for the creation of the installation and temporary directories passed in input to the script.

See “Disk space requirements” on page 27 for details about the product system requirements. For more information about the procedure for

running the prerequisite check see “Installing the fix pack using IBM Installation Manager silent installation” on page 43.

IBM Workload Scheduler Plug-in for Apache Oozie

With the new IBM Workload Scheduler plug-in for Apache Oozie, you can schedule, monitor, and control Oozie workflows and Hadoop jobs such as Hive, MapReduce, Pig, and Sqoop. As Hadoop adoption continues to expand, Hadoop jobs are growing in volume and complexity. To optimize their execution, different Hadoop jobs can be organized into a single logical unit of work, called a workflow. Apache Oozie is a powerful tool that creates and manages complex workflows of Hadoop jobs. However, it is fundamental to integrate Oozie workflows with the rest of the business process flow. With the new plug-in for Oozie, workflows and Hadoop jobs can be managed the same way as any other IBM Workload Scheduler job, extending the central management of the company workload to the Hadoop environment. For more information see Apache Oozie jobs in the online product documentation available in IBM Knowledge Center. In addition, see a practical example of the plug-in demonstrated in a business scenario and short and informative video: IBM Workload Scheduler Plug-in for Apache Oozie.

Support for TLS 1.2 protocol

To comply with the US government SP 800-131 security standard, you can configure the WebSphere Application Server to support the Transport Layer Security (TLS) 1.2. Previously this type of configuration caused communication errors between the command line and the agents. With this fix pack, IBM Workload Scheduler now supports this type of configuration.

OpenSSL libraries updated

To address OpenSSL vulnerabilities, the OpenSSL libraries used by IBM Workload Scheduler have been updated from version 1.0.2d to 1.0.2g.

New keyword added to local options file to address running commands in file dependencies as root

With Fix Pack 2, a new keyword named, `jm file no root`, has been introduced to allow or prevent **jobman** from executing commands in file dependencies as root user. The default setting is to prevent **jobman** from executing commands specified by `jm file no root =no` in the `localopts` file. For more information see Localopts details.

New behavior for the `twc_env.sh` file

This fix pack installs a new version of the file `twc_env.sh` in the directory `<TWA_HOME>/TWS`, where `<TWA_HOME>` is the IBM Workload Scheduler installation directory. Before installing the fix pack, ensure you have created a backup file if you have modified the original version. After installing the fix pack, merge the content of the new version with the content of the original version to carry your customized content into the new version (157029).

Extended operating system support

With this fix pack, the following operating systems are supported:

- IBM AIX®V7.2: master domain manager and agents
- Microsoft Windows 10: dynamic agent
- Linux Ubuntu V14.2: dynamic agent
- SUSE Linux Enterprise Server V12: master domain manager and agents

For the most updated information about supported operating systems, generate a dynamic report from the Software Product Compatibility Reports web site containing the list of supported operating systems.

The following are requests for enhancements (RFEs) introduced in Fix Pack 2:

- **RFE 82622: Extended support for automatic initialization of IBM Workload Scheduler instances on UNIX operating systems**

For some Linux distributions that use **systemd** as the default initialization system, such as RedHat Enterprise Linux v7.0 and SUSE Linux Enterprise Server V12, a new script is provided to guarantee continued support of automatic initialization of IBM Workload Scheduler instances during system startup. For more information see Automatically initializing IBM Workload Scheduler instances

- **RFE 69916: RESTful web service to rerun jobs and job streams**

IBM Workload Scheduler provides a set of RESTful APIs to monitor the status of jobs and job streams and to take recovery actions, such as rerunning a job or a job stream.

- **RFE 60058: Workstation grouping in security file**

With the classic security model, you cannot group workstations into an alias and then use that alias in the security file. When a new workstation is added to a group, the administrator must scan the security file and add the workstation to each corresponding list. With the new role-based security model available with this fix pack, you can simply define a security domain containing a logical group of workstations and then define an access control list assigning roles to users or groups, on a certain security domain. For more information see Configuring role-based security from the Dynamic Workload Console.

For more information about new features introduced with this fix pack, see:

- The online product documentation in IBM Knowledge Center:IBM Workload Scheduler version 9.3 Fix Pack 2 enhancements.
- The IBM Workload Automation portfolio What's New page at: https://start.wa.ibm.com/serviceengage.com/ibm/TWSSandbox/wa/wa_whatisNew_v2.jsp.
- Helpful videos demonstrating new features for IBM Workload Scheduler on the Workload Automation channel.

Features introduced with Fix Pack 1

Conditional dependencies (RFE 103337)

With IBM Workload Scheduler you can define jobs to run when and as often as necessary. Sometimes some jobs might have to wait for other jobs to finish successfully before they start. Add even more flexibility to your job flows by choosing which job to run depending on the result of the job status or output of a previous job. Whenever you have conditions that specify whether or not a segment of your job flow should run, then that is a conditional dependency. When specifying dependencies, you can define job flows with alternative branches based on conditions, specifically to achieve the same results as using IF/THEN/ELSE statements. You can use return codes, job status, output variables, and job log content as conditional logic elements to determine the start of a successor job. In addition to providing flexibility to your job flows, the Graphical View provides a graphical representation of the relationships between the jobs and job streams, including the dependencies and conditions. This

at-a-glance view of your job flow is easy to read and you can also edit your job flow from this view. For more information, see Applying conditional branching logic.

New job plug-ins

IBM Workload Scheduler Plug-in for Liberty

With the new IBM Workload Scheduler plug-in for JSR 352 Java Batch (plug-in for Liberty), you can schedule, run, and monitor your Java Batch applications and integrate them into more complex, composite batch workflows. For more information, see Schedule, execute, and monitor your Java Batch applications with IBM Workload Automation.

IBM Workload Scheduler Plug-in for MQTT

IBM Workload Scheduler integrates with MQTT to provide centralized management of your "Internet of Things" devices. MQTT is a publish and subscribe, simple, and lightweight messaging protocol. For more information, see Monitor and control your "Internet of Things" devices.

WebSphere Application Server tools enhancements (RFE 33301)

Credentials required to submit WebSphere Application Server tools (wastools) scripts supplied with the product are now optional when you submit the scripts to run. WebSphere Application Server administration scripts, such as starting and stopping the WebSphere Application Server, supplied with IBM Workload Scheduler retrieve the credentials stored in the `soap.client.props` file located in the properties directory of the WebSphere Application Server profile to avoid the necessity of supplying a user name and clear text password in the command line.

In addition to added security protection, the enhancement eliminates the maintenance costs associated with frequent password changes. The user ID and password are now optional and the credentials are retrieved from the `soap.client.props` file. However, unlike the master domain manager installation where the `soap.client.props` file is automatically customized with these credentials, the Dynamic Workload Console requires you to manually customize the `soap.client.props` file with the credentials to be able to use this enhancement. For more information, see Application server - starting and stopping.

Scheduling the centralized agent update

You can schedule the centralized update of multiple agent instances by creating a centralized agent update job, either by using the Dynamic Workload Console or the composer command line. When a job runs, it forwards to the master domain manager the Update agent request for all the fault-tolerant agent or dynamic agent instances that you selected, and then completes. For more information, see Scheduling the centralized agent update.

IBM i enhancements

Checking IBM i jobs that are waiting for a message reply

You can now use the Dynamic Workload Console and `conman showjobs` command line to check if an IBM i job is waiting for a reply to a message. An IBM i job that is waiting for a message reply is in the SUSP (suspended) status. This status indicates that the job is running while waiting for input. When the input is received, the job status changes to EXEC (executing).

Viewing the message for which an IBM i job is waiting for a reply

You can also view the message for which the IBM i job is waiting for a reply. The message text and the reply are written into the corresponding IBM Workload Scheduler job log, so that the IBM Workload Scheduler operator knows the exact message the IBM i job is waiting for.

Specifying the name of the queue where IBM i jobs are monitored

You can specify the name of the queue where the monitoring agent component runs by using the customizable property **MonitorQueueName** in the native job launcher section of the `JobManager.ini` file. If you do not specify this property, the default queue (**QBATCH**) is used.

For more information, see [Scheduling jobs on IBM i systems](#).

IBM Workload Scheduler integration with IBM Tivoli® Monitoring: situation refactoring and new view associations

With this fix pack, two scripts are provided, `ITMCreateSituations` and `ITMSetSeverity`, that create the default situations for monitoring IBM Workload Scheduler processes and that associate these default situations to a respective severity and not automatically to a critical severity as with past releases. The default situations can be associated to a physical or logical view of your choice on the Tivoli Enterprise Portal. For more information, see [How to create IBM Workload Scheduler default situations](#).

The following are requests for enhancements (RFEs) introduced in Fix Pack 1:

- 142421: Oracle E-Business plug-in: Add support for Operating Unit (ORD_ID) attribute of Oracle Application programs
- 140990: SAP PI Channel Job fails with Certificate Error in TWS 8.6
- 138671: Support for installing TWS zCentric agent in Microsoft Windows cluster
- 132951: Webservice to see TWS log from previous plan
- 65686: Return code check and decision (branch) on which successor jobs to run based on this return code

For more information about new features introduced with this fix pack, see [IBM Workload Scheduler version 9.3 Fix Pack 1 enhancements](#).

Helpful videos demonstrating new features for IBM Workload Scheduler is available on [Workload Automation channel](#).

Problems fixed in IBM Workload Scheduler Fix Pack 3 for version 9.3.0

This section lists APARs and internal defects solved by Fix Pack 3.

List of APARs fixed:

IV51793	WHEN UPGRADING BROKER FROM 8.5.1 TO 8.6 UNIQUE AGENT ID CHANGES
IV55930	TWSCHECKINSTANCE*.CMD CANNOT BE USED IN NESTED SCRIPTS TO CHECK IF JOBS ARE RUNNING.
IV60757	AFTER SWITCHING MANAGER CANNOT BROWSE JOBLOGS FOR ALL DYNAMIC
IV62103	CPU LIMIT "SYS" DOES NOT WORK AS DOCUMENTED FOR X-AGENTS
IV69128	THE NET SERVICE NAME MAX LENGTH IN CONFIGURING DB DURING INSTALLATION CANNOT BE GREATER THAN NINE.

IV69518 AFTER JNEXTPLAN XA IS UNLINKED BY TDWC ONLY DISPLAY PROBLEM

IV73429 DEADLOCK ON THREADS ON JOBMANAGER CAUSING AGENTS HUNGING

IV74715 The validation of dynamic pool definition create or update the database.

IV76015 JOB STREAM CONTAINING A PARTICULAR OPENS DEPENDENCY ENCOUNTERS

IV76919 ADD TIMEOUT TO ITA AGENT CONNECTIONS

IV76934 AFTER SUCCESSFULLY RUNNING Z/CENTRIC AGENT JOB CREATED SYSOUT CONTAINS SYSOUT FOR MUTIPLE JOBS

IV78030 When DST starts, if SOD falls on the hour missing, plan is extended for 24 hours instead than for 23.

IV78321 UPDATE ZONE INFO ACCORDING TO LATEST CHANGES FOR 2015

IV79081 COMPOSER VALIDATE ERRONEOUSLY GIVING WARNINGS

IV79937 ORACLE DEADLOCK PERFORMING RESOURCE SCAN

IV79949 CAN NOT RETRIEVE /ETC/GROUP IF GROUP CONTAINS A LOT OF MEMBERS

IV80090 BATCHUP DOESD NOT START AT CONMAN START IF COMPUTERNAME IN UPPERCASE AND HOSTNAME IN LOWER CASE

IV80208 AWKIPC005E FAILED TO RUN WORKFLOW ERROR ENCOUNTERED WHEN ATTEMPTING TO RUN INFORMATICA JOBS

IV80942 9.3 DOCUMENTATION NEEDS TO SHOW 8.5.1 RESPONSE FILE AVAILABLE ONLY WITH 9.3 FP01

IV81025 NEED TO DOCUMENT ABOUT A BEHAVIOR OF BROKER COMPONENTS WHEN ENSWFAULTTOL=YES.

IV81521 ERROR IMPORTING INTO TWS 9.1 VIA WAPPMAN DEFINITIONS.XML

IV81576 NETMAN FOR A 8.6 WINDOWS AGENT NEVER RELEASES MEMORY AFTERRUNNING CONMAN SJ;STDLIST ON IT

IV81774 ADHOC JOBS ARE ALLOWED TO BE SUBMITTED INTO THE USERJOBS JOBSTREAM ALTHOUGH NO FURTHER ...

IV82159 DYNAMIC AGENT PSAGENT JOBS STILL RUNNING ON PS SHOW ABEND IN TWS

IV82641 OPENSRL RELEASED FIXES FOR SECURITY VULNERABILITIES

IV82747 JOBMANGERGW DOES NOT START UP BECAUSE JOBMANGERGW.INI IS EMPTY.

IV82925 JOB ASSIGNED INCORRECT SECONDARY GROUP(S) WHEN RUNNING DYNAMIC /ZCENTRIC JOBS AS A USER OTHER THAN THE

IV83084 ASSIGNMENT OF A NULL VALUE TO A NOT NULL COLUMN DURING UPDATESTATS

IV83151 DWC FIX PACK README MISSING DETAIL ON HOW TO INSTALL PREREQUISITES

IV83441 PROBLEM WITH TCL USED IN RMSTDLIST.CMD.

IV83554 TWS 9.3 FP1 INSTALLATION IS CAUSING AWSJPU004E ERRORS LOGGED NTO SYSTEMOUT.LOG. ANY IMPACT ON PRODUCT

IV83557 MOVEHISTORYDATA DOES NOT RUN M(MAUALLY NEITHER AUTOMATICALLY)

IV83728 Joblog archived zip file is readable only for tws user

IV83754 THE TWS MONMAN PROCESS IS EXPERIENCING A RANDOM FAILURE DURING THE SWITCH OF THE STDLIST AT FINAL

IV83761 TWS LIBJOBMANAGERCORENEEDS TO HAVE 555 AS PERMISSION

IV83962 DISPLAY ALERTS UNTIL A JOB COMPLETE

IV84208 RANDOMLY ON Z-CENTRIC WE GET FOLLOWING MESSAGE: "NO JOBS STARTED UNDER THE SUBMITTED USER COMMAND

IV84256 CONMAN SJ WHEN RUN AGAINST JS CONTAINING JOBS DEFINED ON

IV84268 UPDATESTATS POOR PERFORMANCE WITH 9.3/9.3FP1

IV84530 TWSENGINEMODEL WILL NOT START IF TWSCONFIG.PROPERTIES CONTAINS ASPACE AFTER RDBMSNAME ...

IV84674 AWSBHT019E SHOULD BE A WARNING MESSAGE NOT AN ERROR MESSAGE

IV84891 MOVEHISTORYDATA.SH ENHANCEMENT ON ORACLE: DELETE ROWS IN SET

IV84905 NUMBER OF "PREDECESSOR JOBS AND JOB STREAMS" AND "SUCCESSORS" IS DIFFERENT IN DWC

IV84911 REP11 SHOW INCORRECT SCHEDULE ON END OF MONTH

IV85018 TWS 9.3 MESSAGES GUIDE DOCUMENT EEWO1028I AND EEW01029I

IV85275 SAP JOBS FOR DYNAMIC AGENT REMAINS IN READY STATE CONSUME CPU LIMIT.

IV85492 UNABLE TO SAVE RCG WHEN USING 2 RUNCYCLES IN SAME SUBSET WITH LOGICAL AND

IV85587 FTP-JOBS ARE RETURNING AWKFTE043E ERROR EVEN IF THE FILE IS SUCCESSFULLY TRANSFERRED.

IV85666 JOBMANAGER CORE AFTER TWS 9.3 FP2 FOR JOB THAT CONTAINS PASSWD LONGER THEN 31 CHARACTERS INTO JSDL

IV85751 jobstatuschanged event rules with tbsmeventforwarder action gives a string index out of range

IV85789 DWC QUERIES/GETS THAT ARE LOCKING ROWS

IV85855 BATCHMAN IS FAILING WITH ERROR: AWSBCU011E RECORD FROM /OPT/WFA/TWS/TWS/SYMPHONY RECORD 32768 (RM)

IV86067 WINDOWS AGENT FAILS TO UPGRADE FROM 8.5.1 FP003 TO 9.2 FP2

IV86073 Not possible to retrieve joblog of jobs run by qsecofr

IV86277 IWS 9.3 AND PEOPLETOOLS 8.53 CONNECTION ISSUE.

IV86478 IGNORE THE ALIAS FLAG IF AN ALIAS IS NOT PROVIDED BY THE UI/SBS

IV86692 UPDATESTATS JOB ABENDS ON IWS MDM 9.3 FP0001 WITH EXIT STATUS:8 AWSJCS011E JAVA.LANG.NULLPOINTEREXCEPTION

IV87038 TWS 9.2 JVM CRASH AND JAVA CORE IS GENERATED

IV87386 SCHEDULE RECALL FORMATTING IN EVENT.LOG FILE (EVENT ID 203) FOR 9.2.0

IV87526 CAN NOT VIEW ANY ARGUMENTS FOR DYNAMIC JOBS BY DWC

IV87532 DEADLOCK USING FILE DEPENDENDENCIES + MIRRORING.

IV87558 TWS 9.3 FP1 AND FP2 UPDATESTATS TAKE A LOT OF TIME TO BE COMPLETED AND INCREASE EVERY DAY

IV87671 MISSING PARAMETERS IN TWAINSTANCE#.TWA.PROPERTIES UPGRADE FAILS

IV87679 GENERIC ACTION PLUG-IN SCRIPT EXECUTECMD.SH ON AIX HAS ROOT ENV

IV87846 WRONG TRANSLATION IN FRENCH ON EVENT DEFINITION OF JOB STATUS TDWC 9.3 FP2

IV88310 TABLESPACE TWS_PLAN KEEP INCREASES

IV88884 TASK STRING THAT IS LONGER THAN 256 CHARCATERS.

IV88912 Dynamic jobs fails with 126 on AIX

IV88971 INSTALL OF DYNAMIC AGENT ON WINDOWS TESTS VALUE FOR TWS_THISCPU

IV89007 EWAS CRASHED DUE TO A SEGMENTATION ERROR

IV89009 SYNCHRONIZATION BETWEEN DEPENDENCIES AND JOB/JOBSTREAM

IV89073 EVERY JOBSTREAM AT IS AFFECTED BY SOD TIME

IV89137 UPGRADE TO TWS 9.X AGENT FAILURE IF TWS 8.X IS INSTALLED WITH SPB PROCEDURE AS "FTA CLASSIC" ONLY

IV89332 TEST CONNECTION FAILURE UPGRADING TO 9.3 FIX PACK 2 FOR ORACLE DATABASE

IV89492 UPDATESTATS GIVES WARNING AWSJPL804W

IV89536 WAS 8.5.5.8 AND DB2 10.5 FP07 ARE REQUIRED TO USE ON AIX 7.2.

IV89577 TWS MASTER/DOMAIN MANAGER 9.3 FP1 OR GREATER CAN CAUSE FTA UNLINK

IV89649 WEBSHERE RECYCLES AFTER A NORMAL RESTART IN WORKLOAD SCHEDULER
 IV89805 SWITCHPLAN PERFORMANCE FIXES
 IV89809 OPENING JOBSTREAMS IN DWC YIELD CONVERTEREXCEPTION ERROR
 IV89920 AFTER APPLYING 9.3.0 FIXPACK 02 AN AWSJCS011E ERROR IS ENCOUNTERED WHEN ATTEMPTING TO RENAME A JOB
 IV89934 COMPOSER RECEIVES BAD FILE DESCRIPTOR" AND "PERMISSION DENIED"
 IV89967 WHEN USING A TIME STAMP VARIABLE IN THE MAIL SENDER PLUGIN
 IV89990 PLANMAN CONFIRM HANGS
 IV90180 PROBLEM WITH RUNCYCLE GROUPS
 IV90317 A PREVIOUS JOBSTREAM WAS SUBMITTED AGAIN.
 IV90559 Incorrect job order in a job stream after job rename
 IV90602 JOB SUBMITTED INTO CARRYFORWARD SCHEDULE NOT SHOWING CORRECT status
 IV90614 DYNAMIC AGENT HAS PROBLEMS TO MANAGE OPEN DEPENDENCY EXECUTING EXETRNAL PROGRAMS
 IV90830 USERPROFILE IS NOT LOADED FOR XAGENT RUNNING ON WINDOWS.
 IV90870 ESTIMATED DURATION WRONG
 IV90945 APPS IS NOT WORKING WITH PEOPLESFT VERSIONS BEFORE 8.5
 IV90991 AWSITA245E "CURL ERROR 35" ON DEPLOY EDWA RULES ON DA AND WITH ENEVENTPROCESSORHTTPSPROTocol / EH = NO (HTTPS DISABLED)
 IV91052 MULTIPLE VULNERABILITIES IN OPENSSL
 IV91072 CONMAN SBD TO WINDOWS FTA TRUNCATES THE CONMAND LINE WITH TWSRCMAP
 IV91175 INSTALLING AGENT PRE-REQ SCANNER FAILS IF THE <TWAHOME> DIRECTORY PATH CONTAINS A . CHARACTER
 IV91210 Incorrect job stream status after jobs completion
 IV91219 MB EVENTS SENT BY 9.3FP1 CAUSES RANDOM UNLINK OF PRE-9.3FP1 FTA
 IV91269 CORRUPT JMJOBTABLEDIR CAN CAUSE JOBMANAGER TO CORE
 IV91351 RERUN JOB RETURNS AWSJDB101E OBJECT NOT FOUND ERROR ON TDWC.
 IV91691 SAP PI JOB STATUS FOR CHECK CHANNEL STATUS (CHANNELSTATE) IS NOT WORKING CORRECTLY
 IV92161 stageman crashes if enCarryForward = NO
 IV92306 MIRRORBOX.MSG SIZE INCREASE IF MANY FILE DEPENDENCIES ARE DEFINED IN THE WORKLOAD
 IV92352 AFTER SWITCH MASTER SOME DYNAMIC JOBS REMAIN IN EXEC STATUS ON COMPOSER
 IV92358 UPDATE CURL COMPONENT FOR CVE-2016-8616 CVE-2016-8624 AND CVE-2016-8621
 IV92374 JOB STREAMS STAY IN READY IN NOP SCENARIO
 IV92378 AFTER PLANMAN RESYNC XA ON MDM ARE SEEN UNLINKED
 IV92415 PENDING CANCELLATION FLAG INCORRECTLY DISPLAYED FROM DWC
 IV92455 BROKER AGENTS WILL NOT LINK TO BACKUP DOMAIN MANAGER
 IV93048 stageman can cause CondDep JS to be put at pri=0
 IV93052 Unable to view joblog from DWC/conman when job defined on XA hosted by DWB using jsdl and with resources
 IV93078 A composer hanging could negatively affect the WAS startup (EDWA)
 IV93337 POOR PERFORMANCE OF PLANDELETE ON ORACLE

IV93482	AWSJDB810E ERROR ENCOUNTERED WHILE RUNNING SWITCHPLAN ON MDM
IV93505	LFTA NOT LINKED IF CENTRALIZED SECURITY IS ENABLED
IV93578	ITA NOT UPDATED TO 64-BIT IF UPGRADE FROM TWS 8.6 FP4 TO 9.2+
IV93828	FILE DESCRIPTORS NOT BEING CLOSED ON OLD LOG FILES WHEN LOG SWITCH OCCURS
IV93890	MAILSENDERPLUGIN - SMTP Helo command rejected: need fully-qualified hostname
IV93899	ONOVERLAP DONOTSTART STREAM STAYS ON HOLD WHEN STREAM JOBS ARE MIXED IN LINUX AND WINDOWS.
IV95138	Dynamic Agent - OPENS and PIPE not work
IV95276	Add tls11 and tls12 in localopts for fta
IV95368	DA/POOL jobs erroneously in ABEND close to MAKEPLAN/SWITCHPLAN
IV95378	MODIFY TWS WINDOWS SERVICE
IV96098	Mirroring "Bu" events can lock table PLN.PWKS when mirroring cache is empty
IV97080	PLAN INCORRECTLY EXTENDED BY 36 HOURS AFTER APPLYING FP03

List of defects fixed:

Defect number	ABSTRACT
161584	Wrong statement to generate the SLMTag file
164876	Java null pointer exception when change name of job defined into a job stream
166128	Java job does not start after stop/start agent while a previous java job is running
166131	JobManager behaves incorrectly after stop/start agent (Linux)
166176	Unexpected job abend termination after agent reconnect
166181	Missing JobManager process restart on AIX platform after reconnect of a java job
166189	Wrong behavior of JobManager process on HP
166344	Hang during Jnextplan / ResetPlan
166783	Rest API: Java null pointer exception creating a trial plan
166786	ElapseTime not correct in the plan for DistributedShadowJob
166787	Agent Upgrade: failure during the Workload Scheduler registry validation
167123	Incorrect job stream status after jobs completion
167182	Informatica job types do not work with load balancer
167185	Datastage plug-in memory usage consumption
167251	REST API: Missing ConnDuplicationException trying to modify a job stream with valid from using an existing key
167284	No message for ConnValidationException creating an event rule
167317	Mirroring LockException must be a PlanRecoverableException
167344	EventRule not saved. ConnmodelEjbLocalImpl could not be found
167446	Missing auditing on file for conman commands related to conditional dependencies
167484	What-If: Make the Critical Path building synchronous with itself
167485	What-If: Add a limited cache for archived Critical network

Defect number	ABSTRACT
167486	What-If: Allow WSA also on backup master
167447	REST API: NullPointerException instead of ConnValidationException using job.setJobDefinitionKey(null)
167448	REST API: ConnException instead of ConnIntegrityException for DOMAIN error test cases
167524	jobstore.sh AWKCLI034E Unable to read the default configuration file
167782	Informatica job types do not require to load logs into job log
167944	MSSQL Support on Linux 9.3 FP3
167957	MSSQL: exportserverdata.bat does not work
167958	Modify installation (twinst) to allow installation of FTA and DA with an hostname starting with a number
168231	Dynamic agents request and download in loop EDWA configuration from Broker
169443	Missing INW dependency shown after job stream submission having a join conditions
169445	Mirroring: java.lang.Integer incompatible with java.lang.Long using ddj every by conman
169446	Missing job stream dependency revalidation after job rerun
169447	Incorrect isPendingCancellation() value after cancel of a job stream
169448	Incorrect job stream dependencies status inside a join condition with mirroring enabled
169490	OPENSSL IV91052
169506	Wrong fix pack versioning
169512	spaceUsed.exe crash during installation of fp3 on master
169518	Composer warning at start time for clog issue
169558	Increase WebSphere Application Server heap size for MDM and Dynamic Workload Console
169560	Agent Installation: failure during check of OS prerequisites. (Ubuntu)
170164	MDM on Windows platform does not work in SSL mode
170321	Mismatch between the number of To Run Jobs from mirroring and symphony after a submission of a job with recovery job and recovery rerun
170322	Mirroring: InternalDependencyInPlanDifferences status wrong after EVERY job suppressed in HOLD status
170323	Incorrect dependency status submitting a job having repeat every clause
170324	Batchman goes down after conman rerun from action
170595	Batchman update failure
170783	Joblog does not work AWSBIN080E An internal error occurred processing scribner packets
170813	Installation failure on CIT : Not able to stop CIT
170854	Composer warning messages running it at same time from 2 different shell
171193	JobInPlanFilters.RERUN does not work
171293	Output errors when multiple Composer commands are invoked at the same time

Defect number	ABSTRACT
171442	RERUN FLEX: What-if Analysis and listsucc do not work after JnextPlan -for 0000
172398	Forward compatibility: Error message during REST connection DWC 93FP3 to Engine 94FP1
172635	Misleading successful message when DWC installation fails
173038	Mirroring: Different Critical Start value
173149	planman resync erroneously resolves condDeps
173516	Improve the Dependency Status - "Join Satisfied" help
173548	Mirroring: Duplicate File dependencies
173673	Exception needs to be handled when submitting a job stream with a particular open dependency
173859	Add EMF initialization to the DWB Startup starter
173892	Master Domain Manager with an hostname starting with a number does't work
174435	Unable to release or delete FileDep through DWC
174438	Job stream is put in Waiting with no Dependencies even if Resources are greater than available
174456	Mirroring: wrong isUntilUsed and getStatus for js after JnextPlan
174462	RERUN FLEX: unexpected job shown in rerunsucc preview having a repeat every clause
174465	Incorrect job stream status displayed by mirroring after a cancel pending of a job in EXEC
174468	Incorrect dependency status after adddep on a job in exec
174608	Change the mirroring cache size default to 20k
174770	stdlist quickly grows when collector is invoked multiple times
175040	Dynamic Workload Console version is different from FP installed
175288	What-if error 500 on DWC 93FP3 + JazzSM 1.1.3.0 + Cumulative patch1
175345	Mirroring: Incorrect Predecessor Dependency status with rerun
176039	Incorrect behavior for new join dependencies evaluation
176340	Incorrect job and job stream statuses for a job with confirmed clause
176343	High Number of File Dependencies scenario Quality Plan Goal A1 not matched after having applied the hotfix provided by L3 - performance issue with a mirroring query
176369	Incorrect job status after rerun
176666	Update SAMP policies
176920	Incorrect number of running jobs after job rerun
176939	Wrong user.dwbPort default value in backup MDM response file.
176979	Installation fails during update
177337	Incorrect isEvery field after rerun of a job
177352	MIRRORING REPEATEVERY: Wrong abend prompt key after manual rerun and repeatevery
177353	COMPOSER REST - Unexpected output trying to delete a job stream referenced by a WAT
177378	PERF: composer add action get a core dump due to out of memory

Defect number	ABSTRACT
177499	Backward compatibility DWC941 Engine 93FP3: Error message adding object using REST connection
178044	TWS upgrade scripts do not remove the old libz libraries
178063	SwaggerUI does not work

Problems fixed in IBM Workload Scheduler Fix Pack 2 for version 9.3.0

This section lists APARs and internal defects solved by Fix Pack 2.

List of APARs fixed:

- **IV63324:** Conman security enhancement.
- **IV69005:** PACKAGEDEPLOY.SH ENDS WITH ERROR ABOUT BAD PARAMETERS IF "COMPANY NAME" FIELD CONTAINS BLANK.
- **IV70849:** batchman and jobman fail on all Windows fault-tolerant agents if adddep with at= .
- **IV73696:** TWS FAULT-TOLERANT AGENT 9.2 INSTALLED ON 2012R2 SERVER FAILING ON INSTALL TO D: DRIVE.
- **IV74504:** APAR AFTER SETTING FENCE TO SYS, THEN RUNNING A PLANMAN RESYNC, CAUSES TWS TO ERROR.
- **IV76571:** ERROR: 'UNRECOGNIZED COMMAND LINE ARGUMENT "-NOROOT"' WITH LINUX 9.3 DYNAMIC WORKLOAD CONSOLE INSTALL USING SETUPDWC.SH -NOROOT.
- **IV77219:** PROMPTSTATUSCHANGED EVENT LOST IF THE PROMPT HAS DOUBLE QUOTES.
- **IV77843:** DATABASE MIRRORING - JOBSTREAMS/JOB NOT REPLICATED.
- **IV78333:** dataextract on a XA workstation defined on a \$MASTER does not work.
- **IV78611:** PROBLEMS WHEN USING RUNCYCLE GROUPS AND FREEDAYS CALENDAR.
- **IV78964:** Standard Agent reports multiple error messages - AWSBDW014E Jobman found a mailbox record in the Courier.msg file in an unrecognizable format, and was unable to process it.
- **IV79427:** SIGNIFICANT DELAY WORKING WITH COMPOSER DEFINITIONS FOR POOL WORKSTATIONS.
- **IV79699:** DYNAMIC AGENT JOB HAS UNEXPECTED VALUE FOR TIVOLI_JOB_DATE.
- **IV79707:** Failure in migrating/fix pack installing on Oracle partitioned database.
- **IV79890:** REPORT8 RUN BY CREATEPOSTREPORTS FAILS WITH A SEGMENTATION FAULT.
- **IV79935:** TWS is resolving only 10 open dependency per second, while in TWS 8.5.1 hundreds were resolved. This causes a strong delay in job submissions.
- **IV79937:** ORACLE DEADLOCK PERFORMING RESOURCE SCAN.
- **IV80134:** PATCH.INFO FILE IS NOT CREATED/UPDATED WHEN APPLYING IWS 9.3.0.

- **IV80208:** AWKIPC005E FAILED TO RUN WORKFLOW ERROR ENCOUNTERED WHEN ATTEMPTING TO RUN INFORMATICA JOBS.
- **IV80796:** untiljs flag is wrongly set after sbs from master domain manager 8.5.1.
- **IV81244 :**"REPLY YES TO XXXXX" (XXXXX=PROMPT) ACTION DOES NOT WORK AFTER APPLYING FIX PACK. TWS IS INCORRECTLY MANAGING PROMPT RELATED EVENTS.
- **IV81322:** remote cli not compatible with old master.
- **IV81480:** The TWS upgrade process should not overwrite the jobmanrc file (150769).
- **IV81525:** AWSJPL720E ERROR FROM UPDATESTATS/LOGMAN WHEN USING MSSQL DATABASE.
- **IV81746:** SINFONIA.XXXX FILLS THE MDM FILESYSTEM CAUSING TWS WAS ISSUES.
- **IV81748:** MAKEPLAN SLOW: OPTIMIZE THE JOB OUTPUT CONDITIONS LOADING.
- **IV81748:** MAKEPLAN SLOW: REMOVE THE DUPLICATE JDP LOAD DURING THE JSI LOAD.
- **IV81749:** WRONG INDEX IPJOR_02 COULD SLOW DOWN PLANMAN RESYNC/CHECKSYN IF SEVERAL EVERY/RERUN JOB ARE USED.
- **IV81765:** DB CONNECTION IS GETTING LOST DURING MIRRORING, IF IT IS NOT CLEANED UP AND IT CAN BE REUSED, THIS CAN CAUSE EVENTS TO BE LOST.
- **IV81843:** UNABLE TO USE SPECIAL CHARACTERS IN ZOS SHADOW JOB NAMES.
- **IV82544:** RESYNC SLOW: REMOVE USELESS SELECT CURRENT_TIMESTAMP.
- **IV82796:** COMPOSER UPDATES CAUSING DATABASE DEADLOCK.

List of defects fixed:

- **131874:** Incorrect job properties for a Sterling job.
- **133107:** Dynamic agents request and download in loop EDWA configuration from Broker.
- **133419:** Error message for wdlssp installing or restoring an agent for Linux if /lib/ld-linux.so.2 is missing
- **133442:** Wrong process name value submitting a Sterling job.
- **133709:** Missing maxdur values shown from conman commands with high value of percentage.
- **133713:** Old product name is present installing MDM with launchpad.
- **147887:** Failure when upgrading and updating Tivoli Workload Scheduler version 9.1 to version 9.x on an Oracle partitioned DB.
- **151386:** Manual database creation: Dynamic domain manager create when executed by DBA prompts for password (DB2).
- **151390:** PLANMAN RESYNC: In some cases, after a failure, database connections are not properly cleaned up.
- **153889:** maxArchivedPlan in TdwcGlobalSettings.
- **154063:** APAR Regression: Failure when upgrading and updating Tivoli Workload Scheduler version 9.1 to version 9.x on an Oracle partitioned DB.

Problems fixed in IBM Workload Scheduler Fix Pack 1 for version 9.3.0

This section lists APARs and internal defects solved by Fix Pack 1. For additional information about documentation APARs and internal defects, see "Documentation updates for IBM Workload Scheduler Fix Pack 1 for version 9.3.0" on page 53.

List of APARs fixed:

- **IV77863:** TWS WEBSHERE CRASHED DUE TO A NATIVE MEMORY CORRUPTION WHILE ACCESSING A .MSG FILE.
- **IV77609:** Agent process crashes after port scan on AIX and Solaris.
- **IV77219 :** PROMPTSTATUSCHANGED EVENT LOST IF THE PROMPT HAS DOUBLE QUOTES .
- **IV77093:** WHEN LOGMAN IS RUN AGAINST A LIVE SYMPHONY FILE STATISTICS ARE NOT RECORDED FOR JOBS WHICH COMPLETE WHILE LOGMAN IS RUNNING.
- **IV76762:** Broker server does not link.
- **IV76744:** Add an index for DWB.JOB_BROKER_JOBS.
- **IV76743:** BRANCH JOB ERRORS.
- **IV76687:** Increase the robustness of batchman to manage corrupted dependencies.
- **IV75946:** TCLSH84.EXE CALLED FROM REP8.CMD HANGS ON EXIT.
- **IV75238:** Increase the robustness of connector to manage corrupted dependencies.
- **IV74788:** SUBMIT "EVERY 0000" JOB FROM TDWC RUNS ONLY ONCE INSTEAD OF EVERY.
- **IV74774:** REPLYING TO A PROMPT FROM THE TWSACTIONPROVIDER FAILS.
- **IV74756:** BATCHMAN EVENT 305 IS ALWAYS LOGGED TO EVENTS LOG.
- **IV74723:** UNABLE TO UPGRADE TWS 8.5.1 TO 9.1 ON HP-UX WITH INSTALLATION MANAGER 1.6.3.1.
- **IV74721:** EVENT 203 JOB NAME TRUNCATED FOR EVENT 203 WHEN JOB NAME LENGTH IS LONGER .
- **IV74489:** UNABLE TO SUBMIT ISERIES JOBS WITH PARAMETERS.
- **IV74466:** TWS 9.2 HAS INCORRECT PERMISSIONS IN THE TWS/TMP DIRECTORY.
- **IV74101:** TWS 9.3 TWS_INST_PULL_INFO HANGS.
- **IV73920:** EVENT RULES ARE STUCK WITH OLD DDM AFTER A SWITCHMGR.
- **IV73926:** DYNAMIC JOB WITH NOT FOUND EXECUTABLE SCRIPT CREATES DEFUNCT PROCESS.
- **IV73190:** netman crashes during port scan.
- **IV73111:** Increase mirroring cache performance.
- **IV72859:** monman performance improvement.
- **IV72533:** twsClusterAdm.log is not flushed, and saved only at exit.
- **IV71543:** NATIVE LEAK WHEN TWS RUNS FOR A LONG TIME.
- **IV71470:** JOBS WITH OPENS DEP RUN INSTEAD OF CANCELLING AFTER A CANCEL PEND, FOLLOWED BY A RELEASE DEPS PERFORMED AGAINST THE JOB.

- **IV70832:** TWS ADMIN USER IS USED TO CHECK AN EXISTENCE OF SCRIPTNAME INSTEAD OF STREAMLOGON USER.
- **IV68941:** Create dbreorg for broker tables
- **IV68058:** sbs of a jobstream on a workstation set to IGNORE but still in the plan fails.
- **IV67024:** SAP JOBS FOR DYNAMIC AGENT REMAIN IN READY STATE CONSUME CPU LIMIT.
- **IV66331:** events-message.jar filenotfound exception during server startup.
- **IV62180:** MBCS characters are garbled when running twsinst with "-LANG JA" or system environment LANG=JA on Japanese Windows operating system.
- **IV54835:** INSTALLATION FAILS WITH MISSING MSVCR71.DLL .
- **IV52812:** SHUTWOWN_CLU.CMD DOES NOT STOP TOKENSERVICE.
- **IV73302:** CPU UTILIZATION COULD BE WRONG DUE TO INCORRECT CALCULATIONS.
- **IV77654:** Missing ITMCreatesituations.

List of defects fixed:

- **131495:** Jazz for Service Management fresh installation might take a long time to complete.
- **132608:** Tivoli Common Reporting: the scanner misses some required libs on RHEL 6.2.
- **133843:** JnextPlan -> deleting 1.4 10⁶ entries from JHR_JOB_HISTORY_RUNS cause db2 error because exhausting db2 transactions log.
- **134827:** resource usage holders capping to 32 causes mirroring thoroughout to be decreased and overhead DB CPU consumption
- **136230:** Events not processed and discarded if the monbox.msg queue is full
- **136971:** during FINAL lots of Sinfonia.xxxx files are generated
- **137459:** IBMi agents: an error occurs trying to connect the agents by test connection
- **137853:** DWB thread used to move job history data to archive stops to work properly
- **138792:** Direct upgrade MDM 851fp -> 93: Restore step delete the backup.zip and the user cannot restore the old instance
- **141026:** Scheduling Centralized Agent Update Job: Test connection does not work when reopening the job in Workload Editor
- **141209:** Windows7 onPremise: installation fails if user's password contains special characters
- **142040:** SAP BO: Internal server error when add attachment option is selected
- **144320:** Change the select to poll to prevent crash in case of fd >1024.
- **143030:** "java.lang.ArrayIndexOutOfBoundsException" after Resetplan and Jnextpla doesn't allow to schedule anything on dynamic agents
- **143095:** "errno 9" while executing "sleep 1" command on AIX node with high concurrency
- **143153:** Monitoring of jobs in Hybrid configuration: dependencies don't work well when Context-ObjectCount is set to 0

- **143277:** more than 10K mirroring updates have been lost during standard performance workload
- **143809:** MDM 93FP1 Build doesn't contains files to manage manually the db upgrade
- **144214:** DWB thread used to move job history data to archive stops to work properly
- **144558:** Error in the Start / Stop / Link / Unlink operations for the Monitoring Domain
- **144729:** Planman checksync hangs on Windows operating systems.
- **144785:** NOP: The CANCP status does not allow some scenarios.
- **144860:** Upgrade to 93 FP1 hangs on Windows with Oracle db
- **144973:** FTA Fresh: failure during installLWAAction.sh
- **145005:** Rollback does not work correctly, after upgrade from 91FP1 to 93FP1 on Windows
- **145008:** Rollback does not work correctly, after upgrade from 86FP2 to 93FP1 on Linux
- **145054:** DA fresh installation no-root: JobManager doesn't start
- **145059:** After MDM installation FENCE is set to GO.
- **145194:** Incorrect job stream and dependency status working with pending predecessors.
- **145203:** Wrong status for JS with Until suppressed jobs
- **145581:** Every donostart is affected by the until issue on job stream
- **145600:** param CLI hangs on FTA installed on windows
- **146147:** Response files contains a real workstation name
- **146254:** The MDM update remove the libraries in the method folder
- **146259:** Incorrect profile name in the upgrade response file from 8.6 for MDM and DDM
- **146723:** Incorrect owner assigned to the localopts file during installation
- **146750:** FileTransfer job created on 931 fails on agent with version minor than 93
- **146812:** MDM installation failed on Windows with error "AWSJIM901E: File C:\twapps\tws\tws\TWS\TSAMP does not exist".
- **146915:** Dependencies: defining an every option the condition are not correctly evaluated
- **146985:** Agent javacore dump on Linux X64
- **147280:** IBMi: File transfer job doesn't work
- **147314:** JobStreamInPlan --> getNumberOfJobDependencies(): Source Plan Symph = 0 Dest Plan DB = -1
- **147489:** Override estimation: the month table is filling the n-1 day
- **144168:** SwitchBroker does not work in 9.1 FP2.
- **144167:** AWSFAB025E message returned during installation.
- **144150:** Increase the stack size for the WebSphere Application Server on Linux.
- **144133:** Installation fails during update FTA 9.1 FP1 to FTA 9.1 FP2.
- **143851:** SwitchBroker does not work.
- **143651:** monman improvement: send cpu name of dynamic agent.
- **143631:** Randomic Crash caused by GC on method calls local variable when GC runs.

- **143586:** The addBrokerWorkstation always sends a full scan.
- **143074:** TWS86 iSeries z-centric agent requires filewatch to run via OS/400®.

Known limitations and workarounds

The following are software limitations and workarounds that affect IBM Workload Scheduler version 9.3.0 Fix Pack 1, 2, and 3. For a list of known problems and limitations documented for the V9.3 General Availability release, refer to the product Release Notes®.

9.3.0 Fix Pack 3:

169512: spaceUsed.exe crash during installation of fix pack 3 on a master domain manager

When installing the fix pack, ensure the installation path is not longer than 260 characters. This is due to a Windows limitation. See note: <https://msdn.microsoft.com/en-us/library/windows/desktop/aa365247%28v=vs.85%29.aspx#maxpath>.

178283: Composer requires environment variables to be set

To have the composer command line function correctly, you need to set a number of environment variables either through submitting some commands or running the `tws_env` script. To set the variables:

Submit the following commands:

On UNIX:

```
UNISONHOME=<TWS_HOME_DIR_PATH>
PATH=$UNISONHOME:$UNISONHOME/bin:$PATH;
export PATH
ITA_CFG=$UNISONHOME/ITA/cpa/ita/ita.ini
export ITA_CFG
```

On Windows:

```
set UNISONHOME=<TWS_HOME_DIR_PATH>
set ITA_CFG=%UNISONHOME%\ITA\cpa\ita\ita.ini
set PATH=%UNISONHOME%\bin;%UNISONHOME%\ITA\cpa\ita;%PATH%
```

OR

Run the `tws_env` script:

On UNIX:

```
./<TWS_HOME_DIR_PATH>/tws_env.sh
```

On Windows:

```
\<TWS_HOME_DIR_PATH>\tws_env.cmd
```

where the default value of `<TWS_HOME_DIR_PATH>` is:
 /opt/IBM/TWA/TWS on UNIX and C:\Program
 Files\IBM\TWA\TWS on Windows.

9.3.0 Fix Pack 2:

Error installing fix pack on Solaris operating system with an Oracle database

When installing the fix pack on a Solaris operating system where an Oracle database is used, the installation must be performed using a connection that is not in SSL between the machine where the installation is being performed and the machine where the Oracle database is installed. (156227)

During the upgrade of the master domain manager, the installation process fails to retrieve information if the WebSphere Application Server was upgraded to V8.5.5.4

During the upgrade of the master domain manager, the installation process attempts to retrieve information from your environment. If the installation fails to perform the retrieve, and you have recently upgraded WebSphere Application Server to version 8.5.5.4, then you need to stop, start, and stop again, the WebSphere Application Server, and then restart the upgrade installation process for the master. (152994)

Centralized agent update of a dynamic agent fails to update agent on AIX with no root mode

Dynamic agent updates performed using the centralized agent update method from the Dynamic Workload Console fail on AIX operating systems in no root mode.

Workaround: Update the dynamic agent manually using the **twinst** script.

Dynamic agent workstation name or cpuname is regenerated when upgrading from V8.5.1 to V9.3 Fix Pack 2

When upgrading a V8.5.1 master domain manager, backup master domain manager, dynamic domain manager, or backup dynamic domain manager to V9.3 Fix Pack 2, the `-displayname <agent_name>` option used to assign the agent name by the **twinst** installation script, is ignored. The result is that the agent display name is automatically generated and cannot be assigned during the upgrade. This mainly affects dynamic jobs that were defined using JSDL templates in V8.5.1. (157695)

Workaround: Perform the following steps on each agent:

1. Stop the agent by issuing the following command:

On UNIX:

```
./ShutDownLwa
```

On Windows:

```
shutdownlwa
```

2. Rename the agent by assigning the name to the **ComputerSystemDisplayName** property in the `JobManager.ini` agent configuration file.
3. Restart the agent by issuing the following command:

On UNIX:

```
./StartUpLwa.sh
```

On Windows:

```
startuplwa
```

9.3.0 Fix Pack 1

Apache Commons Collections Vulnerability

WebSphere Application Server uses Apache Commons Collections which was found to contain a remotely exploitable vulnerability.

Workaround: To mitigate this problem, you must install the fix found in this technote: <https://www-304.ibm.com/support/docview.wss?uid=swg24041257>.

File transfer job submitted on a Windows agent ends in error

When endpoint protection software is active on a Windows agent

workstation, the FTP connection is blocked by Java. A Java technology bug reporting this issue can be accessed at http://bugs.java.com/bugdatabase/view_bug.do?bug_id=7077696.

Centralized agent update fails on a dynamic agent, on UNIX operating systems, previously upgraded to the version 9.3 General Availability (GA) level

When applying version 9.3 Fix Pack 1 using the centralized agent update method on a dynamic agent only (without the fault-tolerant agent), on a UNIX operating system, that was upgraded to the version 9.3 GA level from a previous version, the update fails.

Workaround: Install the update manually on the agent workstation.

Centralized agent update not supported on IBM i

Launching the centralized agent update on an IBM i agent, the update fails.

Workaround: Install the update manually on the agent workstation.

On IBM i agent workstations the sendevent utility command requires manually setting

The **sendevent** utility command does not work unless an environment variable is set manually first.

Workaround: To use the utility command, **sendevent**, from the command line (./TWS/CLI/bin/sendevent) on IBM i, you must first set the environment variable *QIBM_MULTI_THREADED* to Y to alert the QShell to allow multithreading by submitting the following command:

```
export QIBM_MULTI_THREADED=Y
```

When centralized agent update of a fault-tolerant agent fails, the restore operation sets the fence priority option to go

When a fault-tolerant agent is updated using the centralized agent update method, and the update fails, the fault-tolerant agent is restored to the previous release level, and the fence priority option is to go.

You can manually reset the fence priority option from the Dynamic Workload Console or using the conman command line. You can do this directly from the master domain manager rather than connecting to the agent workstation.

Job dependency status incorrectly reported after job execution

If plan replication is disabled, and you have a job or job stream running on a fault-tolerant agent, and there are conditional dependences defined, when monitoring the status of the job or job stream, some dependencies might report an undefined dependency status, even if the dependencies have been evaluated. The job or job stream status event might arrive on the master domain manager before the dependencies are evaluated.

Workaround: Decrease the value of the *bm look* option, for example to 5, in the *localopts* on the master domain manager so that batchman checks on the dependencies of the other workstations more frequently before the job or job stream status event arrives on the master domain manager.

Fix pack structure

This section describes the structure of the images contained in this fix pack.

Fix pack files available for IBM Workload Scheduler using Fix Central

This is the structure of the fix pack for the engine on Fix Central:

```
+---9.3.0-IBM-IWS-FP0003.README.zip
|
+---9.3.0-IBM-IWS-AIX-FP0003.zip
|
+---9.3.0-IBM-IWS-HPIA64-FP0003.zip
|
+---9.3.0-IBM-IWS-LINUX390-FP0003.zip
|
+---9.3.0-IBM-IWS-LINUXPPC-FP0003.zip
|
+---9.3.0-IBM-IWS-LINUX_X86_64-FP0003.zip
|
+---9.3.0-IBM-IWS-SOLARIS_I386-FP0003.zip
|
+---9.3.0-IBM-IWS-WINDOWS_X86_64-FP0003.zip
|
+---9.3.0-IBM-IWS-LINUX_X86_64_WORKBENCH-FP0003.zip
|
+---9.3.0-IBM-IWS-WINDOWS_X86_64_WORKBENCH-FP0003.zip
|
+---9.3.0-IBM-IWS-AIX_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-HPIA64_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-IBM_I_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-LNX_I386_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-LNX_PPC_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-LNX_S390_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-LNX_X86_64_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-SOL_I386_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-WIN_X86_64_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-AIX_ZOS_AGENT-FP0003.tar
|
+---9.3.0-IBM-IWS-HPIA64_ZOS_AGENT-FP0003.tar
|
+---9.3.0-IBM-IWS-IBM_I_ZOS_AGENT-FP0003.tar
|
+---9.3.0-IBM-IWS-LNX_I386_ZOS_AGENT-FP0003.tar
|
+---9.3.0-IBM-IWS-LNX_PPC_ZOS_AGENT-FP0003.tar
|
+---9.3.0-IBM-IWS-LNX_S390_ZOS_AGENT-FP0003.tar
|
+---9.3.0-IBM-IWS-LNX_X86_64_ZOS_AGENT-FP0003.tar
|
+---9.3.0-IBM-IWS-SOL_I386_ZOS_AGENT-FP0003.tar
|
+---9.3.0-IBM-IWS-WIN_X86_64_ZOS_AGENT-FP0003.zip
|
+---9.3.0-IBM-IWS-AIX_BATCH_REPORTS-FP0003.tar
```

```

|
+---9.3.0-IBM-IWS-HPIA64_BATCH_REPORTS-FP0003.tar
|
+---9.3.0-IBM-IWS-LNX_PPC_BATCH_REPORTS-FP0003.tar
|
+---9.3.0-IBM-IWS-LNX_S390_BATCH_REPORTS-FP0003.tar
|
+---9.3.0-IBM-IWS-SOL_I386_BATCH_REPORTS-FP0003.tar
|
+---9.3.0-IBM-IWS-WIN_X86_64_BATCH_REPORTS-FP0003.zip

```

Installing the fix pack

This section describes how to apply Fix Pack 3 to IBM Workload Scheduler version 9.3.0.

The section is divided into the following subsections:

- “Installation notes”
- “Interoperability notes” on page 27
- “Disk space requirements” on page 27
- “Installation methods” on page 28
- “Installing IBM Workload Scheduler for the first time using the IBM Installation Manager wizard” on page 35
- “Installing the fix pack on the IBM Workload Scheduler General Availability version 9.3 using the IBM Installation Manager wizard” on page 37
- “Installing the fix pack on an IBM Workload Scheduler version earlier than 9.3 using the IBM Installation Manager wizard” on page 39
- “Installing the fix pack using IBM Installation Manager silent installation” on page 43
- “Installing the fix pack on agents using the twsinst script” on page 48
- “Uninstalling the entire IBM Workload Scheduler instance” on page 52
- “Installation log files” on page 52

Installation notes

When installing the IBM Workload Scheduler fix pack, follow these recommendations:

- Before installing the fix pack, ensure you have installed the required prerequisite software. To obtain the latest information about software requirements for IBM Workload Scheduler, run the Software Requirements report and browse to the relevant section.
- This fix pack supports DB2 Enterprise Server Edition, Version 10.5 on all supported operating systems. It is available for download from the Passport Advantage web site with part number: CNED3ML. After the installation of DB2 Enterprise Server Edition, Version 10.5, you must manually apply the license activation key (.lic file). The license key must be downloaded separately from the Passport Advantage web site. The part number related to the license activation key is CNED3ML. The key must be registered using the **db2licm** command. See Applying DB2 licenses for the procedure to register the key.

If you already have installed DB2 Workgroup Server Edition, you can switch this license with a DB2 Enterprise Server Edition license, by following the procedure in Updating licenses. Note that when the procedure references the product-identifier as in step 3:

```
db2licm -a product-identifier
```

replace the product-identifier with the file representing the license activation key (.lic).

- This fix pack installs a new version of the file `twc_env.sh` in the directory `<TWA_HOME>/TWS`, where `<TWA_HOME>` is the IBM Workload Scheduler installation directory. Before installing the fix pack, ensure you have created a backup file if you have modified the original version. After installing the fix pack, merge the content of the new version with the content of the original version to carry your customized content into the new version (157029).
- Before installing this fix pack on AIX V7.1 operating systems, you must apply the patch for APAR IZ99634. For more information, see: <http://www-01.ibm.com/support/docview.wss?uid=isg1IZ99634>.
- On UNIX operating systems, before installing the IBM Workload Scheduler fix pack, ensure that your **umask** is set to **022**. To verify that **umask** is set to the correct value, from a command prompt, run the **umask** command. If the value is different from **022**, modify it by running the command:

```
umask 022
```
- On UNIX operating systems, the database administrator must have read and run privileges for the IBM Workload Scheduler installation path; otherwise the installation fails. (54367)
- If you get an error message indicating *permission denied* for the installation process, to run a script in the `twc_tools` directory as a user, different from the root user because this user does not have write, read, and execute rights in this directory, you must:
 1. Extract the eImages to a directory where all users have write, read, and execute rights.
 2. Restart the installation process from this directory.
- During the upgrade of the master domain manager, the installation process attempts to retrieve information from your environment. If the installation fails to perform the retrieve, and you have recently upgraded WebSphere Application Server to version 8.5.5.4, then you need to stop, start, and stop again, the WebSphere Application Server, and then restart the upgrade installation process for the master.
- When installing the fix pack on a Solaris operating system where an Oracle database is used, the installation must be performed using a connection that is not in SSL between the machine where the installation is being performed and the machine where the Oracle database is installed.

After the fix pack installation completes, verify the following information:

- On IBM i operating systems, if you want to install the fix pack on the IBM Workload Scheduler for z/OS Agent and IBM Workload Scheduler Dynamic Agent, verify that the user profile used as `TWSUser` is not a member of a group profile. Set the group profile associated with the `TWSUser` to `*NONE`. If the `TWSUser` is a member of a group, the fix pack installation fails.
- Only on Windows operating systems, to correctly display double-byte character set (DBCS) characters, you must perform the following actions:
 - Set the **LANG** environment variable to the DBCS language code you want to use, for example, set `LANG=zh_CN`.
 - Set the **TWS_TISDIR** environment variable to the IBM Workload Scheduler home directory, for example, set `TWS_TISDIR=C:\FTA\TWS`.
 - Open the Control Panel window and click **Clock, Language, and Region**.

- Click **Region and Language**.
- In the **Format** tab, choose from the **Format** drop-down list the language you want to use.
- In the **Keyboards and Languages** tab, under **Display Language**, click install and follow the steps to install the DBCS language pack you want to use.
- In the **Administrative** tab, click **Change system locale** and, from the drop-down list, choose the language (system locale) you want to use.

Note that all the settings must be coherent, that is they must refer to the same DBCS language setting. After you have completed these changes, reboot your workstation to have the changes take effect.

- **168833:** When installing this fix pack on AIX V7.2, ensure that you have WebSphere V8.5.5.8 and DB2 V10.5 Fix Pack 7 installed.
- When installing a dynamic agent or a fault-tolerant agent, ensure that the agent name does not start with a number. If the name of the dynamic agent starts with a number, use the **-displayname** parameter at installation time to specify a different name. If the name of the fault-tolerant agent starts with a number, use the **--thiscpu** parameter at installation time to specify a different name.

Interoperability notes

IBM Workload Scheduler version 9.3.0 Fix Pack 3 supports all product versions indicated in the IBM Workload Scheduler version 9.3 Release Notes which can be accessed at the following link: http://www-01.ibm.com/support/docview.wss?uid=swg27045180#h3interop_tables.

Disk space requirements

For the most up-to-date information about disk space and memory requirements, generate a dynamic hardware requirements report from the IBM Software Product Compatibility Reports web site at the following URL: <http://www-969.ibm.com/software/reports/compatibility/clarity-reports/report/html/hardwareReqsForProduct?deliverableId=1393949467532&osPlatforms=AIX|HP|IBM%20i|Linux|Solaris|Windows|z/OS&duComponentIds=S002|S001|A005|A003|A004>.

Before starting the fix pack installation, ensure that you have the necessary disk space available on the file system. Consider that the disk space check calculated by the installation considers the entire space occupied by the `<TWA_HOME>` directory. The space required by the backup is the sum of the following directories: `<TWA_HOME>/TWS + <TWA_HOME>/TDWB + <TWA_HOME>/wastools + <TWA_HOME>/properties`

In addition to the disk space in the following table, the installation requires an additional 600 MB on the file system where the IMShared directory is located.

Table 1. Disk space requirements for installing a master domain manager or a backup master fix pack

Operating System	Installation directory	Temporary directory
AIX	2,5 GB	1,5 GB
HP-UX	2,5 GB	1,5 GB
Solaris	1.5 MB	800 MB
Microsoft Windows	2 GB	1 GB

Table 1. Disk space requirements for installing a master domain manager or a backup master fix pack (continued)

Operating System	Installation directory	Temporary directory
Linux	1,5 GB	800 MB

Table 2. Disk space requirements for installing the fix pack for IBM Workload Scheduler fault-tolerant agents

Operating System	Installation directory	Temporary directory
AIX	900 MB	400 MB
HP-UX	1.3 GB	400 MB
Solaris	920 MB	400 MB
Microsoft Windows	700 MB	350 MB
Linux	720 MB	350 MB

Table 3. Disk space requirements for installing the fix pack for IBM Workload Scheduler dynamic agents and z/OS agents

Operating System	Installation directory	Temporary directory
AIX	600 MB	250 MB
HP-UX	920 MB	400 MB
Solaris	580 MB	120 MB
Microsoft Windows	800 MB	400 MB
Linux	600 MB	250 MB

Note: Only on HP and Solaris operating systems, the fix pack installation requires also 300 MB free disk space in the temporary directory `/var/tmp`.

Installation methods

You can install the fix pack using one of the following methods:

For Master domain manager or dynamic domain manager or their backups:

- “Installing IBM Workload Scheduler for the first time using the IBM Installation Manager wizard” on page 35
- “Installing the fix pack on the IBM Workload Scheduler General Availability version 9.3 using the IBM Installation Manager wizard” on page 37
- “Installing the fix pack on an IBM Workload Scheduler version earlier than 9.3 using the IBM Installation Manager wizard” on page 39
- “Installing the fix pack using IBM Installation Manager silent installation” on page 43.

For fault-tolerant agent, dynamic agent or domain manager:

- “Installing the fix pack on agents using the `twsinst` script” on page 48.
- “Installing the fix pack on multiple fault-tolerant and dynamic agents” on page 50

Before Installing

Before installing the fix pack using any of the methods described in the following sections, perform the following actions:

1. Unlink the host on which you are installing the fix pack from the IBM Workload Scheduler network.
2. Shut down IBM Workload Scheduler.
3. Run the following commands, depending on your configuration:

Master domain manager or dynamic domain manger or their backups:

On Windows operating systems:

```
conman "unlink @; noask"  
conman "stop; wait"  
conman "stopmon;wait"  
ShutdownLwa.cmd  
stopServer.bat
```

On UNIX and Linux operating systems:

```
conman "unlink @; noask"  
conman "stop; wait"  
conman "stopmon;wait"  
conman "shut;wait"  
ShutDownLwa  
./stopServer.sh
```

Fault-tolerant agent or domain manager:

On Windows operating systems:

```
conman "unlink @; noask"  
conman "stop; wait"  
conman "stopmon;wait"  
ShutdownLwa.cmd
```

On UNIX and Linux operating systems:

```
conman "unlink @; noask"  
conman "stop; wait"  
conman "stopmon;wait"  
conman "shut;wait"  
ShutDownLwa
```

IBM Workload Scheduler for z/OS agent or IBM Workload Scheduler dynamic agent:

On Windows operating systems:

```
ShutdownLwa.cmd
```

On UNIX and Linux operating systems:

```
ShutDownLwa
```

If you have jobs scheduled to run on the instance you are upgrading, make sure that they have completed otherwise some processes, such as jobmon or joblnch, might still be active.

4. Download the appropriate ZIP file specific for the operating system from IBM Fix Central.
5. Delete the content of the following directory: `<TWA_HOME>/TWS/ITA/cpa/temp/ipc`, where `<TWA_HOME>` is the IBM Workload Scheduler installation directory.
6. Extract the content of the ZIP files into a directory, using one of the extraction tools available on your system or downloadable from the Internet. The tool you use must be able to keep the file permissions on the extracted files, for example, infozip.

Note:

- If you want to install the fix pack on IBM i, to untar the eImages, see “Extract the eImages for the IBM Workload Scheduler for z/OS Agent and Dynamic Agent on IBM i operating systems” on page 35.
- To extract the .zip file onto a Windows 64-bit system, ensure that the eImage is not located on the desktop because the Windows operating system extract tool has a problem. Choose another directory into which to extract the fix pack eImage.

Creating or updating the IBM Workload Scheduler database schema

Before launching any of the installation methods, manually create the SQL database tables following the procedure in the *Planning and Installation* guide that best suits your environment. To update or upgrade the database schema, follow the directions in this section.

Depending on the IBM Workload Scheduler component you install, the following database tables must be created or upgraded:

Master domain manager or backup master domain manager:

- IBM Workload Scheduler tables
- Dynamic workload broker tables.

Dynamic domain manager or backup dynamic domain manager:

Dynamic workload broker tables.

For a DB2 or Oracle database, the database tables can be created or upgraded at the same time as when you install or update the product component using either the Installation Manager wizard or the silent installation, or you can choose to create or update the database tables manually, and then install and update the component at a later time. For Informix[®] Dynamic Server and Microsoft SQL Server databases, the database tables must be created or updated manually, before installing the product.

Creating the database tables for DB2 and Oracle:**About this task**

Create the database tables for the first time manually using the procedure documented in the *Planning and Installation Guide* and then install the product using the fix pack installation procedure. The IBM Workload Scheduler version 9.3 Fix Pack 3 image contains an updated dbtools directory. When performing the following procedures, always use the files contained in the dbtools directory of the fix pack image.

DB2 Creating the IBM Workload Scheduler and the dynamic workload broker database tables involves the following high-level steps:

1. Customize the properties file.
2. Generate the SQL files.
3. Create the SQL tables.

Refer to "Creating or upgrading the database tables if you are using DB2" in *IBM Workload Scheduler Planning and Installation*.

Oracle Creating the IBM Workload Scheduler and the dynamic workload broker database tables involves the following high-level steps:

1. Customize the properties file.

2. Generate the SQL files.
3. Create the SQL tables.

Refer to "Creating or upgrading the database tables if you are using Oracle" in *IBM Workload Scheduler Planning and Installation*.

Updating or upgrading the database schema for DB2 or Oracle:

Starting with the previous fix pack, a new method for updating and upgrading the IBM Workload Scheduler and the dynamic workload broker database schema is provided for DB2 and Oracle databases. The update or upgrade can be performed manually before you install the product component fix pack or, using the Installation Manager wizard or silent installation, the schema is updated during the fix pack installation procedure.

Before you begin

This manual procedure requires an installation of Java Runtime Environment version 1.7 or later. If you already have a supported version installed, refer to the *JAVA_HOME* installation directory where required in this procedure. This manual procedure can also be run from a remote computer where the Java Runtime Environment is installed.

About this task

For more details about the benefits of this new method, see "Features introduced with Fix Pack 2" on page 3.

Updating or upgrading the database schema for DB2 and Oracle using this method involves the following high-levels steps:

1. Modify the `upgradeDB2IWSDB.properties` or the `upgradeOracleIWSDB.properties` file assigning the appropriate values to the parameters.
2. Run the `launchUpgradeIWSDB.bat` or the `launchUpgradeIWSDB.sh` script to generate and apply the SQL statements. Optionally, you can choose to only generate the statements and apply them later, but before installing the product component fix pack.

To update or upgrade the IBM Workload Scheduler and the dynamic workload broker database tables, run the following procedure:

Procedure

1. From the IBM Workload Scheduler version 9.3 Fix Pack 3 image, locate the `dblighttool` directory and extract the compressed file, `IWSDBUpgrade.zip`, to a path on the database server computer or on a remote computer.
2. Modify the properties file located in the `IWSDBUpgrade` folder assigning values to the parameters as follows:

DB2 `upgradeDB2IWSDB.properties`

Oracle `upgradeOracleIWSDB.properties`

Table 4. Properties for DB2 and Oracle update and upgrade procedure

Property	DB2	Oracle
COMPONENT_TYPE	The IBM Workload Scheduler component to be updated or upgraded: MDM, BKM, DDM or BDM. The default value is MDM.	

Table 4. Properties for DB2 and Oracle update and upgrade procedure (continued)

Property	DB2	Oracle
DB_NAME	The name of IBM Workload Scheduler database. The default value is TWS.	The Oracle instance name (SID) of the IBM Workload Scheduler database. The default value is orc1. On Solaris operating systems where an Oracle database is used, DB_NAME corresponds to the Service Name.
DB_HOST_NAME	The host name or IP address of the DB2 server.	The host name or IP address of the Oracle server. On Solaris operating systems where an Oracle database is used, type the hostname or IP address of the Oracle server and uncomment this property in the property file.
DB_PORT	The port of the DB2 server. The default value is 50000.	The port of the Oracle server. By default, this property is commented in the properties file. On Solaris operating systems where an Oracle database is used, type the port number of the Oracle server and uncomment this property in the property file.
DB_ADMIN_USER	The database administrator user that creates the IBM Workload Scheduler schema objects on the DB2 server.	N/A
DB_ADMIN_USER_PWD	The password of the database administrator user that creates the IBM Workload Scheduler schema objects on the DB2 server.	N/A
DB_USER	The user that has been granted access to the IBM Workload Scheduler tables on the DB2 server. The default value is db2admin.	The database user that accesses the IBM Workload Scheduler tables on the Oracle server.
DB_USER_PWD	N/A	The password of the database user that will access to IBM Workload Scheduler tables on the Oracle server.
IWS_TS_NAME	The name of the tablespace for IBM Workload Scheduler data (default: TWS_DATA)	The name of the tablespace for IBM Workload Scheduler data. The default value is USERS.

Table 4. Properties for DB2 and Oracle update and upgrade procedure (continued)

Property	DB2	Oracle
IWS_LOG_TS_NAME	The name of the tablespace for the IBM Workload Scheduler log (default: TWS_LOG)	The name of the tablespace for the IBM Workload Scheduler log. The default value is USERS.
IWS_PLAN_TS_NAME	The name of the tablespace for IBM Workload Scheduler plan (default: TWS_PLAN)	The name of the tablespace for IBM Workload Scheduler plan. The default value is USERS.
IWS_PLAN_TS_PATH	The path of the tablespace for IBM Workload Scheduler plan (default: TWS_PLAN and used only for upgrade from IBM Workload Scheduler versions 8.5.1 and 8.6)	N/A
HOST_NAME	The host name of the IBM Workload Scheduler broker (no default).	
WAS_SEC_PORT	The HTTPS port of the IBM Workload Scheduler broker. The default value is 31116.	
UPGRADE_DB	Set to TRUE to automatically apply the generated SQL statements to upgrade the IBM Workload Scheduler database schema. Set to FALSE to manually apply the generated statements in the customSQL.sql file. The default value is TRUE.	

- Run the upgrade script located in the IWSDBUpgrade folder specifying the usage and all of the required parameters as follows:

On Windows operating systems

```
1 launchUpgradeIWSDB.bat JAVA_HOME_PATH DB_PATH PROPERTY_FILE
```

For example,

DB2

```
1 launchUpgradeIWSDB.bat D:\TWS\JavaExt\jre\jre
D:\Program Files\IBM\SQLLIB\java
D:\IWSDBUpgrade\upgradeDB2IWSDB.properties
```

Oracle 1 launchUpgradeIWSDB.bat D:\TWS\JavaExt\jre\jre
D:\oracle12\product\12.1.0\dbhome_1 D:\IWSDBUpgrade\
upgradeOracleIWSDB.properties

On UNIX and Linux operating systems

```
./1 launchUpgradeIWSDB.sh JAVA_HOME_PATH DB_PATH PROPERTY_FILE
```

For example,

DB2

```
./1 launchUpgradeIWSDB.sh /opt/TWS/JavaExt/jre/jre
/home/db2inst1/sqllib/java
/IWSDBUpgrade/upgradeDB2IWSDB.properties
```

Oracle ./1 launchUpgradeIWSDB.sh /opt/TWS/JavaExt/jre/jre
/app/oracle/product/12.1.0/dbhome_1 /IWSDBUpgrade/
upgradeOracleIWSDB.properties

Table 5. Upgrade script parameters

Parameter	Description
JAVA_HOME_PATH	The Java home directory, where the bin directory is present.
DB_PATH	<p>DB2 The fully qualified directory path to the JDBC driver JAR file that contains the JDBC driver class. Specify only the path and not the JAR file name.</p> <p>Oracle The <i>ORACLE_HOME</i> directory.</p>
PROPERTY_FILE	<p>The fully qualified name of the file that contains a number of properties, one on each line with an assigned value, that are required for the database upgrade.</p> <p>DB2 upgradeDB2IWSDB.properties</p> <p>Oracle upgradeOracleIWSDB.properties</p>

The script creates an SQL file with all the statements needed to upgrade the IBM Workload Scheduler database schema to the latest version. The SQL file is named: IWSDBUpgrade/customSQL.sql.

If the UPGRADE_DB parameter is set to TRUE, then the generated SQL statements are applied to the database automatically when the script is run.

If UPGRADE_DB parameter is set to FALSE, then the SQL statements are generated but not applied to the database. You can inspect the generated customSQL.sql and when you are ready to apply them to the database, set the value of the UPGRADE_DB parameter to TRUE in the upgradeDB2IWSDB.properties/upgradeOracleIWSDB.properties file and then rerun the launchUpgradeIWSDB.bat/launchUpgradeIWSDB.sh script to regenerate the SQL statements and apply the SQL statements .

What to do next

You can now proceed with updating the product.

Creating and upgrading the database tables for Informix and Microsoft SQL:

Create or update the database tables manually before installing the product.

About this task

This is a mandatory procedure if you use either Informix Dynamic Server or Microsoft SQL Server databases and it must be performed before you install or upgrade the product with a user different from the database administrator user. The IBM Workload Scheduler version 9.3 Fix Pack 3 image contains an updated dbtools directory. When performing the following procedures, always use the files contained in the dbtools directory of the fix pack image.

Informix Dynamic Server

Creating the IBM Workload Scheduler and the dynamic workload broker database tables involves the following high-level steps:

1. Customize the properties file.
2. Generate the SQL files.

3. Create the SQL tables.

Refer to "Creating or upgrading the database tables if you are using Informix Dynamic Server" in *IBM Workload Scheduler Planning and Installation*.

Microsoft SQL Server

Creating the IBM Workload Scheduler and the dynamic workload broker database tables involves the following high-level steps:

1. Customize the properties file.
2. Generate the SQL files.
3. Create the SQL tables.

Refer to "Creating or upgrading the database tables if you are using Microsoft SQL Server" in *IBM Workload Scheduler Planning and Installation*.

Extract the eImages for the IBM Workload Scheduler for z/OS Agent and Dynamic Agent on IBM i operating systems

The following packages are available with this fix pack:

- 9.3.0-IBM-IWS-IBM_I_ZOS_AGENT-FP0003.tar: The IBM Workload Scheduler for z/OS Agent on IBM i image.
- 9.3.0-IBM-IWS-IBM_I_AGENT-FP0003.zip: The dynamic agent on IBM I image. This package also contains an extraction tool executable that can be copied to the IBM i workstation.

To untar or unzip the fix pack eImages, you can use the *PASE* shell or the *AIXterm*.

Using *PASE* shell:

1. Open the *PASE* shell.
2. Run the command:
"CALL QP2TERM"
3. Locate the folder where you downloaded the fix pack eImage and run the command:

IBM Workload Scheduler for z/OS Agent

```
"tar xvf 9.3.0-IBM-IWS-IBM_I_ZOS_AGENT-FP0003.tar"
```

Dynamic agent

```
"unzip 9.3.0-IBM-IWS-IBM_I_AGENT-FP0003.zip"
```

4. Exit from the *PASE* shell.

Using *AIXterm*:

1. Start the *Xserver* on your desktop.
2. On the iSeries machine, open a *QSH shell* and export the display.
3. In *QSH shell*, go to the directory */QopenSys* and run the command:
"aixterm -sb"
4. A pop-up window is displayed on your desktop. Using this pop-up window, unzip the 9.3.0-IBM-IWS-IBM_I_AGENT-FP0003.zip file, or untar the 9.3.0-IBM-IWS-IBM_I_ZOS_AGENT-FP0003.tar.

Installing IBM Workload Scheduler for the first time using the IBM Installation Manager wizard

To install IBM Workload Scheduler for the first time using the interactive wizard, complete the following steps:

1. Complete the actions described in section "Before Installing" on page 29.

2. Download the IBM Workload Scheduler version 9.3 General Availability eImage from Passport Advantage Online specific for the operating system and extract it into a path of your choice.
3. Download the TAR or ZIP file specific for the operating system and extract it. To extract the **.tar** file, ensure that you use the GNU version of the TAR command. Otherwise, if you extract the file using a version other than GNU, your fix pack installation fails. If you are installing on a UNIX operating system, run the following command:

```
chmod -R 755 <imagesDir>
```

4. Depending on the type of operating system, run the following command:

On Windows operating systems:

From the directory where you extracted the files, run `setupTWS.cmd -gapath <extraction_path>`.

On UNIX and Linux operating systems:

From the directory where you extracted the files, run `setupTWS.sh -gapath <extraction_path>`.

where *<extraction_path>* is the path into which you extracted the IBM Workload Scheduler General Availability eImage.

The IBM Installation Manager window opens.

5. Select the packages you want to install and then click **Next** to continue.
6. In the Validating Results page, check that all the prerequisites are fulfilled and then click **Next** to continue.
7. In the Licenses page, read the license agreement for the selected package. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements** and then click **Next**.
8. In the Install Packages page, type the directory where you want to install the product and then click **Next** to continue.
9. In the Features page, select the IBM Workload Scheduler features:
 - master domain manager
 - dynamic domain manager
 Click **Next** to continue.
10. Complete the not disabled fields in the following panels:

For master domain manager

- User information
- Master configuration
- Database configuration
- WebSphere profile configuration
- WebSphere ports configuration
- Disk space check

For dynamic domain manager

- User information
- Dynamic domain manager configuration
- Database configuration
- WebSphere profile configuration
- WebSphere ports configuration
- Disk space check

For each panel, click **Validate** to validate that the information you entered is correct and then click **Next** to continue.

11. In 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 packages.
12. Ignore any request to create the WebSphere Application Server administrator user.
13. Click **Finish** to complete the installation.

Installing the fix pack on the IBM Workload Scheduler General Availability version 9.3 using the IBM Installation Manager wizard

Before you begin

If you are updating the master domain manager and you use an Oracle database, then ensure that you run IBM Installation Manager from a shell with the `ORACLE_HOME` environment variable set correctly. Also, ensure that you add the Oracle native client libraries located in `%ORACLE_HOME/lib` to the appropriate environment variable:

- Linux and Solaris: `LD_LIBRARY_PATH`. For example:

```
export ORACLE_HOME=/oracle/app/oracle/product/12.1.0/dbhome_1
export LD_LIBRARY_PATH=/oracle/app/oracle/product/12.1.0/dbhome_1/lib
```
- AIX: `LIBPATH`
- HP-UX: `SHLIBPATH`
- Windows: `PATH`

About this task

To install the fix pack using the interactive wizard, complete the following steps:

Procedure

1. Perform the actions described in section “Before Installing” on page 29.
2. Download the TAR or ZIP file specific for the operating system from IBM Fix Central and extract it. To extract the `.tar` file, ensure that you use the GNU version of the TAR command. Otherwise, if you extract the file using a version other than GNU, your fix pack installation fails. If you are installing on a UNIX operating system, run the following command:

```
chmod -R 755 <imagesDir>
```

3. You can start the installation process by using one of the following methods:

Method 1: IBM Installation Manager program

- a. Start the Installation Manager in wizard mode. For Windows, use **IBMIM.exe**. For Linux and UNIX, use the `./IBMIM` command line. The IBM Installation Manager window opens.
- b. In the menu bar, click **File > Preferences**.
- c. The Repositories window opens. Click **Add Repository**.
- d. In the Select a Repository window, in the Filter pane, type the path to the directory where the fix pack files are located.
- e. In the Directories pane, select the directory containing the fix pack files and click **OK**.

Method 2: The scripts `update.bat` or `update.sh`

Depending on the type of operating system, run the following command:

On Windows operating systems:

On Windows platforms, you must use only the 32-bit version of IBM Installation Manager. From the root directory of the `eImages`, run `update.bat`.

On UNIX and Linux operating systems:

From the root directory of the `eImages`, run `update.sh`.

The IBM Installation Manager window opens.

4. Verify that the check box **Search service repositories during installation and updates** is not selected, then click **OK** in the Repositories window.
5. Click **Update**.
6. In the Installation Packages page, select the "IBM Workload Scheduler" > "Version 9.3.0.2" product package. Click **Next** to continue.
7. In the Licenses page, read the license agreement for the selected package. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements** and then click **Next**.
8. In the Features page, select the IBM Workload Scheduler features:
 - master domain manager
 - dynamic domain manager

Click **Next** to continue.

9. Complete the not disabled fields in the following panels:

For master domain manager

- Upgrade configuration
- User information
- Master configuration
- Database configuration: Most fields are prefilled with information retrieved from your environment. Complete the fields where required as follows:

Table 6. Database configuration options for DB2

Option	Description
Database Administrator user	The database administrator user that creates the IBM Workload Scheduler schema objects on the DB2 server.
Database Administrator password	The password of the database administrator user that creates the IBM Workload Scheduler schema objects on the DB2 server.

Table 7. Database configuration options for Oracle

Option	Description
IBM Workload Scheduler database user password	The password for the IBM Workload Scheduler Oracle user. It must comply with the Oracle naming rules.

- WebSphere profile configuration
- WebSphere ports configuration

- Disk space check

For dynamic domain manager

- Upgrade configuration
- User information
- Dynamic domain manager configuration
- Database configuration: same information as for a master domain manager.
- WebSphere profile configuration
- WebSphere ports configuration
- Disk space check

For each panel, click **Validate** to validate that the information you entered is correct.

10. In 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 **Update** to install the update packages.
11. Click **Finish** to complete the installation.

Results

Note: If the fix pack installation fails, the IBM Workload Scheduler General Availability version 9.3 instance might not work properly and the following error is shown in the installation logs:

An error occurred while restoring the IBM Workload Scheduler instance from the backup, located in the folder `<backup_folder>`

where `<backup_folder>` is the folder where the IBM Workload Scheduler backup files are located.

To recover from this issue, complete the following steps:

1. Check that you have right permissions for the IBM Workload Scheduler installation path, that there is enough disk space, and that no process is locking the files located in the IBM Workload Scheduler installation path.
2. Access the `<backup_folder>` and remove the folders with the same names as those located in the IBM Workload Scheduler installation folder.
3. Copy all the folders from the `<backup_folder>` to the IBM Workload Scheduler installation folder.
4. Rerun the fix pack installation steps.

Installing the fix pack on an IBM Workload Scheduler version earlier than 9.3 using the IBM Installation Manager wizard

Before you begin

If you are updating the master domain manager and you use an Oracle database, then ensure that you run IBM Installation Manager from a shell with the `ORACLE_HOME` environment variable set correctly. Also, ensure that you add the Oracle native client libraries located in `%ORACLE_HOME/lib` to the appropriate environment variable:

- Linux and Solaris: `LD_LIBRARY_PATH`. For example:

```
export ORACLE_HOME=/oracle/app/oracle/product/12.1.0/dbhome_1
export LD_LIBRARY_PATH=/oracle/app/oracle/product/12.1.0/dbhome_1/lib
```

- AIX: LIBPATH
- HP-UX: SHLIBPATH
- Windows: PATH

About this task

To install the fix pack on a IBM Workload Scheduler version earlier than 9.3 using the interactive wizard, complete the following steps:

Procedure

1. Perform the actions described in section “Before Installing” on page 29.
2. Download the TAR or ZIP file specific for the operating system from IBM Fix Central and extract it. To extract the .tar file, ensure that you use the GNU version of the TAR command. Otherwise, if you extract the file using a version other than GNU, your fix pack installation fails. If you are installing on a UNIX operating system, run the following command:

```
chmod -R 755 <imagesDir>
```

3. Depending on the type of operating system, run the following command:

On Windows operating systems:

From the directory where you extracted the files, run `setupTWS.cmd -gapath <extraction_path>`.

On UNIX and Linux operating systems:

From the directory where you extracted the files, run `setupTWS.sh -gapath <extraction_path>`.

where *<extraction_path>* is the path into which you extracted the IBM Workload Scheduler General Availability TAR or ZIP file specific for your operating system.

The IBM Installation Manager window opens.

4. Ensure you have installed or upgraded the prerequisites, see “Installation notes” on page 25 about installing prerequisite software before installing the fix pack, and then click **Next** to continue.
5. In the Validating Results page, check that all the prerequisites are fulfilled and then click **Next** to continue.
6. In the Licenses page, read the license agreement for the selected package. If you agree to the terms of all the license agreements, click **I accept the terms in the license agreements** and then click **Next**.
7. When upgrading from version 8.x, you are prompted to perform the following steps. If upgrading from a version 9.x, skip this step and proceed to the next.
 - a. In the Install Packages page, type the directory where the earlier IBM Workload Scheduler version is installed and then click **Next** to continue.
 - b. A warning window opens with the message:
The location *<installation_path>* already contains a IBM Workload Scheduler instance of version *<version>* that will be upgraded.

where *<installation_path>* is the directory where the earlier IBM Workload Scheduler version is installed and *<version>* is the installed version.

Click **OK** to continue.

8. In the Features page, select the IBM Workload Scheduler features:

- master domain manager
- dynamic domain manager

Click **Next** to continue.

9. Complete the fields related to the component you are installing:

For master domain manager

- Upgrade configuration
- User information
- Master configuration
- Database configuration: Some fields are prefilled with information retrieved from your environment. Complete the fields where required as follows:

Table 8. Database configuration options for DB2

Option	Description
JDBC Driver Directory Path	The fully qualified directory path to the JDBC driver JAR file that contains the JDBC driver class.
Database Administrator user	The database administrator user that creates the IBM Workload Scheduler schema objects on the DB2 server.
Database Administrator password	The password of the database administrator user that creates the IBM Workload Scheduler schema objects on the DB2 server.
<p>Plan tablespace name</p> <p><i>Only for master domain manager and dynamic domain manager.</i> 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 TWS_PLAN. This applies only to upgrades from IBM Workload Scheduler version 8.5.1 or 8.6.</p>	
<p>Plan tablespace path</p> <p><i>Only for master domain manager and dynamic domain manager.</i> The path to the plan tablespace where planning data is stored. This table space must have been previously created by the database administrator. This applies only to upgrades from IBM Workload Scheduler version 8.5.1 or 8.6.</p>	

Table 9. Database configuration options for Oracle

DB2	Oracle
JDBC Driver Directory Path	The fully qualified directory path to the JDBC driver JAR file that contains the JDBC driver class.
IBM Workload Scheduler database user password	The password for the IBM Workload Scheduler Oracle user. It must comply with the Oracle naming rules.
Oracle instance name (SID)	The Oracle instance name (SID) of the IBM Workload Scheduler database. The default value is orcl.
Data tablespace name	<i>Only for master domain manager and dynamic domain manager.</i> The name that identifies the table space where scheduling objects data, and event rules data is stored. This table space must have been previously created by the database administrator. The default for this field is USERS . This applies only to upgrades from IBM Workload Scheduler versions 9.x.
Plan tablespace name	<i>Only for master domain manager and dynamic domain manager.</i> 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 value for this field is USERS . This applies only to upgrades from IBM Workload Scheduler version 8.5.1 or 8.6. This value is prefilled when upgrading from version 9.x.
Log tablespace name	<i>Only for master domain manager and dynamic domain manager.</i> The name that identifies the tablespace where log data is stored. This table space must have been previously created by the database administrator. The default value for this field is USERS . This applies only to upgrades from IBM Workload Scheduler versions 9.x.

- WebSphere profile configuration
- WebSphere ports configuration
- Disk space check

For dynamic domain manager

- Upgrade configuration
- User information
- Dynamic domain manager configuration
- Database configuration: same information as for a master domain manager.
- WebSphere profile configuration
- WebSphere ports configuration
- Disk space check

For each panel, click **Validate** to validate that the information you entered is correct and then click **Next** to continue.

10. In 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 packages.
11. In the Install packages page, in the **Which program do you want to start?** pane, select **None** and then click **Finish** to complete the installation.

Installing the fix pack using IBM Installation Manager silent installation

Apply the fix pack using the Installation Manager silent installation method.

Before you begin

After you complete the actions described in the section “Before Installing” on page 29, if you want to install the fix pack in silent mode, use the silent installation method. When you run a silent installation, you must create a response file to use as input to the IBM Installation Manager silent installation commands. The response file includes all the information required to run the installation without user intervention.

As a prerequisite step, specifically for the master domain manager silent installation, you can run a script that checks the system against the product system requirements to ensure a successful installation without delays or complications. The prerequisite check script checks requirements such as:

- Supported operating system.
- Sufficient RAM.
- Sufficient swap file space.
- Disk space for the creation of the installation and temporary directories passed in input to the script.

For specific details about the product system requirements see “Disk space requirements” on page 27.

To run the prerequisite check script, copy the script `iwsPrereqCheck.bat` or `iwsPrereqCheck.sh` and the `Prerequisites` folder from the fix pack image to a folder on the system where you plan to run the installation. Ensure you have read, write, and execute permissions on the `Prerequisites` folder. If the fix pack image is already on this system, then you can run the script directly from the fix pack image location. Submit the script to run as follows:

On Windows operating systems:

Run the following command:

```
iwsPrereqCheck.bat -instdir <TWA_HOME> -tmpdir <tmp>
```

On UNIX or Linux operating systems operating systems:

Run the following command:

```
iwsPrereqCheck.sh -instdir <TWA_HOME> -tmpdir <tmp>
```

where,

<TWA_HOME

Represents the product installation directory.

<tmp> Represents the temporary folder on the system where you are running the installation.

The results of the prerequisite check are written to a text file named, result.txt, located in the Prerequisites folder.

About this task

You are provided with several sample response files located in the \response_files\ directory. Select the appropriate response file, determine the eImages you need to download and extract, and then customize the properties in the response file including the settings for the repository location of the eImages before performing the silent installation. For example, the following is an extract from a sample response file with the repository locations specified:

```
<server>
  <!-- The IBM Workload Scheduler repository. -->
  <!-- Insert the value of the directory where you downloaded the
    IBM Workload Scheduler image. -->
  <repository location='/tmp/Images/TWS93ga/TWS/disk1' />
  <!-- Define the location where you store the current IBM Workload Scheduler
    fixpack eImages -->
  <repository location='/tmp/Images/TWS93fp3/TWS' />
</server>
```

Important: During the silent installation, if the location specified for a repository is not found, then correct the location and before rerunning the installation, clear the repository locations from IBM Installation Manager.

1. Open the **Preferences** panel in Installation Manager.
2. From the **Repositories** page, select and remove the repository location in error.
3. Correct the repository location in the response file.
4. Rerun the silent installation.

Table 10. Response files for fix pack installation

Response File Name	Description	Required Images			
		9.3 GA	9.3 FP3	Installation Manager	WebSphere Application Server
IWS93_UPDATE_<component_name>_from93_<os_name>.xml	This response file applies the fix pack to version 9.3 component bringing it to the 9.3 FP3 level.	✓	✓		
IWS93_UPGRADE_<component_name>_from9x_<os_name>.xml	This response file upgrades a version 9.1 or 9.2 component to the 9.3 FP3 level.	✓	✓		
IWS93_UPGRADE_<component_name>_from86_<os_name>.xml	This response file upgrades a version 8.6 component to the 9.3 FP3 level.	✓	✓		
IWS93_UPGRADE_<component_name>_from851_<os_name>.xml	This response file upgrades a version 8.5.1 component to the 9.3 FP3 level.	✓	✓		

Table 10. Response files for fix pack installation (continued)

Response File Name	Description	Required Images			
		9.3 GA	9.3 FP3	Installation Manager	WebSphere Application Server
IWS93_FRESH_<component_name>_<os_name>.xml	This response file performs a fresh installation of the version 9.3 GA product plus fix pack 3. Use this installation if you have WebSphere Application Server and Installation Manager already installed.	✓	✓		
IWS93_FRESH_FULL_<component_name>_<os_name>.xml	This response file performs a first time fresh installation of the version 9.3 GA product, fix pack 3, WebSphere Application Server, and Installation Manager. WebSphere Application Server must be purchased separately.	✓	✓	✓	✓

Create your own response file or customize a sample response file to include the options required to complete the installation you require. The properties in the response files are described in more detail in this topic of the *Planning and Installation* guide. In particular, with this fix pack, the following new properties have been introduced for DB2 and Oracle databases:

Table 11. DB2 database configuration properties in the response file

Name	Description	Permitted Values
user.dbJDBCDB2AdminUser	The user name of the administrator of the DB2 server instance.	db2inst1
user.dbJDBCDB2AdminPassword	The DB2 administrator password.	For more information about encrypting passwords using Installation Manager, see Encrypting user passwords for response files.
user.dbJDBCPort	Optional, type the TCPIP port number only if DB2 is configured to use an SSL connection.	50000
user.db2PlanTableSpaceName	The name of the DB2 instance tablespace for storing plan data.	TWS_PLAN
ser.db2PlanTableSpacePath	The relative path of the DB2 instance tablespace for storing plan data. Only for upgrades from IBM Workload Scheduler versions 8.5.1 and 8.6.	TWS_PLAN

Table 12. Oracle database configuration properties in the response file

Name	Description	Permitted Values
user.dbJDBCOraclePassword	The Oracle IBM Workload Scheduler user that accesses the IBM Workload Scheduler schema.	For more information about encrypting passwords using Installation Manager, see Encrypting user passwords for response files.
user.oraclePlanTableSpace	The name of the tablespace for storing plan data.	USERS

Procedure

1. Copy the relevant response file to a local directory.
2. Edit the IBM Workload Scheduler section.
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 -c
 - **On UNIX and Linux operating systems:**
./imcl -c
7. Type *P* and press the Enter key to access the **Preferences** menu.
8. Type *1* and press the Enter key to access the **Repositories** menu.
9. Remove all the listed repositories by typing the number beside each repository to edit it and then type *2* to remove the repository. Perform these actions for each of the listed repositories.
10. If there is an *X* beside the **S** menu item related to **Search service repositories**, type *S* and press the Enter key to deselect it.
11. Type *A* and press the Enter key to apply the changes.
12. Type *R* and press the Enter key to return to the main menu.
13. Type *X* and press the Enter key to exit.
14. 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
15. Run the following command:
 - **On Windows operating systems:**
imcl.exe input <local_dir>\response_file.xml
-log <local_dir>\log_file.xml
-acceptLicense -nosplash
 - **On UNIX and Linux operating systems:**

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

where *response_file* is the name of the response file to be used for the installation, and *log_file* is the name of the log file that records the result of the silent installation.

After installing the fix pack

After you have installed the fix pack for the master domain manager or backup domain manager, create the event and the event rules related to the centralized agent update feature. This procedure enables you to monitor future updates of fault-tolerant and dynamic agents using the centralized agent update method.

Before you begin

Ensure you have already upgraded your master domain manager or backup domain manager to IBM Workload Scheduler V9.3 Fix Pack 3.

About this task

To create the update event and event rules:

Procedure

1. Create the update event definition.
 - a. Perform a dump of your custom events by entering the following command:


```
evtdef dumpdef <file_name>
```

where *<file_name>* is the name of a new XML file to where your custom events are saved.
 - b. Edit the new XML file by appending the following section between the `<eventPlugin>...</eventPlugin>` XML tags maintaining the correct XML syntax and save the file.

```
<!-- Update Event -->
<event baseAliasName="updateEvt" scope="Generic">
  <complexName displayName="Update event" name="Upgrade"></complexName>
  <displayDescription>The event is sent when the specified expression is matched.</displayDescription>
  <property type="string" required="true" wildcardAllowed="true" multipleFilters="true" minLength="1">
    <complexName displayName="Message" name="Message" />
    <displayDescription>The message for which the event is generated.</displayDescription>
  </property>
  <property type="string" required="true" wildcardAllowed="true" multipleFilters="false" minLength="1">
    <complexName displayName="Workstation" name="Workstation" />
    <displayDescription>The workstation for which the event is generated.</displayDescription>
  </property>
  <property type="string" required="true" wildcardAllowed="true" multipleFilters="true" minLength="1">
    <complexName displayName="Update Status" name="UpgradeStatus" />
    <displayDescription>The status of the running update.</displayDescription>
  </property>
</event>
```

- c. Load the new update event definition by running the following command:

```
evtdef loaddef <file_name>
```

where *<file_name>* is the name of the XML file you created and modified in the previous steps.

2. Create the update event rules.

- a. Run the following command from the composer command line:
`composer replace <TWA_home>/TWS/eventrulesdef.conf`

where *<TWA_home>* represents the installation directory for the IBM Workload Scheduler instance.

What to do next

To display and verify the new update event and event rules, log out and log back in to the Dynamic Workload Console.

Installing the fix pack on agents using the twsinst script

You can use the following procedure to install the fix pack on an existing agent installation using the **twsinst** script with the `-update` option. To perform a fresh installation of the agent, you can use the **twsinst** script with the `-new` option, refer to the *Planning and Installation* guide for the complete procedure.

Note: If you are upgrading an agent from version 8.5.1, you must obligatorily specify the `-password user_password` parameter.

To show command usage:

On Windows operating systems:

```
cscript twsinst.vbs -u | -v
```

On UNIX and Linux operating systems:

```
./twsinst -u | -v
```

To install a fix pack:

On Windows operating systems:

```
cscript twsinst -update -uname TWS_user -password user_password  
[-domain user_domain]  
[-inst_dir installation_dir  
[-recovInstReg {true | false}]] [-wait <minutes>] [-lang <lang_id>]
```

On UNIX and Linux operating systems:

```
./twsinst -update -uname TWS_user [-inst_dir installation_dir  
[-recovInstReg {true | false}]] [-wait <minutes>][-lang <lang_id>]
```

Where:

-update

Upgrades an existing agent that was installed using the **twsinst** script.

-uname *TWS_user*

The name of the user for which IBM Workload Scheduler is upgraded.

-password *user_password*

Windows operating systems only. The password of the user for which you are upgrading IBM Workload Scheduler.

-domain *user_domain*

Windows operating systems only. The domain name of the IBM Workload Scheduler user. The default is the name of the workstation on which you are upgrading the product.

-inst_dir *installation_dir* [-recovInstReg *true* | *false*]

The name of the directory where you installed IBM Workload Scheduler. When installing the fix pack the *inst_dir* parameter is used:

- If the installation process cannot retrieve the product installation location from the registries.
- If you need to re-create the IBM Workload Scheduler registries again before the fix pack installation. Set the value of *recovInstReg* to *true* if you want to re-create the registry files while performing a fix pack installation on a fault-tolerant agent.

-wait *minutes*

The number of minutes that the product waits for jobs that are running to complete before starting the fix pack installation. If the jobs do not complete during this interval the installation process 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.

-lang *lang_id*

The language used for the **twinst** messages displayed. The default is the value of the system variable *LANG*. If the language catalog for the value you specified is missing, the default C language catalog is used.

twinst for Windows is a Visual Basic Script (VBS) that you can run in CScript and WScript mode. The IBM Workload Scheduler user is automatically created. The software is installed by default in the IBM 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.

After you complete the actions described in the section “Before Installing” on page 29, perform the following action:

- Run **twinst** with the options you need for your fix pack installation scenario.

Note:

- On IBM i operating systems, if you are installing the fix pack on a IBM Workload Scheduler for z/OS Agent or a IBM Workload Scheduler Dynamic Agent, after you complete the actions described in the section “Extract the eImages for the IBM Workload Scheduler for z/OS Agent and Dynamic Agent on IBM i operating systems” on page 35, run the **twinst** script from the *QSH shell*.
- When the agent upgrade completes, if your agent is a fault-tolerant agent, you have to restart all the IBM Workload Scheduler processes and services, with exception of *netman* that restarts automatically.
 - On Windows operating systems:
mailman, batchman, writer, jobman, stageman, JOBMON, tokensrv, batchup, monman
 - On UNIX operating systems:
mailman, batchman, writer, jobman, JOBMAN, stageman, monman.

To restart the upgraded fault-tolerant agent, **conman start** and **conman startmon** commands must be issued.

Installing the fix pack on multiple fault-tolerant and dynamic agents

You can install fix packs for multiple fault-tolerant agent and dynamic agent instances, by downloading a package on the master domain manager workstation and updating the multiple agent instances by running an action from the Dynamic Workload Console. You can also schedule the centralized update of multiple agent instances, by using the Dynamic Workload Console or the command line.

Before you begin

This procedure can be used from an IBM Workload Scheduler master domain manager version 9.3.0 or later to centrally update only instances of fault-tolerant agents version 9.3.0 or later and dynamic agents version 9.3.0 or later.

In the master domain manager Security file, you must have manage authorization for all the agent workstations for TWS_master_user, root, or Administrator users. If your master domain manager is a version 9.3.0 fresh installation, the authorization role is automatically added to the Security file. If your master domain manager is an upgraded version 9.3.0 instance, you must manually add the authorization. For more information about the manage keyword usage, see the Object type - cpu topic in the *Administration Guide*. For an example of a master domain manager Security file, see topic about the security file on the master domain manager to install fix packs or upgrade fault-tolerant agents and dynamic agents in the *Administration Guide*.

About this task

Complete the following steps:

Procedure

1. From IBM Fix Central, download on to the master domain manager workstation, the fix pack installation package you want to install on fault-tolerant agent or dynamic agent instances, to the following default directory:

On Windows operating systems:

`<TWA_home>\TWS\depot\agent`

On UNIX operating systems:

`<TWA_home>/TWS/depot/agent`

where `<TWA_home>` is the master domain manager installation directory.

You can change the default directory value executing the following steps:

- Stop the WebSphere Application Server on the master domain manager.
- Modify the `com.ibm.tws.conn.engine.depot` key value in the following property file:

On Windows operating systems:

`<TWA_home>\WAS\TWSPProfile\properties\TWSSConfig.properties`

On UNIX operating systems:

`<TWA_home>/WAS/TWSPProfile/properties/TWSSConfig.properties`

- Start the WebSphere Application Server.
2. Log on to the Dynamic Workload Console.
 3. Create a Monitor Workstations task.

4. Run a Monitor Workstations task and select one or more dynamic agent or fault-tolerant agent instances that you want to update.
5. Click **More Actions > Update agent**. The **Update agent** action checks whether the selected agent is a supported workstation type.

The **Update agent** action is applicable to the following workstation types only:

- Dynamic Agent
- Fault-tolerant agent

The **Update agent** action is not applicable to the following workstation types:

- Master domain manager
- Backup master domain manager
- Dynamic domain manager
- Backup dynamic domain manager
- Extended agent
- Standard agent
- Remote engine
- Broker
- Pool
- Dynamic pool
- Limited fault-tolerant agent

The process updates the agent only if the workstation type is supported. Otherwise, either an error message is displayed on the Dynamic Workload Console, or is written in the operator log messages console, depending on the workstation type.

You can schedule the centralized update of multiple agent instances, by using the Dynamic Workload Console or the command line. For a description of how to scheduler the update see the topic about scheduling the centralized agent update in the upgrading section of the *Planning and Installation* guide.

For a description of the **Update agent** action on fault-tolerant agents and dynamic agents, see the topic about Updating fault-tolerant agent and dynamic agent instances in the *Planning and Installation* guide.

Results

Verify the update agent results by completing one of the following actions in the Dynamic Workload Console:

Check the operator log messages console:

Click **System Status and Health > Event Monitoring > Monitor Triggered Actions** and check the messages related to the agent workstation update.

The following event rules are triggered:

UPDATESUCCESS

When the workstation is successfully updated

UPDATEFAILURE

When an error occurs

UPDATERUNNING

With the information about the update process status

Check the workstation version changes:

After the next plan update, in the Monitor Workstations view of the Dynamic Workload Console, you can check the updated version in the

Version column of the selected agent. Otherwise, if you do not want to wait for the next plan update to see the updated version, run the command `JnextPlan -for 0000` with the `-noremove` option.

You can also perform a **manual check of the update agent results** by looking at the following log files on the agent system:

On Windows operating systems:

`<TWA_home>\TWS\logs\centralized_update.log`

On UNIX operating systems:

`<TWA_home>/TWS/logs/centralized_update.log`

Uninstalling the entire IBM Workload Scheduler instance

Master domain manager or dynamic domain manager or their backups:

To uninstall using the IBM Installation Manager, see *Planning and Installation*.

Fault-tolerant agent or domain manager:

To uninstall the entire IBM Workload Scheduler instance, use the `twsinst -uninst -uname username` command from the `TWS_home` directory, where *username* is the name of the user for which the IBM Workload Scheduler agent is uninstalled.

Installation log files

The following installation log files give you details about the status of the fix pack installation for the master domain manager, backup master domain manager, the agents, and the connector:

- Log file for master domain managers, dynamic domain managers, and their backups:

On Windows operating systems:

`C:\ProgramData\IBM\InstallationManager\logs\<YYYYMMDD_HHMM>.xml`

Note: The folder `ProgramData` is a hidden folder.

On UNIX and Linux operating systems:

`/var/ibm/InstallationManager/logs/<YYYYMMDD_HHMM>.xml`

where `<YYYYMMDD>` is the date and `<HHMM>` is the time when the log file is created.

- Log file for fault-tolerant agents and dynamic agents:

On Windows operating systems:

`%Temp%\TWA\tws9300\
twsinst_<operating_system>_<TWS_user>^9.3.0.1n.log`

On UNIX and Linux operating systems:

`/tmp/TWA/tws9300/
twsinst_<operating_system>_<TWS_user>^9.3.0.1n.log`

where

`<operating_system>`

is the operating system running on the workstation where you are applying the fix pack.

<TWS_user>

is the name of the user for which IBM Workload Scheduler was installed (the name you supplied during installation).

n is the fix pack number.

Documentation updates for IBM Workload Scheduler Fix Pack 1 for version 9.3.0

Any additions or changes to the documentation as a result of this fix pack have been integrated into the online product documentation available in IBM Knowledge Center.

Documentation updates for Tivoli Workload Scheduler Fix Pack 2 for version 9.3.0

Any additions or changes to the documentation as a result of this fix pack have been integrated into the online product documentation available in IBM Knowledge Center.

Documentation updates for IBM Workload Scheduler Fix Pack 3 for version 9.3.0

The following are the changes to the documentation as a result of the APARs and fixes in this fix pack. The complete library at the version 9.3 fix pack 3 level is available in IBM Knowledge Center.

Updates to the What-if Analysis feature

In the Administration Guide, section **Configuring the Dynamic Workload Console** a new topic has been added about how to disable the feature:

Disable the What-if Analysis

You can disable the What-if Analysis in your environment by setting the **optman enWhatIf | wi** global option to *no* (default value is *yes*).

The **enWhatIf | wi** global option interacts with the **enWorkloadServiceAssurance | wa** global option, which enables or disables privileged processing of mission-critical jobs and their predecessors. For details about this interaction, see the following table.

Table 13. Interaction between *enWorkloadServiceAssurance* and *enWhatIf* global options

Options	Interaction
enWorkloadServiceAssurance wa is set to <i>yes</i> enWhatIf wi is set to <i>yes</i>	Both the Workload service assurance and the What-if Analysis features are fully enabled in your environment.
enWorkloadServiceAssurance wa is set to <i>yes</i> enWhatIf wi is set to <i>no</i>	The Workload service assurance is enabled. The What-if Analysis feature is disabled and an exception is issued if you try to use it.

Table 13. Interaction between *enWorkloadServiceAssurance* and *enWhatIf* global options (continued)

Options	Interaction
enWorkloadServiceAssurance wa is set to <i>no</i> enWhatIf wi is set to <i>yes</i>	The Workload service assurance is partially enabled, just to allow the What-if Analysis feature to work properly. This means that: <ul style="list-style-type: none"> • The Workload service assurance is disabled and an exception is issued if you try to use it. • No critical job is added to the plan.
enWorkloadServiceAssurance wa is set to <i>no</i> enWhatIf wi is set to <i>no</i>	Both the Workload service assurance and the What-if Analysis features are disabled in your environment.

IV80942 - 9.3 DOCUMENTATION NEEDS TO SHOW 8.5.1 RESPONSE FILE AVAILABLE ONLY WITH 9.3 FP01

See the note in the Planning and Installation Guide, section **IBM Workload Scheduler > Upgrading > Upgrading single components > Upgrading a master domain manager instance or its backup > Performing a direct upgrade > Upgrading the master domain manager.**

IV62103: CPU LIMIT "SYS" DOES NOT WORK AS DOCUMENTED FOR X-AGENTS

In the **IBM Workload Scheduler User's guide and Reference** guide, the following sentence "If you set limit cpu to system, there is no limit to the number of concurrent jobs on the workstation" should read as follows: "If you set limit cpu to system, there is no limit to the number of concurrent jobs on the workstation. For the Extended Agent the limit to SYSTEM sets the job limit to zero."

IV87280: TWS 9.3 UPGRADE SWITCHMGR COMMAND

In the Administration Guide, section **Administrative tasks > Changing a domain manager or dynamic domain manager > Complete procedure for switching a domain manager**, Step 4 in the tables "Set the workstation running the original domain manager to ignore, using either the conman cpuname command or the Dynamic Workload Console." should read "Set the workstation running the original domain manager to ignore, using either the composer cpuname command or the Dynamic Workload Console."

IV85018: EEWO1028I - The RFC connection is refused

In the Messages and Codes manual, section **IBM Workload Scheduler Access Method and Plug-in messages > SAP R/3 access method messages - O**, add messages **EEWO1028I - The RFC connection is refused: (1)** and **EEWO1029I - Reason: 102**. They mean that the r3batch options contains an user or password incorrect or the user is locked.

IV90774: CHANGE THE USER GUIDE TO BETTER DESCRIBE CONTINUE KEYWORD INTO SECURITY FILE.

In the **Administration Guide**, section **Configuring user authorization (Security file) > Classic security model > Configuring the security file > Security file syntax**, the description of the **end** argument should read as follows: "Terminates the user definition. The users defined in the user definition that terminates with an end statement do not match any subsequent user definition."

In the Administration Guide, section **Configuring user authorization (Security file) > Classic security model > Configuring the security file > Specifying object attributes > Order of object definition**, the sentence: "Ensure that you order object definitions from most specific to least specific also when you use the Continue keyword. With this keyword, you match more user definitions to a single user, so the user receives accesses from more user definition statements. These accesses are then processed in the order they are written in the security file. For an example of a security file with the Continue keyword, see "Users logged in to multiple groups [continue keyword]". should read as follows: "Ensure that you order object definitions from most specific to least specific also when you use the Continue keyword. The Continue keyword allows a user to inherit authorization from multiple stanzas. The user receives accesses as defined in the first matching entry of each stanza that matches the user definition. For an example of a security file with the Continue keyword, see Users logged into multiple groups [continue keyword]".

IV90182: ADDDEP IS REQUIRED TO PUT A JOB ON HOLD IN THE UI, BUT NOT THE COMMAND LINE

In the Administration Guide, section **Configuring user authorization (Security file) > Classic security model > Configuring the security file > Specifying access > Object type - job**, add the following row to the **Jobs - additional access keywords** table:

Table 14. Jobs - additional access keywords

Activity			Access keywords required
Conman Dynamic Workload Console	Hold	Hold a job to prevent it from running	adddep

IV81025: NEED TO DOCUMENT ABOUT A BEHAVIOR OF BROKER COMPONENTS WHEN ENSWFAULTTOL=YES

In the Administration guide, **Configuring user authorization (Security file) > Customizing and configuring IBM Workload Scheduler > Setting global options > Global options - detailed description**, in the description of the **enSwfaultTol** option, add the following sentence: "This option does not have dynamic capabilities and is not designed to work with broker agents. It applies to fault-tolerant agents."

IV89244: SYMEVNTS OPTION WORKS INDEPENDENTLY FROM LOGGING OPTION IN BMEVENTS.CONF

In the **Integrating** manual, in section **Integrating with IBM Tivoli Monitoring > Integrating with Tivoli Enterprise Portal using the agent log file data source > Integrating IBM Workload Scheduler with Tivoli Enterprise Portal > Configuring the integration with Tivoli Enterprise Portal > The BmEvents.conf file**, the description of the **SYMEVNTS** option should be changed from:

"Used in conjunction with **LOGGING=KEY**. It determines whether events concerning jobs and job streams are to be reported immediately after a plan creation. " to

"It determines whether events concerning jobs and job streams are to be reported immediately after a plan creation." Also, change the description of the NO option from "If set to this value, no report is given." to "Set to NO if report is not required."

IV84891: MOVEHISTORYDATA POOR PERFORMANCE

In the **User's Guide and Reference**, section **Using utility commands in the dynamic environment > movehistorydata**, change the command description to indicate that the command now deletes data from the database, instead of moving it to archive tables.

In the **Administration Guide**, section **Customizing and configuring IBM Workload Scheduler > Configuring the dynamic workload broker server on the master domain manager and dynamic domain manager > JobDispatcherConfig.properties file**, the description of the **MoveHistoryDataFrequencyInMins** parameter should be changed from:

"Specifies how often job data must be moved to the archive tables in the **Job Repository** database and the tables in the archive database must be dropped. The unit of measurement is minutes. The default value is 60 minutes. Increasing this value causes the **Job Dispatcher** to check less frequently for jobs to be moved." to:

"Specifies how often job data must be deleted. The unit of measurement is minutes. The default value is 60 minutes. Increasing this value causes the **Job Dispatcher** to check less frequently for jobs to be deleted. "

IV78750: EXPLANATION IS REQUIRED ON USING "WORKSTATION CLASS" AS OBJECT ATTRIBUTE IN SECURITY FILE

In the **Administration Guide**, section **Configuring user authorization (Security file) > Classic security model > Configuring the security file > Specifying object attributes > Object attribute**, add the following note at the end of the **Object attribute types for each object type** table:

Note: Granting access to a workstation class or a domain means to give access just to the object itself, and grant no access to the workstations in the object.

in the **User's Guide and Reference**, section **Defining objects in the database > Job stream definition**, add the following note at the end of the **List of scheduling keywords**, table:

Note: Granting access to a workstation class or a domain means to give access just to the object itself, and grant no access to the workstations in the object.

IV45708: LAUNCHING JNEXTPLAN BY USER OTHER THAN TWSUSER/ROOT

In the **User's Guide and Reference**, in the section **Managing the production cycle > Plan management basic concepts**, after sentence "You use the JnextPlan script on the master domain manager to generate the production plan and distribute it across the IBM Workload Scheduler network", insert the following sentences:

You can run the JnextPlan command from a command prompt shell on the master domain manager if you are one of the following users:

- The TWS_user user for which you installed the product on that machine, if not disabled by the settings that are defined in the security file.

- Root on UNIX operating systems or Administrator on Windows operating systems, if not disabled by the settings that are defined in the security file.

174134 Message AWKIPC010E Required parameter non provided

In the AWKIPC010E message: "Required parameter non provided", replace "non" with "not".

169660: TWS estimated time and actual time in seconds needs to be documented

In the *User's Guide and Reference*, section **Using advanced statistics to forecast the estimated duration of a job**, at the end of the first paragraph, add the following sentence: "The forecasts are precise to the very second".

162782: Wrong variable substitution information in the User's Guide and Reference

In the *User's Guide and Reference*, section **Defining objects in the database > Defining scheduling objects > Variable and parameter definition** replace the existing table with the following one:

Table 15. How to handle a backslash in variable substitution

Wrong way	Right way
1. Define the MYDIR variable as: \$PARM MYDIR "scripts" 2. Use it in this way: job01 scriptname "c:\operid\^MYDIR^\test.cmd" 3. Use it in this way: job01 scriptname "c:\operid\\${MYDIR}\test.cmd"	1. Define the MYDIR variable as: \$PARM MYDIR "\\scripts" 2. Use it in this way: job01 scriptname "c:\operid^MYDIR^\test.cmd" 3. Use it in this way: job01 scriptname "c:\operid\${MYDIR}\test.cmd"

162536: Missing Scenario Event Rules in User's Guide and Reference

In the *User's Guide and Reference*, section **Running event-driven workload automation > Defining event rules > Event rule examples**, add the following example after scenario #5:

When a specific event named ID3965 is generated, a command is run to open a service ticket and an event is sent to the Tivoli Enterprise Console.

```
<?xml version="1.0"?>
<eventRuleSet xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns="http://www.ibm.com/xmlns/prod/tws/1.0/event-management/rules"
  xsi:schemaLocation="http://www.ibm.com/xmlns/prod/tws/1.0/
    event-management/rules http://www.ibm.com/xmlns/prod/tws/
    1.0/event-management/rules/EventRules.xsd">
  <eventRule name="SCENARIO6RULE" ruleType="filter" isDraft="no">
    <eventCondition name="R3EventRaised1" eventProvider="SapMonitor"
      eventType="R3EventGenerated">
      <scope>
        ID3965 ON SAP_WKS
      </scope>
      <filteringPredicate>
        <attributeFilter name="Workstation" operator="eq">
          <value>SAP_WKS</value>
        </attributeFilter>
        <attributeFilter name="SAPEventId" operator="eq">
          <value>ID3965</value>
        </attributeFilter>
      </eventCondition>
    </eventRule>
  </eventRuleSet>
```

```

</filteringPredicate>
</eventCondition>
<action actionProvider="TWSAction" actionType="sbd"
        responseType="onDetection">
    <scope>
        SBD "/USR/APPS/HELPDESK -OPENTICKET -TEXT 'PROCESSING ERROR
            %{R3EVENTRAISED1.SAPEVENTID} ON SAP SYSTEM %{R3EVE
    </scope>
    <parameter name="JobType">
        <value>Script</value>
    </parameter>
    <parameter name="JobTask">
        <value>"/usr/apps/helpDesk -openTicket -text 'Processing error
            %{R3EventRaised1.SAPEventId} on SAP system
            %{R3EventRaised1.Workstation}&apos;"</value>
    </parameter>
    <parameter name="JobLogin">
        <value>userLogin</value>
    </parameter>
    <parameter name="JobWorkstationName">
        <value>AGENT1</value>
    </parameter>
    <parameter name="JobUseUniqueAlias">
        <value>true</value>
    </parameter>
</action>
</eventRule>
</eventRuleSet>

```

162529: Wrong default value for maxlen

In the *User's Guide and Reference*, section **Managing the production cycle > Customizing plan management using global options**, the default value of the `maxLen` property should be changed from 8 to 14 days.

162527: Wrong information related to UpdateStats

In the *User's Guide and Reference*, section **Managing the production cycle > Creating and extending the production plan > JnextPlan**, the `UpdateStats` description erroneously refers to "The stageman command on page 94". It should instead refer to "The logman command on page 96").

Load balancer support for Informatica PowerCenter plug-in

In *Scheduling Applications with IBM Workload Scheduler*, section **Customizing IBM Workload Scheduler to run Informatica PowerCenter jobs**, the following parameters have been added to customize the plug-in when the Informatica Web Services Hub is behind a load balancer:

use_load_balancer

Specifies if the Informatica Web Services Hub is behind a load balancer. Set this property to YES or NO.

If `use_load_balancer=YES`, you must also set `errorMsgs=TimeOut`, and `checkWfStatusBeforeWait=true`.

polling

This property is effective only if `use_load_balancer=YES`. It specifies the monitoring frequency of the workflow status. Set this property to NO or to an integer equal to or greater than 1000 (milliseconds). If you specify `polling=1000`, the workflow status is retrieved every second. Set `polling=NO` if `use_load_balancer=NO`.

no_infa_log

Specifies if you do not want to retrieve the Informatica

PowerCenter jobs workflow output in the IBM Workload Scheduler job log. Set this property to YES if you do not want to retrieve the workflow output, otherwise set this property to NO.

errorMsgs

This property is effective only if use_load_balancer=YES. It sets a pipe "|" as delimiter for error messages. If use_load_balancer=YES, set this property to Timeout and never modify this value.

checkWfStatusBeforeWait

This property is effective only if use_load_balancer=YES. It specifies if the Informatica PowerCenter workflow status has to be monitored. If use_load_balancer=YES, set this property to true, otherwise set this property to false.

172916: Clarification about the onoverlap keyword

In the *User's Guide and Reference*, section **Defining objects in the database > Defining scheduling objects > Job stream keyword definition details > onoverlap**, , add the following sentence to the explanation of the **enqueue** keyword: "At planning time, a new dependency is added to the previous instance. The new instance will start when the dependency is released, provided that the dependency is released within four minutes of the previous instance start time. If this timeout is exceeded, the new instance does not start."

168547: New property file for RemoteCommand plug-in

In the *User's Guide and Reference*, section **Extending IBM Workload Scheduler capabilities > Remote command jobs**, add the following sentence: "On Windows systems, the **RemoteCommand** plug-in has a hardcoded timeout set to 5 minutes (300 seconds). It might happen that this timeout is reached when a job is still running, causing its abnormal ending. To prevent this, a new property file, `RemoteCommandExecutor.properties`, has been added to the plug-in, having the attribute **timeout** that can be set to a different amount of seconds to give more time to run to the job. The attribute format is as follows: **timeout=sec**, where where *sec* is the amount of time in seconds. Restart the agent to make this change effective. "

Support for Informix® Dynamic Server or Microsoft SQL Server databases

In the *Planning and Installation* guide, section **The IBM Workload Scheduler response file properties**, the first row in the **Database configuration** table should be replaced with the following row:

Table 16. Database configuration

Name	Description	Permitted values
user.dbType	Choose which type of RDBMS support you want to use, DB2®, Oracle, or Other (Informix® Dynamic Server or Microsoft SQL Server).	db2 DB2 RDBMS oracle Oracle RDBMS others Informix® Dynamic Server or Microsoft SQL Server. See the section about database configuration in the Planning and Installation guide for more information about configuration scripts you must run to complete the installation for these RDBMSs.

177180: Customizing the SSL connection using your certificates

In the **Administration Guide**, section **Customizing the SSL connection between dynamic agents and a master domain manager or a dynamic domain manager using your certificates**, add the following sentences after the first paragraph of step 1: "The private key present in **TWSSClientKeyStore.kdb** on the agent must be trusted by the master domain manager, therefore the agent's public certificate must be stored in **TWSServerTrustFile.jks** in the master domain manager.

Note: If the private key is provided by a Certificate Authority, all the certificate chain must be stored in the **TWSServerTrustFile.jks** file. For details, see the Certificate Authority documentation.
 The master domain manager's private key must also be trusted by the agent, therefore the master domain manager's public certificate must be stored in **TWSSClientKeyStore.kdb** in the master domain manager.

Note: If the private key is provided by a Certificate Authority, all the certificate chain must be stored in the **TWSServerTrustFile.jks** file. For more detailed information, see the Certificate Authority documentation.

Clarify procedure for running scripts to create or upgrade the SQL schema on Microsoft SQL Server

In the **Planning and Installation Guide**, section **IBM Workload Scheduler > Creating or upgrading the IBM Workload Scheduler database tables before installing or upgrading > Creating or upgrading the database schema if you are using Microsoft SQL Server > Running scripts to create or upgrade the SQL schema on Microsoft SQL Server**, the list of procedures should read as follows:

Creating the SQL schema before installing the product

When using SQL Server Authentication

Master domain manager and its backup

1. Run Procedure to create the IBM Workload Scheduler SQL schema on Microsoft SQL Server when using SQL Server Authentication

2. Run Procedure to create the dynamic workload broker SQL schema on Microsoft SQL Server when using SQL Server Authentication

Dynamic domain manager and its backup

Run Procedure to create the dynamic workload broker SQL schema on Microsoft SQL Server when using SQL Server Authentication

When using Windows Authentication

Master domain manager and its backup

1. Run Procedure to create the IBM Workload Scheduler SQL schema on Microsoft SQL Server when using Windows Authentication
2. Run Procedure to create the dynamic workload broker SQL schema on Microsoft SQL Server when using Windows Authentication

Dynamic domain manager and its backup

Run Procedure to create the dynamic workload broker SQL schema on Microsoft SQL Server when using Windows Authentication.

Upgrading the SQL schema before upgrading the product

When using SQL Server Authentication

Master domain manager and its backup

1. Run Procedure to upgrade the IBM Workload Scheduler SQL schema on Microsoft SQL Server when using SQL Server Authentication
2. Run Procedure to upgrade the dynamic workload broker SQL schema on Microsoft SQL Server when using SQL Server Authentication

Dynamic domain manager and its backup

Run Procedure to upgrade the dynamic workload broker SQL schema on Microsoft SQL Server when using SQL Server Authentication

When using Windows Authentication

Master domain manager and its backup

1. Run Procedure to upgrade the IBM Workload Scheduler SQL schema on Microsoft SQL Server when using Windows Authentication
2. Run Procedure to upgrade the dynamic workload broker SQL schema on Microsoft SQL Server when using Windows Authentication

Dynamic domain manager and its backup

Run Procedure to upgrade the dynamic workload broker SQL schema on Microsoft SQL Server when using Windows Authentication

IV80942 (174032) - 9.3 Documentation needs to show 8.5.1 response file available only with 9.3 fp01

In the **Planning and Installation Guide**, section **IBM Workload Scheduler > Upgrading > Upgrading single components > Upgrading a master**

domain manager instance or its backup > Performing a direct upgrade > Upgrading the master domain manager > Upgrade procedure using the silent installation, add the following notes at the beginning of the section:

Note:

If you are upgrading from V8.5.1 to V9.3.0, consider that the direct upgrade for the master domain manager, or its backup, is not supported. Only the parallel upgrade from V8.5.1 to V9.3.0 is supported.

With V9.3.0 fix pack 1 or later, the direct upgrade is supported and you can upgrade to the latest V9.3.0 fix pack available with just one single step (without the need to upgrade to V9.3.0 first). Therefore, the response files to upgrade from V8.5.1 to V9.3.0 are available only with V9.3.0 fix pack 1 or later.

178276 - Agent name starting with a number

In the **Planning and Installation Guide**, section **IBM Workload Scheduler > Installing > Installing main components > Installing agents > Agent installation parameters - twsinst script**, add the following sentence at the end of the explanation of the **-displayname** parameter: "If the host name starts with a number, **-displayname** parameter must be specified.". Also add the following sentence at the end of the explanation of the **--thiscpu** parameter: "If the host name starts with a number, **-thiscpu** parameter must be specified."

IV95276 (175735) - Adding support for TLS 1.1 and TLS 1.2 for fault-tolerant agents

In the **Administration Guide**, section **Customizing and configuring IBM Workload Scheduler > Setting local options > Localopts details**, add the following entries:

cli gsk tls10 cipher=DFLT|<cipher>

Only used if SSL is defined using GSKit (ssl fips enabled="yes"). Specify the cipher to be used with the TLS 1.0 protocol in association with GSKit when using the IBM Workload Scheduler command line. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. When specified, it overrides the default option. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

cli gsk tls11 cipher=DFLT|<cipher>

Only used if SSL is defined using GSKit (ssl fips enabled="yes"). Specify the cipher to be used with the TLS 1.1 protocol in association with GSKit when using the IBM Workload Scheduler command line. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. When specified, it overrides the default option. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

cli gsk tls12 cipher=DFLT|<cipher>

Only used if SSL is defined using GSKit (ssl fips enabled="yes"). Specify the cipher to be used with the TLS 1.2 protocol in association with GSKit when using the IBM Workload Scheduler command line. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. When specified, it overrides the default option. If

you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

cli ssl tls10 cipher=HIGH | <cipher>

Only used if SSL is defined using OpenSSL (ssl fips enabled="no"). Specify the cipher to be used with the TLS 1.0 protocol in association with SSL when using the IBM Workload Scheduler command line. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. When specified, it overrides the default option. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

cli ssl tls11 cipher=HIGH | <cipher>

Only used if SSL is defined using OpenSSL (ssl fips enabled="no"). Specify the cipher to be used with the TLS 1.1 protocol in association with SSL when using the IBM Workload Scheduler command line. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. When specified, it overrides the default option. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

cli ssl tls12 cipher=HIGH | <cipher>

Only used if SSL is defined using OpenSSL (ssl fips enabled="no"). Specify the cipher to be used with the TLS 1.2 protocol in association with SSL when using the IBM Workload Scheduler command line. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. When specified, it overrides the default option. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

gsk tls10 cipher=DFLT | <cipher>

Only used if SSL is defined using GSKit (ssl fips enabled="yes"). Specify the cipher to be used with the TLS 1.0 protocol in association with GSKit. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. When specified, it overrides the default option. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

gsk tls11 cipher=DFLT | <cipher>

Only used if SSL is defined using GSKit (ssl fips enabled="yes"). Specify the cipher to be used with the TLS 1.1 protocol in association with GSKit. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. When specified, it overrides the default option. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

gsk tls12 cipher=DFLT | <cipher>

Only used if SSL is defined using GSKit (ssl fips enabled="yes"). Specify the cipher to be used with the TLS 1.2 protocol in association with GSKit. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. When specified, it overrides the default option. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

ssl tls10 cipher=HIGH|<cipher>

Only used if SSL is defined using OpenSSL (ssl fips enabled="no"). Specify the cipher to be used with the TLS 1.0 protocol in association with SSL. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

ssl tls11 cipher=HIGH|<cipher>

Only used if SSL is defined using OpenSSL (ssl fips enabled="no"). Specify the cipher to be used with the TLS 1.1 protocol in association with SSL. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

ssl tls12 cipher=HIGH|<cipher>

Only used if SSL is defined using OpenSSL (ssl fips enabled="no"). Specify the cipher to be used with the TLS 1.2 protocol in association with SSL. Restart the agent to make the changes effective. This keyword is optional and must be manually inserted in the localopts file. If you set more parameters with different versions of the same protocol, the protocol with the lowest version is used.

Chapter 2. Contacting IBM Software Support

Before contacting IBM Software Support with a problem, refer to the IBM Software Support site by accessing the following Web address:

<http://www.ibm.com/software/support>

To access Tivoli support, click the Tivoli support link at the bottom right of the page.

If you want to contact IBM Software Support, see the *IBM Software Support Handbook* at the following Web site:

<http://techsupport.services.ibm.com/guides/handbook.html>

The guide provides information about how to contact IBM Software Support, depending on the severity of your problem, and the following information:

- Registration and eligibility.
- Telephone numbers, depending on the country in which you are located.
- Information you must have before contacting IBM Software Support.

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