



Upgrade Guide IBM Maximo Products V7.5 to V7.6

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Chapter 1. Upgrade overview

Upgrading from Maximo Asset Management 7.5 to version 7.6 products is a multistage process. You use the Maximo Asset Management version 7.6 installation program to install new files, and then use the Maximo Asset Management version 7.6 configuration program to update the configuration. The full upgrade process includes tasks that you perform before and after running the installation and configuration programs.

The upgrade program supports multiple product configurations, including Maximo Asset Management and related components and products.

Some sections of this guide apply only to specific products or configurations. If the specified product or configuration does not apply to your installation, skip that section and continue with the next one.

Upgrade resources

Be sure that you have the latest version of this upgrade guide. You can find the latest version of all available upgrade guide and additional information about upgrading, at the Maximo Upgrade Resources web page.

The IBM Maximo Support website provides an extensive, continually updated knowledge base on upgrade topics. See the Maximo Upgrade Resources page at: <https://www-304.ibm.com/support/docview.wss?uid=swg21266217>

In addition, see the Maximo Upgrade Requirements Matrix at <https://www-304.ibm.com/support/docview.wss?uid=swg21440174> for minimum requirements for upgrading Maximo Asset Management.

What the upgrade process supports

The Maximo Asset Management version 7.6 upgrade process supports upgrading the following elements of your Maximo Asset Management system:

- All data
- Any configurations that you performed with the Maximo configuration tools
- Data model
- User interface and presentation layer
- Workflow processes
- Data validations and defaults
- Integration definitions
- Escalations

What the upgrade process does not support

The Maximo Asset Management version 7.6 installation and configuration programs do not automatically upgrade certain aspects of a Maximo Asset Management version 7.5 deployment.

The following items are not automatically upgraded by the Maximo Asset Management version 7.6 installation and configuration programs. However, these items are not removed during the upgrade.

- The upgrade process does not support upgrading directly from Maximo Asset Management version 7.1. You must upgrade Maximo Asset Management version 7.1 to Maximo Asset Management version 7.5 before you can then upgrade to Maximo Asset Management version 7.6.
- You cannot upgrade from Maximo Asset Management version 7.5 to Maximo Asset Management Multitenancy. Maximo Asset Management Multitenancy systems provide services to multiple clients from a single, shared instance of the software. Multiple distinct users access the same database instance. The database structure required for Maximo Asset Management Multitenancy is incompatible with Maximo Asset Management.
- All industry solutions, adapters, and add-ons must be reinstalled as part of the upgrade process. You install these products after you install Maximo Asset Management version 7.6, but before you configure it.
- Any changes to the Maximo database schema or database objects (tables, columns, indexes, and so on) that were not made with the Maximo Asset Management Database Configuration application.
- Any database objects that you created (including stored procedures, triggers, views, and synonyms) that are dependent on Maximo Asset Management database objects.

The upgrade does not re-create such objects. You must reapply any custom triggers after the Maximo Asset Management version 7.6 upgrade process has completed.

- Custom extensions of Maximo Asset Management code such additions to Java code, Java applets, JavaScript, and HTML.
These customizations must be manually migrated to the Maximo Asset Management version 7.6.
- Upgrading from one database platform to another. For example, you cannot upgrade from a Maximo Asset Management version 7.5 deployment that uses an Oracle database to Maximo Asset Management version 7.6 that uses an IBM® DB2® database.

If you want to move from one database platform to another, you must install a new instance of Maximo Asset Management version 7.6.

The installation of additional Maximo product offerings can affect the Maximo Asset Management installation in several areas, including the installation source code, the database structure, database content, and license keys. For product offerings whose installation affects the database structure or content, see the Maximo Upgrade Resources Web page at <https://www.ibm.com/support/docview.wss?uid=swg21266217> for information about which of those products are supported by the upgrade.

The Maximo Asset Management version 7.6 upgrade process does not grant security authorizations to new applications or to new options within existing applications. You must assign authorization through Maximo Asset Management security applications after the upgrade is complete for new Maximo Asset Management 7.6 applications. Refer to the security application help information for details.

Important: If you did not use Maximo applications or tools to modify the Maximo Asset Management version 7.5 database, those changes can produce errors during the upgrade.

You must remove those customizations before beginning the upgrade process. Any changes to the database schema or database objects must be done using Maximo applications. You can use Maximo Asset Management applications to reapply these customizations after the upgrade to Maximo Asset Management version 7.6.

Failure to perform preupgrade tasks also can produce errors during the upgrade. Address errors that occur when you run the upgrade program so that you can complete the upgrade.

Oracle WebLogic Server considerations

Special Oracle WebLogic Server considerations are required for Maximo Asset Management version 7.6 upgrades.

Effective April 23, 2011, IBM no longer provides Oracle WebLogic Server installation images to existing and upgrading customers. If you have deployed a previous version of Maximo Asset Management to Oracle WebLogic Server and are evaluating an upgrade to version 7.6, you can deploy it using WebSphere® Application Server Network Deployment version 8.5.5, which is provided at no additional cost. Alternatively, you can obtain Oracle WebLogic Server installation media from Oracle or an approved Oracle software vendor. Versions of Oracle WebLogic Server that were provided with Maximo Asset Management version 5, version 6, or version 7.1 are not supported for use with Maximo Asset Management version 7.6. For more information, refer to the Maximo products upgrade resources page at <https://www.ibm.com/support/docview.wss?uid=swg21266217>.

Chapter 2. What's new in IBM Maximo Asset Management 7.6

New features and capabilities in Maximo® Asset Management 7.6 help your organization achieve greater efficiency in asset management through improvements in usability, integration, installation, and business intelligence.

New in installing and upgrading in Maximo Asset Management 7.6

Maximo Asset Management 7.6 has a new framework for installation that provides a single interface for better usability.

The new installer framework provides a single interface

Install Maximo Asset Management using the new Installation Manager software. Installation Manager provides a single interface to install and update Maximo Asset Management, DB2, and WebSphere Application Server.

Install the latest version of your industry solution or add-on product

Customers with industry solution products or add-on products must perform a new installation of their products after installing Maximo Asset Management 7.6. Learn more about upgrading

New installation option enables support for a multitenancy environment

Selecting the Maximo Asset Management Multitenancy installation option creates a separation of the Maximo database to enable multiple independent tenant entities to co-exist in the same instance of the Maximo database. Individual tenants within a Maximo Asset Management Multitenancy environment can maintain their own data, configurations, workflows and reports. Maximo Asset Management Multitenancy is intended for use, primarily, by hosting companies that want to reduce IT infrastructure costs. Maximo Asset Management Multitenancy, version 7.6, has a separate installation program from Maximo Asset Management and does not support earlier versions of industry solutions. After you perform a multitenancy installation, you cannot revert to a non-multitenancy deployment. Learn more about multitenancy

New in configuring Maximo Asset Management 7.6

You can now create applications that are based on the database views that you import. You can also use the Content Installer application to download Process Content Packs (PCPs) to get best practice data that saves configuration effort. PCPs are available for the key processes of Maximo Asset Management and most take only a few minutes to download.

Important: The content packs, Content Installer application, and the Content Installer Enabler are offered as-is on ISM Library. Support is not provided for these downloads. The support section of each content pack provides more details on IBM's Rapid Deployment Services for Cloud software installation service and

support. You can also search for help in the PCP community on developerWorks® at <https://www.ibm.com/developerworks/community/groups/community/ContentPacks>.

When you first install Maximo Asset Management, you are provided with minimal data to get started. You can now install content packs that contain predefined artifacts and sample data that you can later modify to suit your needs. The packs are version-specific and most take minutes to download, saving you configuration time. You use the Content Installer application to locate, download, and install the content packs. The content tab of the Content Installer displays a list of the content packages that are available for Maximo Asset Management. The Content Installer Enabler is an application license key that provides access to the Content Installer application in your product environment. Learn more about the Content Installer Enabler

Packs are available for Work Management, Inventory Management, Purchasing or Procurement, and Classifications. Packs come with artifacts, such as Start Centers, security groups, workflows, roles, actions, and escalations. For example, with the Work Management content pack, you receive a complete work management system with a set of workflows to manage work orders that are generated from multiple sources. The work management pack includes artifacts such as basic workflows and work types, work log entries, actions, roles, person and security groups, saved queries, communication templates, and escalations. The PCPs are provided with some assumptions about the processes that you use. For example, the Work Management pack assumes that you use standard inventory processes, but you can reconfigure the contents of the pack if necessary. Learn more about Process Content Packs

You download the following content packs from ISM Library, and each pack contains instructions on how to enable the data:

- Work Management: Download the Work Management PCP
- Inventory Management: Download the Inventory Management PCP
- Purchasing/Procurement: Download the Purchasing PCP
- Classifications: Download the Classifications PCP

Related tasks:

Creating applications from imported database views

New in Business Intelligence in Maximo Asset Management 7.6

New Business Intelligence (BI) features in Maximo Asset Management 7.6 provide improved data analysis for your unique business needs. These features focus on the areas of ad hoc reporting, KPIs, BIRT reporting and Cognos® reporting.

New in ad hoc reporting

Enhancements to ad hoc reporting enable your power users to develop more complex reports, while also providing usability and performance features.

Add calculations to reports to develop more complex reports

Administrators can give a subset of users the ability to create calculations as columns in a report. Through signature option access, calculations are created with standard mathematical operators and SQL syntax that is enabled by using an expression library. New features are also included to validate the expression before it is added to the report and for your administrator to customize the expression

library. Learn more about adding calculations to reports

Add summaries for selected attributes in a report to quickly analyze data results

In the new **Summary** tab in the Ad Hoc dialog box, users can add summaries for selected attributes to the report. Depending on the style of report that is selected, the summaries can be displayed at the header or the group level. The summaries provide high level overviews including counts, averages, minimum values, and maximum values. Learn more about adding summaries to attributes

Redesign of the ad hoc reporting dialog simplifies the report design inputs

The Ad Hoc dialog box is redesigned for improved field selection and report development. You can quickly enter data by using the **Select** buttons and hyperlinks for attributes.

Restrict record access to prevent performance issues

You can configure improved performance limits for your individual security groups. These limits restrict the number of records that users access when they develop a report during the preview stage of report development. Additionally, record limits are available for saved ad hoc reports. Learn more about restricting the number of records that a user accesses

New in Key Performance Indicators

New applications and features are added to Key Performance Indicators (KPIs) that make completing tasks easier for both the administrator and user.

Streamline the creation and maintenance of individual KPIs

Targeting KPIs with multiple variations, the new KPI Template application uses a single KPI SQL statement with a number of variables to allow administrators to seamlessly generate multiple individual KPIs. Learn more about the new KPI Template application

View and collaborate on KPIs outside of the Start Center

The new KPI Viewer application provides users access to KPIs outside of the Start Center. The application is accessed from the new Analytics module, and users can see a listing of KPIs that are affected by their business activities. Users can see the status of the metric, with historical trending. Additionally, communication logs are available so users can collaborate in the tracking and logging actions that are taken to improve the status of a KPI. Learn more about the new KPI Viewer application

Manage KPIs easier

Multiple new features are added to the KPI Manager application including the ability to schedule individual KPIs and a new cron task to manage your KPI historical records. You can also set security privileges on individual KPIs to restrict user access in the new KPI Viewer application. A long description field is now available where you can provide details on how a KPI is calculated and why it is important to the organization. Learn more about the enhancements to the KPI Manager application

New in BIRT reporting

Maximo Asset Management 7.6 uses BIRT 4.3.1 and many new features that target performance, administration, and configurability are available.

Multiple new features target performance

The report cancellation process is enhanced so that reports can be canceled regardless of the stage of report processing that they are in. 7.6 also includes configurable stop limits, which evaluate all the records in a report hierarchy and prevent massive reports from running. Additionally, report escalations are introduced to notify administrators of long running reports so that the administrator can quickly circumvent any potential performance problems. Learn more about the new features that target performance enablers

New configuration options allow for increased flexibility

For clients using a separate report server, report processes run from the BIRT Report Only Server (BROS) if it is configured. Two new .xls file options are available for report emailing to reduce file size and enable graph images. Also, in 7.6, you can specify the following features:

- Which export file options are available in the report viewer.
- Whether hyperlinks are available on exported report file.
- The number of columns that are displayed on an individual request page.

Enhancements to the Report Administration application make the task of managing reports easier

Multiple features are added to the Report Administration application to include increased information in log files and on report failures. Dialog boxes are consolidated for setting report limits for security groups, and a new action is added for exporting individual report design files. The generation of localized request pages is also simplified.

New in Cognos reporting

With Maximo Asset Management 7.6, you have access to the Cognos 10.2.1 BI Server products. These powerful enterprise tools enable you to perform a deeper analysis of visualization of the Maximo data.

Cognos reporting helps you to extensively analyze your data

A complete set of tools is provided for your business user, administrator, and developer that includes Cognos Connection, Workspace, Workspace Advanced, Report Studio, and Cognos Administration. After you install and configure your Cognos server to integrate with Maximo, your business users and report developers can create a wide variety of reports and workspaces to analyze the vast amounts of data that is generated by Maximo Asset Management.

Improvements to metadata provide more options in Cognos reporting

Cognos relies on metadata, or pre-joined database objects, for creating and running reports. With the Maximo Integration Framework, you can publish Report Object Structures as Cognos metadata packages. In version 7.6, new site or organization restrictions are added to the metadata during the publishing process to ensure

users see only the site or organization data that they have access to. Additionally, the types of maxrelationships that can be used within Report Object Structures for publishing are greatly increased.

New features add flexibility to how users access Cognos


New access points are added so that users can access Cognos. Business or power users who are focused on data analysis can bypass Maximo Asset Management and directly sign into the Cognos Server with their Maximo Asset Management user IDs. Users can also access Cognos reporting directly from Maximo Asset Management through the new Analytics module, or from within an application.

A suite of Cognos reports and workspaces provide examples of how you can analyze your data

A suite of Cognos reports and workspaces are available that focus on assets, asset failures, work orders, and inventory. The following features are included:

- Metric reports provide you with detailed information and are accessible from the Cognos portal.
- Application workspaces highlight non-performing areas within your business. With a range of filterable values, the workspaces provide visual, intuitive, and configurable metrics that users can easily interact with.
- Trending workspaces provide a view of metrics using the time dimensions of week, month, quarter, and year. By capitalizing on the new KPI Template application, and the KPI Scheduling features, these workspaces provide historical data views for trending analysis.

Related information:

 [Cognos Reporting on IBM developerWorks](#)

New work assignment resources in Maximo Asset Management 7.6

Using new applications, you can assign out and track work assignments more easily.

The Crews application and the Crew Types application help you to define and assemble work crews

You can create crews that consist of the labor and assets that are required to complete work. You create a crew type to build your crew requirements, and then assign the required positions, qualifications, and assets that the crew needs. Learn more about crews and [Learn more about crew types](#)

The Service Address application makes finding locations and assets easier

You can use service addresses to organize customer locations and assets by address. When you organize customer locations and assets by service address, searching for and finding them is easier. [Learn more about service addresses](#)

The Map Manager application helps you to see a visual representation of your work

You can use the Map Manager application to create and configure maps. You can also develop and extend public maps so that users can view and work with

records that are associated with locations. Learn more about maps

The Maximo Everyplace template applications provide the mobile workforce with tools to complete their daily tasks

Maximo Everyplace template applications include tasks such as preparing resources, reviewing work orders, optimizing routes, and updating work orders with the least travel times and downtime. You must have a Maximo Everyplace 7.5 license to have access to these Everyplace applications. Learn more about Maximo Everyplace

New behavior changes in Maximo Asset Management 7.6

Maximo Asset Management 7.6 includes changes that might affect how you complete some tasks.

Ensure that messages in the preprocessing queue are not lost

In previous versions, when the WebSphere Application Server was restarted, messages that were in the reprocessing queue for the Integration Framework could be lost because a redelivery counter that was set on this queue was reset to 0 on restart. In version 7.6, the automatic installation includes an option to ensure that the redelivery counter is not set to 0 after restart.

Find and save WSDL and schema files

When you generate a schema file or a WSDL file it is no longer stored locally, it is available at a URL, making it easier to find and save.

A global directory is no longer necessary for storing files for the integration framework

In 7.6, the requirement for using a global directory for storing files in the integration framework is removed.

Integration error messages are now written to the database

Integration error messages are now written to the database and not to the file system.

Primary keys uniquely identify user-defined objects

When you assign a primary key to a user-defined object, the key uniquely identifies the object in the database. The values in the primary column determine which user-defined attributes are used to create the primary key.

Cron task servers can now be load balanced to ensure that servers do not get overloaded

Cron task loads are now balanced among the servers that are set up to run the cron task instances.

Related information:

 Further technical changes are documented on the Upgrading wiki page on IBM developerWorks

New in integration with external applications in Maximo Asset Management 7.6

Changes to integration processes make integrating easier with the option to use automation scripts and improved file management.

Automation scripts for integration simplify the customization of integration processing

You can use automation scripts in place of Java™ classes to apply custom logic at various points during the processing of object structures, publish channels, enterprise services, and invocation channels. Automation scripts are available for use immediately, without a requirement to rebuild and redeploy Java classes, and are easier to upgrade. Learn more about automation scripts for integration

Improved file management removes dependency on global directory for integration

In complex installations, the use of a global directory for integration-related files can be difficult to manage. You can continue to use the global directory, or you can configure other directories to suit your requirements. Review further information in the Maximo Asset Management 7.6 Upgrade Guide. Learn more about upgrading

New in usability in Maximo Asset Management 7.6

Changes to the user interface make completing tasks easier.

Hover over a field to see related information without having to leave the record

Hover windows are enabled on some fields so that you can hover over the field and see information about the record that is specified in the field. For example, you can hover over the **Asset** field in a work order to see the status of the asset. Learn more about hover windows

Buttons next to text boxes provide quick access to the actions you frequently use

You can add the buttons for the menu items that are most frequently used. Adding buttons next to fields means that it takes fewer clicks to get to the actions you require to complete your tasks. Learn more about adding buttons next to text boxes

View related information for a record in a Result Set Portlet

You can now view information that is related to the main record of the result set. For example, you can now display the first and last name of the owner of an incident, instead of only the User ID which may not be useful. Learn more about related information in Result Set Portlet

Edit mode ensures that no one else can edit a record while you are making changes

When you want to modify a record, you put it in edit mode so that other users can view the record, but cannot change it. Edit mode reduces refetch errors that occur when two users edit a record in the same application at the same time. Records are released from edit mode if you use the **Go To** menu, return to the **List** tab, page through a record, or log out. Saving the record, clicking a link to another application, or closing your browser without logging out do not release the record from edit mode. If records are inadvertently left in edit mode, your administrator can release the records in the new Record Release application. Applications where you can enable edit mode include the Work Order Tracking application, the Changes application, and the Activities and Tasks application. Learn more about edit mode

Side navigation menu makes moving around the user interface and completing tasks easier

You now have the option to use a new collapsible navigation menu on the left side of the user interface. Most of the toolbar buttons and all of the actions that were previously available under the **Select Action** menu are in the side navigation menu. The **Select Query** option is moved into the **Available Queries** section of the navigation menu. The actions are more visible in the side navigation menu and some require fewer clicks to get to, which reduces the amount of time it takes to complete your tasks. The side navigation menu also includes a search field with the type-ahead feature enabled so that you can quickly search for menu items, such as applications and queries. To reduce horizontal scrolling when the side navigation menu is turned on, you can enable vertical labels. Learn more about the side navigation menu

Menu item provides quick access to your recent applications

From a menu item in the side navigation menu or from the **Go To** menu, you can access a list of your most recently used applications. The applications in the list differ depending on the user, the browser, and the language of the database.

Modernized user interface helps users be more efficient

A new skin is available that modernizes the user interface and includes more visible **Home** and **Go To** buttons. Labels for each field are placed above the field, rather than to the left of the field. This reduces horizontal scrolling when the side navigation menu is enabled, but also has the benefit of compacting applications horizontally. Learn more about the new skin

Related information:

 Videos introducing the usability enhancements in version 7.6

New in troubleshooting in Maximo Asset Management 7.6

Maximo Management Interface (MMI) is a REST API that enables HTTP-based clients to access information that is related to the current state of a Maximo deployment.

MMI provides information on the current state of the deployment

The state of a Maximo deployment can consist of the Maximo server processes that are part of the deployment, potentially in a multi-clustered setup, and information about resources, such as the Java virtual machine (JVM), memory, operating system, application server, and JVM threads. MMI uses JavaScript Object Notation (JSON) as the data format for representing the collected state information. Learn more about Maximo Management Interface

Configure custom log messages to reduce the time that is required to resolve bugs

You specify start and end messages that are written to the log files and the content between these messages contains the information that you require to resolve the issue. By identifying a specific section of the log file, you can reduce the time that you spend resolving an issue. Learn more about configuring custom log messages

In-session logging makes debugging easier and prevents performance issues

With in-session logging, also known as thread-based logging, you can configure logging for an individual user so that other users are not affected by performance issues. When you configure in-session logging, you can list the logs that you want to enable. The scope is set to root loggers, such as maximo.sql and maximo.integrate. The contexts that you can enable include OSLC or REST calls, MIF Web services and XML or HTTP calls, UI sessions, cron tasks, and MIF MDBs. The logs are generated in a separate file that is created under the working directory of the application. Logs must be manually purged to free up disk space.

New in Maximo Asset Management in recent releases

Recent releases of Maximo Asset Management focus on improving supply chain management, lowering the cost of implementation and ownership to increase return on investment, and enhancing user interaction. Recent releases include the releases from 7.5 to 7.6, and included enhancements are from versions 7.5, 7.5.0.1, 7.5.0.3, and 7.5.0.5.

New in installing and upgrading in Maximo Asset Management 7.5

A new tool is available to upgrade from a previous version. The installation guide is now streamlined.

The UPDATEDB tool completes database tasks during the upgrade process and tracks the last database update statement that succeeds. If the upgrade process fails, you can now correct the error, restart the UPDATEDB tool, and resume from the last successful task. Learn more about the UPDATEDB tool

The installation guide is streamlined and is now easier to follow. Learn more about the changes to the installation guide

New in configuring in Maximo Asset Management 7.5

New configuration options are available when you apply taxes.

You can configure the system for work orders, job plans, and to enable a tax-exempt status at vendor or organization level. Learn more about the new configuration options

Specify up to 27 tax types. After you add tax options, you refresh the database tables. Learn more about tax types

New in application design in Maximo Asset Management 7.5

With Maximo Asset Management 7.5, you have greater control over the design of applications and how they behave.

Configure autofill properties so that fields are automatically filled with cached data. Learn more about filling fields with cached data

Merge the data in three columns that show classification attributes and their values. Merging the columns makes the values easier to read. Learn more about merging columns

Restrict what users can see based on where they are in the user hierarchy. Learn more about restricting what users see

Clear the screen cache on each node in the cluster by using the existing MXServer cache management code.

New in security in Maximo Asset Management 7.5

You can now enable blocking of IP addresses to increase security on your system.

You can manage failed logins, forgotten password attempts, and self-registration attempts. Learn more about hacking and denial-of-service attacks

Use MAX prefixes for database users and groups to reduce the likelihood of naming conflicts with LDAP user and group names.

New in automation scripting in Maximo Asset Management 7.5

Enhanced scripting capabilities reduce the time that is needed to implement application validations and computation logic.

Implement common business application validations by using script code that can be deployed immediately without the need to stop and restart the application server. Learn more about implementing validations by using scripting

Choose from one of two commonly used scripting languages, Jython or JavaScript, and easily add JSR-223 compliant scripting languages and engines to suit development needs. Learn more about using scripting languages

Use wizards to rapidly assemble complete script configurations that implement object rules, field validations, workflow and escalation actions, workflow condition logic, and security condition logic. Learn more about using wizards to assemble script configurations

Promote script configurations that are created in development environments to production environments with Migration Manager. Learn more about promoting scripts to production by using migration manager

Use powerful variables and array notations to retrieve information from the business application to reduce or eliminate the need for API-level programming. Learn more about using variables and array notations to retrieve information

Use predefined keywords to show messages in business applications or to control field access (hidden, read-only, required). Learn more about using predefined keywords to show messages

New in configuration migration in Maximo Asset Management 7.5

New features improve your ability to track development configurations and reduce the time that is required to migrate configurations.

Simplify the migration of configuration content by using migration collections. Learn more about using migration collections to migrate configuration content

Compare source and target databases to identify the configuration content that must be migrated between environments. Learn more about comparing source and target databases

Correct deployment data errors which helps deployments to run more smoothly. Learn more about correcting deployment data

Replace attribute values at deployment time to ensure that the configuration content is appropriate for the target environment. Learn more about ensuring configuration content is appropriate for an environment

Preview a deployment to identify any problems before you migrate configuration content. Learn more about previewing a deployment

Version compatibility checking is more flexible during deployment. Learn more about flexible version compatibility checking

Creating a package is now simplified to reduce the requirements for approval and activation. Learn more about the simplified process of creating a package

New in user assistance in Maximo Asset Management 7.5

The Knowledge Center contains a technical library of content for your products. All of the content is available as searchable HTML and some of it is also available in PDF format. The Knowledge Center can be installed on your network and is available online.

You'll find more support for common tasks with embedded user assistance. Complex tasks often have links that take you to deeper technical content in the Knowledge Center. An installed Knowledge Center contains consolidated help for your installed Asset Management products. In the Knowledge Center, you can search for content filtered by product or category and receive ranked results. You can print up to 100 topics at a time and some types of information are also provided in PDF format for your convenience. In the online Knowledge Center, you can connect and collaborate with peers or leave comments that are reviewed by our Information Development team. You can click the **Feedback** link at the end of a topic to provide general feedback or comment on individual topics. Shortly after version 7.5.0.1 was released, the Documentation Customization Toolkit was made available. Learn more about it at <https://www.ibm.com/developerworks/>

community/wikis/home?lang=en#!/wiki/IBM%20Maximo%20Asset%20Management/page/Help%20Customization%20Toolkit.

The information that was previously in the *Product Reference Guide* (also known as the *User Guide*) is available as HTML topics in the Knowledge Center. See the *Product overview*, *Getting started*, and *Modules and applications* sections for the information.

A PDF landing page is now available at http://pic.dhe.ibm.com/infocenter/tivihelp/v49r1/topic/com.ibm.mam.doc/common/pdf_documentation.html and has links to all the guides in PDF and HTML in one place.

Content that was available only in PDF documents in previous versions is now also available as HTML in the Knowledge Center:

- See Developing applications for the *Application Developer Guide*
- See Financial processes reference for the *Finance Manager Guide*
- See Integrating data with external applications for the *Integration Guide*
- See Migration Manager for the *Migration Manager Guide*
- See Planning for multiple sites for the *Multisite Administrator Guide*
- See Administering Maximo Asset Management for the *System Administrator Guide*
- See Implementing workflow processes for the *Workflow Implementation Guide*

The information that was provided in the *Report Developer Guide* is now available at www.ibm.com/developerworks/wikis/display/maximo/Reports on the Reports page of the Maximo Asset Management wiki.

Deployment planning information is now in the Planning for Deployment Guide.

New in accessibility in Maximo Asset Management 7.5

Maximo Asset Management now complies with accessibility guidelines so that users with physical disabilities, such as restricted mobility or limited vision, can use the product successfully.

Maximo Asset Management now complies with Web Content Accessibility Guidelines (WCAG) 2.0. Maximo Asset Management also incorporates Web Accessibility Initiative - Accessible Rich Internet Applications (WAI-ARIA) attributes in custom widgets and uses the WAI-ARIA arrow key navigation model.

New in usability in Maximo Asset Management 7.5

Changes to how the user interface behaves mean that you can complete tasks faster, increasing your efficiency and productivity.

Changes to how the user interface behaves mean that you can complete tasks faster, increasing your efficiency and productivity.

If you use the VMMSYNC cron task for integration with LDAP, you can now choose to synchronize only the data that changed. This change reduces the time to synchronize the data. Learn more about synchronizing only changed data

Enable text search on a DB2[®] installation. You can search for information based on text, content metadata, or attributes.

Rich text editing is enabled for fields that support the entry of long descriptions.

Asynchronous communication between the user interface and WebSphere® Application Server means that you can quickly complete fields. You can address data entry errors after you complete all of the fields.

With improved error handling, you can resolve issues faster and more effectively. The error icon appears on a tab whenever an error on a tab is not addressed.

The new calendar control is easier to use and offers faster response to clicks.

When changes to a record are saved, focus remains on the last table row that was edited. On the List tab, all the changed records are highlighted.

The filter that you set for records on the List tab of an application is maintained when you view multiple tabs during the same user session. Different text styles indicate whether a record was changed since the filter was applied.

If your system is configured as part of the Tivoli® Integrated Portal, you can configure user interface controls to update information to a portlet in the Application Designer application.

New in reporting in Maximo Asset Management 7.5

Enhancements in the areas of configurability, usability, and performance have been added to the open reporting architecture.

Query based reporting

Edit QBR reports for improved usability. Learn more about editing QBR reports

Specify the same object multiple times within a report object structure (ROS) for query based reports. Learn more about specifying the same object multiple times in a ROS

Configuring report settings

Configure property settings for report designer to enable encryption. Learn more about enabling encryption for reports

Use additional command variations for importing and exporting reports. Learn more about importing and exporting reports

Limit the number of scheduled reports that are requested by users. Learn more about limiting scheduled reports

Receiving, accessing, and viewing reports

Access the latest delivered reports. Learn more about accessing the latest delivered reports

Use the new Direct Print and Direct Print with Attachments features. Learn more about the Direct Print and Direct Print with Attachments features

Email a report to a URL. Learn more about emailing a report to a URL

Choose from multiple reporting options based on your business needs. Learn more about multiple reporting options

Display the content of reports in rich text format. Learn more about displaying the content of a report in rich text format

Logging

When they are debugging or troubleshooting reports, administrators and developers can use report logging information. Learn more about report logging information

Cognos reporting

Access the Cognos portal through additional access points and security actions. Learn more about accessing the Cognos portal

Use the enhanced metadata publishing process for improved, localized descriptions of Cognos packages. Learn more about using the enhanced metadata publishing process

New in supply chain management in Maximo Asset Management 7.5

Supply chain management has been enhanced from materials management to purchasing, receiving, and invoicing. The overall effect of these enhancements is that workflows are streamlined and usability is greatly improved.

Consignment invoices

Generate consignment payment invoices, either manually or automatically, for financial transactions that occur when consignment items are consumed from a storeroom. Learn more about generating consignment payment invoices

Indicate whether an item is a consignment item in the PO line record. Learn more about indicating which items are consignment items

Specify the maximum number of lines that can be included on a consignment invoice for a vendor. Learn more about specifying the maximum number of lines on a consignment invoice

Purchase order revisions

Modify the unit cost, the line cost, and the tax cost for purchase order line items during PO revision. Learn more about purchase order revision

Track revisions of purchase orders. Learn more about tracking revisions of purchase orders

Select whether receipts and invoices are processed when the purchase is revised. Learn more about choosing what is processed when a purchase order is revised

Receipt and invoice processing

Create invoices with purchase order sites that are different from the site from which the invoice is generated. Learn more about different purchase order and invoice sites

When an original invoice contains errors, such as unit cost mistakes, replace the original invoice by reversing it. Learn more about reversing invoices

Determine the financial period on the invoice record. Learn more about determining the financial period on an invoice

Validate the financial period each time that an invoice is saved or when the invoice is approved. Learn more about validating the financial period

View lines for services or items received that are not invoiced, or view all lines that are invoiced and not invoiced. Learn more about viewing lines

Specify default values for certain fields. Learn more about specifying default values for fields

Create shipment receipt records to log the receipt of transferred inventory items at the destination storeroom. Learn more about logging the receipt of transferred inventory items

Monitor the balance of received items and adjust the totals and status in inventory usage records. Learn more about monitoring the balance of received items

Specify that an inspection is required when inventory items are received. You can specify an inspection status for shipment receipt records. Learn more about specifying that an inspection is required for inventory items

In requests for quotations, convert the cost of a quotation line to the base currency. Learn more about converting the cost of a quotation line to the base currency

Contract revisions

When you are updating a purchase order, bypass the validation of revisions to the associated contract. You can then approve the purchase order. Learn more about bypassing the validation of revisions to contracts

Tax code calculations

Specify the order in which tax codes are used to calculate the amount of tax that is due. Learn more about specifying the order of tax codes

Check whether an item is taxable. Learn more about checking whether an item is taxable

Related records

View related records for purchase requisitions, such as invoices, contracts, and requests for quotations. Learn more about viewing related records for purchase requisitions

View related records for invoices, such as purchase orders, contracts, and requests for quotations. Learn more about viewing related records for invoices

Commodity association

Associate a person record with a commodity group, and edit commodity codes.

Specify details for a person-to-commodity association, such as the organization, the site, and the storeroom.

New in stock and inventory in Maximo Asset Management 7.5

The new Inventory Usage application streamlines the issue and transfer process. Support is also provided for workflow of issues and transfers, staged and shipped items, multiple assets, and source bins per line. Costing methods are also improved with increased flexibility in ordering and reserving items.

Item issues and transfers

Create inventory usage records to track the issue, transfer, and return of inventory items within and across organizations. Learn more about tracking the issue, transfer, and return of inventory items

Monitor the balances of inventory items and tools in storerooms and bins. Learn more about monitoring the balances of inventory items and tools

Transfer inventory items or tools between storerooms within an organization by creating shipment records or purchase orders. Learn more about transferring inventory items or tools

Enter multiple shipping addresses and multiple billing addresses for the sites in an organization. You can specify the default addresses that are used for each site.

Inventory costing

Specify the issue cost type that is associated with an item when you add items to a storeroom, such as last-in first-out (LIFO) and first-in first-out (FIFO) cost types. Learn more about specifying the issue cost type

Apply last-in first-out (LIFO) and first-in first-out (FIFO) costing methods to inventory records. Learn more about applying LIFO and FIFO costing methods

Include selected items as part of the consignment inventory, so that they are paid for only when they are used. Learn more about including items in the consignment inventory

Specify consignment items in inventory stock and enter consignment vendor details for inventory items and tools. You can also specify that an invoice is created when consignment items are consumed. Learn more about specifying consignment items in inventory stock

Item ordering

Specify the percentage of items that can be received over the amount that is ordered in the initial agreement. Learn more about specifying the percentage of items that can be received

Specify the stock category for an item to identify stocked items, non-stocked items, and special order items. Learn more about specifying stock categories

Reserving items and tools

Create hard reservations or soft reservations of inventory items and tools, based on the availability of the inventory requirement. Learn more about creating reservations for inventory items

Automatically create usage documents for new reservations.

New in work and asset management in Maximo Asset Management 7.5

Workflows are streamlined with enhancements to better enable tracking of work orders and management of job plans. You can also generate forecasts for preventive maintenance records.

Asset management

Use asset templates to create or update multiple assets. Learn more about using asset templates

Return rotating assets and direct issue items to vendors. Learn more about returning rotating assets and direct issue items

Preventive maintenance

Generate forecasts for preventive maintenance records on the Forecast tab. Forecasts are based on the frequency criteria that you specify and on seasonal information. Learn more about generating forecasts for preventive maintenance records

Track owner groups by specifying assigned owner groups in preventive maintenance records.

Specify active dates and expiration dates for general ledger accounts so that they can be used within a set period only. Learn more about specifying active dates and expiration dates for GL accounts

Work order tracking

Specify an assignee relationship on a workflow assignment to create

groups of active assignments at run time. Learn more about specifying an assignee relationship on a workflow assignment

View the internal and external labor costs that are associated with work orders and work packages.

Monitor whether the actual costs for work orders and work packages exceeded the planned costs.

Specify whether to ignore the availability of storeroom materials and direct issues for work orders.

View the current direct issue material status and the current storeroom material status for a work order. You can also view the material status for a work order package hierarchy and see when the status was last updated.

Add multiple address tax codes to a work order record to facilitate tax calculation.

Job plan management

Track owner groups by specifying assigned owner groups in job plan records.

Specify that nested job plans are processed in the background when job plans are applied to work order type records. You can continue working while the process occurs in the background.

Escalations

Include calendars and shifts in the calculation of escalation points.

New in service management in Maximo Asset Management 7.5

You use service groups to define all the services that you provide or procure. You can use escalations to manage and meet the commitments in service level agreements.

Group tickets, work orders, and contracts by service group or individual service. Learn more about grouping tickets, work orders, and contracts

Create service level agreements for a service group or for a combination of service group and service. Learn more about creating service level agreements

Associate an asset, asset type, or location with a service or service group. Learn more about associating assets, asset types, or locations with a service

A service level agreement can have multiple commitments, each with its own escalation points. Learn more about multiple commitments for service level agreements

New in integration with external applications in Maximo Asset Management 7.5

Increased flexibility of integrating with external applications reduces the amount of configuration tasks that are required. In addition, support for integration messages is expanded and improved.

Use the REST API to integrate external applications with process automation engine applications. The REST API exposes business objects and integration object structures as REST resources. The REST API can provide resource data in either

XML or JavaScript Object Notation (JSON) format. External applications can use the REST API to query and update application data. Learn more about using the REST API

Messages that are written to a queue by the integration framework are in byte format by default. You can now use the External Systems application to support messages in text format. Learn more about messages in text format

Enable exporting and importing of data from any application, so that you can manage application data outside of the application, for example, by using a spreadsheet. XML and flat file formats are supported. Learn more about managing application data outside of the application

Configure events from a child object of an object structure to propagate to the parent object to create an outbound integration message. Learn more about creating outbound integration messages

Configure the processing of integration messages to follow the authorization configuration that is established for an application and user group. For example, loading asset data through the integration framework can follow the same authorization rules that are configured for the Assets application. Learn more about configuring integration messages to follow authorization configuration

Deployment of web services is expanded to support the use of the application server container. Using the application server container allows the implementation of web service policies, such as WS Addressing, and WS Security. Learn more about deploying web services by using the application server.

Integration support is provided for bidirectional languages such as Arabic. You can specify the bidirectional language format that is used by an external system. Learn more about support for bidirectional languages

With the new OSLC Resources application, you can configure Maximo Asset Management as an OSLC provider. Also, OSLC consumer capabilities are enhanced to support a third type of interaction that is called a query interaction. Learn more about the new OSLC Resources application

You can configure Maximo Asset Management as an OSLC provider by using the OSLC Resources application. An external OSLC consumer application, such as Rational Team Concert™, can query, create, update, or delete Maximo Asset Management resources, such as work orders. Learn more about configuring Maximo Asset Management as and OSLC provider

The OSLC consumer capabilities that were added in Maximo Asset Management 7.5.0.3 are further enhanced in version 7.5.0.5. You can design a query interaction to enable users to run a query in an application and retrieve resource data from a provider. Learn more about the enhancement to OSLC consumer capabilities

Chapter 3. Upgrading to Maximo Asset Management version 7.6

Your current deployment of Maximo Asset Management or Maximo can be upgraded to Maximo Asset Management version 7.6.

The following upgrade scenarios are supported:

Table 1. Supported upgrade scenarios

Current Deployment	Target Deployment	Method
Maximo Asset Management version 7.5, including fix pack 7.5.0.6.	Maximo Asset Management version 7.6	Using the Maximo Asset Management version 7.6 installation and configuration programs.

At the conclusion of an upgrade, ensure that you perform post installation tasks.

Industry solution and add-on product version prerequisites

The majority of industry solutions and add-ons can be deployed with Maximo Asset Management version 7.6.

The following industry solutions and add-ons are compatible with Maximo Asset Management version 7.6.

Table 2. Industry solutions and add-ons compatible with Maximo Asset Management version 7.6

Industry solutions and add-ons	Notes
IBM Maximo for Nuclear Power 7.5.1	
IBM Maximo for Transportation 7.5.1	
IBM Maximo for Utilities 7.5.0.1	
IBM Maximo Asset Management Scheduler 7.5.2	
IBM Maximo Linear Asset Management 7.5.0	
IBM Maximo Enterprise Adapter for SAP 7.5.0.1	IBM Maximo Enterprise Adapter for SAP 7.5.0.1 can be installed for Maximo Asset Management version 7.6 using the solutioninstaller program, however, it requires additional configuration steps related to updating Service Identifier class information. Refer to information in this guide for further details.
IBM Maximo Archiving 7.5.1	IBM Maximo Archiving 7.5.1 can be installed for Maximo Asset Management version 7.6 using the solutioninstallerGUI program, however, it requires additional configuration steps related to installing Maximo Archiving Adapter template files and the InfoSphere Optim Data Growth Solution. Refer to information in this guide for further details.
IBM Maximo Anywhere 7.5.1.1	IBM Maximo Anywhere 7.5.1.1 can be installed for Maximo Asset Management version 7.6 using the solutioninstallerGUI program, however, it requires additional configuration steps related to installing IBM Worklight Server and configuring a build server. Refer to information in this guide for further details.
IBM Maximo for Oil & Gas 7.5.1	

Table 2. Industry solutions and add-ons compatible with Maximo Asset Management version 7.6 (continued)

Industry solutions and add-ons	Notes
IBM Maximo Health, Safety, & Environment 7.5.1	
IBM Maximo Asset Configuration Manager 7.5.1	
IBM Maximo Spatial Asset Management 7.5.0.1	
IBM Maximo for Life Sciences 7.5.0	
IBM Maximo Calibration 7.5.0	
IBM Maximo Mobile Asset Manager 7.5.1	<p>IBM Maximo Mobile Asset Manager 7.5.1 can be installed for Maximo Asset Management version 7.6 using the solutioninstallerGUI program, however, it requires additional configuration steps related to enabling a usage license. Refer to information in this guide for further details.</p> <p>IBM Maximo Mobile Asset Manager 7.5.1 can only be installed on Maximo Asset Management version 7.6 if the Maximo Asset Management version 7.6 administrative workstation is a Windows system. IBM Maximo Mobile Asset Manager 7.5.1 cannot be installed on Linux administrative systems.</p>
IBM Maximo Enterprise Adapter for Oracle 7.5.0	
IBM Maximo for Service Providers 7.6	

Ensure that you install the latest available hot fixes for industry solutions and add-ons when you deploy them.

Note: If you currently have Maximo Adapter for Primavera installed with Maximo Asset Management version 7.5, you **must** remove its data before you upgrade the Maximo Asset Management database. Scripts are provided from the Maximo Upgrade Resources support page at <http://www.ibm.com/support/docview.wss?uid=swg21440174>.

For complete details for industry solution and add-on product version upgrade prerequisites, refer to the Maximo Upgrade Requirements Matrix maintained on the product support site at <http://www.ibm.com/support/docview.wss?uid=swg21440174>.

Upgrade concepts

Prerequisites for upgrading your current deployment of Maximo Asset Management version 7.5 to Maximo Asset Management version 7.6

Ensure that the following prerequisites have been considered or completed before starting the upgrade process.

- Stop all Application Servers running the Maximo Asset Management application, for example, MXServer.
- Back up the existing Maximo Asset Management version 7.5 database, the contents of the Maximo Asset Management installation folder, and the deployment engine.

If a failure occurs during upgrade, you might be required to restore the Maximo Asset Management version 7.5 database. Some upgrade tasks cannot be rolled back after they are committed to the database. If you have a backup of the database you can restore your environment. As an example, during upgrade, suppose you choose to deploy optional content for process managers and you experience a failure. You decide to not deploy optional content when you restart the upgrade process. In this case, you must restore the database from the backup before starting the upgrade process again.

Files are found under C:\ibm\smp by default. This practice can prove useful if you must rebuild Maximo Asset Management EAR files for example.

Back up the deployment engine registry as described in the Maximo Asset Management version 7.5 installation information.

- Before the Maximo Asset Management version 7.6 upgrade, you must have completed Maximo Asset Management version 7.5 post installation tasks as described in the Maximo Asset Management version 7.5 installation information.

Configuration changes must be committed to the Maximo database at the conclusion of the original Maximo Asset Management deployment as a post installation task. This commitment is required before initiating the upgrade process. Details can be found in the Maximo Asset Management version 7.5 installation guide in the topic titled **Applying changes to the database**.

In order to confirm that all changes have been committed, run the following SQL query against the Maximo database.

```
SELECT count(*) from maxobjectcfg where changed != 'N'  
SELECT count(*) from maxsysindexes where changed != 'N'
```

'N' indicates that a change has been committed. For this query, if any positive row count values are returned, you must Apply Configuration Changes or Discard Configuration Changes using the appropriate menu option in the Database Configuration application. Alternatively, you can use configdb.bat to commit configuration changes, as described below. You can then proceed with the upgrade process.

In addition, tables beginning with XX are temporary tables that must be dropped before running the upgrade process. If these tables exist, they cause the Maximo Asset Management version 7.6 upgrade process to fail. Complete the following steps to remove these tables:

1. Verify that the temporary tables exist in the database:

DB2

```
select count(*) from sysibm.systables where name like 'XX%' and  
creator = 'MAXIMO'
```

Microsoft SQL Server

```
SELECT count(*) FROM sysobjects WHERE xtype = 'U' AND name like 'XX%'
```

Oracle

```
SELECT count(*) from all_tables where table_name like 'XX%'
```

2. If running, stop all Application Servers running the Maximo Asset Management application, for example, MXServer.
3. Open a command prompt on the Maximo Asset Management administrative workstation and issue the following commands:

```
cd install_home\tools\maximo  
configdb.bat  
restorefrombackup.bat  
dropbackup.bat
```

Running configdb.bat and restorefrombackup.bat performs the same function as choosing the Apply Configuration Changes menu option from

the Database Configuration application in Maximo. The configdb.bat and restorefrombackup.bat require all application servers serving the maximo application to be stopped. The dropbackup.bat command does not require application servers to be stopped.

You can now continue preparing for the upgrade process. If temporary tables cause an error while using the Maximo Asset Management configuration program, you can remove the tables using these steps, and then continue.

- Stop all Maximo Asset Management version 7.5 application servers, for example MXServer, before you start the upgrade process. All other middleware services, such as the database server, must be active unless specified otherwise in the upgrade procedures.
- Ensure that you have access to the Maximo Asset Management administrative system.

Most upgrade tasks are performed either on or from this system.

- If you modified any applications, export them using the Application Designer before you begin any upgrade process. Refer to the Maximo Asset Management 7.5 application help for details.

Upgrade scenario road maps

Deployment scenario road maps are summaries consisting of product deployment tasks.

The upgrade information provided with Maximo Asset Management version 7.6 describes several upgrade scenarios.

Scenario 1 focuses on using the Maximo Asset Management installation program to install a new instance of WebSphere Application Server Network Deployment v8.5.5 on a different system than the instance of WebSphere Application Server Network Deployment v7 used in your Maximo Asset Management version 7.5 deployment. You then use the Maximo Asset Management version 7.6 configuration program to automatically configure WebSphere Application Server Network Deployment v8.5.5.

Scenario 2 describes installing a new instance of WebSphere Application Server Network Deployment v8.5.5 on the same Linux system as the instance of WebSphere Application Server Network Deployment v7 used in your Maximo Asset Management version 7.5 deployment. You then migrate configuration information from WebSphere Application Server Network Deployment v7 to WebSphere Application Server Network Deployment v8.5.5.

This scenario applies to deployments that use WebSphere Application Server Network Deployment hosted on Linux systems only.

Scenario 3 describes upgrading to Maximo Asset Management version 7.6 on Oracle WebLogic Server.

The following series of road maps provide procedural summaries of Maximo Asset Management deployment scenarios. The steps contained in each deployment scenario road map briefly describe the overall task and then provide links to more detailed information about that task.

The deployment scenarios provided include the following situations:

Upgrading by installing and configuring WebSphere Application Server Network Deployment v8.5.5 on a new server (Scenario 1)

You want to install WebSphere Application Server Network Deployment v8.5.5 on a new system in order to preserve your existing WebSphere Application Server Network Deployment v7 environment. You intend to use Maximo Asset Management version 7.6 tools to install and automatically configure a new installation of WebSphere Application Server Network Deployment v8.5.5.

This scenario is useful if you want to preserve your Maximo Asset Management version 7.5 deployment while upgrading to Maximo Asset Management 7.6. In this scenario, you are installing and configuring a new instance of WebSphere Application Server Network Deployment v8.5.5. None of the WebSphere Application Server Network Deployment v7 configuration information from your existing Maximo Asset Management version 7.5 deployment is reused. You are establishing WebSphere Application Server Network Deployment v8.5.5 in your environment in the same manner you would for a new Maximo Asset Management version 7.6 installation.

Upgrading by migrating WebSphere Application Server Network Deployment v7.x configuration information to WebSphere Application Server Network Deployment v8.5.5 (Scenario 2)

You want to install WebSphere Application Server Network Deployment v8.5.5 on the same server as WebSphere Application Server Network Deployment v7 and migrate configuration information from WebSphere Application Server Network Deployment v7 to WebSphere Application Server Network Deployment v8.5.5.

This scenario applies when you want to move existing WebSphere Application Server Network Deployment v7 configuration data from your Maximo Asset Management version 7.5 deployment to Maximo Asset Management version 7.6. For this scenario, you install WebSphere Application Server Network Deployment v8.5.5 on the same system that is hosting WebSphere Application Server Network Deployment v7. You then use the WebSphere Application Server Network Deployment v8.5.5 migration tool to move configuration data from WebSphere Application Server Network Deployment v7 to WebSphere Application Server Network Deployment v8.5.5.

Note: When you migrate configuration information from WebSphere Application Server Network Deployment v7 to WebSphere Application Server Network Deployment v8.5.5, the configuration information is no longer hosted on WebSphere Application Server Network Deployment v7.

Upgrading on Oracle WebLogic Server (Scenario 3)

You want to upgrade Maximo Asset Management on Oracle WebLogic Server.

This scenario focuses on upgrading in Oracle WebLogic Server environments. You must consult Oracle WebLogic Server documentation for application server migration information.

Chapter 4. Planning your Maximo Asset Management version 7.6 upgrade process

Because all Maximo Asset Management implementations are unique, the upgrade process is different for every deployment. However, there are some considerations in the process that should be common to every upgrade.

Maximo Asset Management version 7.6 planning information

Refer to the Maximo Asset Management version 7.6 planning for deployment information before you begin the upgrade process. The planning content include important information about changes in this latest release that can prepare you for otherwise unexpected differences. For example, the default skin for Maximo Asset Management version 7.6 has been updated which can lead to unanticipated changes in the appearance of application views.

Planning information can be found in the Maximo Asset Management knowledge center at http://www-01.ibm.com/support/knowledgecenter/SSLKTS_7.6.0/com.ibm.mam.doc_7.6.0/mam_install/c_ctr_plan_install.html.

Planning your upgrade schedule

When you plan your upgrade schedule, you need to plan adequate time to complete each of the different phases of the upgrade process:

- Determining when you can upgrade
- Planning the upgrade
- Performing pre-upgrade tasks
- Upgrading in a test environment
- Troubleshooting your test upgrade
- Upgrading your production environment

You should plan time into your schedule to perform the upgrade in a test environment. Performing a test upgrade allows you to test and troubleshoot your upgrade, without additional downtime in your production environment.

You should also schedule sufficient time to train Maximo administrators and users to use the new software. Team members need to understand the capabilities of Maximo Asset Management 7.6 in order to participate in the upgrade planning process.

Note: IBM offers additional services to assist in evaluating or performing your upgrade.

Review current database settings

To ensure a successful upgrade, compare the configuration settings of your existing database with the default configuration settings used by the current installation program. This information can be found in the Maximo Asset Management version 7.6 installation information within the manual configuration instructions for your database type. If your current values are insufficient, it could cause problems during the upgrade process. Set configuration parameters equal to or greater than

those defined in the Maximo Asset Management version 7.6 installation information.

Upgrade process performance

The speed of your network and the physical location of Maximo Asset Management servers can affect the amount of time it takes to complete the upgrade.

During the upgrade process, scripts that are run from the Maximo Asset Management administrative workstation are used to process individual SQL commands against the database through JDBC. If the Maximo Asset Management administrative workstation and the database server are not on the same physical local network, upgrade performance is impacted negatively. Excessive network latency between the two host systems can also affect performance of the upgrade process.

Ensure that you have a fast and reliable connection with minimal network latency between the Maximo Asset Management administrative workstation and the database server.

Planning for Maximo Asset Management version 7.6

Before upgrading to Maximo Asset Management version 7.6, evaluate your current operations and business processes, and the new features available Maximo Asset Management version 7.6 described in this guide.

Your upgrade provides you with an opportunity to make changes to not only your Maximo Asset Management software, but also to your Maximo Asset Management implementation.

Training for Maximo administrators

As an administrator for Maximo Asset Management version 7.6 you must have the following skills, knowledge, or be able to perform the following tasks:

- Install and configure software
- Understand Maximo tasks, such as creating and modifying records
- Understand relational database concepts such as views and joins
- Understand the Maximo database and data relationships
- Construct structured query language (SQL) statements
- Understand the SQL syntax required by your database
- Set Maximo properties for proper configuration
- Define security privileges for users and groups

Training your end-users

You should include training for all of your Maximo users as a part of your Maximo Asset Management version 7.6 implementation process, as they need to know how existing applications have been modified. In addition, if you are making improvements or changes to your business processes, you need to provide training for your employees regarding your new processes.

Planning to upgrade your workflow

Changes have been made to several Maximo Asset Management version 7.6 applications. These changes can affect your workflow implementation.

Maximo Asset Management version 7.6 allows you to create workflow processes for any application. Applications can have multiple active workflow processes. After a successful upgrade, you should evaluate your business processes to determine whether you want to create new workflow processes. You may decide that you want to use a phased approach to introducing new workflow processes. You may upgrade your existing workflow processes, and then gradually roll out new processes once your users are comfortable using Maximo Asset Management version 7.6.

After the upgrade is complete, refer to the help files for the workflow applications.

Planning to upgrade your hardware and software

You may be required to update several of your hardware and software components when upgrading to Maximo Asset Management version 7.6.

Refer to the Maximo wiki page at <http://www.ibm.com/developerworks/wikis/display/maximo/System+Requirements+for+Maximo+Products> to view the current hardware and software requirements for version 7.6.

WebSphere Application Server Network Deployment v8.5.5 requirement

If Maximo Asset Management version 7.5 was deployed on WebSphere Application Server Network Deployment, the Maximo Asset Management version 7.6 upgrade requires WebSphere Application Server Network Deployment v8.5.5.

Instructions for establishing WebSphere Application Server Network Deployment v8.5.5 in your environment for use by Maximo Asset Management version 7.6 are included in the upgrade scenarios provided in this guide.

In addition, if your current Maximo Asset Management version 7.5 installation is deployed on WebSphere Application Server Network Deployment v8.5.5, you can reuse that server when you upgrade to Maximo Asset Management version 7.6

Oracle WebLogic Server 12c requirement

If Maximo Asset Management version 7.5 was deployed on Oracle WebLogic Server, the Maximo Asset Management version 7.6 upgrade requires Oracle WebLogic Server 12c Release 1 (12.1.2).

Information about establishing Oracle WebLogic Server 12c Release 1 (12.1.2) in your environment for use by Maximo Asset Management version 7.6 are included in the upgrade scenarios provided in this guide.

Reporting options

Maximo Asset Management version 7.6 changes your reporting options. Existing users of Actuate Reporting and Business Objects Crystal Reports should evaluate their reporting options in the Maximo Asset Management release.

Reference the *Report Planning Guide for Release 7.6* available on the IBM support site for more details.

Updating environment data

When you install a fix pack or upgrade an existing installation, the installation program uses values that are recorded from the previous deployment. If anything in your environment changed since the original deployment, you must record these changes in properties files before you can install Maximo Asset Management.

About this task

If you made environmental changes to any of the systems in the original deployment, such as changing a host name or updating a password, the changes must be recorded. To record the environmental changes, you update the `install.properties` and `maximo.properties` files on the administrative system.

When the product installation program runs an upgrade task, it uses values in the `install.properties` and `maximo.properties` files. During the upgrade process, if the user name or password for a system is not updated, the configuration program uses the credentials in the properties files. If the configuration program cannot log on to a system with the credentials found in the properties files, you are prompted to supply the correct information. Updated values are written to the appropriate property file.

Updating credential information in property files has one exception: database connection and credential information must always be current before you attempt an upgrade operation. Database connection information and credential information are stored in the `maximo.properties` file. Any changes to this information from the time of the original deployment must be manually recorded in the `maximo.properties` file before you begin an upgrade to version 7.6.

When you change the property value of the IBM WebSphere Application Server Network Deployment host name (**WAS.DeploymentManagerHostName**) in the `install.properties` file, you must also update a property for the WebSphere Application Server Network Deployment thin client in the `thinwsadmin.bat` file and then run that file.

Updating database properties

Before you can upgrade your version of Maximo Asset Management, you must record any database changes that have been made in your environment since the original deployment. You update the database properties in the `maximo.properties` file.

Procedure

1. Change to the `install_home\maximo\applications\maximo\properties` directory. The default location is `C:\IBM\SMP\maximo\applications\maximo\properties`.
2. Make a copy of the `maximo.properties` file, and rename the file.
3. Delete the `maximo.properties` file.
4. Change to the `install_home\etc` directory.
5. Back up the `maximo.properties_orig` file. Save this backup copy permanently.
6. Rename the unencrypted `maximo.properties_orig` file to `maximo.properties`.

7. Copy the `maximo.properties` file to the `install_home\maximo\applications\maximo\properties\` directory.
8. Edit the `maximo.properties` file and update the credential or connection information for the database server.
9. Save the `maximo.properties` file.
10. Run the `encryptproperties.bat` file in the `install_home\maximo\tools\maximo\` directory on the file to encrypt it.

What to do next

Update the installation properties in the `install.properties` file.

Updating installation properties

Before you can upgrade your version of Maximo Asset Management, you must record any installation program properties changes that have been made in your environment since the original deployment. You update the installation properties in the `install.properties` file.

Before you begin

Update the database properties in the `maximo.properties` file, as described in the previous topic.

Procedure

1. Change to the `install_home\etc` directory.
2. Edit the `install.properties` file. Do not change encrypted properties that are prefixed by `[enc]`. You are prompted for updated values during the update operation. These values are written to the `install.properties` file.
3. Save the file.

What to do next

If you use WebSphere Application Server, you must update the WebSphere Application Server Network Deployment host name.

Updating the WebSphere Application Server Network Deployment host name

Before you can upgrade your version of Maximo Asset Management, you must update the WebSphere Application Server Network Deployment host name that was used in the previous deployment.

Before you begin

Update the installation properties in the `install.properties` file, as described in the previous topic.

Procedure

1. Update the `WAS.DeploymentManagerHostName` value in the `install.properties` file.
2. Edit the `C:\IBM\SMP\WASClient\thinwsadmin.bat` file.

3. Update the following line with the new, fully qualified host name of the WebSphere Application Server Network Deployment server: `set wsadminHost=-Dcom.ibm.ws.scripting.host=fully_qualified_host_name`.
4. Run the `thinwsadmin.bat` file with these values: `thinwsadmin.bat -domain_manager_user_name -password`.
5. When prompted, indicate that you do want to download the truststore file.

Chapter 5. Pre-upgrade tasks

To install the latest release of Maximo products, refer to the installation guides for the respective products. Ensure that your version 7.5 product has the required updates that are applied, but note the following item updates, order of installation, and database name.

- If you are upgrading a Maximo industry solution product, install the Maximo base services fix pack. Install the 7.5 or 7.6 version industry solution product, and apply the latest Maximo fix pack followed by the latest fix pack for your industry solution.
- If you are upgrading a Maximo Enterprise Adapter product (either for Oracle or SAP), install and update Maximo Asset Management to the latest fix pack or release, apply the latest fix packs, install your specific adapter, and then install the latest fix pack to your adapter. Verify that all fix packs and test fixes are compatible with the Maximo base services fix pack that is installed.

Creating a test copy of your Maximo database

You first perform the upgrade process on a test copy of your Maximo Asset Management database. During the test upgrade, you make notes of any special steps or database modifications that you need to make. It is a good idea to perform a test upgrade more than once, each time using a copy of the most current production database. The upgrade process can take two days or more, depending on the size of your database.

After you have successfully upgraded one or more test copies, you repeat the process with a copy of your current production database. This upgraded database becomes your new production database.

Consult the documentation supplied with your database for details about creating database backups.

Disabling custom triggers

Disable all custom triggers that exist on any table in your existing Maximo Asset Management database.

Maximo Asset Management version 7.6 does not support any database objects that you created (including stored procedures, triggers, views, and synonyms) that are dependent on Maximo Asset Management database objects. The upgrade does not re-create such objects, but neither does it remove them. You must reapply any custom triggers after the Maximo Asset Management version 7.6 upgrade has completed.

Backing up your database


Regardless of your starting point, back up your newly prepared Maximo Asset Management database.

AIX® tar command requirements

Both the native UNIX **tar** command and the GNU version of the **tar** command are required by the middleware installation program. Because the native utility does not support long file names, ensure that GNU **tar** version 1.14 or higher is installed. GNU **tar** version 1.14 ensures that installation files can be extracted.

Verify that the system path variable contains both native UNIX **tar** and GNU **tar** paths. The GNU **tar** path must be defined before the native UNIX tar path. For example, the native **tar** utility is installed in `/usr/bin` and the GNU tar utility is installed in `/opt/freeware/bin/tar`.

If you have set a symbolic link to overwrite the native UNIX **tar** command with the GNU **tar** command an error occurs.

 <http://www.ibm.com/systems/p/os/aix/linux/toolbox/download.html>

Chapter 6. Upgrading by installing WebSphere Application Server Network Deployment v8.5.5 on a new server (Scenario 1)

Use this information to use product installation programs and tools to install and automatically configure WebSphere Application Server Network Deployment v8.5.5 for Maximo Asset Management 7.6.

Before you begin

Ensure you have reviewed the following information:

- “Upgrade scenario road maps” on page 26

Also note that any custom configuration you performed on the WebSphere Application Server Network Deployment v7 server for Maximo Asset Management 7.5 would have to be performed again for WebSphere Application Server Network Deployment v8.5.5.

About this task

This information provides a high-level overview or road map of tasks you need to complete in order to upgrade to Maximo Asset Management version 7.6 with automatic installation and configuration of WebSphere Application Server Network Deployment v8.5.5. Use the information provided in the Concepts list to familiarize yourself with the ideas behind each step, and then refer to the Tasks list and perform the tasks listed in order to complete the step.

In this scenario, you use the Maximo Asset Management version 7.6 installation program to install WebSphere Application Server Network Deployment v8.5.5 and then use the Maximo Asset Management version 7.6 configuration program to automatically configure it. None of the WebSphere Application Server Network Deployment v7 configuration information from your existing Maximo Asset Management version 7.5 deployment is reused. You are establishing WebSphere Application Server Network Deployment v8.5.5 in your environment in the same manner you would for a new Maximo Asset Management version 7.6 installation. WebSphere Application Server Network Deployment v8.5.5 must be installed on a system that is different from the server hosting WebSphere Application Server Network Deployment v7 for your Maximo Asset Management version 7.5 deployment.

The benefit of using this upgrade scenario is that it provides automated installation and configuration of WebSphere Application Server Network Deployment v8.5.5 while maintaining the existing WebSphere Application Server Network Deployment v7 configuration where Maximo Asset Management 7.5 was deployed. During the upgrade process, the database is upgraded from version 7.5 to version 7.6. The upgraded database cannot continue to be used by Maximo Asset Management version 7.5. If you want to retain the Maximo Asset Management version 7.5 environment, the Maximo Asset Management version 7.6 upgrade must be performed on a separate instance of the Maximo Asset Management version 7.5 database.

The upgrade process involves performing a new installation of Maximo Asset Management version 7.6 and then configuring it to use the Maximo Asset Management version 7.5 database. The database is upgraded during the configuration process. You do not perform the upgrade from the Maximo Asset Management version 7.5 administrative workstation. Platforms supported for Maximo Asset Management version 7.5 administrative workstations are not supported in Maximo Asset Management version 7.6.

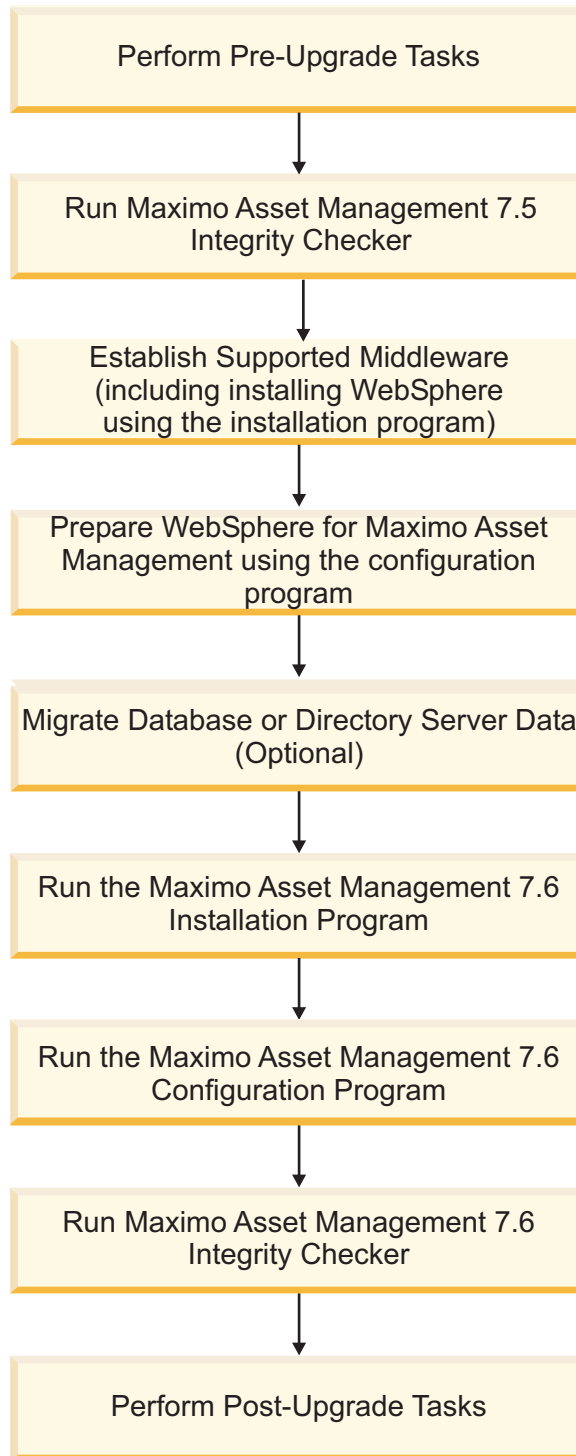


Figure 1. Upgrading Maximo Asset Management using automatic WebSphere Application Server Network Deployment configuration

Procedure

1. Perform pre-upgrade tasks

Concepts

Chapter 5, “Pre-upgrade tasks,” on page 35

Tasks

- “Backing up your database” on page 35
 - “Creating a test copy of your Maximo database” on page 35
 - “Disabling custom triggers” on page 35
2. Run the Maximo Asset Management 7.5 Integrity Checker. Run the Integrity Checker tool in Report mode. If the Integrity Checker reports an error, you must resolve it before using the product installation program to attempt an upgrade.

Concepts

- “Integrity checker informational messages” on page 97
- “Integrity checker warning messages” on page 97
- “Integrity checker error messages” on page 100

Tasks “Run integrity checker 7.5” on page 41

3. Establish supported middleware

Use the installation program to install WebSphere Application Server Network Deployment v8.5.5. After installation is complete, use the Maximo Asset Management version 7.6 configuration program to prepare WebSphere Application Server Network Deployment v8.5.5 for Maximo Asset Management.

If necessary, upgrade database software to a version supported by Maximo Asset Management version 7.6 using the installation program for that software. Maximo Asset Management version 7.6 requires DB2 version 10.5 at a minimum.

If necessary, upgrade directory server software to a version supported by Maximo Asset Management 7.6 using the installation program for that software. Refer to the documentation provided with your product for upgrade information.

Concepts

- “Establish supported middleware” on page 42
- “Migrate database or directory server data (optional)” on page 45

Tasks

- “Installing WebSphere Application Server Network Deployment v8.5.5 using the Maximo Asset Management version 7.6 installation program” on page 56
- “Preparing WebSphere Application Server Network Deployment v8.5.5 using the Maximo Asset Management configuration program” on page 44

4. Run the Maximo Asset Management version 7.6 installation program.

In this step the Maximo Asset Management version 7.6 installation program installs Maximo Asset Management version 7.6 onto the administrative workstation.

Tasks “Running the Maximo Asset Management 7.6 installation program” on page 45

5. Run the Maximo Asset Management version 7.6 configuration program.

In this step, the Maximo Asset Management version 7.6 configuration program configures Maximo Asset Management version 7.6. Changes are written to the database and if you chose to do so, application EAR files were deployed to WebSphere Application Server Network Deployment.

- Tasks** “Configuring Maximo Asset Management version 7.6 using the Maximo Asset Management version 7.6 configuration program” on page 47
6. Run Maximo Asset Management 7.6 Integrity Checker.

Run the Integrity Checker tool in Report mode. If the Integrity Checker reports an error, you must resolve it.

Concepts

- “Integrity checker informational messages” on page 97
- “Integrity checker warning messages” on page 97
- “Integrity checker error messages” on page 100

Tasks “Run integrity checker 7.6” on page 48

7. Perform post-upgrade tasks.

Concepts

Chapter 10, “Post-upgrade tasks,” on page 85

Tasks

- “Reviewing your upgraded screens” on page 89
- “Reviewing table domains and crossover domains” on page 90
- “Updating BIRT reports” on page 90
- “Updating statistics” on page 90

Run integrity checker 7.5

Run the Maximo Asset Management version 7.5 integrity checker utility.

About this task

Before proceeding further with the Maximo Asset Management version 7.6 upgrade process, run the Maximo Asset Management version 7.5 Integrity Checker utility. This utility is used with the Maximo Asset Management version 7.5 database to ensure it is ready for the upgrade. When run in Report mode, the integrity checker utility checks the current database and reports on common errors. If the Integrity Checker reports an error, you must resolve it by running the Integrity Checker in Repair mode.

Procedure

1. From the Maximo Asset Management version 7.5 administrative workstation, open a command prompt and change directory to the tools directory. For example, *install_home\maximo\tools\maximo*
2. Start the Integrity Checker tool.
`integrityui.bat`
3. Select the **Check Integrity** tab.
4. Run the Integrity Checker in Report mode.
 - a. Ensure that the **Repair Mode?** check box is cleared, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.

Results are found in the *install_home\maximo\tools\maximo\log* directory in the file defined in the **Log File Name** field of the Check Integrity panel.

5. Optional: If any errors are reported, run the Integrity Checker in Repair mode.
 - a. Select the **Repair Mode?** check box, and then click **Run Integrity Checker**.

- b. When the report dialog box appears, click **OK**.
 - c. Change directory to `install_home\maximo\tools\maximo\` and then run the `dbconfig` command.
6. Optional: If Integrity Checker was run in Repair mode, check the log file to ensure all reported items have been repaired. If further manual intervention is required, you must resolve the errors and then rerun the Integrity Checker in Report mode. Repeat the process until no more errors are reported.

Results

While the Integrity Checker can repair many issues, you might have to resolve some errors manually by consulting the log files.

Establish supported middleware

Establish middleware in your environment that is compatible with Maximo Asset Management version 7.6.

The first step in a Maximo Asset Management version 7.6 upgrade is to establish middleware in your environment that is supported by Maximo Asset Management version 7.6. In some cases, middleware you used in the Maximo Asset Management version 7.5 deployment, for example, database or directory server software, can be reused for the Maximo Asset Management version 7.6 upgrade. In other cases, you might have to use new middleware servers that were not part of the original Maximo Asset Management version 7.5 deployment.

The Maximo Asset Management version 7.6 installation program is used to install WebSphere Application Server Network Deployment v8.5.5 and is prepared for Maximo Asset Management version 7.6 by the Maximo Asset Management version 7.6 configuration program.

If necessary, upgrade database software to a version supported by Maximo Asset Management version 7.6. Upgrading the existing database software used with Maximo Asset Management version 7.5 is the preferred method of establishing a Maximo Asset Management version 7.6 supported database. This method allows you to reuse existing elements of your Maximo Asset Management version 7.5 deployment, such as user ID's and database instances. In some cases, you might be forced to install a new instance of the database software. For example, the Maximo Asset Management version 7.5 deployment might include a database server that is established on a platform that is no longer supported in Maximo Asset Management version 7.6, as could be the case with 32-bit platforms. In this scenario, you would install a new instance of the database software compatible with Maximo Asset Management version 7.6. For DB2, you could install this software using the Maximo Asset Management version 7.6 installation program. If you install new instances of database software outside of the Maximo Asset Management version 7.6 installation program, you would have to perform additional manual configuration tasks that are described in the Maximo Asset Management 7.6 installation information. In addition, you would have to migrate the database from the old server to the new server.

If necessary, upgrade directory server software to a version supported by Maximo Asset Management version 7.6. Refer to the documentation provided with your directory server product for upgrade information.

Installing WebSphere Application Server Network Deployment v8.5.5 using the Maximo Asset Management version 7.6 installation program

This procedure explains how to use the Maximo Asset Management version 7.6 installation program to install WebSphere Application Server Network Deployment v8.5.5.

About this task

These instructions are for the installation of WebSphere Application Server Network Deployment v8.5.5 on a single system using the Maximo Asset Management version 7.6 installation program.

To install WebSphere Application Server Network Deployment v8.5.5 for IBM Maximo Asset Management version 7.6 using the IBM Maximo Asset Management version 7.6 installation program, follow these steps.

Procedure

1. Log in to the target system as a user with administrative authority. If you are running the IBM Maximo Asset Management version 7.6 installation program from a Linux or UNIX terminal window, you must be logged in as the root user.
2. Launch the IBM Maximo Asset Management version 7.6 installation program from the launchpad.
 - a. Start the launchpad.

Windows

From the downloaded installation image, browse to the root directory and run the following command: **launchpad64.exe**.

Linux and UNIX

From the downloaded installation image, browse to the root directory and run the following command: **launchpad64.sh**.

- b. Select a language for the installation and click **OK**.
 - c. In the launchpad navigation pane, click **Install Product**.
 - d. From the **Install Product** panel, select **IBM WebSphere Application Server Network Deployment v8.5.5** and then click **Install IBM Maximo Asset Management components**.
3. In the package selection panel, click **Next**.
 4. In the package prerequisite validation panel, review the results of the prerequisite check, and then click **Next**. If any errors are reported on this panel, resolve the issue and then click **Recheck Status** before continuing.
 5. In the license agreement panel, review the license information for each package being installed, select **I accept the terms in the license agreements** if you agree with the terms, and then click **Next**.
 6. In the Installation Manager installation location panel, specify path information for the shared resources directory and the Installation Manager installation directory, and then click **Next**. Installation Manager is the installation framework that is used to install Maximo Asset Management version 7.6 components. The shared resources directory is a common workspace directory used by Installation Manager when installing packages.

7. In the package installation location panel, select a package group, specify path information for its installation directory, and then click **Next**. Repeat this process for each package group listed.
8. In the package translations panel, specify language support for WebSphere Application Server Network Deployment, and then click **Next**.
9. In the package features panel, leave all default options checked, and then click **Next**.
10. In the package configuration panel, specify configuration information for IBM HTTP Server, and then click **Next**.
11. In the package summary panel, review the information for the planned installation, and then click **Install**.
12. After the installation is complete, select the option to start the Maximo Asset Management version 7.6 configuration program, and then click **Finish**. The Maximo Asset Management version 7.6 installation program exits and the Maximo Asset Management version 7.6 configuration program is started automatically.

What to do next

Use the Maximo Asset Management version 7.6 configuration program to prepare WebSphere Application Server Network Deployment to be configured for Maximo Asset Management version 7.6.

Preparing WebSphere Application Server Network Deployment v8.5.5 using the Maximo Asset Management configuration program

This procedure explains how to use the Maximo Asset Management version 7.6 configuration program to prepare WebSphere Application Server Network Deployment v8.5.5 for Maximo Asset Management configuration.

Procedure

1. If the Maximo Asset Management configuration program is not open, start it from the Maximo Asset Management launchpad. In the launchpad navigation pane, click **Configure Product** and then click **Launch the Tivoli's Process Automation Suite configuration program**.
2. In the IBM Maximo Asset Management version 7.6 configuration operations page, click **Prepare WebSphere Application Server Network Deployment for configuration**.
3. In the Configure the Application for WebSphere panel, specify installation location and configuration information for WebSphere Application Server Network Deployment and associated components.
4. In the Configure Application Server Profiles panel, specify information to use to create WebSphere Application Server Network Deployment deployment manager and application server profiles.
5. Specify additional configuration information in the Configure Application Server Advanced Options panel, if required.
6. If you chose to use a directory server for WebSphere Application Server Network Deployment administrative security, specify information about the directory server host, credentials and directory structure from the Configure Administrative Security panel.
7. In the Apply Deployment Operations panel select all deployment operation options, and then click **Finish**.

Results

WebSphere Application Server Network Deployment v8.5.5 is ready for Maximo Asset Management.

Migrate database or directory server data (optional)

Depending upon your environment, you might have to migrate database or directory server data from Maximo Asset Management 7.5 middleware servers to Maximo Asset Management 7.6 middleware servers.

In cases where the middleware you used to deploy Maximo Asset Management 7.5 is incompatible with Maximo Asset Management 7.6, you can migrate Maximo Asset Management 7.5 information to a server supported by Maximo Asset Management 7.6.

If your Maximo Asset Management 7.5 database software is compatible with Maximo Asset Management 7.6, you can use the existing database. If the existing database is not compatible, refer to the documentation provided with your software for instructions on migrating database objects. For DB2, this information can be found at <http://publib.boulder.ibm.com/infocenter/db2luw/v10r5/topic/com.ibm.db2.luw.qb.upgrade.doc/doc/c0011933.html>. Recall that if you performed an upgrade of your database software, you are only required to migrate the Maximo Asset Management 7.5 database instance (ctginst1) and database (maxdb75). If you installed a new instance of the database software, you must complete additional configuration tasks as described in the Maximo Asset Management 7.6 installation information.

If you chose to use a directory server for security in your Maximo Asset Management 7.5 deployment and you are required to migrate directory server information to comply with Maximo Asset Management 7.6 prerequisites, consult the documentation provided with your software for instructions on migrating. If you used IBM Tivoli® Directory Server for the Maximo Asset Management 7.5 deployment, no migration is required because the same version of IBM Tivoli Directory Server is supported in both products.

Running the Maximo Asset Management 7.6 installation program

This procedure explains how to use the Maximo Asset Management version 7.6 installation program to install Maximo Asset Management version 7.6.

About this task

You run the Maximo Asset Management version 7.6 installation program on the system you designate as the Maximo Asset Management version 7.6 administrative workstation. You do not perform the upgrade from the Maximo Asset Management version 7.5 administrative workstation. Platforms supported for Maximo Asset Management version 7.5 administrative workstations, for example, Windows 2008, are not supported in Maximo Asset Management version 7.6. The upgrade process involves performing a new installation of Maximo Asset Management version 7.6 and then configuring it to use the Maximo Asset Management version 7.5 database.

Procedure

1. Log in to the system you designate as the Maximo Asset Management version 7.6 administrative workstation. If you run the IBM Maximo Asset

Management version 7.6 installation program from a Linux or UNIX terminal window, you must be logged in as the root user.

2. Launch the IBM Maximo Asset Management version 7.6 installation program from the launchpad.
 - a. Start the launchpad.

Windows

From the downloaded installation image, browse to the root directory and run the following command: **launchpad64.exe**.

Linux and UNIX

From the downloaded installation image, browse to the root directory and run the following command: **launchpad.sh**.

- b. Select a language for the installation and click **OK**.
 - c. In the launchpad navigation pane, click **Install Product**.
 - d. From the **Install Product** panel, select **IBM Maximo Asset Management v7.6** and then click **Install IBM Maximo Asset Management components**.
3. In the package selection panel, click **Next**.
4. In the package prerequisite validation panel, review the results of the prerequisite check, and then click **Next**. If any errors are reported on this panel, resolve the issue and then click **Recheck Status** before continuing.
5. In the license agreement panel, review the license information for each package being installed, select **I accept the terms in the license agreements** if you agree with the terms, and then click **Next**.
6. In the Installation Manager installation location panel, specify path information for the shared resources directory and the Installation Manager installation directory, and then click **Next**. Installation Manager is the installation framework that is used to install Maximo Asset Management version 7.6 components. The shared resources directory is a common workspace directory used by Installation Manager when installing packages.
7. In the package installation location panel, select the IBM Tivoli's process automation suite package group, and then click **Next**.
8. In the package features panel, leave all default options checked, and then click **Next**.
9. In the package summary panel, review the information for the planned installation, and then click **Install**.
10. After the installation is complete, if you do not have any industry solutions and add-ons to install, you can select the option to start the Maximo Asset Management version 7.6 configuration program, and then click **Finish**. The Maximo Asset Management version 7.6 installation program exits and the Maximo Asset Management version 7.6 configuration program is started automatically. If you do need install industry solutions and add-ons, exit the Maximo Asset Management version 7.6 configuration program and install them before you continue.

What to do next

You should install version 7.5 industry solutions and add-ons at this time. Version 7.5 of industry solutions and add-ons can be installed on Maximo Asset Management 7.6 from the command-line. Silent installation is also supported.

Ensure that you download the latest version and fixes available for the industry solution or add-on before you install it. Refer to the Maximo Upgrade Requirements Matrix for the latest information about industry solution and add-on requirements.

After installing Use the Maximo Asset Management version 7.6 configuration program to configure Maximo Asset Management version 7.6.

 <http://www.ibm.com/support/docview.wss?uid=swg21266217>

Changing the WebSphere Application Server Network Deployment host

Update Maximo Asset Management to interface with the new installation of WebSphere Application Server Network Deployment v8.5.5.

Procedure

1. If the Maximo Asset Management configuration program is not open, start it from the Maximo Asset Management launchpad. In the launchpad navigation pane, click **Configure Product** and then click **Launch the Tivoli's Process Automation Suite configuration program**.
2. In the IBM Maximo Asset Management configuration operations page, click **Change WebSphere Application Server Host**.
3. In the Define Deployment Environment panel, specify information about the WebSphere Application Server Network Deployment server you installed and prepared. Select the option for automatically configuring WebSphere Application Server Network Deployment. After you define your deployment environment, click **Finish**.
4. In the Configure the Application Server panel, specify configuration information for the WebSphere Application Server Network Deployment server you installed.
5. In the Configure Application Security panel, choose a security model for IBM Maximo Asset Management. If you choose a security model that includes a directory server, specify information about the directory for virtual member manager.
6. In the Apply Deployment Operations panel, clear the options for building and deploying application EAR files, and then click **Finish**. Application EAR files are built and deployed after Maximo Asset Management version 7.6 is configured. Maximo Asset Management is now configured to use the new application server

Configuring Maximo Asset Management version 7.6 using the Maximo Asset Management version 7.6 configuration program

This procedure explains how to use the Maximo Asset Management version 7.6 configuration program to configure Maximo Asset Management version 7.6.

Before you begin

You must uninstall any industry solutions and add-ons that are unsupported in Maximo Asset Management version 7.6 before you configure it. Refer to the Maximo Upgrade Resources support page for more information. Scripts to uninstall unsupported industry solutions and add-ons are provided for download from the Fix Central support site.

This procedure refers to DB2 as the database to configure for Maximo Asset Management version 7.6. References to DB2 are for example only. Information required for Oracle or SQL Server is similar. Help is provided in the Maximo Asset Management version 7.6 configuration program user interface and can be used to determine the information you need to specify for the upgrade.

Procedure

1. If the Maximo Asset Management version 7.6 configuration program is not open, start it from the Maximo Asset Management launchpad. In the launchpad navigation pane, click **Configure Product**, specify Maximo Asset Management installation location, and then click **Launch the Tivoli's Process Automation Suite configuration program**.
2. In the IBM Maximo Asset Management configuration operations page, click **Configure a New Deployment**.
3. In the Define Deployment Environment panel, specify information about the Maximo Asset Management version 7.5 DB2 host. Select the **Complete configuration of WebSphere for your product** option. After you define your deployment environment, click **Finish**.
4. In the Configure General Product Information panel, review summary details about the product components you are installing. Specify the appearance and navigation features for your product, add an e-mail address to receive workflow messages, and choose whether or not to deploy sample data.
5. In the Configure the DB2 Instance panel, specify information about the Maximo Asset Management version 7.5 DB2 instance.
6. In the Configure the DB2 Database panel, specify information about the Maximo Asset Management version 7.5 DB2 database.
7. In the Configure the Application Server panel, specify information for the WebSphere Application Server Network Deployment server you installed. Indicate whether you want to store JMS messages originating from the integration adapter.
8. In the Configure Application Security panel, choose a security model for Maximo Asset Management. If you choose a security model that includes a directory server, specify information about the directory for the virtual member manager. Enter the user names and passwords for users that must be created for Maximo Asset Management.
9. Choose the base language and any additional languages you want to install.
10. In the Apply Deployment Operations panel, specify user interface preferences, select all available deployment operations, and then click **Finish**. When you select **Apply the changes to the database**, the **updatedb** program writes information to the database.

Results

Maximo Asset Management version 7.6 is now installed and configured to use WebSphere Application Server Network Deployment v8.5.5. Changes are written to the database and if you chose to do so, application EAR files were deployed to WebSphere Application Server Network Deployment.

Related information:

 <http://www-01.ibm.com/support/docview.wss?uid=swg21266217>

Run integrity checker 7.6

Run the Maximo Asset Management 7.6 integrity checker utility.

About this task

Before proceeding further with the Maximo Asset Management 7.6 upgrade process, you need to run the Maximo Asset Management 7.6 Integrity Checker utility to confirm the integrity of the Maximo Asset Management 7.6 database after the upgrade steps have been completed. When run in Report mode, the integrity checker utility checks the current database and reports on common errors. If the Integrity Checker reports an error, you must resolve it by running the Integrity Checker in Repair mode.

Procedure

1. Stop the application server. For example, MXServer.
2. From the administrative workstation of the existing deployment, open a command prompt and change directory to the maximo tools directory. For example, `c:\ibm\SMP\maximo\tools\maximo`
3. Start the Integrity Checker tool.
`integrityui.bat`
4. Select the **Check Integrity** tab.
5. Run the Integrity Checker in Report mode.
 - a. Ensure that the **Repair Mode?** check box is cleared, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.

Results are found in the `install_home\maximo\tools\maximo\log` directory in the file defined in the **Log File Name** field of the Check Integrity panel.

6. Optional: If any errors are reported, run the Integrity Checker in Repair mode.
 - a. Select the **Repair Mode?** check box, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.
7. Optional: If Integrity Checker was run in Repair mode, check the log file to ensure all reported items have been repaired. If further manual intervention is required, you must resolve the errors and then rerun the Integrity Checker in Report mode. Repeat the process until no more errors are reported.

Results

While the Integrity Checker can repair many issues, you might have to resolve some errors manually by consulting the log files.

Chapter 7. Upgrading by migrating WebSphere Application Server information to WebSphere Application Server v8.5.5 (Scenario 2)

Use this information to migrate configuration information from your existing WebSphere Application Server v7.x installation to a new installation of WebSphere Application Server Network Deployment v8.5.5.

Before you begin

Ensure you have reviewed the following information:

- “Upgrade scenario road maps” on page 26

About this task

This information provides a high-level overview or road map of tasks you need to complete in order to upgrade to Maximo Asset Management version 7.6 by migrating the configuration of WebSphere Application Server Network Deployment v7.x used with Maximo Asset Management version 7.5 to WebSphere Application Server Network Deployment v8.5.5. Use the information provided in the Concepts list to familiarize yourself with the ideas behind each step, and then refer to the Tasks list and perform the tasks listed in order to complete the step.

In this scenario, you use the WebSphere Application Server Network Deployment v8.5.5 migration wizard to transfer existing Maximo Asset Management version 7.5 configuration information from WebSphere Application Server Network Deployment v7.x to WebSphere Application Server Network Deployment v8.5.5.

This scenario applies to deployments that use WebSphere Application Server Network Deployment hosted on Linux systems only.

The benefit of using this upgrade scenario is that you do not have to configure WebSphere Application Server Network Deployment v8.5.5. You reuse the configuration you performed for WebSphere Application Server Network Deployment v7.x.

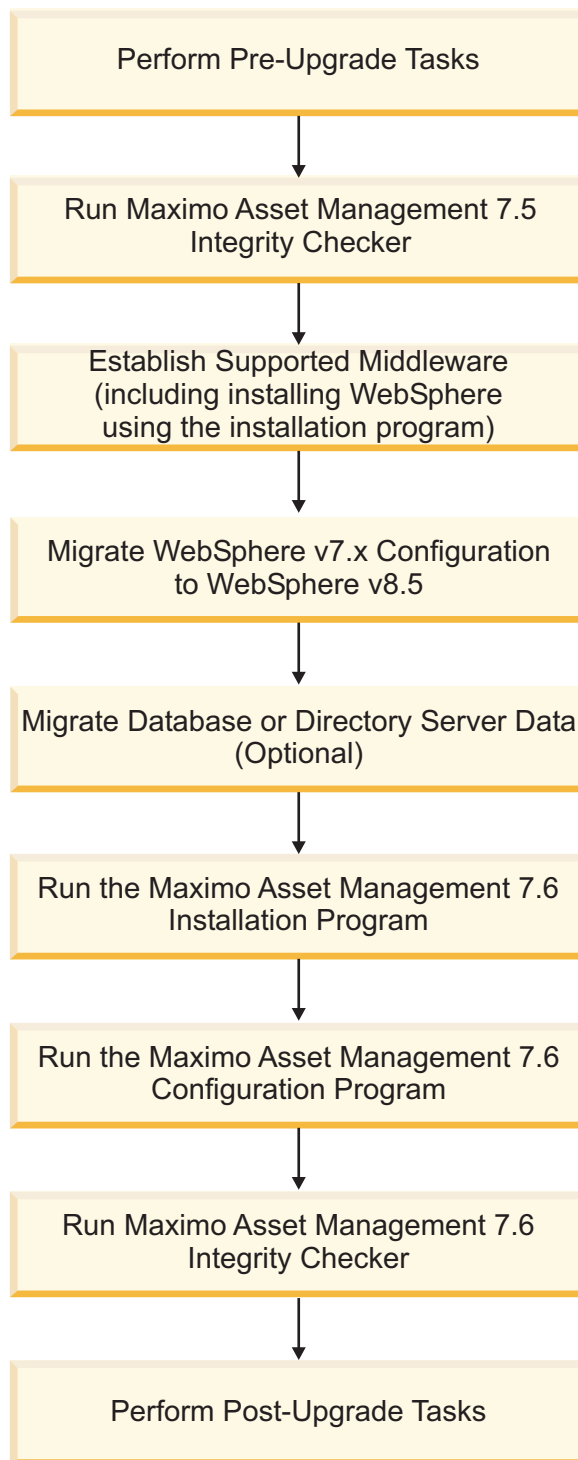


Figure 2. Upgrading Maximo Asset Management by migrating WebSphere Application Server Network Deployment configuration data

Procedure

1. Perform pre-upgrade tasks

Concepts

Chapter 5, “Pre-upgrade tasks,” on page 35

Tasks

- “Backing up your database” on page 35
 - “Creating a test copy of your Maximo database” on page 35
 - “Disabling custom triggers” on page 35
2. Run the Maximo Asset Management 7.5 Integrity Checker. Run the Integrity Checker tool in Report mode. If the Integrity Checker reports an error, you must resolve it before using the product installation program to attempt an upgrade.

Concepts

- “Integrity checker informational messages” on page 97
- “Integrity checker warning messages” on page 97
- “Integrity checker error messages” on page 100

Tasks “Run integrity checker 7.5” on page 54

3. Establish supported middleware

Install WebSphere Application Server Network Deployment v8.5.5 and migrate configuration information. You intend to migrate existing WebSphere Application Server Network Deployment v7.x profile information created for Maximo Asset Management version 7.5 to WebSphere Application Server Network Deployment v8.5.5.

If necessary, upgrade database software to a version supported by Maximo Asset Management 7.6 using the installation program for that software. Maximo Asset Management version 7.6 requires DB2 version 10.5 at a minimum.

If necessary, upgrade directory server software to a version supported by Maximo Asset Management 7.6 using the installation program for that software. Refer to the documentation provided with your product for upgrade information.

Concepts

- “Establish supported middleware” on page 55
- “Migrate database or directory server data (optional)” on page 45

Tasks

- “Installing WebSphere Application Server Network Deployment v8.5.5 using the Maximo Asset Management version 7.6 installation program” on page 56
- “Migrating IBM WebSphere Application Server Network Deployment configuration information” on page 57

4. Run the Maximo Asset Management version 7.6 installation program.

In this step the Maximo Asset Management version 7.6 installation program installs Maximo Asset Management version 7.6 onto the administrative workstation.

Tasks “Running the Maximo Asset Management 7.6 installation program” on page 60

5. Run the Maximo Asset Management version 7.6 configuration program.

In this step, the Maximo Asset Management version 7.6 configuration program configures Maximo Asset Management version 7.6. Changes are written to the database and if you chose to do so, application EAR files were deployed to WebSphere Application Server Network Deployment.

Tasks “Configuring Maximo Asset Management version 7.6 using the Maximo Asset Management version 7.6 configuration program” on page 62

6. Run Maximo Asset Management version 7.6 Integrity Checker
Run the Integrity Checker tool in Report mode. If the Integrity Checker reports an error, you must resolve it.

Concepts

- “Integrity checker informational messages” on page 97
- “Integrity checker warning messages” on page 97
- “Integrity checker error messages” on page 100

Tasks “Run integrity checker 7.6” on page 67

7. Perform post-installation tasks

Concepts

Chapter 10, “Post-upgrade tasks,” on page 85

Tasks

- “Reviewing your upgraded screens” on page 89
- “Reviewing table domains and crossover domains” on page 90
- “Updating BIRT reports” on page 90
- “Updating statistics” on page 90

Run integrity checker 7.5

Run the Maximo Asset Management version 7.5 integrity checker utility.

About this task

Before proceeding further with the Maximo Asset Management version 7.6 upgrade process, run the Maximo Asset Management version 7.5 Integrity Checker utility. This utility is used with the Maximo Asset Management version 7.5 database to ensure it is ready for the upgrade. When run in Report mode, the integrity checker utility checks the current database and reports on common errors. If the Integrity Checker reports an error, you must resolve it by running the Integrity Checker in Repair mode.

Procedure

1. From the Maximo Asset Management version 7.5 administrative workstation, open a command prompt and change directory to the tools directory. For example, *install_home\maximo\tools\maximo*
2. Start the Integrity Checker tool.
`integrityui.bat`
3. Select the **Check Integrity** tab.
4. Run the Integrity Checker in Report mode.
 - a. Ensure that the **Repair Mode?** check box is cleared, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.

Results are found in the *install_home\maximo\tools\maximo\log* directory in the file defined in the **Log File Name** field of the Check Integrity panel.

5. Optional: If any errors are reported, run the Integrity Checker in Repair mode.
 - a. Select the **Repair Mode?** check box, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.

6. Optional: If Integrity Checker was run in Repair mode, check the log file to ensure all reported items have been repaired. If further manual intervention is required, you must resolve the errors and then rerun the Integrity Checker in Report mode. Repeat the process until no more errors are reported.

Results

While the Integrity Checker can repair many issues, you might have to resolve some errors manually by consulting the log files.

Establish supported middleware

Establish middleware in your environment that is compatible with Maximo Asset Management version 7.6.

The first step in a Maximo Asset Management version 7.6 upgrade is to establish middleware in your environment that is supported by Maximo Asset Management version 7.6. In some cases, middleware you used in the Maximo Asset Management version 7.5 deployment, for example, database or directory server software, can be reused for the Maximo Asset Management version 7.6 upgrade. In other cases, you might have to use new middleware servers that were not part of the original Maximo Asset Management version 7.5 deployment.

The Maximo Asset Management version 7.6 installation program is used to install WebSphere Application Server Network Deployment v8.5.5 WebSphere Application Server Network Deployment v8.5.5 migration tools are used to migrate WebSphere Application Server Network Deployment profile information.

If necessary, upgrade database software to a version supported by Maximo Asset Management version 7.6. Upgrading the existing database software used with Maximo Asset Management version 7.5 is the preferred method of establishing a Maximo Asset Management version 7.6 supported database. This method allows you to reuse existing elements of your Maximo Asset Management version 7.5 deployment, such as user ID's and database instances. In some cases, you might be forced to install a new instance of the database software. For example, the Maximo Asset Management version 7.5 deployment might include a database server that is established on a platform that is no longer supported in Maximo Asset Management version 7.6, as could be the case with 32-bit platforms. In this scenario, you would install a new instance of the database software compatible with Maximo Asset Management version 7.6. For DB2, you could install this software using the Maximo Asset Management version 7.6 installation program. If you install new instances of database software outside of the Maximo Asset Management version 7.6 installation program, you would have to perform additional manual configuration tasks that are described in the Maximo Asset Management 7.6 installation information. In addition, you would have to migrate the database from the old server to the new server.

If necessary, upgrade directory server software to a version supported by Maximo Asset Management version 7.6. Refer to the documentation provided with your product for upgrade information.

Installing WebSphere Application Server Network Deployment v8.5.5 using the Maximo Asset Management version 7.6 installation program

This procedure explains how to use the Maximo Asset Management version 7.6 installation program to install WebSphere Application Server Network Deployment v8.5.5.

About this task

These instructions are for the installation of WebSphere Application Server Network Deployment v8.5.5 on a single system using the Maximo Asset Management version 7.6 installation program.

To install WebSphere Application Server Network Deployment v8.5.5 for IBM Maximo Asset Management version 7.6 using the IBM Maximo Asset Management version 7.6 installation program, follow these steps.

Procedure

1. Log in to the target system as a user with administrative authority. If you are running the IBM Maximo Asset Management version 7.6 installation program from a Linux or UNIX terminal window, you must be logged in as the root user.
2. Launch the IBM Maximo Asset Management version 7.6 installation program from the launchpad.
 - a. Start the launchpad.

Windows

From the downloaded installation image, browse to the root directory and run the following command: **launchpad64.exe**.

Linux and UNIX

From the downloaded installation image, browse to the root directory and run the following command: **launchpad64.sh**.

- b. Select a language for the installation and click **OK**.
 - c. In the launchpad navigation pane, click **Install Product**.
 - d. From the **Install Product** panel, select **IBM WebSphere Application Server Network Deployment v8.5.5** and then click **Install IBM Maximo Asset Management components**.
3. In the package selection panel, click **Next**.
 4. In the package prerequisite validation panel, review the results of the prerequisite check, and then click **Next**. If any errors are reported on this panel, resolve the issue and then click **Recheck Status** before continuing.
 5. In the license agreement panel, review the license information for each package being installed, select **I accept the terms in the license agreements** if you agree with the terms, and then click **Next**.
 6. In the Installation Manager installation location panel, specify path information for the shared resources directory and the Installation Manager installation directory, and then click **Next**. Installation Manager is the installation framework that is used to install Maximo Asset Management version 7.6 components. The shared resources directory is a common workspace directory used by Installation Manager when installing packages.

7. In the package installation location panel, select a package group, specify path information for its installation directory, and then click **Next**. Repeat this process for each package group listed.
8. In the package translations panel, specify language support for WebSphere Application Server Network Deployment, and then click **Next**.
9. In the package features panel, leave all default options checked, and then click **Next**.
10. In the package configuration panel, specify configuration information for IBM HTTP Server, and then click **Next**.
11. In the package summary panel, review the information for the planned installation, and then click **Install**.
12. After the installation is complete, click **Finish**.

Migrating IBM WebSphere Application Server Network Deployment configuration information

Use the IBM WebSphere Application Server Network Deployment v8.5.5 migration wizard to migrate profiles from IBM WebSphere Application Server Network Deployment v7.x to IBM WebSphere Application Server Network Deployment v8.5.5.

About this task

You can transfer existing profile information used with Maximo Asset Management version 7.5 instead of creating new profiles for Maximo Asset Management version 7.6. You must have installed

Note: Migrating profiles used with Maximo Asset Management version 7.5 disables your Maximo Asset Management version 7.5 deployment. After the migration, you are no longer able to access or use Maximo Asset Management version 7.5. Do not migrate profile information as described here unless you no longer have a need to access Maximo Asset Management version 7.5.

Refer to http://pic.dhe.ibm.com/infocenter/wasinfo/v8r5/topic/com.ibm.websphere.migration.nd.doc/ae/tmig_profiles_gui.html for additional details on the IBM WebSphere Application Server Network Deployment migration process.

Procedure

1. Create a new Deployment Manager (Dmgr) profile. For example, ctgDmgr02.
 - a. Log on to the system hosting WebSphere Application Server v8.5.5.
 - b. Start the WebSphere Application Server Profile Management Tool.

Windows

Start > IBM WebSphere > IBM WebSphere Application Server 8.5 > Tools > Profile Management Tool

Unix or Linux

`WAS_HOME/bin/ProfileManagement/pmt.sh`

- c. Click **Create**, select **Custom Profile** and then click **Next**.
- d. Select **Advanced profile creation** and click **Next**.
- e. Enter a value for the new profile, for example ctgDmgr02, and then click **Next**. The new Deployment Manager profile name should not be the same as the profile name as the WebSphere Application Server v7.0 profile.

- f. Verify the host name and then enter a value for the new node, for example, ctgNode02. Click **Next**. The new node name should not be the same as the WebSphere Application Server v7.0 node.
 - g. Select the option for **Federate this node later** and then click **Next**.
 - h. Accept the default values for security certificates, and click **Next**.
 - i. Enter and confirm the default keystore password, and then click **Next**.
 - j. From the summary screen click **Next**. Deselect the Launch the First steps console option and close the Profile Management Tool and the WebSphere Customization Toolbox 8.5.
2. Stop WebSphere Application Server v7.x services, if they are running.
 - a. Log on to the system hosting WebSphere Application Server v7.x.
 - b. Stop IBM HTTP Server and IBM HTTP Administration.
 - c. Stop WebSphere Application Server deployment manager.
 - d. Stop node.
 - e. Stop all Maximo application servers. For example, MXServer.
 3. Migrate the deployment manager profile.
 - a. Log on to the system hosting WebSphere Application Server v8.5.5.
 - b. Start the WebSphere Application Server Migration Wizard.

Windows

Start > IBM WebSphere > IBM WebSphere Application Server v8.5 > Tools > Configuration Migration Tool

Unix or Linux

`app_server_root/bin/migration.sh`

- c. Define a migration source. On the Migration Sources panel, click **New**.
- d. Select the installations that you want to migrate. Specify the WebSphere Application Server v7.x installation . Click **Next**.
- e. Select ctgDmgr01 as the source profile. Choose the option to create a backup of the profile. Click **Next**.
- f. Optional: If administrative security is enabled for the profile, enter the WebSphere Application Server administrative user ID and password. Click **Next**.
- g. Keep the option selected for disabling the source deployment manager and click **Next**.
- h. Specify the location for the migration output and log files. Click **Next**. When you accept the defaults note that the new WebSphere Application Server v8.5.5 Deployment Manager will have the same name as the WebSphere Application Server v7.0 Deployment Manager. The new Deployment Manager profile we created earlier is required to run the migration tool, but is not used in the final product.
- i. Keep **Migrate to a New Profile** selected and click **Next**. You can migrate to an existing profile, but it must have been created earlier. Remember that when we created ctgDmgr02, we did not federate it (pair it with an Application Server).
- j. Verify the host, name the profile ctgDmgr01, and then click **Next**.
- k. Keep the default options selected for the application installation information. Click **Next**.
- l. Keep the default options selected for the port value information. Click **Next**.
- m. Keep the default options selected for additional migration information. Click **Next**.

- n. Review the migration summary data. Click **Migrate**. The migration process consists of 2-6 sub-processes, depending on the choices you made in previous steps. If the process requires user input, you are automatically moved to the appropriate tab.
 - o. Review the results page. To return to the list of migration sources, click **Finish**.
4. Migrate the application server profile.
- a. Start the deployment manager. The new deployment manager is located in *WAS_HOME\AppServer\profiles\ctgDmgr02\bin*.
 - b. Start the WebSphere Application Server Migration Wizard.

Windows

Start > IBM WebSphere > IBM WebSphere Application Server v8.5 > Tools > Configuration Migration Tool

Unix or Linux

app_server_root/bin/migration.sh

- c. Enter the WebSphere Application Server administrative user name (wasadmin) and password, and then click **Test Connection to Deployment Manager**. Click **Next**.
- d. From the Profile Migration Output page, click **Next**.
- e. From the Target Profile page, click **Next**.
- f. From the Profile Creation Parameters page, enter ctgAppSrv01 as the profile name, and then click **Next**.
- g. Enter port value information and then click **Next**. If you plan to deactivate WebSphere Application Server v7.0, use the port values assigned to the source profile.
- h. Review the migration summary data. Click **Migrate**. The migration process consists of 2-6 sub-processes, depending on the choices you made in previous steps. If the process requires user input, you are automatically moved to the appropriate tab.
- i. Review the results page. To return to the list of migration sources, click **Finish**.

Migrate database or directory server data (optional)

Depending upon your environment, you might have to migrate database or directory server data from Maximo Asset Management 7.5 middleware servers to Maximo Asset Management 7.6 middleware servers.

In cases where the middleware you used to deploy Maximo Asset Management 7.5 is incompatible with Maximo Asset Management 7.6, you can migrate Maximo Asset Management 7.5 information to a server supported by Maximo Asset Management 7.6.

If your Maximo Asset Management 7.5 database software is compatible with Maximo Asset Management 7.6, you can use the existing database. If the existing database is not compatible, refer to the documentation provided with your software for instructions on migrating database objects. For DB2, this information can be found at <http://publib.boulder.ibm.com/infocenter/db2luw/v10r5/topic/com.ibm.db2.luw.qb.upgrade.doc/doc/c0011933.html>. Recall that if you performed an upgrade of your database software, you are only required to migrate the Maximo Asset Management 7.5 database instance (ctginst1) and database (maxdb75). If you installed a new instance of the database software, you must

complete additional configuration tasks as described in the Maximo Asset Management 7.6 installation information.

If you chose to use a directory server for security in your Maximo Asset Management 7.5 deployment and you are required to migrate directory server information to comply with Maximo Asset Management 7.6 prerequisites, consult the documentation provided with your software for instructions on migrating. If you used IBM Tivoli Directory Server for the Maximo Asset Management 7.5 deployment, no migration is required because the same version of IBM Tivoli Directory Server is supported in both products.

Running the Maximo Asset Management 7.6 installation program

This procedure explains how to use the Maximo Asset Management version 7.6 installation program to install Maximo Asset Management version 7.6.

About this task

You run the Maximo Asset Management version 7.6 installation program on the system you designate as the Maximo Asset Management version 7.6 administrative workstation. You do not perform the upgrade from the Maximo Asset Management version 7.5 administrative workstation. Platforms supported for Maximo Asset Management version 7.5 administrative workstations, for example, Windows 2008, are not supported in Maximo Asset Management version 7.6. The upgrade process involves performing a new installation of Maximo Asset Management version 7.6 and then configuring it to use the Maximo Asset Management version 7.5 database.

Procedure

1. Log in to the system you designate as the Maximo Asset Management version 7.6 administrative workstation. If you run the IBM Maximo Asset Management version 7.6 installation program from a Linux or UNIX terminal window, you must be logged in as the root user.
2. Launch the IBM Maximo Asset Management version 7.6 installation program from the launchpad.
 - a. Start the launchpad.

Windows

From the downloaded installation image, browse to the root directory and run the following command: **launchpad64.exe**.

Linux and UNIX

From the downloaded installation image, browse to the root directory and run the following command: **launchpad.sh**.

- b. Select a language for the installation and click **OK**.
 - c. In the launchpad navigation pane, click **Install Product**.
 - d. From the **Install Product** panel, select **IBM Maximo Asset Management v7.6** and then click **Install IBM Maximo Asset Management components**.
3. In the package selection panel, click **Next**.
 4. In the package prerequisite validation panel, review the results of the prerequisite check, and then click **Next**. If any errors are reported on this panel, resolve the issue and then click **Recheck Status** before continuing.
 5. In the license agreement panel, review the license information for each package being installed, select **I accept the terms in the license agreements** if you agree with the terms, and then click **Next**.

6. In the Installation Manager installation location panel, specify path information for the shared resources directory and the Installation Manager installation directory, and then click **Next**. Installation Manager is the installation framework that is used to install Maximo Asset Management version 7.6 components. The shared resources directory is a common workspace directory used by Installation Manager when installing packages.
7. In the package installation location panel, select the IBM Tivoli's process automation suite package group, and then click **Next**.
8. In the package features panel, leave all default options checked, and then click **Next**.
9. In the package summary panel, review the information for the planned installation, and then click **Install**.
10. After the installation is complete, if you do not have any industry solutions and add-ons to install, you can select the option to start the Maximo Asset Management version 7.6 configuration program, and then click **Finish**. The Maximo Asset Management version 7.6 installation program exits and the Maximo Asset Management version 7.6 configuration program is started automatically. If you do need install industry solutions and add-ons, exit the Maximo Asset Management version 7.6 configuration program and install them before you continue.

What to do next

You should install version 7.5 industry solutions and add-ons at this time. Version 7.5 of industry solutions and add-ons can be installed on Maximo Asset Management 7.6 from the command-line. Silent installation is also supported.

Ensure that you download the latest version and fixes available for the industry solution or add-on before you install it. Refer to the Maximo Upgrade Requirements Matrix for the latest information about industry solution and add-on requirements.

After installing Use the Maximo Asset Management version 7.6 configuration program to configure Maximo Asset Management version 7.6.

 <http://www.ibm.com/support/docview.wss?uid=swg21266217>

Changing the WebSphere Application Server Network Deployment host

Update Maximo Asset Management to interface with the new installation of WebSphere Application Server Network Deployment v8.5.5.

Procedure

1. If the Maximo Asset Management configuration program is not open, start it from the Maximo Asset Management launchpad. In the launchpad navigation pane, click **Configure Product** and then click **Launch the Tivoli's Process Automation Suite configuration program**.
2. In the IBM Maximo Asset Management configuration operations page, click **Change WebSphere Application Server Host**.
3. In the Define Deployment Environment panel, specify information about the WebSphere Application Server Network Deployment server you installed and prepared. Select the **Automatically configure WebSphere** option for automatically configuring WebSphere Application Server Network Deployment . After you define your deployment environment, click **Finish**.

4. In the Configure the Application Server panel, specify configuration information for the WebSphere Application Server Network Deployment server you installed.
5. In the Configure Application Security panel, choose a security model for IBM Maximo Asset Management. If you choose a security model that includes a directory server, specify information about the directory for virtual member manager.
6. In the Apply Deployment Operations panel, clear the options for building and deploying application EAR files, and then click **Finish**. Application EAR files are built and deployed after Maximo Asset Management version 7.6 is configured. Maximo Asset Management is now configured to use the new application server

Configuring Maximo Asset Management version 7.6 using the Maximo Asset Management version 7.6 configuration program

This procedure explains how to use the Maximo Asset Management version 7.6 configuration program to configure Maximo Asset Management version 7.6.

Before you begin

You must uninstall any industry solutions and add-ons that are unsupported in Maximo Asset Management version 7.6 before you configure it. Refer to the Maximo Upgrade Resources support page for more information. Scripts to uninstall unsupported industry solutions and add-ons are provided for download from the Fix Central support site.

This procedure refers to DB2 as the database to configure for Maximo Asset Management version 7.6. References to DB2 are for example only. Information required for Oracle or SQL Server is similar. Help is provided in the Maximo Asset Management version 7.6 configuration program user interface and can be used to determine the information you need to specify for the upgrade.

Procedure

1. If the Maximo Asset Management version 7.6 configuration program is not open, start it from the Maximo Asset Management launchpad. In the launchpad navigation pane, click **Configure Product**, specify Maximo Asset Management installation location, and then click **Launch the Tivoli's Process Automation Suite configuration program**.
2. In the IBM Maximo Asset Management configuration operations page, click **Configure a New Deployment**.
3. In the Define Deployment Environment panel, specify information about the Maximo Asset Management version 7.5 DB2 host. Select the **WebSphere** as the application server type, and then select the **Complete configuration of WebSphere for your product** option. After you define your deployment environment, click **Finish**.
4. In the Configure General Product Information panel, review summary details about the product components you are installing. Specify the appearance and navigation features for your product, add an e-mail address to receive workflow messages, and choose whether or not to deploy sample data.
5. In the Configure the DB2 Instance panel, specify information about the Maximo Asset Management version 7.5 DB2 instance.

6. In the Configure the DB2 Database panel, specify information about the Maximo Asset Management version 7.5 DB2 database.
7. In the Configure the Application Server panel, specify connection and application server information for the WebSphere Application Server Network Deployment server you installed.
8. In the Configure Application Security panel, choose a security model for Maximo Asset Management. If you choose a security model that includes a directory server, specify information about the directory for the virtual member manager. Enter the user names and passwords for users that must be created for Maximo Asset Management.
9. Choose the base language and any additional languages you want to install.
10. In the Apply Deployment Operations panel, specify user interface preferences, select all available deployment operations, and then click **Finish**. When you select **Apply the changes to the database**, the **updatedb** program writes information to the database.

Results

Maximo Asset Management version 7.6 is now installed and configured to use WebSphere Application Server Network Deployment v8.5.5. Changes are written to the database and if you chose to do so, application EAR files were deployed to WebSphere Application Server Network Deployment.

Related information:

 <http://www-01.ibm.com/support/docview.wss?uid=swg21266217>

Running the Maximo Asset Management 7.5.0.5 fix pack installation program

Run the Maximo Asset Management 7.5.0.5 fix pack installation program.

Procedure

1. Uncompress the 7.5.0.5-TIV-MAM-FP0005.zip file.
2. Start the Maximo Asset Management fix pack installation program.

Windows

- install.bat
 - install_win64.bat
3. Select a language for the installation and click **OK**.
 4. In the Introduction panel, click **Next**.
 5. In the Choose Installation folder panel, use the drop-down menu to select the previously used installation directory to target it for an upgrade.
 6. Review the information presented in the Verify installation location panel, and then click **Next**. The Verify installation location panel reports previous installation information that was found based upon the installation directory you chose in the previous panel. Once you advance past this panel, you cannot go back and change the installation directory for this installation.
 7. In the Package Summary panel, review the package deployment actions, and then click **Next**. This panel lists version information for both new and existing packages on the system. Target package version information indicates the package version being currently deployed.

8. If the Additional language selection panel appears, click **Next**. Do not select additional languages for deployment at this time. Additional languages are deployed after the Maximo Asset Management 7.5.0.5 fix pack is installed.
9. In the Database Upgrade panel, review the prerequisite database task information. Select the option indicating that you have performed the prerequisite database tasks, and then click **Next**.
10. If you have not previously configured the following parameters for your Maximo Asset Management 7.5 deployment, you are prompted to supply SMTP configuration information. In the SMTP Configuration panel, specify SMTP configuration information used by workflows to communicate with workflow participants.

SMTP server

Enter the fully qualified host name of the SMTP server that sends messages to participants.

Alternatively, you can provide the IP address for the system.

Administrator e-mail

Enter a valid e-mail address. This address is used to send messages.

You can defer SMTP configuration at this time by not providing any information and clicking through to the next panel. However, you must configure these parameters through the product interface as a post installation task.

11. From the Run Configuration Step panel, click **Next**. If the options **Defer the Update of the Maximo Database** and **Deploy application files manually later** appear on the panel, you must select them both before you click **Next**.
12. From the input summary panel, verify that the values displayed are the values used in your existing Maximo Asset Management deployment, and then click **Next**.
13. From the Pre-Installation Summary panel, review the install summary values, and then click **Install**.
14. Click **Finish** to exit the installation program.

Upgrading industry solutions and add-ons

Upgrade any industry solutions that were deployed previously.

Before you begin

Refer to “Industry solution and add-on product version prerequisites” on page 23 for industry solutions and add-on requirements.

About this task

If you have industry solutions deployed with Maximo Asset Management, they must be upgraded to the 7.6 level. Refer to the installation information for your particular industry solution for more details about its deployment.

If you are presented with options to update the database or deploy application files, you must defer these tasks.

Procedure

1. Install version 7.6 of the industry solution as described in the installation information for that industry solution.

2. Complete the installation process and exit the solution installer. Repeat this process for all industry solutions or add-ons deployed with Maximo Asset Management 7.5.
3. Optional: Download and install the latest fix packs for upgraded industry solutions and add-ons, if available.

Migrate customizations

Migrate any customizations you made in your Maximo Asset Management 7.5 deployment.

Procedure

1. Compile custom Java code using the JDK 1.7 compiler. Custom Java classes that were created for the Maximo Asset Management 7.5 deployment were likely compiled using JDK 1.5, which was provided with Maximo Asset Management 7.5. Custom Java code must be recompiled using the JDK 1.7 compiler supplied with Maximo Asset Management 7.6 in the C:\IBM\SMP\sdk\bin folder.
 - a. Copy custom Java source files from the Maximo Asset Management 7.5 administrative workstation to the Maximo Asset Management 7.6 administrative workstation.
 - b. Compile source into Java class files using JDK 1.7.
 - c. Move recompiled class files into the appropriate Maximo Asset Management 7.6 directory. Typically this is the same directory under Maximo Asset Management 7.6 as found in Maximo Asset Management 7.5.
2. Identify customizations that were made to default Maximo Asset Management 7.5 JSP, XML, HTML, CSS or XSLT files. These customizations of default files must be recreated in the Maximo Asset Management 7.6 versions of these files. You cannot overwrite Maximo Asset Management 7.6 files with modified versions of Maximo Asset Management 7.5 default files found in the pre_75_maximo directory. Customizations must be reapplied to the Maximo Asset Management 7.6 versions of these default files.
3. Copy or move any custom JSP, XML, HTML, CSS or XSLT files you created to work with Maximo Asset Management 7.5.
4. For any changes made to Applet extensions, move the compiled code into the appropriate folders on the Maximo Asset Management 7.6 installation directory. Ensure that you build the Applet Jars from the Maximo Asset Management 7.6 folders.
5. Copy or move any customized Maximo Asset Management 7.5 report files to the appropriate Maximo Asset Management 7.6 folder. These report files need to be imported into the database after the upgrade process is complete, as describe in the post-upgrade information.
6. Move any custom configuration files (.properties and .xml) that contain extensions defined for Maximo Asset Management 7.6. Product XML files can be found in the \maximo\applications\maximo\properties\product folder. If customizations were made to default Maximo Asset Management 7.5 configuration files, you must replicate those changes in the Maximo Asset Management 7.6 versions of those files.
7. Copy or move the webclient.properties file to the \maximo\applications\maximo\properties\product folder of the Maximo Asset Management 7.6 installation.

8. Copy or move any third-party libraries used with the previous release to the appropriate Maximo Asset Management 7.6 folder. Consult the information provided with your third-party libraries to ensure no further configuration tasks are required.

Running the Maximo Asset Management 7.5.0.5 fix pack installation program to update the database

Run the Maximo Asset Management 7.5.0.5 fix pack installation program a second time to update the database and perform final deployment steps.

About this task

The Maximo Asset Management 7.5.0.5 fix pack installation program is run a second time to have it perform actions skipped the first time. For example, running updatedb, and building and deploying EAR files.

Procedure

1. Start the Maximo Asset Management fix pack installation program.

Windows

- install.bat
 - install_win64.bat
2. Select a language for the installation and click **OK**.
 3. In the Introduction panel, click **Next**.
 4. In the Choose Installation folder panel, use the drop-down menu to select the previously used installation directory to target it for an upgrade.
 5. Review the information presented in the Verify installation location panel, and then click **Next**. The Verify installation location panel reports previous installation information that was found based upon the installation directory you chose in the previous panel. Once you advance past this panel, you cannot go back and change the installation directory for this installation.
 6. In the Package Summary panel, review the package deployment actions, and then click **Next**. This panel lists version information for both new and existing packages on the system. Target package version information indicates the package version being currently deployed.
 7. In the Database Upgrade panel, review the prerequisite database task information. Select the option indicating that you have performed the prerequisite database tasks, and then click **Next**.
 8. If you have not previously configured the following parameters for your Maximo Asset Management 7.5 deployment, you are prompted to supply SMTP configuration information. In the SMTP Configuration panel, specify SMTP configuration information used by workflows to communicate with workflow participants.

SMTP server

Enter the fully qualified host name of the SMTP server that sends messages to participants.

Alternatively, you can provide the IP address for the system.

Administrator e-mail

Enter a valid e-mail address. This address is used to send messages.

You can defer SMTP configuration at this time by not providing any information and clicking through to the next panel. However, you must configure these parameters through the product interface as a post installation task.

9. From the Run Configuration Step panel, clear the check boxes for all options, and then click **Next**. The installation program performs the following tasks that remain for the upgrade:
 - Disable the PMCOMSR service in the database. This service is no longer needed in Maximo Asset Management 7.6.
 - Run updatedb. This commits data for Maximo Asset Management 7.6 and any Industry Solutions that were upgraded to the Maximo database.
 - Run TDToolkit to load languages for Maximo Asset Management 7.6.
 - Build application EAR files.
 - Deploy application EAR files.

If you allow the Maximo Asset Management 7.5.0.5 fix pack installation program to perform these steps, you do not have to complete them manually. If you are using Oracle WebLogic Server, you must deploy application EAR files manually. The product installation program cannot deploy application EAR files to Oracle WebLogic Server automatically.

10. From the input summary panel, verify that the values displayed are the values used in your existing Maximo Asset Management deployment, and then click **Next**.
11. From the Pre-Installation Summary panel, review the install summary values, and then click **Install**.
12. Click **Finish** to exit the installation program.

What to do next

If you want to add additional languages, you can do so at this time by running the Maximo Asset Management 7.5.0.5 fix pack installation program again.

Run integrity checker 7.6

Run the Maximo Asset Management version 7.6 integrity checker utility.

About this task

Before proceeding further with the Maximo Asset Management version 7.6 upgrade process, you need to run the Maximo Asset Management version 7.6 Integrity Checker utility to confirm the integrity of the Maximo Asset Management version 7.6 database after the upgrade steps have been completed. When run in Report mode, the integrity checker utility checks the current database and reports on common errors. If the Integrity Checker reports an error, you must resolve it by running the Integrity Checker in Repair mode.

Procedure

1. Stop the application server. For example, MXServer.
2. From the administrative workstation of the existing deployment, open a command prompt and change directory to the maximo tools directory. For example, `c:\ibm\SMP\maximo\tools\maximo`
3. Start the Integrity Checker tool.
`integrityui.bat`

4. Select the **Check Integrity** tab.
5. Run the Integrity Checker in Report mode.
 - a. Ensure that the **Repair Mode?** check box is cleared, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.

Results are found in the `install_home\maximo\tools\maximo\log` directory in the file defined in the **Log File Name** field of the Check Integrity panel.

6. Optional: If any errors are reported, run the Integrity Checker in Repair mode.
 - a. Select the **Repair Mode?** check box, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.
7. Optional: If Integrity Checker was run in Repair mode, check the log file to ensure all reported items have been repaired. If further manual intervention is required, you must resolve the errors and then rerun the Integrity Checker in Report mode. Repeat the process until no more errors are reported.

Results

While the Integrity Checker can repair many issues, you might have to resolve some errors manually by consulting the log files.

Chapter 8. Upgrading Maximo Asset Management only (Scenario 3)

Upgrade Maximo Asset Management in an environment where Maximo Asset Management version 7.5 is deployed with middleware that already meets the requirements for Maximo Asset Management version 7.6.

Before you begin

Ensure you have reviewed the following information:

- “Upgrade scenario road maps” on page 26

About this task

This information provides a high-level overview or road map of tasks you need to complete in order to upgrade to Maximo Asset Management version 7.6.

In this scenario, you use the Maximo Asset Management version 7.6 installation and configuration programs to update Maximo Asset Management and the content of the Maximo Asset Management database. You can then rebuild and redeploy application EAR files.

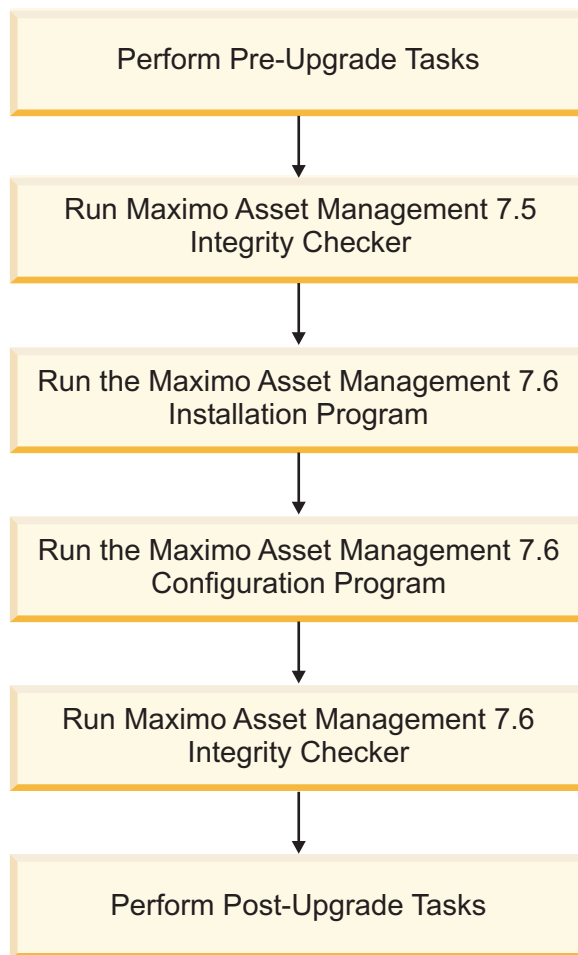


Figure 3. Upgrading Maximo Asset Management only

Procedure

1. Perform pre-upgrade tasks

Concepts

Chapter 5, “Pre-upgrade tasks,” on page 35

Tasks

- “Backing up your database” on page 35
 - “Creating a test copy of your Maximo database” on page 35
 - “Disabling custom triggers” on page 35
 -
2. Run the Maximo Asset Management 7.5 Integrity Checker. Run the Integrity Checker tool in Report mode. If the Integrity Checker reports an error, you must resolve it before using the product installation program to attempt an upgrade.

Concepts

- “Integrity checker informational messages” on page 97
- “Integrity checker warning messages” on page 97
- “Integrity checker error messages” on page 100

Tasks “Run integrity checker 7.5” on page 71

3. Run the Maximo Asset Management version 7.6 installation program.
In this step the Maximo Asset Management version 7.6 installation program installs Maximo Asset Management version 7.6 onto the administrative workstation.
Tasks “Running the Maximo Asset Management 7.6 installation program” on page 72
4. Run the Maximo Asset Management version 7.6 configuration program.
In this step, the Maximo Asset Management version 7.6 configuration program configures Maximo Asset Management version 7.6.
Tasks “Configuring Maximo Asset Management version 7.6 using the Maximo Asset Management version 7.6 configuration program” on page 62
5. Run Maximo Asset Management version 7.6 Integrity Checker
Run the Integrity Checker tool in Report mode. If the Integrity Checker reports an error, you must resolve it.
Concepts
 - “Integrity checker informational messages” on page 97
 - “Integrity checker warning messages” on page 97
 - “Integrity checker error messages” on page 100**Tasks** “Run integrity checker 7.6” on page 67
6. Perform post-installation tasks
Concepts
Chapter 10, “Post-upgrade tasks,” on page 85
Tasks
 - “Reviewing your upgraded screens” on page 89
 - “Reviewing table domains and crossover domains” on page 90
 - “Updating BIRT reports” on page 90
 - “Updating statistics” on page 90

Run integrity checker 7.5

Run the Maximo Asset Management version 7.5 integrity checker utility.

About this task

Before proceeding further with the Maximo Asset Management version 7.6 upgrade process, run the Maximo Asset Management version 7.5 Integrity Checker utility. This utility is used with the Maximo Asset Management version 7.5 database to ensure it is ready for the upgrade. When run in Report mode, the integrity checker utility checks the current database and reports on common errors. If the Integrity Checker reports an error, you must resolve it by running the Integrity Checker in Repair mode.

Procedure

1. From the Maximo Asset Management version 7.5 administrative workstation, open a command prompt and change directory to the tools directory. For example, `c:\ibm\SMP\maximo\tools\maximo`
2. Start the Integrity Checker tool.
`integrityui.bat`
3. Select the **Check Integrity** tab.

4. Run the Integrity Checker in Report mode.
 - a. Ensure that the **Repair Mode?** check box is cleared, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.

Results are found in the *install_home*\maximo\tools\maximo\log directory in the file defined in the **Log File Name** field of the Check Integrity panel.

5. Optional: If any errors are reported, run the Integrity Checker in Repair mode.
 - a. Select the **Repair Mode?** check box, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.
6. Optional: If Integrity Checker was run in Repair mode, check the log file to ensure all reported items have been repaired. If further manual intervention is required, you must resolve the errors and then rerun the Integrity Checker in Report mode. Repeat the process until no more errors are reported.

Results

While the Integrity Checker can repair many issues, you might have to resolve some errors manually by consulting the log files.

Running the Maximo Asset Management 7.6 installation program

This procedure explains how to use the Maximo Asset Management version 7.6 installation program to install Maximo Asset Management version 7.6.

About this task

In order to upgrade an existing Maximo Asset Management version 7.5 deployment to Maximo Asset Management version 7.6, run the Maximo Asset Management version 7.6 installation program on the original Maximo Asset Management version 7.5 administrative system.

Procedure

1. Log in to the Maximo Asset Management version 7.5 administrative workstation with the user ID that you used to perform the Maximo Asset Management version 7.5 installation. If you run the IBM Maximo Asset Management version 7.6 installation program from a Linux or UNIX terminal window, you must be logged in as the root user.
2. Launch the IBM Maximo Asset Management version 7.6 installation program from the launchpad.
 - a. Start the launchpad.

Windows

From the downloaded installation image, browse to the root directory and run the following command: **launchpad64.exe**.

Linux and UNIX

From the downloaded installation image, browse to the root directory and run the following command: **launchpad64.sh**.

- b. Select a language for the installation and click **OK**.
 - c. In the launchpad navigation pane, click **Install Product**.
 - d. From the **Install Product** panel, select **IBM Maximo Asset Management v7.6** and then click **Install IBM Maximo Asset Management components**.
3. In the package selection panel, click **Next**.

4. In the package prerequisite validation panel, review the results of the prerequisite check, and then click **Next**. If any errors are reported on this panel, resolve the issue and then click **Recheck Status** before continuing.
5. In the license agreement panel, review the license information for each package being installed, select **I accept the terms in the license agreements** if you agree with the terms, and then click **Next**.
6. In the Installation Manager installation location panel, specify path information for the shared resources directory and the Installation Manager installation directory, and then click **Next**. Installation Manager is the installation framework that is used to install Maximo Asset Management version 7.6 components. The shared resources directory is a common workspace directory used by Installation Manager when installing packages.
7. In the package installation location panel, select the IBM Tivoli's process automation suite package group, specify the path information for the Maximo Asset Management version 7.5 installation directory, and then click **Next**. A warning message is shown that informs you that you are about to upgrade the Maximo Asset Management version 7.5 deployment installed at the location you specified. Click **OK** to continue with the upgrade process.
8. In the package features panel, leave all default options checked, and then click **Next**.
9. In the package summary panel, review the information for the planned installation, and then click **Install**.
10. After the installation is complete, select the option to start the Maximo Asset Management version 7.6 configuration program, and then click **Finish**. The Maximo Asset Management version 7.6 installation program exits and the Maximo Asset Management version 7.6 configuration program is started automatically.

What to do next

Use the Maximo Asset Management version 7.6 configuration program to configure Maximo Asset Management version 7.6.

Configuring Maximo Asset Management version 7.6 using the Maximo Asset Management version 7.6 configuration program

This procedure explains how to use the Maximo Asset Management version 7.6 configuration program to configure Maximo Asset Management version 7.6.

Procedure

1. If the Maximo Asset Management version 7.6 configuration program is not open, start it from the Maximo Asset Management launchpad. In the launchpad navigation pane, click **Configure Product**, specify Maximo Asset Management installation location, and then click **Launch the Tivoli's Process Automation Suite configuration program**.
2. In the Update Summary panel, review the summary information for the products and components to upgrade.
3. In the Apply Deployment Operations panel, specify user interface preferences, select all available deployment operations, and then click **Finish**.

Results

Maximo Asset Management version 7.6 is now installed and configured to use WebSphere Application Server Network Deployment v8.5.5.

Run integrity checker 7.6

Run the Maximo Asset Management version 7.6 integrity checker utility.

About this task

Before proceeding further with the Maximo Asset Management version 7.6 upgrade process, you need to run the Maximo Asset Management version 7.6 Integrity Checker utility to confirm the integrity of the Maximo Asset Management version 7.6 database after the upgrade steps have been completed. When run in Report mode, the integrity checker utility checks the current database and reports on common errors. If the Integrity Checker reports an error, you must resolve it by running the Integrity Checker in Repair mode.

Procedure

1. Stop the application server. For example, MXServer.
2. From the administrative workstation of the existing deployment, open a command prompt and change directory to the maximo tools directory. For example, `c:\ibm\SMP\maximo\tools\maximo`
3. Start the Integrity Checker tool.
`integrityui.bat`
4. Select the **Check Integrity** tab.
5. Run the Integrity Checker in Report mode.
 - a. Ensure that the **Repair Mode?** check box is cleared, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.

Results are found in the `install dir\maximo\tools\maximo\log` directory in the file defined in the **Log File Name** field of the Check Integrity panel.

6. Optional: If any errors are reported, run the Integrity Checker in Repair mode.
 - a. Select the **Repair Mode?** check box, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.
7. Optional: If Integrity Checker was run in Repair mode, check the log file to ensure all reported items have been repaired. If further manual intervention is required, you must resolve the errors and then rerun the Integrity Checker in Report mode. Repeat the process until no more errors are reported.

Results

While the Integrity Checker can repair many issues, you might have to resolve some errors manually by consulting the log files.

Chapter 9. Upgrading on Oracle WebLogic Server (Scenario 3)

Use this information to upgrade Maximo Asset Management that has been deployed on Oracle WebLogic Server.

Before you begin

Ensure you have reviewed the following information:

- “Upgrade scenario road maps” on page 26

About this task

This information provides a high-level overview or road map of tasks you need to complete in order to upgrade to Maximo Asset Management version 7.6 in a Oracle WebLogic Server environment. Use the information provided in the Concepts list to familiarize yourself with the ideas behind each step, and then refer to the Tasks list and perform the tasks listed in order to complete the step.

In this scenario, you upgrade an existing Maximo Asset Management 7.5 in a Oracle WebLogic Server environment.

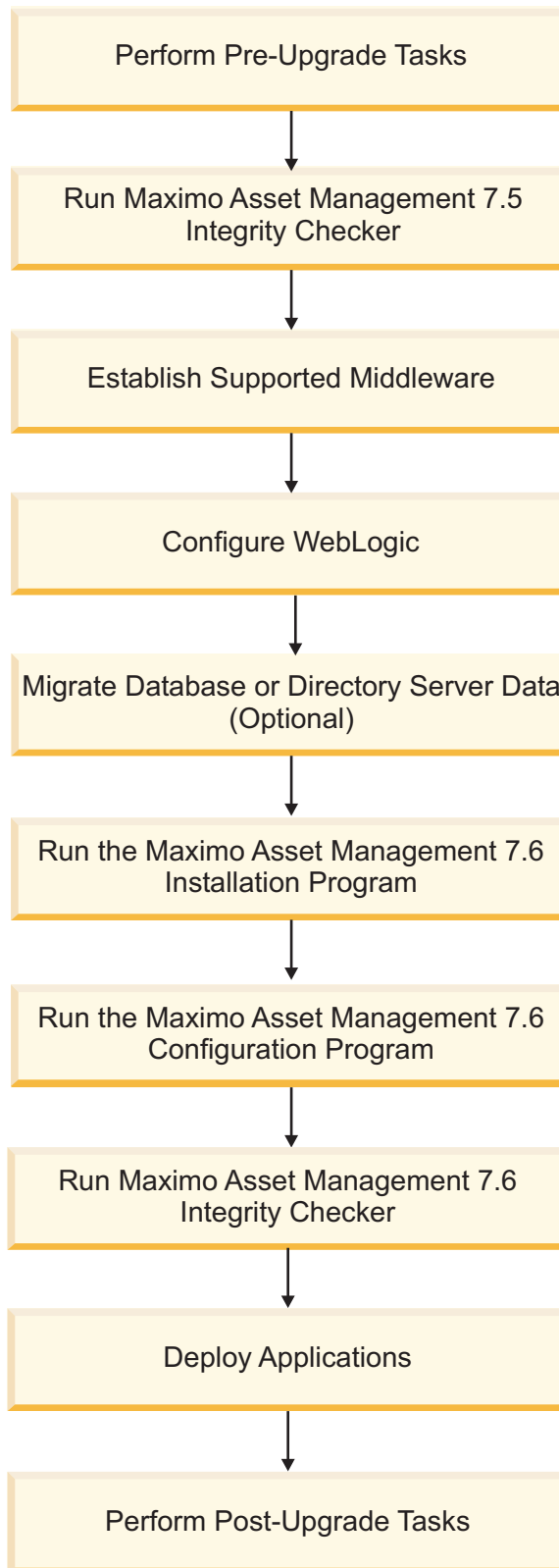


Figure 4. Upgrading Maximo Asset Management in a Oracle WebLogic Server environment

Procedure

1. Perform pre-upgrade tasks

Concepts

Chapter 5, "Pre-upgrade tasks," on page 35

Tasks

- "Backing up your database" on page 35
 - "Creating a test copy of your Maximo database" on page 35
 - "Disabling custom triggers" on page 35
 -
2. Run the Maximo Asset Management version 7.5 Integrity Checker. Run the Integrity Checker tool in Report mode. If the Integrity Checker reports an error, you must resolve it before using the product installation program to attempt an upgrade.

Concepts

- "Integrity checker informational messages" on page 97
- "Integrity checker warning messages" on page 97
- "Integrity checker error messages" on page 100

Tasks "Run integrity checker 7.5" on page 78

3. Establish supported middleware

You must establish in your environment a version of Oracle WebLogic Server that is supported by Maximo Asset Management version 7.6. The versions of Oracle WebLogic Server that were supported by Maximo Asset Management version 7.5 are not compatible with Maximo Asset Management version 7.6.

If necessary, upgrade database software to a version supported by Maximo Asset Management version 7.6 using the installation program for that software. Maximo Asset Management version 7.6 requires DB2 version 10.5 at a minimum.

If necessary, upgrade directory server software to a version supported by Maximo Asset Management version 7.6 using the installation program for that software. Refer to the documentation provided with your product for upgrade information.

Concepts

"Establish supported middleware" on page 79

4. Manually configure Oracle WebLogic Server. Oracle WebLogic Server configuration tasks are described in the Maximo Asset Management version 7.6 installation information.

Concepts

"Configure WebLogic" on page 80

5. Optional: Migrate the database or directory server data, if necessary.

Concepts

"Migrate database or directory server data (optional)" on page 80

6. Run the Maximo Asset Management version 7.6 installation program.
In this step the Maximo Asset Management version 7.6 installation program installs Maximo Asset Management version 7.6 onto the administrative workstation.

Tasks "Running the Maximo Asset Management 7.6 installation program" on page 80

7. Run the Maximo Asset Management version 7.6 configuration program.
In this step, the Maximo Asset Management version 7.6 configuration program configures Maximo Asset Management version 7.6.

Tasks “Configuring Maximo Asset Management version 7.6 using the Maximo Asset Management version 7.6 configuration program” on page 82

8. Run Maximo Asset Management version 7.6 Integrity Checker
Run the Integrity Checker tool in Report mode. If the Integrity Checker reports an error, you must resolve it.

Concepts

- “Integrity checker informational messages” on page 97
- “Integrity checker warning messages” on page 97
- “Integrity checker error messages” on page 100

Tasks “Run integrity checker 7.6” on page 83

9. Deploy applications.
The Maximo and Maximo help applications must be deployed manually.

Tasks “Deploy application files to Oracle WebLogic Server” on page 84

10. Perform post-upgrade tasks

Concepts

Chapter 10, “Post-upgrade tasks,” on page 85

Tasks

- “Reviewing your upgraded screens” on page 89
- “Reviewing table domains and crossover domains” on page 90
- “Updating BIRT reports” on page 90
- “Updating statistics” on page 90

Run integrity checker 7.5

Run the Maximo Asset Management version 7.5 integrity checker utility.

About this task

Before proceeding further with the Maximo Asset Management version 7.6 upgrade process, run the Maximo Asset Management version 7.5 Integrity Checker utility. This utility is used with the Maximo Asset Management version 7.5 database to ensure it is ready for the upgrade. When run in Report mode, the integrity checker utility checks the current database and reports on common errors. If the Integrity Checker reports an error, you must resolve it by running the Integrity Checker in Repair mode.

Procedure

1. From the Maximo Asset Management version 7.5 administrative workstation, open a command prompt and change directory to the tools directory. For example, `c:\ibm\SMP\maximo\tools\maximo`
2. Start the Integrity Checker tool.
`integrityui.bat`
3. Select the **Check Integrity** tab.
4. Run the Integrity Checker in Report mode.
 - a. Ensure that the **Repair Mode?** check box is cleared, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.

Results are found in the `install_home\maximo\tools\maximo\log` directory in the file defined in the **Log File Name** field of the Check Integrity panel.

5. Optional: If any errors are reported, run the Integrity Checker in Repair mode.
 - a. Select the **Repair Mode?** check box, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.
6. Optional: If Integrity Checker was run in Repair mode, check the log file to ensure all reported items have been repaired. If further manual intervention is required, you must resolve the errors and then rerun the Integrity Checker in Report mode. Repeat the process until no more errors are reported.

Results

While the Integrity Checker can repair many issues, you might have to resolve some errors manually by consulting the log files.

Establish supported middleware

Establish middleware in your environment that is compatible with Maximo Asset Management 7.6.

The first step in a Maximo Asset Management 7.6 upgrade is to establish middleware in your environment that is supported by Maximo Asset Management 7.6. In some cases, middleware you used in the Maximo Asset Management 7.5 deployment can be reused for the Maximo Asset Management 7.6 upgrade. In other cases, you might have to use new middleware servers that were not part of the original Maximo Asset Management 7.5 deployment.

You need to install or otherwise establish a supported version of Oracle WebLogic Server. Versions of Oracle WebLogic Server that were supported in Maximo Asset Management 7.5 are not supported in Maximo Asset Management 7.6. Refer to the documentation provided with Oracle WebLogic Server for installation and upgrade information.

If necessary, upgrade database software to a version supported by Maximo Asset Management 7.6. Upgrading the existing database software used with Maximo Asset Management 7.5 is the preferred method of establishing a Maximo Asset Management 7.6 supported database. This method allows you to reuse existing elements of your Maximo Asset Management 7.5 deployment, such as user ID's and database instances. In some cases, you might be forced to install a new instance of the database software. For example, the Maximo Asset Management 7.5 deployment might include a database server that is established on a platform that is no longer supported in Maximo Asset Management 7.6, as could be the case with 32-bit platforms. In this scenario, you would install a fresh instance of the database software compatible with Maximo Asset Management 7.6. For DB2, you could install this software using the Maximo Asset Management 7.6 middleware installation program. If you install new instances of database software outside of the middleware installation program, you would have to perform additional manual configuration tasks that are described in the Maximo Asset Management 7.6 installation information. In addition, you would have to migrate the database from the old server to the new server.

If necessary, upgrade directory server software to a version supported by Maximo Asset Management 7.6. Refer to the documentation provided with your product for upgrade information.

Configure WebLogic

You must configure a supported version of Oracle WebLogic Server for Maximo Asset Management version 7.6.

Oracle WebLogic Server configuration tasks are described in the Maximo Asset Management version 7.6 installation information. Complete the Oracle WebLogic Server configuration tasks described for Maximo Asset Management version 7.6.

Migrate database or directory server data (optional)

Depending upon your environment, you might have to migrate database or directory server data from Maximo Asset Management 7.5 middleware servers to Maximo Asset Management 7.6 middleware servers.

In cases where the middleware you used to deploy Maximo Asset Management 7.5 is incompatible with Maximo Asset Management 7.6, you can migrate Maximo Asset Management 7.5 information to a server supported by Maximo Asset Management 7.6.

If your Maximo Asset Management 7.5 database software is compatible with Maximo Asset Management 7.6, you can use the existing database. If the existing database is not compatible, refer to the documentation provided with your software for instructions on migrating database objects. For DB2, this information can be found at <http://publib.boulder.ibm.com/infocenter/db2luw/v10r5/topic/com.ibm.db2.luw.qb.upgrade.doc/doc/c0011933.html>. Recall that if you performed an upgrade of your database software, you are only required to migrate the Maximo Asset Management 7.5 database instance (ctginst1) and database (maxdb75). If you installed a new instance of the database software, you must complete additional configuration tasks as described in the Maximo Asset Management 7.6 installation information.

If you chose to use a directory server for security in your Maximo Asset Management 7.5 deployment and you are required to migrate directory server information to comply with Maximo Asset Management 7.6 prerequisites, consult the documentation provided with your software for instructions on migrating. If you used IBM Tivoli Directory Server for the Maximo Asset Management 7.5 deployment, no migration is required because the same version of IBM Tivoli Directory Server is supported in both products.

Running the Maximo Asset Management 7.6 installation program

This procedure explains how to use the Maximo Asset Management version 7.6 installation program to install Maximo Asset Management version 7.6.

About this task

In order to upgrade an existing Maximo Asset Management version 7.5 deployment to Maximo Asset Management version 7.6, run the Maximo Asset Management version 7.6 installation program on the original Maximo Asset Management version 7.5 administrative system.

Procedure

1. Log in to the system you designate as the Maximo Asset Management version 7.6 administrative workstation. If you run the IBM Maximo Asset

Management version 7.6 installation program from a Linux or UNIX terminal window, you must be logged in as the root user.

2. Launch the IBM Maximo Asset Management version 7.6 installation program from the launchpad.
 - a. Start the launchpad.

Windows

From the downloaded installation image, browse to the root directory and run the following command: **launchpad64.exe**.

Linux and UNIX

From the downloaded installation image, browse to the root directory and run the following command: **launchpad.sh**.

- b. Select a language for the installation and click **OK**.
 - c. In the launchpad navigation pane, click **Install Product**.
 - d. From the **Install Product** panel, select **IBM Maximo Asset Management v7.6** and then click **Install IBM Maximo Asset Management components**.
3. In the package selection panel, click **Next**.
4. In the package prerequisite validation panel, review the results of the prerequisite check, and then click **Next**. If any errors are reported on this panel, resolve the issue and then click **Recheck Status** before continuing.
5. In the license agreement panel, review the license information for each package being installed, select **I accept the terms in the license agreements** if you agree with the terms, and then click **Next**.
6. In the Installation Manager installation location panel, specify path information for the shared resources directory and the Installation Manager installation directory, and then click **Next**. Installation Manager is the installation framework that is used to install Maximo Asset Management version 7.6 components. The shared resources directory is a common workspace directory used by Installation Manager when installing packages.
7. In the package installation location panel, select the IBM Tivoli's process automation suite package group, and then click **Next**.
8. In the package features panel, leave all default options checked, and then click **Next**.
9. In the package summary panel, review the information for the planned installation, and then click **Install**.
10. After the installation is complete, if you do not have any industry solutions and add-ons to install, you can select the option to start the Maximo Asset Management version 7.6 configuration program, and then click **Finish**. The Maximo Asset Management version 7.6 installation program exits and the Maximo Asset Management version 7.6 configuration program is started automatically. If you do need install industry solutions and add-ons, exit the Maximo Asset Management version 7.6 configuration program and install them before you continue.

What to do next

You should install version 7.5 industry solutions and add-ons at this time. Version 7.5 of industry solutions and add-ons can be installed on Maximo Asset Management 7.6 from the command-line. Silent installation is also supported.

Ensure that you download the latest version and fixes available for the industry solution or add-on before you install it. Refer to the Maximo Upgrade Requirements Matrix for the latest information about industry solution and add-on requirements.

After installing Use the Maximo Asset Management version 7.6 configuration program to configure Maximo Asset Management version 7.6.

 <http://www.ibm.com/support/docview.wss?uid=swg21266217>

Configuring Maximo Asset Management version 7.6 using the Maximo Asset Management version 7.6 configuration program

This procedure explains how to use the Maximo Asset Management version 7.6 configuration program to configure Maximo Asset Management version 7.6.

Before you begin

This procedure refers to DB2 as the database to configure for Maximo Asset Management version 7.6. References to DB2 are for example only. Information required for Oracle or SQL Server is similar. Help is provided in the Maximo Asset Management version 7.6 configuration program user interface and can be used to determine the information you need to specify for the upgrade.

Procedure

1. If the Maximo Asset Management version 7.6 configuration program is not open, start it from the Maximo Asset Management launchpad. In the launchpad navigation pane, click **Configure Product**, specify Maximo Asset Management installation location, and then click **Launch the Tivoli's Process Automation Suite configuration program**.
2. In the IBM Maximo Asset Management configuration operations page, click **Configure a New Deployment**.
3. In the Define Deployment Environment panel, specify information about the Maximo Asset Management version 7.5 DB2 host. Select the **WebLogic** option. After you define your deployment environment, click **Finish**.
4. In the Configure General Product Information panel, review summary details about the product components you are installing. Specify the appearance and navigation features for your product, add an e-mail address to receive workflow messages, and choose whether or not to deploy sample data.
5. In the Configure the DB2 Instance panel, specify information about the Maximo Asset Management version 7.5 DB2 instance.
6. In the Configure the DB2 Database panel, specify information about the Maximo Asset Management version 7.5 DB2 database.
7. In the Configure Application Security panel, enter the user names and passwords for users that must be created for Maximo Asset Management.
8. Choose the base language and any additional languages you want to install.
9. In the Apply Deployment Operations panel, specify user interface preferences, select all available deployment operations, and then click **Finish**. When you select **Apply the changes to the database**, the **updatedb** program writes information to the database.

Results

Maximo Asset Management version 7.6 is now installed, changes are written to the database, and application EAR files have been built.

What to do next

Manually deploy the application EAR files on the Oracle WebLogic Server server.

Run integrity checker 7.6

Run the Maximo Asset Management version 7.6 integrity checker utility.

About this task

Before proceeding further with the Maximo Asset Management version 7.6 upgrade process, you need to run the Maximo Asset Management 7.6 Integrity Checker utility to confirm the integrity of the Maximo Asset Management version 7.6 database after the upgrade steps have been completed. When run in Report mode, the integrity checker utility checks the current database and reports on common errors. If the Integrity Checker reports an error, you must resolve it by running the Integrity Checker in Repair mode.

Procedure

1. Stop the application server. For example, MXServer.
2. From the administrative workstation of the existing deployment, open a command prompt and change directory to the maximo tools directory. For example, `c:\ibm\SMP\maximo\tools\maximo`
3. Start the Integrity Checker tool.
`integrityui.bat`
4. Select the **Check Integrity** tab.
5. Run the Integrity Checker in Report mode.
 - a. Ensure that the **Repair Mode?** check box is cleared, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.

Results are found in the `install_home\maximo\tools\maximo\log` directory in the file defined in the **Log File Name** field of the Check Integrity panel.
6. Optional: If any errors are reported, run the Integrity Checker in Repair mode.
 - a. Select the **Repair Mode?** check box, and then click **Run Integrity Checker**.
 - b. When the report dialog box appears, click **OK**.
7. Optional: If Integrity Checker was run in Repair mode, check the log file to ensure all reported items have been repaired. If further manual intervention is required, you must resolve the errors and then rerun the Integrity Checker in Report mode. Repeat the process until no more errors are reported.

Results

While the Integrity Checker can repair many issues, you might have to resolve some errors manually by consulting the log files.

Deploy application files to Oracle WebLogic Server

When you deploy Maximo Asset Management version 7.6 on Oracle WebLogic Server, you must deploy application EAR files manually.

About this task

Deploy the Maximo and Maximo help applications on Oracle WebLogic Server.

Procedure

1. Start the Oracle WebLogic Server Administration Console.
2. Log in to the administrative console with the administrative user name and password.
3. In the left pane, click the **Lock&Edit** button in the **Change Center** section to set the server to edit mode.
4. In the left pane, click the **Deployments** link in the **Domain Structure** section.
5. In the Summary of Deployments section, click the **Install** button. The Install Application Assistant opens.
6. Click the **upload your file(s)** link.
7. Click the **Browse** button next to the **Deployment Archive** field. Browse to where you have `maximo.ear` file installed, select the file and click **Open**.
8. Click **Next** to upload the file to the Oracle WebLogic Server server.
9. Click the radio button next to the `maximo.ear` file, and **Next** to continue the deployment.
10. Accept the default value "Install this deployment as an application" and click **Next** to continue the deployment.
11. Accept all other default values and click **Finish** to start the deployment process.
12. When the deployment process is complete, click the **Activate Changes** button in the Change Center to apply the changes. The following message displays: All changes have been activated. No restarts are necessary.
13. Click the **upload your file(s)** link.
14. Click the **Browse** button next to the **Deployment Archive** field. Browse to where you have `maximoiehs.ear` file installed, select the file and click **Open**.
15. Click **Next** to upload the file to the Oracle WebLogic Server server.
16. Click the radio button next to the `maximoiehs.ear` file, and **Next** to continue the deployment.
17. Accept the default value "Install this deployment as an application" and click **Next** to continue the deployment.
18. Accept all other default values and click **Finish** to start the deployment process.
19. When the deployment process is complete, click the **Activate Changes** button in the Change Center to apply the changes. The following message displays: All changes have been activated. No restarts are necessary.
20. Click the check boxes next to the maximo and maximo help applications.
21. Click the dropdown arrow of the **Start** button and select **Servicing all requests**. The Start Application Assistant displays.
22. Click **Yes** to start the system.

Chapter 10. Post-upgrade tasks

There are several tasks to complete after you have successfully upgraded Maximo Asset Management.

Once you have upgraded Maximo Asset Management, complete post-upgrade tasks to conclude the upgrade.

Programmatically verifying that the installation was successful

After you have exited the Maximo Asset Management installation program without encountering any errors, you can verify that the installation completed successfully. The installation is programmatically verified through the use of post installation validation utilities.

Before you begin

The *JAVA_HOME* environment variable must be set on the system before you can use the verification utilities.

About this task

During installation, the Maximo Asset Management installation program performs a simple health check. This health check consists of logging in to the application to verify availability. This health check might not be sufficient to verify a successful installation in all deployment scenarios. For example, if, during installation, you select the option to deploy the application EAR file at a later date, this health check cannot verify the installation. This simple health check is also insufficient for verifying an upgrade.

A post installation validation utility is available after the product has been deployed. The `installValidation` utility is used to validate the product and middleware installation. This command-line utility is used to verify the installation and configuration of the product in a more complete manner. These utilities can also be used to verify an existing deployment after changes in the environment, such as changes to host names, user IDs, and passwords.

Results of the `installValidation` utility are logged in `GConfigurationError[yyyymmddHHmm]`, `CTGConfigurationMessage[yyyymmddHHmm]`, `CTGConfigurationSummary[yyyymmddHHmm]`, and `CTGConfigurationTrace[yyyymmddHHmm]`. These log files are found in the `\IBM\SMP\ConfigTool\logs` directory on the administrative workstation.

Procedure

1. Log in to the server using the user ID that was used to run the installation program. If you intend to use the `installValidation` utility, log in to the server hosting the installed component.
2. Ensure the *JAVA_HOME* environment variable is set properly to the location of a JRE 1.7 installation.
3. To verify middleware installation, from the middleware image, update the `middleware.properties` file with the installation parameter values for middleware components to be verified, change directory to `\HealthCheck` and

run the `middlewareValidate.[sh|bat]` command. To verify product installation, from the administrative workstation, change directory to `\IBM\SMP\ConfigTool\scripts` and run the `installValidation.[sh|bat]` command. For either command, use the parameters described below:

Table 3. Verification utilities parameters

Program	Syntax parameters	Input
<code>installValidation.[sh bat]</code>	-action	<p>Use -action <code>validate</code> to start the validation of the product installation.</p> <p>Use -action <code>validateMiddleware</code> to start the validation of the middleware installation.</p> <p>The -action parameter is the only mandatory parameter when using the <code>installValidation</code> utility.</p>
	-trace	<p>Verification progress information is written to the screen during the verification process. You can modify the output using the -tracing parameter.</p> <ul style="list-style-type: none"> • minimal Progress information is limited to error information. • normal Information includes individual test progress, individual test results, and overall progress of the entire verification process. This is the default mode of tracing. • verbose In addition to providing normal progress information, verbose tracing includes the test class name, test method name, and corrective action information.
	-confirm	<p>You are prompted before each test is started. You must confirm each test to be performed. There is no input for this parameter.</p>

Table 3. Verification utilities parameters (continued)

Program	Syntax parameters	Input
	-component	<p>You can provide a comma-delimited list of directories containing the test objects to limit testing to a specific set of tests.</p> <p>These test objects must be located in the <code>\ibm\smp\HealthValidation\</code> directory. For the product installation program, only the CTGIN folder is provided.</p>
	-dbuser	Provide the user ID used to access the database.
	-dbpwd	Provide the password of the user ID used to access the database.
	-wasuser	Provide the WebSphere Application Server Network Deployment user.
	-waspwd	Provide the password for the WebSphere Application Server Network Deployment user.
	-maxuser	Provide the Maximo Asset Management administrator user ID. For example, <code>maxadmin</code> .
	-maxpwd	Provide the password for the Maximo Asset Management administrator user ID.

Table 3. Verification utilities parameters (continued)

Program	Syntax parameters	Input
	-middlewareproperties	<p>Use -middlewareproperties file</p> <p>where <i>file</i> is the location of the <code>middleware.properties</code> file. By default, this file is found on the middleware installation media in the <code>\HealthCheck</code> directory.</p> <p>The <code>middleware.properties</code> contains the middleware installation properties, such as installation locations and ports. User names and passwords are not stored in this plain-text file. Some of the properties common to all platforms have been defined default values, but platform-specific properties like installation locations need to be updated in this file before starting the <code>middlewareValidate</code> utility.</p> <p>The -middlewareproperties parameter is the only mandatory parameter when using the <code>middlewareValidate</code> utility.</p>
	-sourceDirectory	Provide the installation directory for the software.

Table 3. Verification utilities parameters (continued)

Program	Syntax parameters	Input
	-trace	<p>Verification progress information is written to the screen during the verification process. You can modify the output using the -trace parameter.</p> <ul style="list-style-type: none"> • minimal Progress information is limited to error information. • normal Information includes individual test progress, individual test results, and overall progress of the entire verification process. • verbose In addition to providing normal progress information, verbose tracing includes the test class name, test method name, and corrective action information. <p>If this option is not provided, by default, no output displayed.</p>
	-bindDN	Provide the bind Distinguished Name..
	-bindPwd	Provide the password for the bind Distinguished Name.

For example,
`installValidation.bat -action validate`

Results

The `installValidation.bat` validation utility results are logged in `ctginstallvalidationtrace00.log`. This log is found in the `\IBM\SMP\ConfigTool\logs` directory on the administrative workstation.

Reviewing your upgraded screens

If you customized any screens in Maximo Asset Management, those customizations were not retained during the upgrade process.

Log in to Maximo Asset Management version 7.6 and review the screens you previously customized in Maximo Asset Management version 7.5. You might decide to keep the default Maximo Asset Management version 7.6 screens, or you

might want to reapply your customizations. Use the Application Designer application in Maximo Asset Management version 7.6 to make additions or adjustments to the upgraded screens.

Reviewing table domains and crossover domains

Review all custom crossover domains and table domains. If you added or modified any crossover domains or table domains, review their WHERE clauses. Ensure that the WHERE clauses use the version 7.6 and column names.

If necessary, use the Database Configuration application to re-specify the table and column information. You must edit any custom domains that name any of the tables that were referenced in version 7.5, but do not exist in version 7.6. Ensure that you examine all custom crossover and table domains.

Updating BIRT reports

The following procedures must be followed in order to update your BIRT reports for Maximo Asset Management version 7.6.

Regenerating the request pages for your reports

After you upgrade, you must go to the Report Administration application and regenerate the request pages for all of your reports.

Updating statistics

In Oracle, system administration tasks include analyzing table commands. Analyze all tables to ensure that the Oracle Cost-Based Optimizer has up-to-date statistics.

1. Sign into the Maximo application.
 2. Open the Database Configuration application.
 3. From the **Select Action** menu, select **Update Statistics**, and then click **OK** to continue.
-

Manually configure IBM Maximo Calibration records

When upgrading your product, you must configure some records to adapt them for use with calibration functionality.

Scenarios for manual configuration

You must manually configure records for IBM Maximo Calibration to enable the **Is Calibration** field in the Assets application. Make the manual configuration settings for the scenarios listed in the following table:

Table 4. Manual configuration steps

Scenarios	Configuration step
Calibration detail fields are populated in the Assets application	Update asset set iscalibration=1 where pluscismte=1 or plusciscntam=1 or pluscsolution=1 or pluscisinhousecal=1 or pluscvendor is not null or pluscclass is not null or pluscoprgefrom is not null or pluscoprgeto is not null or pluscoprgeeu is not null or pluscpmextdate=1 or pluscduedate is not null or pluscassetdept is not null or pluscmodelnum is not null or pluscloopnum is not null or pluscsumeu is not null or pluscsumspan is not null or pluscsumurv is not null or pluscsumread is not null or pluscsumdir is not null or plusclploc is not null or pluscphyloc is not null.
An asset is associated with a data sheet record	Update asset set iscalibration=1 where assetnum in (select assetnum from pluscdsassetlink where assetnum in (select assetnum from asset where iscalibration=0))
An asset has a preventive maintenance record against it with a work type of CAL (or a synonym)	Update asset set iscalibration=1 where assetnum in (select assetnum from pm where worktype in (select worktype from worktype where type='CAL') and assetnum in (select assetnum from asset where iscalibration=0))
A work order was generated against an asset with a work type of CAL (or a synonym)	Update asset set iscalibration=1 where assetnum in (select assetnum from workorder where worktype in (select worktype from worktype where type='CAL') and assetnum in (select assetnum from asset where iscalibration=0))

Completing the upgrade on IBM Maximo Enterprise Adapter for Oracle Applications

After running the installer to upgrade IBM Maximo Enterprise Adapter for Oracle Applications, you must perform additional tasks to complete the upgrade process.

About this task

The upgrade process installs new installation scripts that you must configure and run to perform the upgrade on the Oracle Applications server. Although you can reuse existing integration components in the upgraded environment, you must enable them again and you must also synchronize the two databases again. See the Maximo Enterprise Adapter for Oracle Applications Installation Guide for instructions but perform only those tasks that are necessary for the upgrade.

Procedure

1. In the Cron Tasks Setup application, enable the integration cron tasks again.
2. In the External Systems application, enable the OA12 external system again.
3. Recreate the interface tables.

4. Configure the installation environment variables and run the script that installs the adapter on the Oracle Applications server. When you configure the environment variables, you select the type of architecture to use, based on concurrent jobs or on database triggers. See the product documentation for more information about the different types of architecture.
5. Run all of the synchronization scripts to import and update master data in Maximo Asset Management. You must run all of the synchronization scripts again. See the Maximo Enterprise Adapter for Oracle Applications Installation Guide for instructions and a list of the synchronization scripts.

Migrating asset template records to IBM Maximo for Transportation 7.5.1

After you upgrade to IBM Maximo for Transportation 7.5.1, you must migrate asset template records from previous releases.

Before you begin

Back up the Maximo Asset Management database.

About this task

The asset template migration script searches for asset template records from previous versions of Maximo for Transportation and migrates those records to Maximo for Transportation 7.5.1.

Procedure

1. Open a command prompt on the Maximo Asset Management administrative workstation and change directory to the following location:
`install_home\tools\maximo\internal.`
2. Run the following command:**runscriptfile.bat -ctransportation -fHFMIGRATE**

What to do next

Although the asset template migration script can resolve many issues, you might need to resolve some errors manually by consulting the log files.

Migrating from earlier versions

If you are upgrading IBM Maximo Archiving with InfoSphere Optim Data Growth Solution and IBM Maximo Archiving Adapter for InfoSphere Optim Data Growth Solution, you must use the IBM Optim upgrade instructions to upgrade IBM Optim to version 7.3. You must also update the access definitions that you used for assets and work orders, because in Maximo 7.6, new relationships and primary keys exist for those objects.

See the *IBM Optim Installation and Configuration Guide* for instructions about how to upgrade IBM Optim™ to version 7.3.

Six templates are provided on the distribution media. Use these templates to update your access definitions to include the new relationships and primary keys. The files that have DB2 in their name are for DB2 systems. The files without DB2 in their file names are for Microsoft SQL Server and Oracle Database

Table 5. Templates for upgrading access definitions for assets and work orders

File name	Purpose
MX75AS_upgrade.txt MX75ASDB2_upgrade.txt	Use these files to update the assets access definition.
MX75W0_upgrade.txt MX75W0DB2_upgrade.txt	Use these files to update the work order access definition.
MX75WF_upgrade.txt MX75WFDB2_upgrade.txt	Use these files to update the service request access definition.

Update the version 7.5 access definitions for all objects (assets and work orders).

Updating access definitions

Version 7.1 access definitions for work orders and assets must be updated to include Maximo 7.6 relationships, tables, and primary keys, before you can use them to archive or restore Maximo 7.6 data.

Before you begin

When you update your version 7.3 access definitions for assets, workorders, and workflow, you import Maximo 7.6-unique information into your existing access definitions. Back up your existing access definitions to ensure that they are preserved in case you must reuse them, for any reason.

About this task

Perform these steps in the IBM Optim access definition editor to update your access definitions for assets; then, use it again to update access definitions for work orders and workflow. The primary keys and relationships that you import are not recognized during archive operations until this procedure is completed.

Procedure

1. Double-click the Optim desktop icon.
2. Click **File > Optim Directory**. Select the Optim directory for your database and click **Connect**.
3. Close the Optim Directory window.
4. Click **Utilities > Import**.
5. Browse to the location of the first update file. Files with DB2 in the file name are for DB2 systems only. Files without DB2 in the file name are for Microsoft SQL Server and Oracle Database.
 - Select MX75AS_upgrade.txt or MX75ASDB2_upgrade.txt to update the assets access definition.
 - Select MX75W0_upgrade.txt or MX75W0DB2_upgrade.txt to update the work order access definition.
 - Select MX75WF_upgrade.txt or MX75WFDB2_upgrade.txt to update the workflow access definition.
6. Click **Tools > Select all definitions**
7. Select the **Overwrite existing definitions** check box.
8. Click **Run** to import the new relationships and primary keys into the version 7.3 Optim directory.

9. Optional: Click **Tools > Show Process Log** to verify that the Optim directory contains the new relationships and primary keys.
10. Close the Import window.
11. Click **File > Open** and click the plus sign next to **Access Definition** in the Identifier tree.
12. Double click the **MAXIMO** identifier to expose the access definitions.
13. Select the access definition you want to edit (asset, workorder or workflow).
14. Right click in the Table/View column and select **Add Tables**.
15. In the Select Tables window, browse to the name of the first table that you must add. Then click **Select** to add the table to the access definition. Repeat this step for each table that you add.
 - For Assets, add the COLLECTDETAILS and COLLECTION tables.
 - For Workorders, add the CI, MULTIASSETLOCCI, WORKORDERSPEC, and WOTASKRELATION tables.
 - For Workflow, add the WFTRANSCALL and WFPROCESSTRANS tables, and remove the WFPROCESSCALLSTACK relationship.
16. Save the access definitions.

What to do next

Update the **Delete Rows After Archive** settings for the new tables.

Update the archive definitions that do not have an automatic upgrade path.

Archive updates

Some asset definitions have changed with Maximo 7.5, these must be noted when updating your archive settings.

The archive assets that you have to note are in the following relationships, tables, and primary keys of these archives:

- Invoice Archive
- Purchase Order Archive
- Purchase Requisition Archive

For Invoice Archive

Add the new attribute REVISIONNUM to the following relationships:

- PO
- POCOST
- POTERM

And the following primary key:

- PO

For Purchase Order Archive

Add the new attribute REVISIONNUM to the following relationships:

- PO
- POCOST
- POMATRECTRANS

- POTERM
- SERVRECTRANS

And the following primary key:

- PO

For Purchase Requisition Archive

Add the new attribute REVISIONNUM to the following relationships:

- PO
- POCOST
- POSTATUS

And the following primary key:

- PO

Chapter 11. Integrity Checker Messages

This appendix lists the error and warning messages, in numeric order, associated with the integrity checker. The cause and an action to correct the problem are listed for each message.

Integrity checker informational messages

Informational messages are for information purposes only. They do not require any action to continue in the upgrade process.

INFORMATIONAL BMXAA0514I

The column definition is being repaired.

INFORMATIONAL BMXAA0516I

All null rowstamps are being populated.

INFORMATIONAL BMXAA0442I

WARNING -- {0}

INFORMATIONAL BMXAA7211I

Imported table {0} contains column {1} which has a compatible native data type of BIGINT.

Integrity checker warning messages

Warning messages do not prevent the integrity checker utility from successfully passing, but you should investigate and correct the causes of warning messages.

WARNING BMXAA0452W

These users should be removed from the security tables because they are not database users:

WARNING BMXAA0454W

The following Security Groups have no Users. This is for your information only, you do not need to take any actions:

WARNING BMXAA0460W

Changes were made to the database that have not been applied. Ensure that the changes are applied in the Database Configuration application.

WARNING BMXAA0461W

The following original indexes are missing. Go to the Database Configuration application and redefine the missing indices.

Cause Indexes that were previously defined are missing.

WARNING BMXAA0463W

The database has a different CLUSTERED property for the following original index definition(s):

WARNING BMXAA0469W

There was no unique index found for the primary key sequence on the table. Determine whether the table requires an index for the primary key column sequence.

WARNING BMXAA0471W

No primary key sequence is defined on the table. Review the table and decide if a primary key sequence is required.

WARNING BMXAA0473W

No unique index was found for the unique column ID on tables.

WARNING BMXAA0475W

The following Maximo database tables should be removed from the database because they do not exist in the schema:

WARNING BMXAA0498W

The following columns are defined to be 'same-as', but have different must-be settings. Go to the Database Configuration application and fix the mismatch.

Cause There is a mismatch between "must-be" values for columns marked as "same-as"

WARNING BMXAA0507W

This utility cannot repair the column. It is defined the 'Same As' some other column.

WARNING BMXAA0508W

This utility cannot repair the column because it is defined 'Must Be'.

WARNING BMXAA0509W

This utility cannot repair the column. It is the 'Root' column for another column.

WARNING BMXAA0510W

This utility cannot repair the column. It cannot decrease the size of a column.

WARNING BMXAA0511W

This utility cannot repair the column. Existing data might violate the definition.

WARNING BMXAA0512W

This utility cannot repair the column because it has a value list associated with it. The value list datatype does not match the root column datatype.

WARNING BMXAA0519W

The following autokeys should be removed from the AUTOKEY system table because they are not referenced by a column.

WARNING BMXAA0520W

More than one application is mapped to same position in a module.

WARNING BMXAA0521W

All applications should be mapped to a table. The following apps are not mapped.

WARNING BMXAA0528W

The following backup tables exist. If the data has been restored and the tables are not required, they should be deleted.

WARNING BMXAA0531W

This column contains values that are not defined in the domain, Column {0} Domain {1}. Update the data to synchronize it with the domain or value list that is defined for the column.

WARNING BMXAA0535W

Domain {0} is defined to be domain type {1}, but has no values in {1} domain.

WARNING BMXAA7114W

The value of the defined scale for this column is invalid. Go to the Database Configuration application and correct the mismatched values.

WARNING BMXAA7113W

The value defined for the length of this column is invalid. Go to the Database Configuration application and correct the discrepancy.

WARNING BMXAA7115W

The following persistent Maximo columns are owned by non-persistent Maximo tables:

WARNING BMXAA7110W

The primary key sequence on the table is not sequential. Review the primary key sequence and ensure that it follows a sequential order and does not contain any gaps.

WARNING BMXAA7726W

Unique column ID does not have the BIGINT maxtype on the following tables:

WARNING BMXAA7109W

Column {0} is mapped to domain {2}, but is not defined the same., {0} is {1}. {2} is {3}. Correct the data and try again.

WARNING BMXAA7112W

{0} definition differs from {1} for {2}.,{0}.{3}={4}{1}.{3}={5}. Use the Database Configuration application to correct the configuration metadata.

WARNING BMXAA7253W

Non-standard domain type found, data not validated against this domain. Domain ID = {0}, Domain Type = {1}.

WARNING BMXAA6259W

Process {0} contains Subprocess {1} which has a process that creates a loop.

Integrity checker error messages

Errors prevent the integrity checker utility from successfully passing. All errors must be corrected. The following is a subset of the possible error messages that may arise when using the integrity checker.

ERROR BMXAA0333E

Native index names longer than 30 characters exist. Before running ConfigDB, you must manually identify and rename these native indexes.

Cause The Maximo database requires that index names have a maximum length of 18 characters. The restriction was bypassed through the database back end, and an index name was created containing more than 18 characters.

Action

Any index with a name longer than 18 characters must be dropped from the database back end. Use an SQL editor to drop the index. If the index is needed, you can use the Database Configuration application to re-create it. See the Technical Reference Guide for more details. If you need additional help, contact your Maximo database administrator or IBM Maximo Support.

ERROR BMXAA0451E

Tables exist that have not had their backup data restored. You must run RestoreFromBackup before you can run Upgrade.

Cause When the database tables are configured using the Database Configuration application, Maximo makes backup copies of the tables, then applies your changes to the original tables. After this process is done, run the Database Configuration application again and restore the data from the backup tables. If this data restoration is not performed, the integrity checker stops the process with this error message because there might be serious implications to the overall upgrade of the Maximo database.

Action

To pass the integrity checker, you must run the Database Configuration application and select the option to restore from the backup tables. You are then given the choice of retaining the backup tables after restoration or dropping them. It is usually advisable to drop the backup tables because it saves disk space. Dropping the backup tables, however, is not mandatory. If you need additional help, contact IBM Maximo Support.

ERROR BMXAA0453E

The following groups should be removed from the database because they do not have the proper privileges defined. Use the Security Groups application to either remove the groups or define privileges for them.

Cause User groups are centrally stored in a Maximo database table called MAXGROUPS; users are stored in MAXUSERGROUPS. If a group or user entry is not present in these tables, it might cause problems while using Maximo. The database has been modified through the back end and data consistency between these tables and all other Maximo security tables has been compromised.

Action

Run integrity checker in repair mode.

ERROR BMXAA0455E

The following users should be removed because they are not authorized. To correct this error, run the Integrity Checker in repair mode.

Cause User groups are centrally stored in a Maximo database table called MAXGROUPS; users are stored in MAXUSERGROUPS. If a group or user entry is not present in these tables, it might cause problems while using Maximo. The database has been modified through the back end and data consistency between these tables and all other Maximo security tables has been compromised.

Action

Run integrity checker in repair mode.

ERROR BMXAA0456E

The following users should be removed from the security tables because they are not valid users: {0}. Data for these users is in the GroupUser table, but there are no parent records in the MaxUser table. To remove these users, run the Integrity Check in repair mode.

Cause User groups are centrally stored in a Maximo database table called MAXGROUPS; users are stored in MAXUSERGROUPS. If a group or user entry is not present in these tables, it might cause problems while using

Maximo. The database has been modified through the back end and data consistency between these tables and all other Maximo security tables has been compromised.

Action

Run integrity checker in repair mode.

ERROR BMXAA0458E

The following user groups were not found in the MAXGROUPS table. Run the Integrity Checker in repair mode.

Cause User groups are centrally stored in a Maximo database table called MAXGROUPS; users are stored in MAXUSERGROUPS. If a group or user entry is not present in these tables, it might cause problems while using Maximo. The database has been modified through the back end and data consistency between these tables and all other Maximo security tables has been compromised.

Action

Run integrity checker in repair mode.

ERROR BMXAA0459E

This group is defined as a user in the security tables {0}. A security group must also be defined as a user. Run the Integrity Checker in repair mode.

Cause User groups are centrally stored in a Maximo database table called MAXGROUPS; users are stored in MAXUSERGROUPS. If a group or user entry is not present in these tables, it might cause problems while using Maximo. The database has been modified through the back end and data consistency between these tables and all other Maximo security tables has been compromised.

Action

Run integrity checker in repair mode.

ERROR BMXAA0462E

The database has a different UNIQUE property for the following original index definitions. Use the Database Configuration application to fix the index definition.

Cause Many indexes were originally defined in the Maximo database for better performance. The original indexes have been modified (probably through the back end).

Action

You can potentially improve Maximo performance by re-creating any unique indexes.

ERROR BMXAA0470E

The primary key sequence on the database tables is not sequential. Fix the attributes by using the Database Configuration application.

Cause Every Maximo table must have a primary key sequence of columns, defined by MAXATTRIBUTE.PrimaryKeyColSeq. The values of

PrimaryKeyColSeq must be consecutive and sequential. For these tables, the primary key sequence is not consecutive or not sequential.

Action

For the definitions of these tables, check and, if necessary, adjust the values of PrimaryKeyColSeq in MAXATTRIBUTE and MAXATTRIBUTECFG. The primary key sequence should have a corresponding unique index.

ERROR BMXAA0474E

The following tables should be removed because they do not exist in the database. To remove these tables, run the Integrity Checker in repair mode.

Cause One or more table names are defined as persistent tables in MAXTABLE but do not exist in the Maximo database. All Maximo database tables must be defined in the MAXTABLE table. They also might appear in other Maximo tables, including the following tables:

- AUTOKEY
- MAXATTRIBUTE
- MAXATTRIBUTECFG
- MAXSYSINDEXES

Action

If you selected the report mode run-time option and you determine that the table is required, re-create the table. Use backup, if available, to restore the data in the table.

If the table is not required, remove the table name entry from all of the Maximo tables listed in the Cause section. For example, delete from MAXTABLE where tname = '.....'.

If you select the repair option, the table name entry and application entry (if the table name entry was for a custom application) are removed from the tables that are listed. In repair mode, you do not have an opportunity to maintain these relevant entries and restore the table from backup.

ERROR BMXAA0476E

The following tables own columns but are not defined as tables. Run the Integrity Checker in repair mode.

Cause A table name entry was found in MAXATTRIBUTE, but the table is not defined in MAXTABLE table. The names of all Maximo database tables must be entered in the MAXTABLE table. Each table name also appears in the MAXATTRIBUTE table, together with the names of all columns in that table. The table name might also be found in one or more of the following tables:

- AUTOKEY
- MAXATTRIBUTECFG
- MAXSYSINDEXES

Action

If you selected the report mode option, and the table exists in the database, contact IBM Maximo Support.

If you selected the report mode option and the table does not exist in the database, remove the table name entries from all of the Maximo tables

listed in the Cause section, including MAXATTRIBUTE. For example, delete * from MAXATTRIBUTE where tname = '.....'.

If you selected the repair option and the table exists in the database, the problem cannot be repaired automatically. Contact IBM Maximo Support.

If you select the repair option and the table does not exist in the database, the table name entry is removed from all of the Maximo tables listed in the Cause section, including MAXATTRIBUTE.

ERROR BMXAA0477E

The listed objects are defined as tables but do not contain any columns. Run repair mode to resolve the problem.

Cause

A table name is missing from MAXATTRIBUTE even though the name is present in the MAXTABLE table.

The names of all Maximo database tables must be entered in the MAXTABLE table. Each table name also appears in the MAXATTRIBUTE table, together with the names of all columns in that table. The table name might also be found in one or more of the following tables:

- AUTOKEY
- MAXATTRIBUTECFG
- MAXSYSINDEXES

Action

If you selected the report mode option and the table exists in the database, contact IBM Maximo Support.

If you selected the report mode option and the table does not exist in the database, you must remove the table name from all of the Maximo tables listed in the Cause section, including the MAXTABLE table. For example: delete * from MAXTABLE where tname = '.....'.

If you selected the repair option and the table exists in the database, the problem cannot be repaired automatically. Contact IBM Maximo Support.

If you select the repair option and the table does not exist in the database, the table name entry is removed from all of the Maximo tables listed in the Cause section, including MAXATTRIBUTE.

ERROR BMXAA0478E

The ROWSTAMP trigger was not found for the following tables: <table>

Cause The table is missing a rowstamp trigger. This might have been caused by installation of the integration gateway.

Action

Re-create the trigger, or run the integrity checker in repair mode to automatically provide the missing trigger.

ERROR BMXAA0479E

The ROWSTAMP trigger was found DISABLED on the following tables: <table>

Cause The rowstamp trigger was inadvertently or intentionally disabled.

Action

Re-enable the trigger.

ERROR BMXAA0480E

Rows that have null values for Rowstamp have been found in the following tables. Run the Integrity Checker in repair mode.

Cause A rowstamp is a unique identifier for a row of data. It should never be null. The tables listed for this error contain null rowstamps. This might have been caused by a database being brought forward through multiple upgrades.

Action

Update any rowstamps that are null by assigning a unique rowstamp value.

ERROR BMXAA0490E

The column {0} should be removed because it does not exist in the database. To remove the column, run the Integrity Checker in repair mode.

Cause

An incompatibility exists between the column definition in the database system catalog and the Maximo catalog (the MAXATTRIBUTE table).

All Maximo columns must be defined as columns in the database's system catalog. This column is not defined in the system catalog.

Action

If you selected the report mode option, you must either re-create the column in the system catalog, or delete all occurrences of the column in the MAXATTRIBUTE, and MAXATTRIBUTECFG tables. If necessary, contact IBM Maximo Support to correct this situation.

If you select the repair option, all entries for this column name are removed from the MAXATTRIBUTE and MAXATTRIBUTECFG tables. If the column is must-be, same-as (same as some root column), or root (other columns are the same as this column), this problem cannot be repaired automatically. Contact IBM Maximo Support.

ERROR BMXAA0493E

The following columns should be removed from the database because they do not exist in the product schema. Either use ConfigDB to add the columns to the product schema, or drop them from the database.

Cause

A Maximo table column does not have a corresponding entry in MAXATTRIBUTE.

This message might indicate a database table problem that could not be fixed automatically. This error must be resolved before you can continue. Ignoring this error during an upgrade might result in a faulty upgrade, which might prevent the application from running smoothly.

Action

The listed table columns must be manually inserted or deleted from the

MAXATTRIBUTE table. See the Technical Reference Guide and your SQL Language guide, or call IBM Maximo Support.

ERROR BMXAA0494E

The definition of this column does not match the actual column. The native column definition does not match the server's metadata. Run the Integrity Checker in repair mode.

Cause An incompatibility exists between the column definition in the database system catalog and the Maximo catalog.

Action

Determine which column definition is correct, and redefine the incorrect column definition to match the correct one. If you are unsure which definition is correct, contact IBM Maximo Support. The integrity checker repair mode option modifies the Maximo column definition to match the database definition.

If the column is must-be, same-as (same as a root column), or root (other columns are the same as this column), the incompatibility is not repaired. In this case you must call IBM Maximo Support, or use the Database Configuration application to correct the incompatible column definitions.

ERROR BMXAA0495E

The 'nullable' property of this column does not match the actual column definition. Run the Integrity Checker in repair mode.

Cause

The NULLS value of the Maximo column is different from the NULLS value of the system column.

It is permissible for some columns in a Maximo database to be null, meaning that the column contains no value at all. Whether a column can be null is defined by the NULLS value for that column.

Action

If you selected the report mode option, manually modify the NULLS value. If a null value is appropriate for this column, change REQUIRED to 0 in the database and in MAXATTRIBUTE. If this column should never be null, change REQUIRED to 1 in the database and in MAXATTRIBUTE. You can make this change through the database back end. If you need additional help, contact IBM Maximo Support.

If you selected the repair option, the REQUIRED column in the Maximo table MAXATTRIBUTE is modified to match the column in the system table.

ERROR BMXAA0496E

This column is defined to be the 'same-as' a column that does not exist. Run the Integrity Checker in repair mode.

Cause Certain columns in Maximo database tables must be the same as—be the same type and size—another column, called a root column. The root column and the same-as column are supposed to have the same data type,

length, and scale. The indicated column is defined to be the same as a root column, but that root column does not exist.

Action

Redefine the same-as relationship so that it specifies a root column that exists in the Maximo database. The missing column might have to be added to the base Maximo database table. If necessary, contact IBM Maximo Support.

ERROR BMXAA0497E

The following columns are defined to be 'same-as', but have different definitions <table.column> <table.column>

Cause Certain columns in Maximo database tables must be the same as—be the same type and size—another column, called a root column. The root column and the same-as column are supposed to have the same data type, length, and scale. This same-as relationship was broken by modifying the definition of one of the columns.

Action

If you selected the report mode option, contact IBM Maximo Support to repair the error.

If you selected repair mode and the data type does not match, repair mode changes the data type of the same-as column to match the data type of the root column. Run the Maximo Database Configuration application in order for changes to take effect. Then rerun the integrity checker utility. Note the following limitations:

- If the same-as column is set up as must-be, it cannot be repaired by repair mode. Contact IBM Maximo Support.
- If the same-as column has a value list associated with it, and the value list data type does not match the root column data type, and the value list type is 3 or 4 (Maximo defined value list), and the Maximo release version is 4.0 or above, this error cannot be repaired by repair mode. Contact IBM Maximo Support.
- If the same-as column has a domain associated with it, and the domain data type does not match the root column data type, this error cannot be repaired by repair mode. Contact IBM Maximo Support.

If length does not match, repair mode compares all the columns that are the same as the root column. repair mode changes the column lengths to match that of the longest column. This result prevents user data loss and maintains the same-as relationship. Run the Maximo Database Configuration application for changes to take effect, then rerun the integrity checker.

ERROR BMXAA0513E

This column is both a root column and is same-as linked to another column. Use the Database Configuration application to change the same-as child of the column so the same-as parent of the child equals this same-as parent of the column.

Cause A column that is being referenced as a root column in a same-as relationship is itself referencing another column as the root column in a same-as relationship. There can only be one same-as reference between columns.

Action

Run the integrity checker in repair mode to resolve multiple same-as relationships between columns.

ERROR BMXAA0527E

The following security groups do not have privileges in the security tables. Either remove the security groups, or run the Integrity Checker in repair mode.

Cause User groups are centrally stored in a Maximo database table called MAXGROUPS; users are stored in MAXUSERGROUPS. If a group or user entry is not present in these tables, it might cause problems while using Maximo. The database has been modified through the back end and data consistency between these tables and all other Maximo security tables has been compromised.

Action

Run integrity checker in repair mode.

ERROR BMXAA0328E

The class name in the language code column is not correct: Attribute {0}
Class {1}

Cause The wrong class name was specified for the language code column.

Action

Use the Database Configuration application to specify the correct class name, for example, psdi.app.system.FldLangCode.

ERROR BMXAA0329E

The maxviewcolumncfg table contains a row that does not have a corresponding column in the maxviewcolumn table. View {0} Column {1}. If database configuration changes are pending, run the ConfigDB utility. If no configuration changes are pending, delete this row from the maxviewcolumn table by using an SQL utility.

Cause A row exists in the maxviewcolumncfg table but there is no corresponding row in maxviewcolumn. Parameter {0} is the name of the View and parameter {1} is the name of the column.

Action

If database configuration changes are pending, run the ConfigDB utility. If no configuration changes are pending, delete this row from the maxviewcolumn table by using an SQL utility.

ERROR BMXAA0430E

The user name {0} could not be deleted from the MAXUSERGROUPS or GROUPUSER table. Try the operation again, or delete the user name manually.

ERROR BMXAA0431E

The group name {0} could not be deleted from the MAXGROUP or MAXGROUPS table. Try the operation again, or delete the group name manually.

ERROR BMXAA0432E

The security-related data for the user name {0} could not be deleted. Try the operation again, or delete the security-related data manually.

ERROR BMXAA0433E

The security-group-related data for the group name {0} could not be deleted. Try the operation again, or delete the security-group-related data manually.

ERROR BMXAA0440E

You must specify Integrity Checking (-i) or Validation (-v)

ERROR BMXAA0441E

The following SQL error occurred: {0} {1}.

ERROR BMXAA0443E

Error - {0}

ERROR BMXAA0444E

The INTEGRITYCHECK maxvar could not be inserted into the database.

Cause The Integrity checker found errors, but could not insert maxvar INTEGRITYCHECK with a value FAIL.

ERROR BMXAA0445E

The database version {0} was not recognized. The version stamp in maxvars for varname MAXUPG should be of the form Vnnn[-mmm], where nnn is the version of the database (for example, 7116), and -mmm is an optional build or patch.

ERROR BMXAA0464E

Table and column entity names do not match for {0}. The value of MaxAttribute.EntityName is {1}. The value of MaxObject.EntityName is {2}. Fix the entity name of the column by using the Database Configuration application.

Cause A discrepancy exists between the entity names in the MaxAttribute table and the MaxObject table. The entity names must be the same in both tables.

ERROR BMXAA0465E

The following indexes are missing from the database. Use the Database Configuration application to remove the index definition.

Cause Some indexes are defined in the metadata but the actual index does not exist in the database.

Action

Use the Database Configuration application to remove the index definition.

ERROR BMXAA0467E

The database has a different UNIQUE property for the following indexes. Use the Database Configuration application to redefine the index.

Cause The UNIQUE property that is defined in the metadata does not match the UNIQUE property in the database. These property values must match.

Action

Use the Database Configuration application to redefine the index.

ERROR BMXAA0468E

The database has a different CLUSTERED property for the following indexes. Use the Database Configuration application to redefine the index.

Cause The CLUSTERED property defined in the metadata does not correspond the actual CLUSTERED property defined in the database. These property values must match.

Action

Use the Database Configuration application to redefine the index.

ERROR BMXAA0472E

A unique column ID must be defined for table(s):

ERROR BMXAA0491E

The following persistent columns are owned by non-persistent tables. Non-persistent tables can contain only non-persistent attributes. To fix this error, run the Integrity Checker in repair mode.

ERROR BMXAA0500E

The defined length for this column is incorrect. Change the data type of the column to DECIMAL or change its length to match the AMOUNT length.

Cause This column's maxtype data type is AMOUNT but its length differs from the standard Amount length defined by the maxvar AMTLENGTH.

ERROR BMXAA0501E

The scale for this column is invalid. If the maxtype for the column is AMOUNT, the scale must be the same as the maxvar AMTSCALE; otherwise the scale should be 0.

Cause Either the column maxtype data type requires a scale of zero, or the column has the AMOUNT maxtype and its scale does not equal the value that is defined in the AMTSCALE maxvar.

Action

Correct the scale definition. The Integrity Checker repair mode does not fix this error.

ERROR BMXAA0506E

The integrity check failed. See the log for a detailed list of errors.

ERROR BMXAA0530E

Column {0} is mapped to domain {1}, but the domain does not exist. Set the attribute's domain to a different value using the Database Configuration application, or define the domain using the Domains application.

Cause The column specified in parameter 0 has a domain (specified in parameter 1) defined against it but the domain itself does not exist.

Action

Set the attribute's domain to a different value using the Database Configuration application, or define the domain using the Domains application.

ERROR BMXAA0532E

Column {0} is mapped to domain {2}, but is not defined the same. {0} is {1}. {2} is {3}. Either change the attribute using the Database Configuration application, or change the domain using the Domains application.

Cause The datatype, length and scale of the attribute are inconsistent with the datatype, length and scale of the domain.

Action

Either change the attribute using the Database Configuration application, or change the domain using the Domains application.

ERROR BMXAA0534E

A domain of type {0} should have a valid datatype and length., Domain {1} has a maxtype of {2} and a length of {3}.

ERROR BMXAA0537E

{0} definition differs from {1} for {2}.,{0}.{3}={4}{1}.{3}={5}. Use the Database Configuration application to correct the configuration metadata.

Cause The pending configuration (MaxObjectCfg, MaxTableCfg, MaxAttributeCfg) metadata does not match the live metadata (MaxObject, MaxTable, MaxAttribute).

Action

Use the Database Configuration application to correct the configuration metadata.

ERROR BMXAA0538E

This column is mapped to an AutoKey but the AutoKey does not exist. Column {0} AutoKey {1}. Run the Integrity Checker in repair mode.

Cause The column specified in parameter 0 is mapped to an Autokey (specified in parameter 1), but the Autokey itself does not exist.

Action

Run the Integrity Checker in repair mode.

ERROR BMXAA6233E

The following required Maximo indexes are missing from Maximo:

ERROR BMXAA6238E

These views should be removed because they do not exist in the database. Remove these views using the Database Configuration application.

ERROR BMXAA6284E

These views should be dropped from the database because they do not exist in the product schema:

ERROR BMXAA4191E

The value {1} is not valid for {0}. Specify a valid value for {0}.

ERROR BMXAA4195E

The {0} field requires a value.

ERROR BMXAA6290E

The Search Type should be WILDCARD for the attributes where SEARCHTYPE is TEXT, but TEXTSEARCHENABLED is FALSE. Run repair mode to fix.

ERROR BMXAA6286E

The Search Type must be NONE for attributes that are non-persistent, CRYPTO or BLOB. Run repair mode to fix.

ERROR BMXAA6287E

The Search Type must be TEXT for long description attributes that are non-persistent, CRYPTO or BLOB. Run repair mode to fix.

ERROR BMXAA6288E

The Search Type must be EXACT or NONE for numeric, datetime and YORN attributes. Run repair mode to fix.

ERROR BMXAA6289E

The Search Type must be TEXT for long description attributes that are not on audit tables. Run repair mode to fix.

ERROR BMXAA6315E

Native text search is not enabled for the following attributes even though they the have search type TEXT.

ERROR BMXAA6234E

Column {0} is not large enough for the values defined in domain {1}. Increase the column length using the Database Configuration application.

ERROR BMXAA6293E

The following organization level autokeys are missing in the AUTOKEY table. Run repair mode to fix.

ERROR BMXAA4116E

Maxvar type is not valid. It is either not specified, or not one of the "SYSTEM", "ORG" or "SITE". Update the MAXVAR table by ensuring that the given MAXVAR is either a SYSTEM, ORG or SITE level maxvar.

ERROR BMXAA4168E

Organization and Site must both be blank, because the MAXVAR object is system level. Remove the values for Organization and Site

ERROR BMXAA4166E

The Site field must be empty. This record must have an empty site because the MAXVAR object is organization level. Remove the value for Site.

ERROR BMXAA4167E

Organization must be blank.

ERROR BMXAA0504E

Integrity check passed with warnings found.

ERROR BMXAA0505E

Integrity check passed.

ERROR BMXAA6283E

Maxrelationship cannot be added because it already exists in the database:

ERROR BMXAA6328E

Upgrade cannot add new apps because they already exist in MaxApps:

ERROR BMXAA0437E

Validate -- Integrity checking and repair requested.

ERROR BMXAA6292E

Records exist in the Wogen table which need be deleted. Run repair mode to delete records from the table.

ERROR BMXAA4169E

No record found in maxvars table for maxvar {0}.

ERROR BMXAA0687E

Entity Name must be specified when the object is persistent.

ERROR BMXAA0689E

This object is a view, but Extends Object was not specified.

ERROR BMXAA5617E

When text search is enabled, a language column name must be specified.

ERROR BMXAA0686E

This object is audit enabled, but audit table name was not specified.

ERROR BMXAA0692E

When Auto Select is not selected, a value for View From must be entered.

ERROR BMXAA0693E

When Auto Select is not selected, a value for View Select must be entered.

ERROR BMXAA0582E

When an object is flagged for text search, at least one attribute must be flagged for text search.

ERROR BMXAA0688E

Both Entity Name and Column Name must be specified when the attribute is persistent.

ERROR BMXAA0700E

Same As Table and Same As Column must either both be null, or both not null.

ERROR BMXAA0680E

The language column must have a data type of UPPER and length of 4.

ERROR BMXAA0600E

The default value for attribute {0} indicates autonumbering but autonumber name is blank.

ERROR BMXAA5613E

The default value for attribute {0} indicates sequencing but sequence name is blank.

ERROR BMXAA0708E

Sequence Name cannot be null for the unique ID column.

ERROR BMXAA8088E

The Extends Object should be null if the object is not a view.

ERROR BMXAA7946E

Column {1} of table {0} is defined as a {2} but is not defined correctly in the database table.

ERROR BMXAA8269E

Missing revision record for Process {0} called by main process {1}.

Chapter 12. Restarting updatedb

Restarting the **updatedb** command after a configuration failure.

The Maximo Asset Management version 7.6 configuration tool runs the **updatedb** command during the configuration process.

The **updatedb** command performs database update tasks during an upgrade. This command keeps track of the last database update statement successfully performed. If you experience a failure during configuration, you can correct the error, restart the configuration tool, and resume from the last successfully completed task.

If you modify a database change file in order to fix a problem, you might need run the configuration tool to rerun all database update tasks instead of resuming. For example, if you add a new statement before the last successful statement, updatedb might not be able to resume successfully. In this scenario, use the following SQL commands to clear variables used to identify the last successful statement before restarting the configuration tool.

```
delete from maxvars where varname in ('BMXLASTSTATEMENT','BMXLGFFLINE')
delete from maxvartype where varname in ('BMXLASTSTATEMENT','BMXLGFFLINE')
```

Chapter 13. IBM Maximo Calibration upgrade

Upgrading IBM Maximo Calibration to v7.5 can lead to package validation error.

About this task

When upgrading from IBM Maximo Calibration v7.1.2 to v7.5, a package validation error can occur. The following message is displayed:

The package you selected is a valid installation package.
However, an instance of the selected package has already been installed.

To resolve this issue, you must delete entries from the deployment engine registry before reattempting the upgrade.

Procedure

1. Cancel the active IBM Maximo Calibration upgrade.
2. Change directory to `ibm\smp\CTG_DE\acsi\bin`.
3. Run the following command:
`deleteRootIU.cmd 002F1EF5DDD34033A0D2802F0A6CFCAA PSI`
4. Restart the IBM Maximo Calibration v7.5 installation program.

Chapter 14. Presentation XML files

During the upgrade process, the product installation program creates a backup of presentation XML files used for your existing deployment.

XML files are used to control the look and feel of Maximo Asset Management applications. These presentation files are stored in the database and are updated as new products and solutions are added to the existing deployment.

During an upgrade, the product installation program creates a backup of the presentation XML files. This backup is stored on the administrative workstation in the `ibm/smp/logs` directory. The name of the file includes a timestamp indicating when it was created. For example, `presentationset_201106281117.xml`.

If you are installing a new product to an existing deployment you might experience a failure. New XML presentation files can be written to the database before a product is fully deployed. This circumstance leads to a disconnect between what the application interface displays and functioning features. In this instance, you might want to restore the presentation XML files to their previous state. The presentation XML backup file is created so you can restore presentation XML files to their original state in the database.

Restoring presentation XML files

Maximo Asset Management provides a way to restore presentation XML files to the database.

About this task

Use the backup file created when you performed the upgrade to restore presentation XML files to the database.

Procedure

1. Log on to the administrative workstation using the same credentials that were used to perform the upgrade.
2. Change directory to `ibm\smp\logs`.
3. Create a copy of the presentation XML backup file, for example, `presentationset_201106281117.xml`, and name it `presentationset.xml`.
4. Move the `ibm\smp\logs\presentationset.xml` presentation XML backup file to the `ibm\smp\maximo\tools\maximo\screenupgrade\` directory. If necessary, overwrite the current `ibm\smp\maximo\tools\maximo\screenupgrade\presentationset.xml` file.
5. Change directory to `ibm\smp\maximo\tools\maximo\screenupgrade\`.
6. Run the `mximportset -f presentationset.xml` command. The contents of the `presentationset.xml` file are written to the database.
7. Delete the `ibm\smp\maximo\tools\maximo\screenupgrade\presentationset.xml` file.

Results

The presentation XML is restored to the point before the upgrade action committed changes to the database.

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