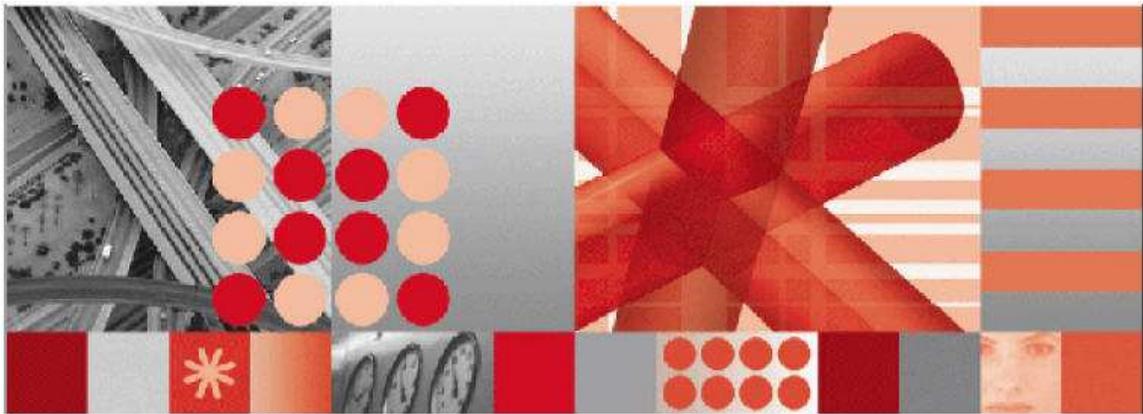


IBM Maximo Asset Management 7.1

IBM Maximo Asset Management for IT 7.1

IBM Tivoli Change and Configuration Management Database 7.1.1

IBM Tivoli Service Request Manager 7.1



Migration Manager Preview functionality

**Note**

Before using this information and the product it supports, read the information in Notices on page 11

This edition applies to version 7, release 1, modification 1 of IBM Maximo Asset Management, IBM Maximo Asset Management for IT, IBM Tivoli Change and Configuration Management Database, and IBM Tivoli Service Request Manager, and to all subsequent releases and modifications until otherwise indicated in new editions.

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Contents

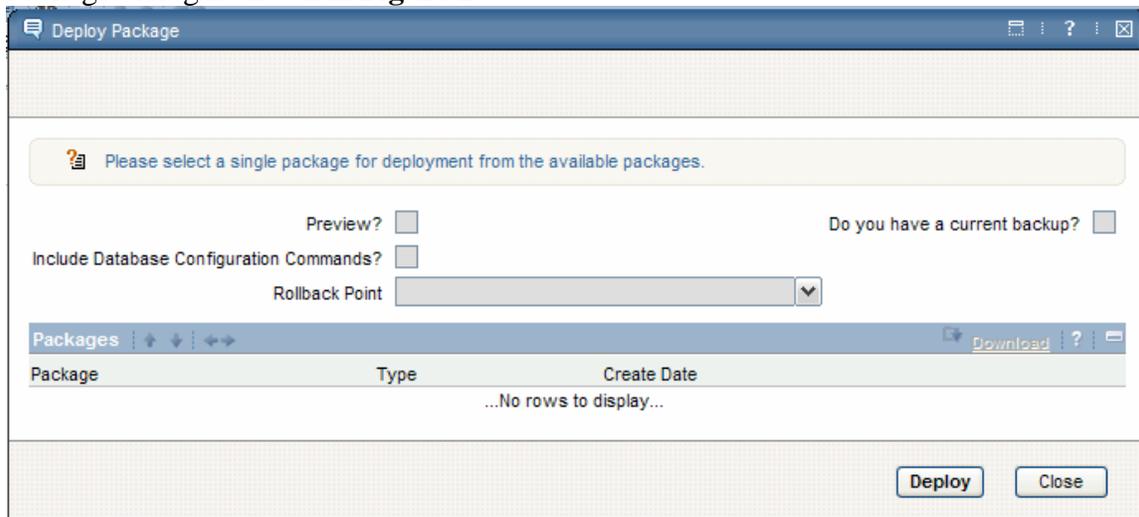
|  |    |
|--|----|
| Migration Manager Preview .....              | 4  |
| Application user interface for preview ..... | 4  |
| Managing preview rollbacks.....              | 8  |
| Memory constraints for preview .....         | 9  |
| Pre-requisites.....                          | 10 |
| Limitations .....                            | 10 |
| Notices .....                                | 11 |
| Trademarks .....                             | 13 |

## Migration Manager Preview

An improvement has been added to the Migration Manager function in Fix Pack 7.1.1.6. This improvement enables a user to preview the contents of a migration package without actually deploying into the target environment. The benefit of preview is to identify potential data validation errors with the content ahead of actual deployment. Once data validation errors have been identified, the original configurations in a source environment can be modified as needed to ensure the data is clean. Thus preview provides the ability to proactively measure data quality of migration packages. The use of preview is completely optional.

### *Application user interface for preview*

The Deploy Package dialog displays additional fields that drive the preview. The Deploy Package dialog is shown in **Figure 1**:

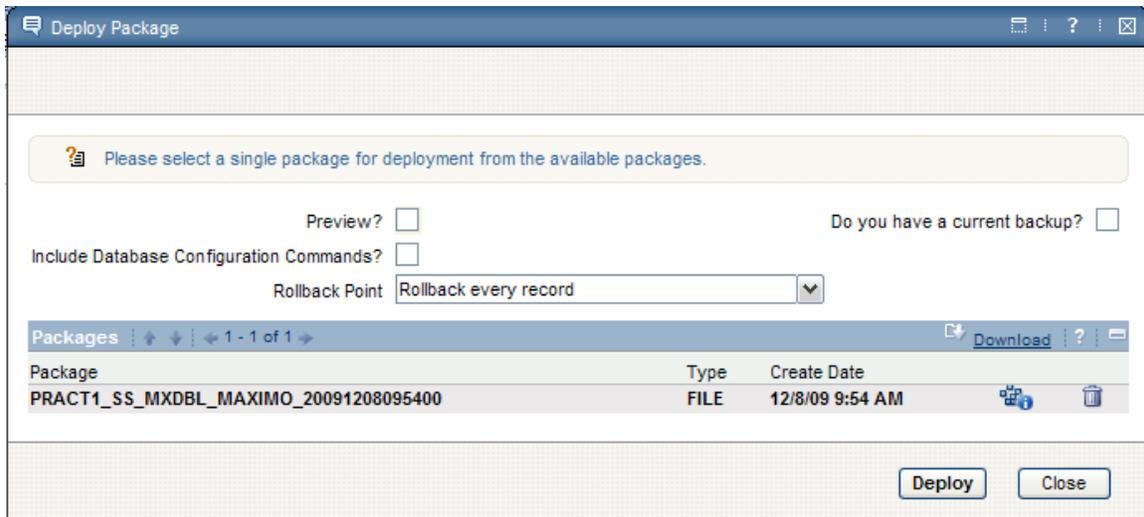


**Figure 1** User interface for preview

The dialog displays the following preview-specific fields:

| Field                                    | Purpose  |
|--|--|
| Preview?                                 | Checking this field enables preview of a chosen migration package  |
| Include Database Configuration Commands? | Checking this field causes Migration Manager to output SQL commands that correspond to the structural changes that are contained in the migration package. If there are no structural changes, no SQL commands will be output. |
| Rollback Point                           | A selection from this value list determines how long the preview migration resides in the target database before it is rolled back. The default Rollback Point is set to 'Rollback every record'.                              |

When no package is selected in the Packages section, the fields are unavailable. Once a package has been selected, the fields become available as shown in **Figure 2**:



**Figure 2** User interface for preview enabled

To execute preview, check the Preview and current backup fields. If you know that the package contains structural changes, you can additionally check the Include Database Configuration Commands field. You can also accept the default Rollback Point or open the value list and select a different Rollback Point. Click Deploy to begin the preview. The Electronic Signature Authentication dialog is displayed prompting you to enter the current user ID, password, and Reason for Change. After entering the appropriate values for these fields, click OK to close the Electronic Signature Authentication dialog and proceed with preview.

Admin Mode is not required for executing preview. Migration Manager will not prompt user to turn Admin Mode on even if the package submitted for preview contains structural changes.

A progress dialog is shown indicating that preview is being executed. If the preview did not result in any validation errors the appropriate informational message is shown in the progress dialog. Additional messages specify how the preview log can be downloaded using the Migration Manager application.

The following set of messages is an example output shown in the progress dialog:

BMXAA6163I - [12/8/09 10:25 AM] Successfully previewed configuration data for the package PRACT1\_SS\_MXDBL\_MAXIMO\_20091208095400.

BMXAA6163I - [12/8/09 10:25 AM] Preview completed for package PRACT1\_SS\_MXDBL\_MAXIMO\_20091208095400.

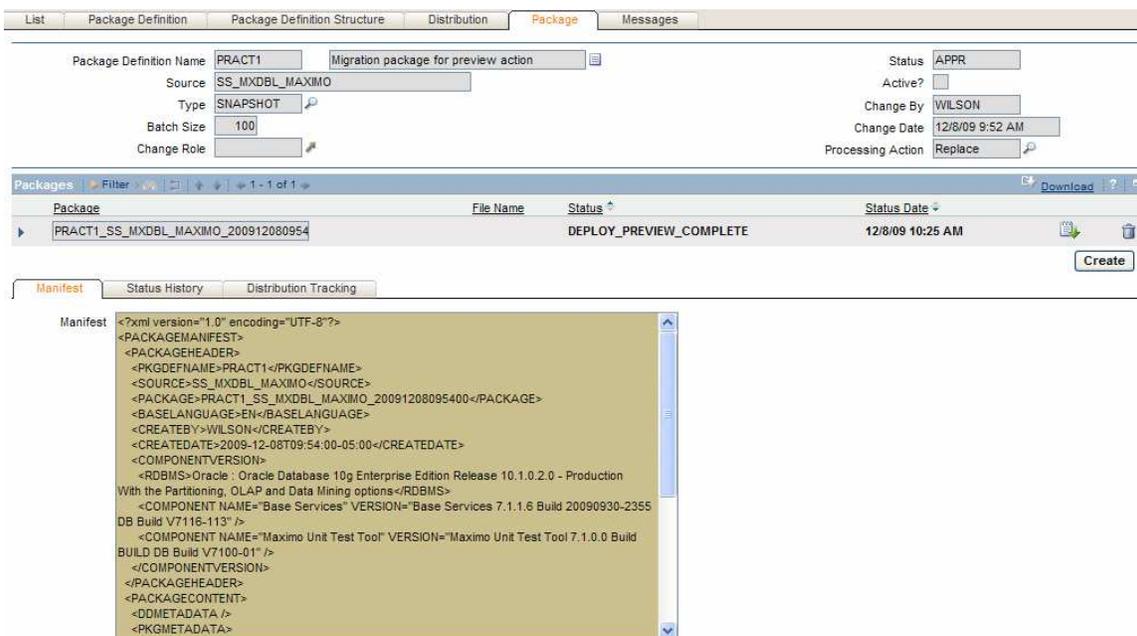
BMXAA6163I - [12/8/09 10:25 AM] No data validation errors occurred during the preview.

BMXAA6163I - [12/8/09 10:25 AM] The following preview log files have been created:

BMXAA6163I - [12/8/09 10:25 AM] PRACT1\_SS\_MXDBL\_MAXIMO\_20091208095400\_preview.log

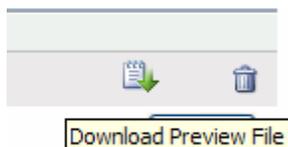
BMXAA6163I - [12/8/09 10:25 AM] Download the files by using the links in the Package tab.

Once you dismiss the progress dialog, the screen refreshes to display the Package tab which lists the package that was just previewed. The status of this package is **DEPLOY\_PREVIEW\_COMPLETE** indicating that preview completed. **Figure 3** displays a typical Package tab following preview:



**Figure 3** Migration Manager package tab after preview completes

Clicking the Download Preview File icon shown on the right of the Package row brings up a File Download popup dialog using which you can download the preview log file to your client machine. **Figure 4** shows the Download Preview File icon in the Package tab:



**Figure 4** Download Preview File icon

The preview log file provides detailed information on the preview functions performed by Migration Manager. This includes processing the various XML documents that comprise the package as well as running the data validations against the configuration data in the XML documents. If any data validation errors were encountered, the error messages are included in the log file.

If the package included structural changes that would require a configuration of the database, the configuration commands that would be issued are captured but configuration itself is not executed. The configuration commands are SQL-based Data Definition Language (DDL) statements. The commands are written out into a second script log file that resides in the same folder as the generated preview log file. This file can also be downloaded using the Migration Manager application.

The preview log file name matches the original package name but carries an additional suffix of ‘\_preview’ and an extension of ‘.log’. The script log file name matches the original package name but carries an additional suffix of ‘\_script’ and an extension of ‘.log’. The following table illustrates the package and corresponding preview and script log naming convention:

|                              |   |
|------------------------------|---|
| Generated package name       | PRACT1_SS_MXDBL_MAXIMO_20091208095400.zip         |
| Preview log file name        | PRACT1_SS_MXDBL_MAXIMO_20091208095400_preview.log |
| Preview script log file name | PRACT1_SS_MXDBL_MAXIMO_20091208095400_script.log  |

Following preview, the package can be deleted. Open the Package tab of the Migration Manager application and click the Mark for Delete icon to the right of the package row in Packages section. Click the application’s Save button to complete deletion of the previewed package.

If the preview identifies validation errors, the status of the package will remain `DEPLOY_PREVIEW_COMPLETE`. However the progress dialog for preview includes a message that indicates validation errors were found with the data being previewed. The following set of messages is an example output shown in the progress dialog:

BMXAA6163I - [12/8/09 11:14 AM] Successfully previewed configuration data for the package PRESC1\_SS\_MXDBL\_MAXIMO\_20091208105530.

BMXAA6163I - [12/8/09 11:14 AM] Preview completed for package PRESC1\_SS\_MXDBL\_MAXIMO\_20091208105530.

BMXAA6163I - [12/8/09 11:14 AM] Data validation errors occurred during the preview. The errors have been logged.

BMXAA6163I - [12/8/09 11:14 AM] The following preview log files have been created:

BMXAA6163I - [12/8/09 11:14 AM] PRESC1\_SS\_MXDBL\_MAXIMO\_20091208105530\_preview.log

BMXAA6163I - [12/8/09 11:14 AM] Download the files by using the links in the Package tab.

As before, the preview log file can be downloaded to the client machine and errors reviewed using any text editor.

Whether preview results in a data validation errors or not, the final statement in the preview log will indicate that preview has completed.

If preview is executed against the same package more than once, the previous preview log file is deleted and a new one created. If the previous preview log file is needed, it should be downloaded from the Migration Manager application and placed in an appropriate folder location on a file system where it can be reviewed from.

If a full deployment is executed against a package that was previously previewed, the currently existing preview log file is deleted.

### ***Managing preview rollbacks***

Preview stores the data temporarily in the target tables to allow data validations to run and then rolls back the data. In the Deploy Package dialog, the Rollback Point field determines how long the data is stored in the target tables. The following table enumerates the various Rollback Points and the purpose of each:

| <b>Rollback Point</b>           | <b>Purpose</b>  |
|---------------------------------|---|
| Rollback every record           | Data remains in the target tables for the shortest period of time. The data inserted or updated into the table is rolled back before loading the next record of the table. This setting is useful when migrating content that does not have dependencies. For example, currency data.   |
| Rollback every XML document     | Data remains in the target tables until all the records of an XML document in a migration package have been loaded. The data inserted or updated into the table is rolled back before processing the next XML document. This setting is useful when migrating content where one row of a table depends upon another row of the same table. For example, a hierarchy of classifications.   |
| Rollback every Object Structure | Data remains in the target tables until all the records of all the XML documents pertaining to a single object structure have been loaded. Depending upon the volume of data, data pertaining to a table may be spread over multiple XML documents. The data inserted or updated into the table is rolled back before processing the next object structure. For example, a set of domains where the domain content spans multiple XMLs.   |
| Rollback every Migration Group  | Data remains in the target tables for the longest period of time. For this rollback point, the data pertaining to all the object structures of a given migration group type are held in the target tables until data loading for the entire migration group is complete. The data inserted or updated into the table is rolled back before processing the next migration group type. This setting is useful when migrating content that has dependencies. For example, all of the data dictionary object structures. This setting should not be configured if large packages are to be previewed. |

A migration package may be previewed multiple times. Each preview execution of the same package may be configured to a different rollback point. This approach helps identify data validation errors that may not be identified by executing preview just once with one particular rollback point.

Setting rollback points requires knowledge of the contents in the migration package as well as how many or how few dependencies the content may have. The fewer the dependencies, the more appropriate the shorter rollback points such as record or XML document. The greater the dependencies, the more appropriate the longer rollback points such as object structure and migration group.

### ***Memory constraints for preview***

Preview execution may consume a large amount of application server memory depending upon the size of the content in the migration package as well the rollback point chosen. Large packages containing multiple migration groups and thousands of records should not be previewed as-is. If the content to be migrated is very large, smaller migration packages should be created to preview the data. This can be achieved either by collecting subsets of data using SQL criteria with snapshot packages or by reducing the number of migration groups in a package or a combination of the two.

Migration Manager will check for the available memory in the application server instance in which the preview is executing. This check is performed before and during preview execution. The system property `mxe.dm.previewfreememorythreshold` is used to specify a memory threshold in percentage at which the preview execution will stop. Out of the box, this system property is set to a value of 20 indicating that preview will not begin execution or will stop execution if the available memory is less than 20% in the application server instance. This system property should remain in effect in any product environment where migration packages will be previewed. Altering this threshold value should be done only in consultation with the appropriate subject-matter experts.

The preview log will contain statements indicating the available memory expressed in percentage terms. If preview execution was stopped because the threshold was exceeded, a corresponding statement will be included in the preview log. Executing the preview of a migration package with rollback point set to every record will help in gaining understanding memory availability and consumption in your product environments.

## ***Pre-requisites***

The following are pre-requisites to executing Migration Manager preview:

1. Preview cannot be executed when there are pending structural changes in the target environment. If preview is launched, it will return with an error message indicating that structural changes must be applied before preview can be executed. This ensures that content loaded for preview purpose does not adversely impact any pending structural changes.

## ***Limitations***

The following are limitations to the preview improvement:

1. Previewing large migration packages containing thousands of records may lead to out of memory errors on the application server instance where Migration Manager is executing. Larger packages should be broken up into smaller packages for preview execution.
2. Only one validation error is captured per record previewed – there may be multiple data validation errors for different fields of the same record, however since each record is processed only once, one validation error alone is captured and error message written to the preview log.
3. If one or more Inbound Restrictions have been configured for Migration Manager packages, then a package received from a restricted environment cannot be previewed in the chosen target environment where the inbound restriction is in effect.
4. For this fix pack, Rollback every Migration Group is limited to the data dictionary migration group type and the configuration migration group type. It does not support the rollback for each migration group as defined in the Migration Groups application.
5. The generated preview script log file containing SQL DDL commands is not intended for execution against the database using SQL tools. It is merely a log specifying what SQL commands would have been executed if the package were to be fully deployed. The primary use of the script log is to assess the structural changes that would be applied to the target database. Execution of the script file against the target database is not supported.

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