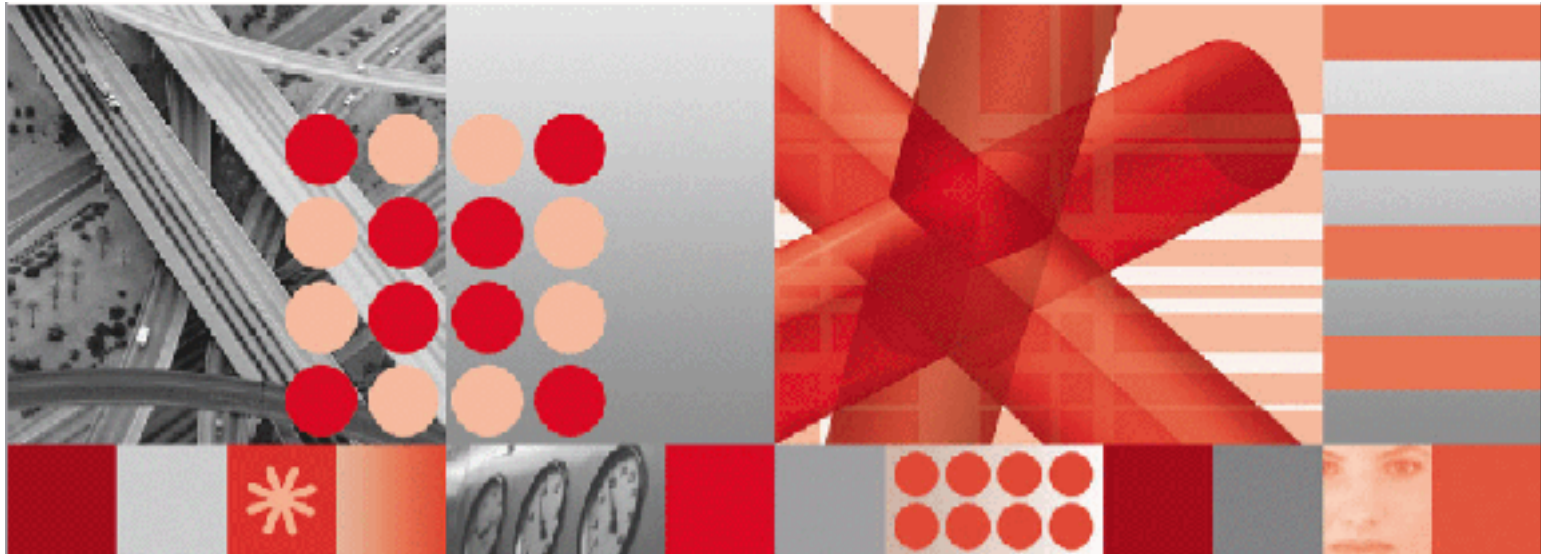


Tivoli.



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 Guide

Note

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

This edition applies to version 7, release 1, modification 0 of IBM Maximo Asset Management, IBM Maximo Asset Management for IT, and IBM Tivoli Service Request Manager, and to version 7, release 1, modification 1 of IBM Tivoli Change and Configuration Management Database, and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this publication

This guide helps you to use the Migration Manager set of applications to migrate configuration data from one product environment to another.

Intended audience

This guide is for deployment managers, deployment specialists, database administrators, and component developers.

Overview

1

Migration overview

In the context of Migration Manager, migration is the process of promoting product configuration content from one product environment to another. Configuration content is the data that the system requires to construct and run a business application in the application server and make it available to end users in the enterprise. Product environments can include development, test, and production.

For example, you might want to extend the Purchase Order application by making the following configuration changes:

- ▼ Add a new table and several columns to the database (using the Database Configuration application)
- ▼ Add a new domain that contains several lookup values (using the Domains application)
- ▼ Add a new tab in the Purchase Order application screen presentation (using the Application Designer application)
- ▼ Develop a workflow process to automate an approval of data managed through the new table (using the Workflow Designer application)

All of the preceding configuration changes are product configurations that are typically created in a development environment and promoted to production.

Migration Manager overview

Migration Manager is a set of applications that enables a structured set of steps to promote your configurations from one product environment to another.

Use Migration Manager to perform the following tasks:

- ▼ Organize and consolidate all the configurations and customizations for a new product environment
- ▼ Promote your configurations from a development environment to a test environment for validation
- ▼ Promote your validated configurations from a test environment to a production environment.

Migration Manager concepts and components

Package definitions and packages

You manage the configuration content that you want to migrate in the form of package definitions and packages. You migrate configuration content in packages. A package is an instance of a package definition. A package definition serves as a template from which you create unique packages. A package definition organizes the content to be migrated.

A package contains data either from the product database or from files that are deployed on the application server. Data from the product database is organized in migration objects and migration groups. Files are organized as compiled sources.

Package contents

A package contains the following:

- ▼ Package manifest - contains important information about a package, such as the source environment versions, the migration objects whose data is included in the package, the types of content in the package, the record count for each migration object, and readme information entered in the source environment by an administrator to help during deployment to a target environment.
- ▼ Package metadata - defines metadata information that pertains to the package definition of the package to be deployed in a target environment
- ▼ Structural configuration content - data that must be used to create or update database tables, columns, views, keys, indexes and sequences
- ▼ Non-structural configuration content - configuration content that resides in the form of records of various configuration tables
- ▼ Compiled sources - files that include source code customizations, libraries, configuration files, and report executable files
- ▼ History data - life cycle information regarding the package

Types of package definitions and packages

There are two types of package definitions and packages:

- ▼ Snapshot
- ▼ Change

A snapshot package contains “as is” configuration content collected for a package on demand. You define the snapshot package at any time, even after the configuration changes have been made.

A change package contains configuration content collected over a period of time. The data collected is based on database inserts, updates and deletes that occur between the time you activate the package definition and the time that you create the package. A change package can contain configuration records inserted, updated, or deleted by designated users. You define the change package before the changes occur.

Migration objects and migration groups

Configuration content is organized into migration objects and migration groups.

Migration objects

A migration object is a group of one or more related business objects that represent one or more database tables.

Examples of migration objects are:

- ▼ Workflow processes
- ▼ Integration channels
- ▼ Cron tasks
- ▼ User interface presentations
- ▼ Security groups

You define migration objects in a development instance and then move them into test and production environments. The product includes a comprehensive set of migration objects. Migration objects are implemented using the Object Structures application. You can also create your own migration objects using this application.

Migration groups

A migration group is a collection of related migration objects.

Example

The Business Process Management (BPM) migration group contains several migration objects, including the DMWFPROCESS migration object (the migration object for workflow process definitions included with the product). The DMWFPROCESS migration object consists of 16 business objects, including the following logically related business objects:

- ▼ WFPROCESS
- ▼ LONGDESCRIPTION
- ▼ WFNODE
- ▼ WFTASK

A migration group can be either internal or user-defined. Internal migration groups are included with the product and are linked to other logically related migration groups called dependencies. You cannot modify internal migration groups. User-defined migration groups are migration groups that you create.

Compiled sources

You can include compiled sources in a package definition.

Compiled sources define content from outside the database that packages contain when they are migrated. Compiled sources are files that must be part of the Enterprise Archive (EAR) file of the product. They can include many types of files, such as class files, archive files, image files, and properties files. They can also be aggregations of files from the server file system that must be migrated with configuration data from the database.

If you need to migrate multiple compiled source files, aggregate them into a single compressed file to simplify the migration process.

Sources and target environments

The environment from which you are migrating content is the source environment. The environment to which you are migrating content is the target environment. Migration Manager identifies sources and targets uniquely across all of your product environments. Migration Manager generates this identification in the form of a string comprising three parts. The identification is the combination of the database host name, the database identifier, and the database schema name.

A package definition can be associated with any target. However, you can set inbound restrictions in a target environment to prevent the distribution and deployment of packages to that environment from restricted sources.

Migration Manager applications

Migration Manager consists of the following three applications. These applications are in the Migration module, which is in the System Configuration module of the product:

- ▼ Object Structures
- ▼ Migration Groups
- ▼ Migration Manager

Object Structures application

You use the Object Structures application to view, create, and modify an object structure. One or more related business objects comprise an object structure. A business object is an object-relational representation that corresponds to a database table of the product. You can use the object structures that are included with the product, or you can create custom object structures to meet your business needs.

For more information about the Object Structures application, see the *Integration Guide*.

Migration Groups application

You use the Migration Groups application to view, create, modify or delete a migration group. One or more migration objects (object structures) comprise a migration group. You can include one or more migration groups in a package. Each migration group can be linked to other related migration groups. This relationship between migration groups is called a dependency. A dependency ensures that all dependent configuration content is collected from source environments and distributed to target environments.

Migration Manager application

You use the Migration Manager application to migrate your configuration content between product environments. You use this application in both your source and target environments. In a source environment, you define, create, and distribute packages. In a target environment, you deploy packages.

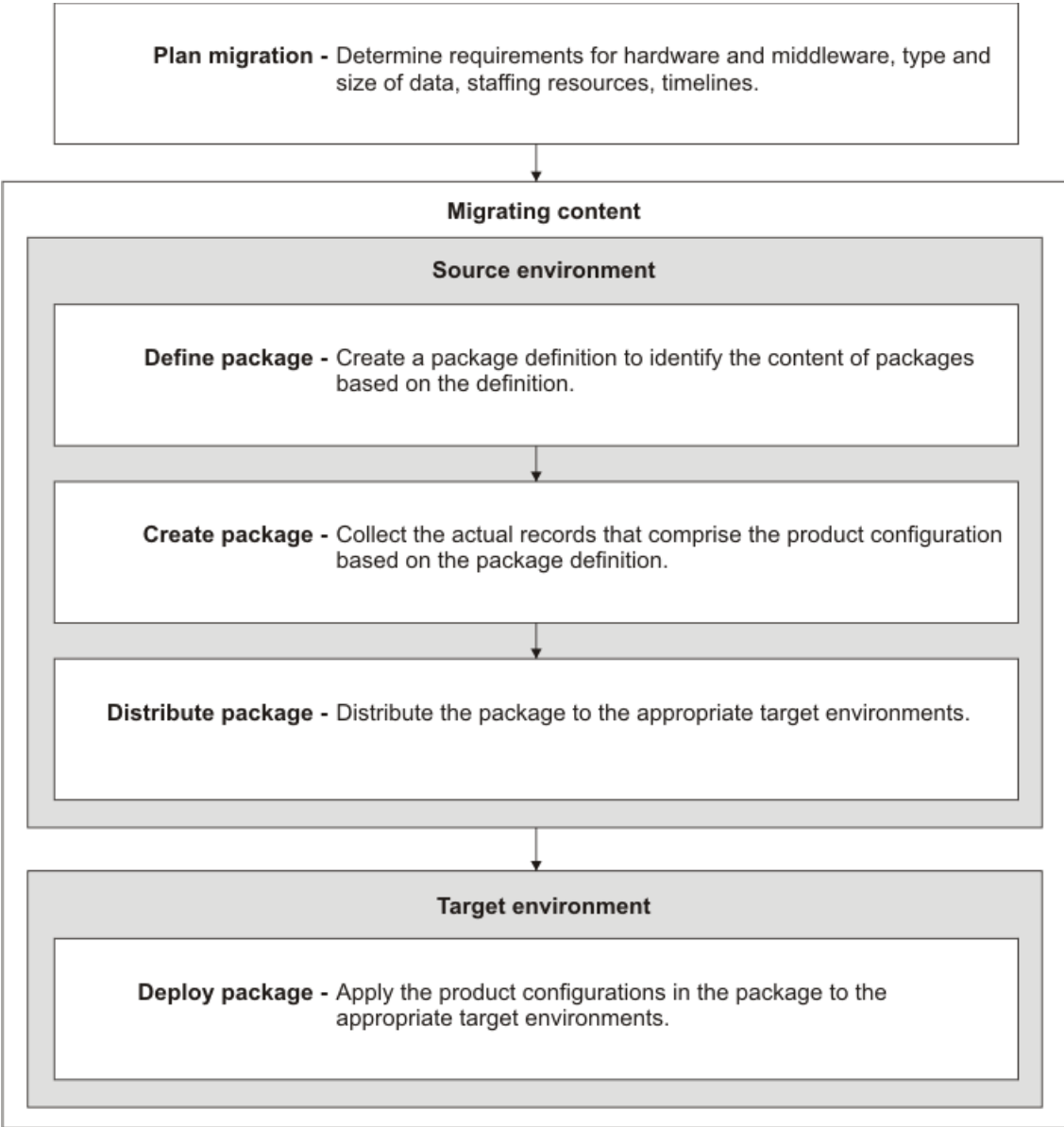
Migration planning

Before you migrate your configuration content, devote sufficient time to develop a migration plan. Identify the configuration content that you want to migrate. Factors to consider include hardware and middleware, the types and amount of changes you want to make, staffing resources, and time frames. You can use any existing project planning tools to develop your migration plan.

Migrating configuration content

Once you have developed a migration plan and planned your migration, you migrate your configuration content in the four stages identified in the following figure.

Migration task flow



The following list includes a description of each of the major stages of the migration task flow that you perform in your source and target environments. You perform these tasks in the Migration Manager application:

- 1 Define** - The process of creating a package definition in your source environment. A package definition defines the boundaries of what product configuration content you want to include in packages based on the definition.
- 2 Create** - Prepare a package instance containing the product configuration content based on the package definition.
- 3 Distribute** - After you create a package, you distribute the package to one or more appropriate target environments. You must distribute a package to a target environment before you can deploy it to that environment. You can distribute to a database target or file target. Distributing to database is useful when migrating data from development to test. Distributing to file is useful when distributing from test to production, where direct access to a production database might be strictly controlled.
- 4 Deploy** - Directly apply the product configurations contained in a package into the target environment. Back up your target database before you deploy a package to that environment. To preserve the integrity of structural changes, you can only deploy one package at a time.

Migration planning

2

The planning that you do before you migrate your configuration content is a major part of the migration process. For a successful migration of configuration content, thoroughly plan your migration as well as the detailed requirements and tasks needed to support the plan.

Overview

Planning a successful migration of configuration content requires you to perform the following tasks:

- ▼ Plan your configuration changes.
- ▼ Form a qualified migration team to support your effort.
- ▼ Identify the sources and targets for your migration.
- ▼ Identify how you will migrate product configurations between these sources and targets.
- ▼ Identify when the migrations should be performed and by whom.
- ▼ Identify metrics that will help you measure the success of your migration.

You can use any project management tool to develop your migration plan.

Planning configuration changes

In your migration plan, clearly identify the types of configuration changes that you want to migrate.

Determine the types of configuration changes

Organize configuration tasks by the affected configuration application. For example, group all screen presentation changes as tasks under the Application Designer application, or group all workflow changes as tasks under the Workflow Designer application.

Some common types of configuration changes are:

- ▼ Automation - developing workflow processes and escalations that can automate parts of your enterprise that the product manages
- ▼ Reporting - developing reports for executive management, middle management, and operational supervisors

Planning configuration changes

- ▼ Screen presentations - extending the default screen presentations in various applications
- ▼ Security - developing a clear policy of access and authorization to various applications in the product
- ▼ Business objects and data dictionary - developing new business objects, attributes, relationships, and domains when they are necessary to support configuration changes

You can identify the changes that you want to implement at a high level or at a detailed level. For example, at a high level you can plan to develop a new hierarchical report to track purchase orders. On a detailed level, you can plan to include a header, order lines, terms, costs, and vendor information in four separate sections of the report.

Organizing your configuration content

Configuration content can come from the following two sources:

- ▼ Content in the database
- ▼ Content outside the database

Content in the database

Content in the underlying database is usually in the form of tables. Business objects are simple RMI-based Java™ objects that help to manage the data in these tables. The following examples are based on the entities that are included with the product.

Organization of content in the database

Content in the database is organized at several levels.

- ▼ Level 1: business objects - At the lowest level, content in the database is typically managed in the form of business objects. For example, the WFPROCESS business object holds the primary configuration data for a workflow process defined using the Workflow Designer application.
- ▼ Level 2: Migration objects that consist of business objects - Sets of related business objects are grouped into migration objects. A migration object consists of a primary business object and related business objects.

For example, the DMWFPROCESS migration object organizes the content managed by the Workflow Designer application, facilitating the migration of workflow processes.

- ▼ Level 3: Migration groups that consist of migration objects - Sets of related migration objects are grouped into migration groups. The two key characteristics of a migration group are the migration objects that comprise the group and the order of the migration objects within the group.

Many product applications provide complex features that in Migration Manager must be represented by multiple migration objects. For example, a workflow process not only defines the process flow, but also the roles that act on the process, actions that are executed during the process flow, and notifications (communication templates) that are generated as a result of the process flow. These roles, actions, and communication templates also have

their own separate configuration applications. Depending on the nature of your configurations, the DMWFPROCESS migration object might depend on the DMACTION, DMROLE and DMCOMMTEMPLATE migration objects. The Business Process Management (BPM) migration group organizes and orders the migration objects used to migrate workflow and related data.

Order of migration objects in a migration group

The order of the migration objects within a group is critical. Because there is a required processing order during migration, if migration objects are out of order, the migration process can fail.

Example

Configuration content for a communication template (DMCOMMTEMPLATE migration object) must be processed before the workflow process (DMWFPROCESS migration object) that refers to the communication template. Therefore, in the BPM migration group, the DMCOMMTEMPLATE migration object has a processing order of 4, while the DMWFPROCESS migration object has a processing order of 6.

You can view the processing order of migration objects for all of the migration groups included with the product in the Migration Groups application.

If you use the standard migration objects included with the product, the correct processing order is already established. If you create new migration groups, you must carefully consider the order of the migration objects within the migration group.

Processing of content in the database

When you include a migration group in a package, Migration Manager migrates all of the migration objects that the migration group contains. All other migration groups that the migration group in your package depends on are also migrated.

Example 1

You include migration group A in your package. Group A depends on group B and group B depends on group C. In such a case, Migration Manager collects all of the related configuration records from groups A, B, and C. If you include another migration group D in your package that depends on any of the same records in groups B and C, the same records in groups B and C will not be collected again. Therefore, there is no chance of duplicate records being included in your package.

Example 2

The Business Process Management migration group requires certain data in the Application Security migration group to be present in the database also. The Migration Manager application is aware of this requirement and migrates the necessary data. The ability of Migration Manager to recognize data dependencies between objects eliminates the possibility of missing dependent data and receiving errors when you deploy your package.

This default behavior guarantees that the required data is migrated and avoids the possibility of errors caused by incomplete configurations in your target environment.

Content outside the database

Content outside the database is usually in the form of files residing on the application server file system. These files are placed into the Enterprise Archive (EAR) of the product and deployed into the application server. The files can be Java classes and customizations to extend the product, properties files, deployment descriptor files, or other types of files. When you customize a product application you might have similar files that the application depends upon to run correctly at runtime. Therefore, you might have to migrate content outside the database together with content in the database.

Organization of content outside the database

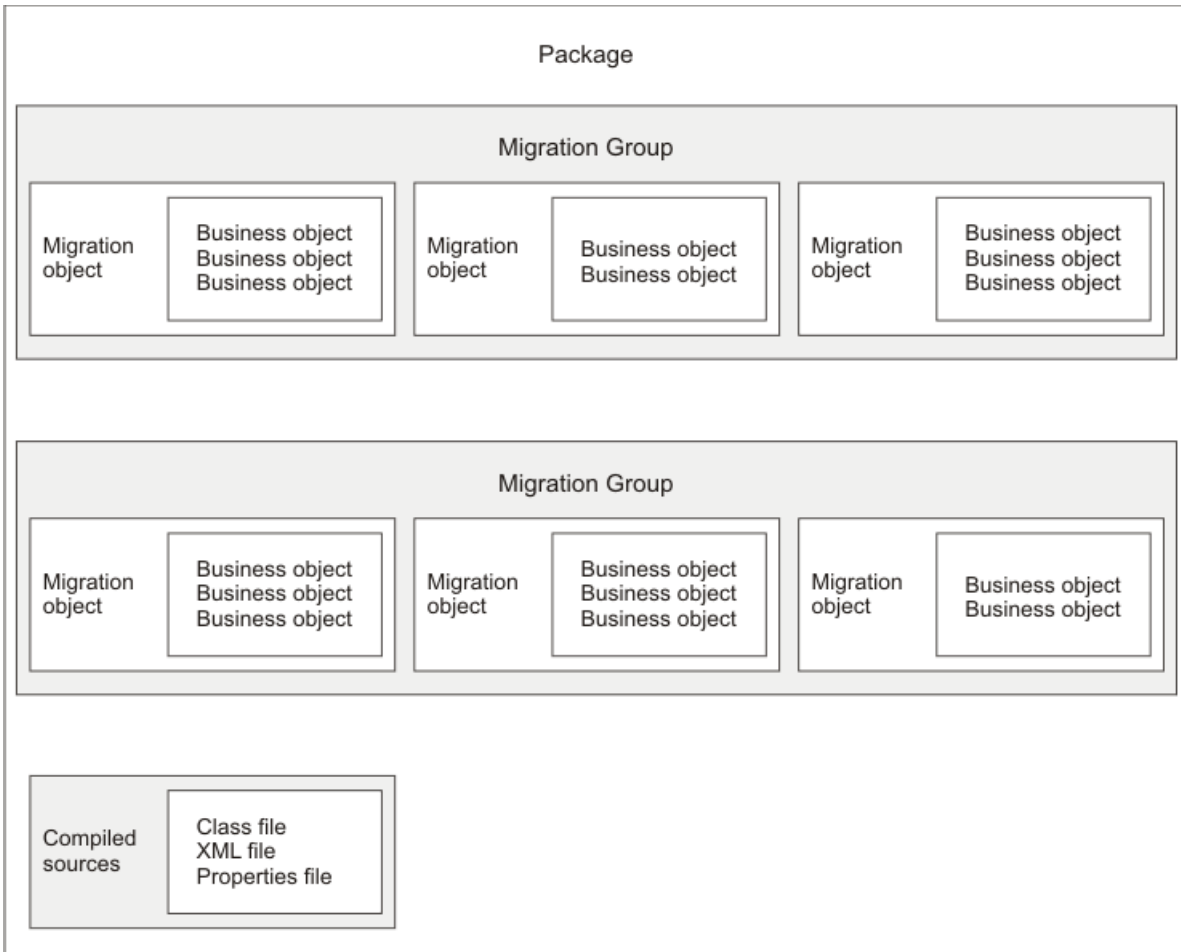
You can include content outside the database in a package in the form of compiled sources. You must upload these compiled source files for inclusion in the package just prior to package creation.

You can include multiple compiled source files in a package. Some of these files might be Java class files that must be placed into specific Java packages. A Java package translates to a specific hierarchy of folders on a file system. In this case, you can prepare a compressed file of your customizations, preserving your folder structure. You can include the compressed file as a single compiled source in the package definition or package.

When a package is being deployed into a target environment, you can use the Migration Manager application to download all the compiled sources to the client machine from where you are accessing the product. After you download a compiled sources compressed file, you can extract the contents of the file into an appropriate product build location and build the product EAR file.

The following figure shows the structure and content of a typical package definition.

Package definition structure



Migration between environments

You can migrate configuration content between any two product environments. However, when promoting configurations to production, it is recommended that you maintain three distinct environments:

- ▼ Development environment
- ▼ Test environment
- ▼ Production environment

Development environment

After you identify the configuration changes that you want to make, you can begin implementing them in a development environment. In a development environment, you can perform basic tests to the changes and modify the changes as needed. A development environment is useful if code has to be written, compiled, and deployed into a product to accompany changes to configuration applications.

Test environment

In the test environment, you perform user acceptance testing of the configuration changes. Thorough testing ensures that the software functions as required, is robust, and performs at a level that meets the needs of your user community. You can use a single test environment to mimic production. The test environment can contain all business applications and changes that you want to be available in the production environment. A single test environment is best suited to aggregating changes that you create in separate development environments.

Production environment

After thorough testing, when the changes meet all of the requirements, you are ready to migrate your changes to the production environment. When promoting configuration content to production, schedule the promotion to occur during maintenance periods. The deployment of Migration Manager packages should be treated in the same manner as product installations and fix packs. In some situations, the deployment of packages might require your application server to remain unavailable to your end users for some period of time.

Scheduling migration

Migration to a test environment does not require the same onerous considerations as migration to production. However, care must be taken to perform the migrations during maintenance periods when test users are not executing test scenarios in this particular environment. Migration to production environments requires careful planning and control, since production environments might have active users who need the production environment to be available at all times.

Consider migrating your configuration content during a maintenance period. While system down-time is not required for most product configurations, using maintenance periods ensures that errors can be handled and the production system can be restored to its fully functional state if necessary.

Typically, during a maintenance period (for example, when applying hot fixes, fix packs, or other updates), you apply the update, test the software, and, if necessary, restart the production environment.

Limitations

Some configuration content cannot be migrated or requires extra manipulation. Be aware of the following limitations on content migration. See the *System Administrator Guide* for more information about the following applications and features:

Actions

- ▼ If you want to migrate action groups that are created in the Actions application, you must also migrate all of the actions that are in each action group. If you do not migrate the actions, the action groups cannot be used in the target environment.

Collection restrictions

- ▼ Data restrictions for objects and attributes are migrated. However, collection restrictions are only partially migrated. Data in the SECURITYRESTRICT table is migrated, but data in the COLLECTIONAUTH table is not migrated.

Database

- ▼ For an IBM DB2® database, indexes might not be migrated. If a package is deployed and an index already exists in the target environment, the index in the package is not deployed. If an index doesn't exist in the target environment, the index is created. If the index in the package is marked to be deleted, the index in the target with the same table and attribute combination is marked to be deleted.
- ▼ If you migrate a package between different database platforms (for example, from Oracle® to DB2), you cannot deploy into target a package from source, if that package contains configuration records for objects, attributes, keys, indexes, or sequences. Migration Manager issues an error message indicating that it cannot deploy such a package and specifying the reason. You can confirm the cause of the error by viewing the manifest of the package and determining whether the DMMAXOBJECTCFG migration object is part of the package.
- ▼ If your source and target environments use Oracle as the database and you intend to implement inbound restrictions in the target environment, you must be aware of database name limitations in Oracle and how they can affect your inbound restrictions. An inbound restriction set up in the target environment determines whether packages from a particular source environment can be distributed and deployed to that target. An inbound restriction specifies the source database name along with source database host name and source database schema name.

In Oracle, database names are limited to eight characters. If you have multiple sources and want to restrict only some, ensure that the source database names for each source environment are unique within the first eight characters. If this is not the case, an inbound restriction might unnecessarily prevent the distribution and deployment of packages from valid sources. This is because the first eight characters of the two source databases will match and Migration Manager will not distinguish between the allowed source and the restricted source.

- ▼ Database locks can occur for reasons other than migration or general usage of the product. Database locks can slow down the deployment of packages in target environments or never let deployment complete. Database locks can manifest themselves in different forms depending upon the relational database that you use. A database administrator must identify occurrences of database locks and resolve them.
- ▼ Migration Manager does not provide any ability to roll back a package that fails to deploy in a target environment. Therefore, back up your target database prior to the deployment of any package.

Electronic auditing

- ▼ If you used the Database Configuration application to enable electronic auditing, any eAudit tables that have been created are not migrated.

Exchange rates

- ▼ If you need to migrate exchange rates, the application servers in the source and target environments must be configured to use the same time zone. If the time zones are different, a package might not deploy because of overlapping exchange rate validity periods. Exchange rates with overlapping validity periods are not allowed by the product.

Integration module

- ▼ Changes made to the Integration module interface tables, default queue tables MXIN_INTER_TRANS and MXOUT_INTER_TRANS, and any customized queue tables are not migrated. If you make any configuration changes in the

Planning configuration changes

source database to these tables, you must make the same changes in the target database.

Lookup maps

- ▼ If you are migrating lookup maps for new business objects, the migration of a single package (snapshot or change) that contains both the lookup map records and the business object records will fail, because the lookup map will be processed first and depends upon the business object, which has not been processed yet.

To work around this limitation, you can define two change packages: one to capture the new business object and another to capture the lookup map. Migrate the business object change package first and the lookup map change package second.

Product release level

- ▼ For a migration to be successful, the product to which the configuration content applies must be at the same release level in the source and target environments. Do not try to migrate configuration content between environments that have different product release levels. Migration between sources and targets at different release levels will lead to deployment failures, primarily because of differences in the structure of the product databases and differences in the associated business object code of the product.

Security settings

The following limitations apply to the migration of security settings:

- ▼ If you use LDAP, do not use the Migration Manager application to migrate your user IDs. Use the LDAP server and tools to manage your user IDs.
- ▼ When user IDs are migrated to a target environment, the passwords are reset and sent to the users in an e-mail message. To receive the e-mail message, the e-mail server must be set up in the target environment and the users must have configured e-mail addresses in the target environment. The password sent in the e-mail is a temporary password that expires when the user logs in for the first time, at which time the user must reset the password.

Use the mail.smtp.host system property in the System Properties application to set up the e-mail server. The value for the property is the name of the host running the SMTP mail server.

- ▼ Password hint questions and answers are not migrated.
- ▼ Data in the MAXUSERSTATUS and LOGINTRACKING tables is not migrated.
- ▼ Migration Manager will migrate the product user data that is stored in the MAXUSER table. However, it will not migrate the corresponding native database user data stored in the data dictionary of the database. Therefore, if you want to maintain the product users as database users, in the target environment you must create the database users corresponding to the product users, and grant database access to these users. You can create the database users and grant them database access by using the **Database Access Select** Action item in the Users application.
- ▼ The following information in security groups is not migrated: storeroom authorizations, labor authorizations, limits and tolerances, status history, and purchase GL.
- ▼ Because user storerooms are not migrated, you must ensure that the storerooms are the same in the source and target environments.

System properties

Only the system properties that meet the following criteria are migrated when you use the provided DMMAXPROP migration object:

- ▼ The property is user-defined.
- ▼ The property is not configured for a file override with a value in the `maximo.properties` file.
- ▼ The property value is tagged with COMMON and does not have an instance-specific value.

You must always configure the system-defined system properties in a target environment.

Roles

Planning and implementing a successful configuration content migration involves a variety of roles. For example, IT administrators and software developers perform configuration tasks or develop code. Database administrators design tables, and tune, back up, and restore the database. Other IT administrators provide network and hardware support when you move configuration content from one environment to another.

Assign individuals to your migration team who have the appropriate skills and product knowledge. The following table lists the most common roles that are involved in the migration of configuration content.

Key migration roles

Area	Role	Tasks
Administration	Database administrator	Database administrators are essential resources. They monitor the health of product databases. They also back up and restore the databases. In a production environment, tuning of the production database can be an additional responsibility so that the user community can effectively use the configuration changes.
	Product administrator	Close coordination with the product administrator of your product environments is necessary. Your product administrator is responsible for the integrity and availability of the product environment to end users. Work with the product administrator when the application server must be restarted, a migration package deployed, or the database configured.

Area	Role	Tasks
Deployment	Deployment manager	A deployment manager, also referred to as a change manager, controls and coordinates all of the other staffing resources. The deployment manager ensures the timely execution of various operations and resolves issues or conflicts. The deployment manager ensures that all resources and tasks are performed according to the change management plan.
	Deployment specialist	Deployment specialists coordinate migration with the component developers and consultants. These specialists must identify and have access to both test and development environments. They might also require access to production environments. They must be familiar with your IT policy, so that they can manage the migration within your software maintenance periods. These specialists must be thoroughly familiar with the Migration Manager applications.
Development	Component developer or consultant	Depending on the nature of your configuration changes, developers and consultants certified in the product and capable, for example, of developing workflows and escalations might be required. In other cases, a software developer might be required to write Java code.

Preparing for migration

Validating the integrity of your configuration content

Before you migrate your configuration content, ensure the referential integrity of your database. You can use the Integrity Checker utility that is included with the product to check the referential integrity of your underlying database. This utility provides a detailed report that lists errors and warnings.

Run the Integrity Checker utility on your source and target databases before and after you migrate any configuration changes. Examine and correct any warnings or errors that the Integrity Checker utility shows.

Backing up your database

Before migrating your changes from a source environment to a target environment, always back up your target database. You can use the backup utility from your database vendor. Backing up the database is an essential part of the migration process, because the Migration Manager application has no rollback capabilities. If a migration fails, you can use your backup to restore the database to a usable state.

Migrating configuration content

3

Pre-migration tasks

Before you migrate configuration content, you combine one or more migration groups into a package. Each migration group in the package is a collection of related migration objects. Each migration object is a group of related business objects.

Depending on the business needs of your organization, you may want to perform some of these tasks before you begin the migration process:

- ▼ Create migration objects
- ▼ Create migration groups
- ▼ Organize and upload compiled source

Create migration objects

The product includes a standard set of migration objects. For the list of the migration object structures that are included with the product, see Appendix A, "Migration object structures included with the product," on page 39. Many of the migration objects that are included with the product can be used as is. However, depending on your business needs, you can create new migration objects.

A migration object is implemented as an object structure. Define migration objects using the Object Structures application. You can use the Object Structures application to do the following tasks:

Task	Description
Add an object structure	Consider creating an object structure if there is no provided object structure for one or more of the tables that you want to migrate. The object structures that you create are user-defined objects.

Task	Description
Include or exclude attributes	<p>You can include or exclude attributes of any business object that is part of an object structure. For example, you might need to exclude attributes that are set by some configuration applications.</p> <p>Do not modify any included or excluded attributes of business objects that are part of the included object structures that are used by the Migration Manager application. If you modify these attributes, the corresponding migration objects may not work as designed.</p>
Add processing classes	<p>If you create your own object structures, you must test them by including them in a migration group and migrating the corresponding data. Sometimes, application business rules can prevent the processing of data that is migrated by using your own object structure. In this situation, you might need to author Java-based object structure processing classes that can help control the migration.</p>

Your organization might not need to use the Object Structures application. The product provides a set of object structures that support many of the product configuration applications, and you can perform many migrations by using these provided structures.

Create migration groups

Create migration groups by using the Migration Groups application.

You can create a migration group by copying an internal migration group and modifying it, or by creating a migration group and adding migration objects and dependencies.

When you create migration groups, include all of the necessary migration objects so that you maintain the referential integrity of the database to which you are moving the data. The provided migration groups contain all the necessary dependencies to other migration groups. Use these migration groups as a reference when you are adding dependencies to your own migration groups.

If you create a new migration group, you need to make sure that your migration objects in that group will be processed in the correct order. Assign the appropriate process order number to the migration object.

Organize and upload compiled source

You can either include compiled sources in a package definition or you can upload compiled sources before you create a package.

If you need to include many files in a package, such as a set of Java class files, create a compressed file of the customizations that preserves the folder structure. Include the single compressed file as a compiled source in the package definition or package. When the package is deployed into a target environment, you can download the compressed compiled source file, extract the contents into the appropriate build location, and build the EAR file.

If you migrate compiled sources, ensure that the target environment has a build environment in which you can run any required scripts to rebuild the product EAR file.

Package definition

Package definitions are templates from which you create unique packages. A package definition organizes a set of configuration content to be migrated. You must create package definitions before you can perform most other migration activities.

Before, during, and after any migration activity, you must manage the package definitions that your organization creates. You must ensure that the correct types of package definitions are created, implement an approval process to ensure collaboration among all the migration participants, and ensure that package definition statuses are changed at the appropriate time.

Structure of a package definition

A package definition consists of:

- ▼ A header
- ▼ A set of migration groups
- ▼ One or more compiled sources (optionally)

The header defines the name of the package, the source environment where the package was defined, and the type of package.

The set of migration groups determines the type of content that packages contain when they are migrated. Each migration group defines an aggregate of data from various configuration tables.

The compiled sources define content from outside the database that packages contain when they are migrated. Compiled sources can also be aggregations of files from the server file system that must be migrated with configuration content from the database.

All of the steps of a migration process are determined by a package definition. If a package definition is incomplete or incorrect, steps of the migration process can fail. For example, if you are defining a snapshot package definition to migrate workflow definitions but do not include the associated communication templates, a package that is based on the definition will fail to deploy in the target environment.

Package definition types

You can create two types of package definitions:

- ▼ Snapshot
- ▼ Change

You specify the type when you create a package definition. Every package that is created from a package definition is of the same type as the package definition.

Snapshot package definitions

When you specify a snapshot package definition, the package contains the set of configuration content that exists at that specific point in time when the package is created.

Typically, you use a snapshot package during the initial configuration of an environment. Use a snapshot package definition when you want to migrate the following types of configuration content:

- ▼ Many changes at the same time. You cannot capture this data in change packages because the data loading is typically performed by scripts.
- ▼ The initial data load when you are setting up an environment.
- ▼ Complex changes that must be redone (for example, large workflow process definitions). By using snapshots, you do not need to prepare multiple change packages that contain several revisions of the workflow process or deploy the packages unnecessarily in a target environment.

By default, all of the records in a package definition are contained in a snapshot package. You can, however, filter the records by defining SQL WHERE clauses on the migration objects in the package definition. For example, if you create two workflow processes, you can construct an SQL WHERE clause that ensures that only the records that are related to those two processes are included in the package.

The Migration Manager application collects the data for a snapshot package when the package is created.

Change package definitions

When you specify a change package definition, the package contains the set of configuration content that is changed between the time that you activate the package definition and the time that you create the package.

Typically, you use a change package definition after you complete the initial configuration of an environment and need to add a limited number of records that have changed. The changes include database inserts, updates, and deletions.

Use change package definitions when you want to migrate the following types of configuration content:

- ▼ Few or selective changes.
- ▼ Changes that are made by specific users.
- ▼ Changes that are made to a single application.
- ▼ Deletions to records in tables.

Restrictions

- ▼ Before you can activate a change package definition, turn off administration mode. This is required because the Migration Manager application cannot capture changes you make when administration mode is on. If you have not turned off administration mode when you activate a package, a warning is displayed.
- ▼ The Migration Manager application does not migrate change package definitions that contain business objects that have unique ID primary keys. A unique ID column can be recognized for a product table if the column has the same name as the table followed by the letters I and D. Values for unique ID columns are unique to a database and a migration of such data fails in a target environment because unique ID values in the target might point to different records from those in the source. If your change package definition contains business objects with unique ID primary keys, the Migration Manager application issues an error message and prevents you from activating the package.
- ▼ Before you migrate change packages that contain database insert changes, ensure that the target environment does not already contain the corresponding record from a previous migration or by being directly created in the target environment. Otherwise, the change package can fail to deploy. In this situation, an error message is issued indicating that the record already exists and cannot be inserted.
- ▼ If you mark an object for deletion using the Database Configuration application, that change is captured in a change package only if the change package definition is already activated.

Package definition statuses

Every package definition has a status. The status indicates the migration actions and steps that you can perform on the package definition.

A package definition can have one of the following statuses:

- ▼ WAPPR - When you create a package definition in a source environment, the package definition has a status of WAPPR (waiting for approval). A package definition can be modified when it has this status.
- ▼ APPR - In a source environment, you approve a package definition after you create or modify it. A package definition must have a status of APPR (approved) before you can activate it. You cannot change the status of an approved package definition back to WAPPR. An approved package definition cannot be modified.
- ▼ LOCKED - You can toggle the status of a package between APPR and LOCKED. When you lock a package definition, the following restrictions apply:
 - The content of the package definition cannot be changed.
 - No packages based on the package definition can be created or distributed.
 - No distributions can be created from the package definition.
 - For change package definitions, tracking records cannot be reset.
 - In a target environment, you cannot deploy a package that is based on a package definition that is locked.

The status of a package definition can be changed only in the following ways:

Status	Can change to
WAPPR	APPR
APPR	LOCKED
LOCKED	APPR

After a package definition has been approved, its status can never change to WAPPR.

If a package definition is copied (duplicated), the status of the copy is initially set to WAPPR.

Package Definition report

The Package Definition report that is provided with Migration Manager shows the contents of a package definition. A change or deployment manager can use this report to review and approve a package definition.

If the report is generated before a package definition is approved, the report can be shared or e-mailed to the appropriate manager.

If the report is generated after a package definition is approved, the report shows any packages that were created in the source environment from the package definition.

For more information about using and creating reports, see the *Report Developer Guide*.

Package creation

Packages are instances of package definitions. Packages are created, distributed, and deployed. Package creation and package deployment are long-running processes that can process large amounts of product configuration data in a predefined sequence. While it executes the steps in this sequence, the Migration Manager application records a package status for each step. These package statuses help you to determine how much processing has completed.

Package statuses

A package has a status to indicate that it is being created or deployed and various interim states. A package can also have an error status. You can use the status to track the steps of a package or to identify and resolve errors.

You do not set or change the status of a package. The status is created by the Migration Manager application during the creation or deployment of a package. The status is shown in the Packages section of the Package tab in the application. A history of progress status changes is shown on the Status History tab of the Package tab in the application.

In a source environment, a package can have one of the following statuses:

- ▼ CREATE_NEW - The package is marked for creation, but compiled sources are not yet uploaded.
- ▼ CREATE_INPROGRESS - The package is being created and compiled sources are uploaded.
- ▼ CREATED - The package is created and can be deployed.
- ▼ CREATE_ERROR - An error prevented the creation of the package.
- ▼ CLOSED - The package is closed.

In a target environment, a package can have one of the following statuses:

- ▼ DEPLOY_NEW - The package is marked for deployment and does not contain compiled sources.
- ▼ DEPLOY_NEW_CMPSRC - The package is marked for deployment and contains compiled sources.
- ▼ DEPLOY_INPROGRESS - The package is being deployed.
- ▼ DEPLOYED - The package is deployed.
- ▼ DEPLOY_ERROR - An error prevented the deployment of the package.
- ▼ REDISTRIBUTE - Redistribution of the package has begun.
- ▼ REDISTRIBUTED - The package is redistributed.
- ▼ REDISTRIBUTE_ERROR - An error prevented redistribution of the package.
- ▼ CLOSED - The package is closed.

Package distribution

After you create a package in the Migration Manager application, you can distribute the package to its target environments.

You can distribute a package as a database or as a file:

- ▼ In a database distribution, the configuration content is migrated directly into the target environment. After a package is distributed to a database, you can deploy the package.
- ▼ In a file distribution, the configuration content is placed into a file. The file is created in a folder on the application server computer in the source environment. After the file is created, it is copied to the folder that is designated by the file distribution configuration. You then move the file to the target environment.

Although you can create a package in a source environment before you define targets or distributions, you must define a target before you can distribute the package.

Packages are distributed one at a time. If you select multiple packages for distribution in the Migration Manager application, the packages are distributed in sequence.

Package deployment

You deploy a package in a target environment after you distribute it to that environment. All of the migration activities that precede deployment occur in the

source environment, but you upload and deploy a package in the target environment.

When you deploy a package, the following processing steps occur:

- ▼ The metadata for the package, including the manifest, is processed.
- ▼ If the package requires compiled sources, you download and process the compiled sources.
- ▼ If the package contains structural changes, the structural changes are processed. After the structural changes are processed, you must configure the changes in the underlying product database.
- ▼ Other non-structural changes are processed.

The amount of time it takes to deploy a package depends on the amount of configuration content in the package and the type of processing applied to the package.

How package content affects deployment

Not all configuration content migrations are fully automated. Depending upon the type of content in a package, package deployment can involve additional manual steps. When manual steps are required, the system pauses and displays prompts that tell you what additional steps are needed.

Package content types

Package contents can be a combination of the following types:

- ▼ Compiled sources - content that is stored outside the database.
- ▼ Configuration content - content that is stored in the database. Configuration content can either be structural or nonstructural.
 - Structural content - configuration content that is stored in the underlying relational database schema as tables, views, columns, indexes, and so on.
 - Nonstructural content - all other configuration content that is not structural. Nonstructural content is typically stored as records in a table.

Deployment process steps

The different deployment process steps are described in the following table.

Package content type	Deployment process steps
Nonstructural content only (Example - workflow process definitions)	<p>The deployment process is fully automated. No manual steps are necessary. To initiate deployment, in the Migration Manager application, select the Deploy Package action.</p> <p>After the deployment process completes, you receive a message indicating a successful deployment.</p>

Package content type	Deployment process steps
<p>Structural content only</p> <p>(Example - object, attribute, and index definitions)</p>	<p>Manual steps are necessary. To deploy a package that contains only structural content:</p> <ol style="list-style-type: none"> 1 In the Migration Manager application, select the Deploy Package action. 2 Select the package that you want to deploy. <p>The deployment process begins, and pauses after data loading is complete so that you can apply structural changes to the underlying database.</p> <ol style="list-style-type: none"> 3 When prompted, switch the system to administration mode. 4 In the Migration Manager application, click Continue Deployment. <p>Structural configuration is performed. After the deployment process completes, you receive a message indicating a successful deployment.</p>
<p>Structural and nonstructural content</p> <p>(Example - object, attribute, and index definitions + workflow process definitions)</p>	<p>Manual steps are necessary. To deploy a package that contains structural and nonstructural content:</p> <ol style="list-style-type: none"> 1 In the Migration Manager application, select the Deploy Package action. 2 Select the package that you want to deploy. <p>The deployment process begins, and pauses after data loading is complete so that you can apply structural changes to the underlying database.</p> <ol style="list-style-type: none"> 3 When prompted, switch the system to administration mode. 4 In the Migration Manager application, click Continue Deployment. <p>Structural configuration is performed, then nonstructural content is loaded. After the deployment process completes, you receive a message indicating a successful deployment.</p>

Package content type	Deployment process steps
<p>Compiled sources only</p> <p>(Example - custom Java package and Java class files)</p>	<p>Manual steps are necessary. To deploy a package that contains only compiled sources:</p> <ol style="list-style-type: none"> 1 In the Migration Manager application, select the Deploy Package action. 2 Select the package that you want to deploy. <p>The deployment process begins, and pauses to enable the download of compiled sources.</p> <ol style="list-style-type: none"> 3 When prompted, download all compiled sources to a client machine. 4 If the compiled sources include Java classes, do the following: <ul style="list-style-type: none"> ■ Rebuild the product EAR file. ■ Schedule a shutdown of the product to undeploy the old EAR file and deploy the new EAR file. ■ Restart the product. 5 In the Migration Manager application, click Continue Deployment. 6 When prompted, confirm that you have deployed the compiled sources to the application server. <p>After the deployment process completes, you receive a message indicating a successful deployment.</p>
<p>Compiled sources and nonstructural content</p> <p>(Example - custom Java package and Java class files + workflow process definitions)</p>	<p>Manual steps are necessary. To deploy a package that contains compiled sources and nonstructural content:</p> <ol style="list-style-type: none"> 1 In the Migration Manager application, select the Deploy Package action. 2 Select the package that you want to deploy. <p>The deployment process begins, and pauses to enable the download of compiled sources.</p> <ol style="list-style-type: none"> 3 When prompted, download all compiled sources to a client machine. 4 If the compiled sources include Java classes, do the following: <ul style="list-style-type: none"> ■ Rebuild the product EAR file. ■ Schedule a shutdown of the product to undeploy the old EAR file and deploy the new EAR file. ■ Restart the product. 5 In the Migration Manager application, click Continue Deployment. 6 When prompted, confirm that you have deployed the compiled sources to the application server. <p>Nonstructural content is loaded. After the deployment process completes, you receive a message indicating a successful deployment.</p>

Package content type	Deployment process steps
<p>Compiled sources and structural content</p> <p>(Example - custom Java package and Java class files + object, attribute, and index definitions)</p>	<p>Manual steps are necessary. To deploy a package that contains compiled sources and structural content:</p> <ol style="list-style-type: none"> 1 In the Migration Manager application, select the Deploy Package action. 2 Select the package that you want to deploy. <p>The deployment process begins, and pauses to enable the download of compiled sources.</p> <ol style="list-style-type: none"> 3 Download all compiled sources to a client machine. 4 If the compiled sources include Java classes, do the following: <ul style="list-style-type: none"> ■ Rebuild the product EAR file. ■ Schedule a shutdown of the product to undeploy the old EAR file and deploy the new EAR file. ■ Restart the product. 5 In the Migration Manager application, click Continue Deployment. 6 When prompted, confirm that you have deployed the compiled sources to the application server. <p>The deployment process continues. After the structural data loading is complete, the process pauses for a second time so that you can apply structural changes to the underlying database.</p> <ol style="list-style-type: none"> 7 When prompted, switch the system to administration mode. 8 In the Migration Manager application, click Continue Deployment. <p>Structural configuration is performed. After the deployment process completes, you receive a message indicating a successful deployment.</p>

Package content type	Deployment process steps
<p>Compiled sources, structural and nonstructural content</p> <p>(Example - custom Java package and Java class files + object, attribute, and index definitions + workflow process definitions)</p>	<p>Manual steps are necessary. To deploy a package that contains compiled sources, structural content, and nonstructural content:</p> <ol style="list-style-type: none"> 1 In the Migration Manager application, select the Deploy Package action. 2 Select the package that you want to deploy. <p>The deployment process begins, and pauses to enable the download of compiled sources.</p> <ol style="list-style-type: none"> 3 Download all compiled sources to a client machine. 4 If the compiled sources include Java classes, do the following: <ul style="list-style-type: none"> ■ Rebuild the product EAR file. ■ Schedule a shutdown of the product to undeploy the old EAR file and deploy the new EAR file. ■ Restart the product. 5 In the Migration Manager application, click Continue Deployment. 6 When prompted, confirm that you have deployed the compiled sources to the application server. <p>The deployment process continues. After the structural data loading is complete, the process pauses for a second time so that you can apply structural changes to the underlying database.</p> <ol style="list-style-type: none"> 7 When prompted, switch the system to administration mode. 8 In the Migration Manager application, click Continue Deployment. <p>Structural configuration is performed and then nonstructural content is loaded. After the deployment process completes, you receive a message indicating a successful deployment.</p>

Restrictions on package deployment

<p>Base language</p>	<p>When deploying a migration package into a target environment, ensure that the target environment has the same base language as the source environment. If the target base language is different from the source base language, the Migration Manager application does not deploy the package.</p>
<p>Product versions</p>	<p>The target environment must have the same product version installed as in the source environment. If the product versions are different, the Migration Manager application does not deploy the package.</p>
<p>One package at a time</p>	<p>To preserve the integrity of structural changes to the database tables, you can deploy only one package at a time. If you try to deploy a package while another package is being deployed, an error message is displayed.</p>

Inbound restrictions

You can prevent the distribution and deployment of packages that come from restricted sources by setting inbound restrictions in the target environment. For example, for a production environment, you might want to accept packages only from a certain source environment, and so you would set restrictions on all your other environments.

You set inbound restrictions by using the Set Inbound Restrictions action in the Migration Manager application.

For a database distribution, the source checks the target for any restrictions. If a restriction is found, the package is not distributed to the target. For a file distribution, the restrictions are checked when a package file is chosen for deployment in the Deploy Package window of the Migration Manager application.

Post-migration tasks

After you deploy a package, and, depending on the configuration content in the package, you might have to do several of the following tasks.

- ▼ After you deploy a package that applies table or index changes to a target environment with administration mode turned on, use the Database Configuration application to run the Update Statistics action in the target environment. The updated statistics can then be used by the query optimizer to determine the most efficient way to run SQL statements.

This task is typically required because when you use the Migration Manager application to change database objects, the existing statistics usually become invalid. When a migration adds an index, there are no existing statistics for the index, therefore the statistics must be generated for the index to be used effectively. When a migration modifies a table so that it is renamed and rebuilt, the indexes for the table are also rebuilt, therefore the statistical information must be regenerated.

- ▼ If administration mode is turned on during package deployment, all of your escalations and cron tasks, except for Bulletin Board cron tasks, are stopped. The cron tasks do not run while administration mode is in effect. When the deployment finishes, you must turn administration mode off so that the cron tasks and escalations restart. When administration mode is turned on, only users with administration mode privileges can access the product. Therefore, when you no longer require administration mode, turn it off to allow users who do not have administrator privileges to access the product.
- ▼ After you deploy a package that contains organizations, sites, workflow processes, or communication templates that were active in the source environment, you must activate them in the target environment before you deploy any other packages to the same environment. Use the appropriate application to activate the specific records. For example, use the Organizations application to activate organizations and sites.
- ▼ Although you can migrate the Start Center template, the associated queries that are configured for each user are not migrated. After you migrate the Start Center template, you must open the template and edit the queries so that they correctly match the target environment.

Package Life Cycle report

- ▼ Although product user IDs are migrated, the user data for associated database user IDs is not. Therefore, if some users require their database user IDs, you must recreate the properties for those database user IDs in the target environment.

Package Life Cycle report

The Package Life Cycle report that is provided with Migration Manager shows the status changes of a package, the user who changed the status, and the date and time of each change. The report can be used to audit packages.

In a source environment, this report also shows the targets to which a package was distributed.

In a target environment, the report shows only the status changes of a package.

For more information about using and creating reports, see the *Report Developer Guide*.

Troubleshooting migration

4

The Migration Manager application creates messages and logs to help you handle errors. Information messages and error messages are created when you create and deploy packages. You can view and track messages on the Messages tab of the application. More detailed information is available in the logs.

Package creation errors

In a source environment, if an error occurs when a package is created, the package has a status of `CREATE_ERROR`. Because a package with that status cannot be migrated, you can delete the package, correct the cause of the error, and re-create the package.

Package distribution errors

Although you can select multiple packages to distribute in the Migration Manager application, the application distributes only one package at a time in sequence. If an error prevents the application from distributing a package to a target, the application can continue to distribute packages to other targets.

If a distribution error occurs, you can review the error message, fix the problem, and try to distribute the package again.

If an error occurs when you distribute a package to a database, all of the records of the package that were placed in the staging table of the Migration Manager application in the target database are rolled back or deleted.

Package deployment errors

Deployment errors occur primarily when the configuration data in the package cannot be validated, which can occur if the configuration is incomplete or incorrect. An incomplete configuration might occur if the related configuration data is not in the package and if the data is not in the target environment. An incorrect configuration might occur if the configuration is created by using SQL scripts without validations.

When a deployment error occurs, you can address the error in the following ways:

- ▼ If the error is caused by bad configuration data in the package, restore the target database from the database backup, correct the configuration data in the source environment, and then re-create the package in the source environment. For example, an incorrectly defined database index must be re-created in the source environment.
- ▼ If the error occurs because the data in the target database on which the package data depends must change, change the data in the target database and deploy the package again. In this situation, you do not need to re-create the package in the source environment. For example, if a workflow process revision is active and enabled in the target environment, the package that contains updates to this revision fails to deploy. You can deactivate and disable the workflow process in the target environment and deploy the package again.

For example, if the application server stops running while a package is being deployed, the package remains in a DEPLOY_INPROGRESS status. Depending on the stage of deployment, the structural integrity of the database might be compromised and a database restore operation is necessary.

During a deployment, the Migration Manager application creates progress messages that show the steps that succeeded. You can use this information to determine the cause of the error. The messages are stored in the product log file if it is configured, and persist in the messages table.

To find where an error is occurring, you can create package definitions with smaller sets of data to determine which sets of data migrate correctly and which set of data creates an error.

Migration Manager application logger

The Migration Manager application has a logger, which is a component that produces log statements that are written to a log file. You can configure the logger, which has the name dm, by using the Logging application.

Typically, loggers are set at the ERROR level, which produces log statements only when errors are encountered. If you need more information in the log file to identify a migration error, change the log level of the dm logger to INFO or DEBUG.

Error messages and corrective actions

Error code	Error message	Message details in the messages table	Explanation and response
BMXAA5198E	Could not create package <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs when a package cannot be created. Check the associated stack trace to determine the cause of the error.

Error code	Error message	Message details in the messages table	Explanation and response
BMXAA5199E	Package distribution to target <i>target_name</i> failed	Exception stack trace is written into the Message Details field	This error occurs when a package cannot be distributed. The stack trace provides more details. Depending on the cause of the error, you can try to distribute the package again.
BMXAA5201E	Error checking distribution status in target environment for package <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs if the database operations that are performed to determine the prior distribution status of the selected package failed. Check the associated stack trace to determine the cause of the error.
BMXAA5205E	Could not delete staging table records in target environment for incompletely distributed package <i>package_name</i>		This error occurs when a package is not completely distributed to a target environment database and the Migration Manager application attempts to clean up committed records from the target database staging table. Depending on the cause of the error, you might need to remove records manually.
BMXAA5206E	Could not read staging table records in source environment for package <i>package_name</i>		This error occurs if the Migration Manager application cannot extract the staging table records in the source environment of a package that is being distributed. Check the associated stack trace to determine the cause of the error.
BMXAA5207E	Could not write staging table records in target environment for package <i>package_name</i>		This error occurs when the Migration Manager application cannot insert records into the staging table on the target environment database. Check the associated stack trace to determine the cause of the error.
BMXAA5209E	Migration Manager root directory has not been configured using System Property <i>system_property</i> . The directory will default to <i>default_directory</i> .		This error occurs when no root folder has been configured for the mxe.dm.dmroot system property. If no root folder is configured, the Migration Manager application file operations are performed on the home folder of the application server. This error can be corrected by using the System Properties application to specify the appropriate value for the mxe.dm.dmroot property.

Error code	Error message	Message details in the messages table	Explanation and response
BMXAA5212E	Error creating XML document in manifest for package <i>package_name</i>		This error occurs if the XML document that represents the manifest of a package cannot be generated. Check the associated stack trace to determine the cause of the error and try the action again.
BMXAA5214E	Could not create version header in manifest for package <i>package_name</i>		This error occurs if the Migration Manager application cannot retrieve and construct the version information of the manifest of the package that is being created or distributed. Check the associated stack trace to determine the cause of the error.
BMXAA5220E	Could not get database name in source environment		This error occurs when the name of the source database cannot be retrieved from the database to generate the source information for a package definition. Check the associated stack trace to determine the cause of the error. You might need to work with a database administrator to correct the error.
BMXAA5221E	Could not get database schema name in source environment		This error occurs when the schema name of the source database cannot be retrieved from the database to generate the source information for a package definition. Check the associated stack trace to determine the cause of the error. You might need to work with a database administrator to correct the error.
BMXAA5227E	Could not register event listeners for package definition <i>package_definition_name</i> and source <i>source_string</i>		This error occurs when the Migration Manager application cannot register the event listeners for the active change packages. The error is recorded in the log file if the logger is configured. The associated stack trace indicates the cause of the error.
BMXAA5228E	Could not register event listeners for all active Migration Manager change packages		This error occurs when the Migration Manager application cannot register the event listeners for the active change packages. The error might occur when the application server starts. The error is recorded in the log file if the logger is configured. The associated stack trace indicates the cause of the error.

Error code	Error message	Message details in the messages table	Explanation and response
BMXAA5234E	Error in tracking events for package definition <i>package_definition_name</i> and source <i>source_string</i>		This error occurs when the Migration Manager application cannot capture event information and write it to the event tracking table. The error is recorded in the log file if the logger is configured. The associated stack trace indicates the cause of the error.
BMXAA5244E	Cannot read manifest information from file <i>file_name</i>	Exception stack trace is written into the Message Details field	This error occurs when the manifest of a package cannot be read during deployment. This error might mean that the package file contents are corrupted. You can test the file by copying it and extracting the manifest from the copy. If you cannot extract the manifest, re-create or redistribute the package. If the package file is not corrupted or if the manifest can be extracted, review the associated stack trace to identify the cause of the error.
BMXAA5252E	Error in checking entry in dmrestriction table		This error occurs when the Migration Manager application cannot check the restriction entries in the target database environment when distributing a package. The error is recorded in the log file if the logger is configured. The associated stack trace indicates the cause of the error.
BMXAA5257E	Package re-distribution to target <i>target_name</i> failed	Exception stack trace is written into the Message Details field	The stack trace provides details of the error. Depending on the cause of the error, you can try the redistribution again.
BMXAA5290E	Could not locate or create the folder <i>folder_name</i>		This error occurs if the Migration Manager application cannot locate the <i>processed</i> folder under <i>DMROOT</i> or cannot create the folder. Check if you have write permissions in the parent folder and if there is enough disk space.
BMXAA5291E	Could not close package <i>package_name</i> to file <i>file_name</i>		This error occurs when the package file can not be copied to the <i>processed</i> folder. Check if you have write permissions and if there is enough disk space.

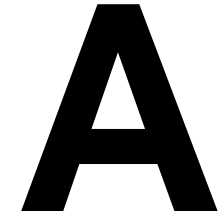
Error messages and corrective actions

Error code	Error message	Message details in the messages table	Explanation and response
BMXAA5309E	Could not export package configuration records to the staging table for package <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs when the package metadata records cannot be exported from the source database. Check the associated stack trace to determine the cause of the error.
BMXAA5310E	Could not export configuration records to the staging table for package <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs when configuration data records cannot be exported from the source database. Check the associated stack trace to determine the cause of the error.
BMXAA5311E	Could not export data dictionary configuration records to the staging table for package <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs when the data dictionary records cannot be exported from the source database. Check the associated stack trace to determine the cause of the error.
BMXAA5313E	Could not connect to the target database specified by URL <i>database_URL</i>	Exception stack trace is written into the Message Details field	This error might occur if the target database is not running at the time of distribution. Check with the target environment database administrator for database availability and the required connection parameters and update the target definition.
BMXAA5314E	Could not create staging table records in the target database specified by URL <i>database_URL</i>	Exception stack trace is written into the Message Details field	This error occurs when database operations to insert package records fail. Check the associated stack trace to determine the cause of the error. The cause of the error might be a database issue related to tablespaces or permissions.
BMXAA5315E	Could not create consolidated package file <i>package_file_name</i> into the folder <i>target_folder_path</i>	Exception stack trace is written into the Message Details field	This error occurs when the Migration Manager application cannot write the file to the <code>outbound</code> folder under the <code>DMROOT</code> folder on the application server or when the Migration Manager application cannot copy the file from the <code>DMROOT</code> folder to the user-specified target folder. In either case, check the write permissions on the folder and check for enough disk space.

Error code	Error message	Message details in the messages table	Explanation and response
BMXAA5316E	Could not stage selected package file <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs if the contents of the package file cannot be extracted and written to the staging table. Check the associated stack trace to determine the cause of the error. Alternatively, obtain a new package from the source and deploy the new package.
BMXAA5317E	Could not import package metadata records for package <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs when package metadata records cannot be imported into the target database. Check the associated stack trace to determine the cause of the error. Alternatively, obtain a new package from the source and deploy the new package.
BMXAA5318E	Could not import data dictionary records for package <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs when data dictionary records cannot be imported into the target database. Check the associated stack trace to determine the cause of the error. Alternatively, obtain a new package from the source and deploy the new package.
BMXAA5319E	Could not import configuration records for package <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs when package configuration records cannot be imported into the target database. Check the associated stack trace to determine the cause of the error.
BMXAA5320E	Could not apply data dictionary changes into database using Database Configuration for package <i>package_name</i> . Please check configdb log file for more detail.	Exception stack trace is written into the Message Details field	This error occurs if the target database cannot be configured after the data dictionary records are imported from the package. Do not try to redeploy the package. Instead, check with the administrator of the source environment to determine whether the same data dictionary changes were successfully applied in the source. If necessary, obtain a new package.
BMXAA5324E	Could not extract or write XML document to staging table record for migration object <i>migration_object_name</i> for package <i>package_name</i>		This error occurs if the Migration Manager application cannot create the XML document that represents the migration object record or cannot write the XML document to the staging table in the source environment. Check the associated stack trace to determine the cause of the error.

Error messages and corrective actions

Error code	Error message	Message details in the messages table	Explanation and response
BMXAA5367E	Could not redistribute package metadata records for package <i>package_name</i>	Exception stack trace is written into the Message Details field	This error occurs when metadata records that are regenerated for redistribution cannot be written to the staging table. Check the associated stack trace to determine the cause of the error.
BMXAA5648E	Could not distribute package <i>package_name</i> to target <i>target_name</i> . Source database is different than target database.		This error occurs when an attempt is made to distribute a package to a target database that is a different database management system than the source database. The Migration Manager application works only between databases of the same type. Distribute the package as a file instead.
BMXAA5651E	Target environment base language <i>language_name</i> is different from source base language <i>language_name</i> . You must change target base language to match that for source base language before you can deploy the package.		The Migration Manager application requires that packages are deployed in the base language. The target environment base language also must match the source environment. When a new package is available for deployment, check its manifest and determine the base language of the package. If the base language of the target environment, change it to match the source environment.
BMXAA6001E	Could not generate manifest for package <i>package_name</i> during redistribution	Exception stack trace is written into the Message Details field	This error occurs when the manifest of the package cannot be generated when a package is redistributed. Check the associated stack trace to determine the cause of the error.



Migration object structures included with the product

Migration object structures are groups of related business objects that the Migration Manager applications use. These business objects correspond to database tables of the product.

The following tables provide detailed information about the Migration Manager-related object structures that are included with the product. This appendix groups the object structures by the migration group to which they belong.

Object structures in the Data Dictionary migration group

The Data Dictionary migration group enables the creation and management of objects, such as tables, attributes, relationships, and indexes.

The tables in this section give detailed information about the object structures in the Data Dictionary migration group.

DMMAXOBJECTCFG object structure

Managing application	Supported objects
Database Configuration	Objects, attributes, indexes, views, tables, columns, autokeys
Processing details	
Outbound content processing	During package creation in a source environment, this object structure does not extract business objects that are marked as INTERNAL. This object structure does not extract business objects that are audit tables.
Inbound content processing	During package deployment in a target environment, this object structure checks whether the underlying target database is DB2. If the target database is DB2, the index that serves as a native primary key for the underlying database is not migrated.
Carries long description	No
Carries multi-language records	Yes, for the MAXOBJECTCFG and MAXATTRIBUTECFG business objects.

DMMAXRELATIONSHIP object structure

Managing application	Supported objects
Database Configuration	Relationships
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	None

DMMAXSERVICE object structure

Managing application	Supported objects
Database Configuration	Services
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	Yes, for the MAXSERVICE business object.
Additional information	A service is associated with a Java class. When you migrate this object structure, you must migrate the class file as a compiled source. Restart the application server to start new services.

DMMAXLOOKUPMAP object structure

Managing application	Supported objects
Database Configuration	Related keys
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

DMMAXMESSAGES object structure

Managing application	Supported objects
Database Configuration	Messages
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	Yes, for the MAXMESSAGES business object.

DMMAXSEQUENCE object structure

Managing application	Supported objects
Database Configuration	Sequences
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

DMGLCONFIGURE object structure

Managing application	Supported objects
Database Configuration	GL Configuration and components
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra processing logic to ensure that GL components can be loaded without error.
Carries long description	No
Carries multi-language records	No

DMORGANIZATION object structure

Managing application	Supported objects
Organizations	Organizations and Sites
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra processing logic to ensure that address references for a site can be resolved safely. If you created an organization in the target, the new organization is inactive.
Carries long description	Yes, for the ORGANIZATION, ADDRESS, and SITE business objects.
Carries multi-language records	No

DMSETS object structure

Managing application	Supported objects
Sets	Sets
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the SETS business object.
Carries multi-language records	No

DMGLCURRENCY object structure

Managing application	Supported objects
Currency Codes	Currency Codes
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the CURRENCY business object.
Carries multi-language records	No

DMMAXINTOBJECT object structure

Managing application	Supported objects
Object Structures	Object Structures
Processing details	
Outbound content processing	During package creation in a source environment, this object structure extracts only the structures that are configurable.
Inbound content processing	None
Carries long description	Yes, for the MAXINTOBJECT business object.
Carries multi-language records	No

DMMAXDOMAIN object structure

Managing application	Supported objects
Domains	Domains
Processing details	
Outbound content processing	During package creation in a source environment, this object structure extracts only the domains that are not internal. This object structure does not extract the DBSTORAGEPARTITION domain, because this extraction must be managed separately in individual environments.
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure that CROSSOVERDOMAIN records can be loaded without error.
Carries long description	No
Carries multi-language records	Yes, for the MAXDOMAIN, ALNDOMAIN, and SYNONYMDOMAIN business objects.

Object structures in the Data Dictionary migration group

DMLANGUAGE object structure

Managing application	Supported objects
Not applicable	Languages

Processing details

Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

DMMAXVARS object structure

Managing application	Supported objects
Multiple applications	Maxvars

Processing details

Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

Object structures in the Document Library migration group

The Document Library migration group manages the document library types of the product and links to various product applications.

The table in this section gives detailed information about the object structures in the Document Library migration group.

DMDOCTYPES object structure

Managing application	Supported objects
Multiple applications	Document Library
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure that DOCINFO records can be loaded without error.
Carries long description	Yes, for the DOCINFO business object.
Carries multi-language records	No

Object structures in the Application migration group

The Application migration group manages the application user interface of the product.

The tables in this section give detailed information about the object structures in the Application migration group.

DMMAXAPPS object structure

Managing application	Supported objects
Application Designer	Applications
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure DOCINFO records can be loaded without error.
Carries long description	Yes, for the SIGOPTION business object.
Carries multi-language records	Yes, for the MAXAPPS, MAXLABELS, and SIGOPTION business objects.
Additional information	If you insert or update an application presentation, you might have to restart the application server.

DMMAXMENU object structure

Managing application	Supported objects
Application Designer	Menus
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	Yes, for the MAXMENU business object.

DMKPIMAIN object structure

Managing application	Supported objects
KPI Manager	KPI
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the KPIMAIN business object.
Carries multi-language records	No

DMMAXMODULES object structure

Managing application	Supported objects
Not applicable	Modules
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	Yes, for the MAXMODULE business object.

DMSCTEMPLATE object structure

Managing application	Supported objects
Start Center	Start Center templates
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No
Additional information	Only the start center templates are supported for migration. After you migrate a start center template, you can apply the template to an appropriate Start Center.

Object structures in the Resources migration group

DMMAXLAUNCHENTRY object structure

Managing application	Supported objects
Launch in Context	Launch Entries
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the MAXLAUNCHENTRY business object.
Carries multi-language records	Yes, for the MAXMODULE business object.

Object structures in the Resources migration group

The Resources migration group manages people and groups of people.

The tables in this section give detailed information about the object structures in the Resources migration group.

DMPERSONGROUP object structure

Managing application	Supported objects
Person Groups	Person Groups
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure that PERSONGROUPTEAM records are migrated safely.
Carries long description	Yes, for the PERSONGROUP business object.
Carries multi-language records	No

DMPERSON object structure

Managing application	Supported objects
People	People
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure that PERSON records are loaded safely.
Carries long description	Yes, for the PERSON business object.
Carries multi-language records	No

Object structures in the Functional migration group

The Functional migration group manages shifts, shift patterns, work periods, and calendars.

The tables in this section give detailed information about the object structures in the Functional migration group.

DMSHIFT object structure

Managing application	Supported objects
Calendars	Shifts
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure that SHIFTPATTERNDAY records are loaded safely.
Carries long description	Yes, for the SHIFT business object.
Carries multi-language records	No

DMCALENDAR object structure

Managing application	Supported objects
Calendars	Calendars

Processing details

Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the CALENDAR business object.
Carries multi-language records	No

Object structures in the Application Security migration group

The Application Security migration group manages the application security of the product.

The tables in this section give detailed information about the object structures in the Application Security migration group.

DMCONDITION object structure

Managing application	Supported objects
Condition Expression Manager	Conditions

Processing details

Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

DMMAXUSER object structure

Managing application	Supported objects
Users	Users
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, if a new user must be created, generates a new password for the user. Sends an e-mail message with the password to the e-mail address that is specified in the person record of the user. If no e-mail address is specified, the user might not receive the password to log in to the product.
Carries long description	No
Carries multi-language records	No
Additional information	In the Users and Security Groups applications, an administrator can control the generation of an e-mail notification to a new user. The PWRESET communication template is used to create this notification. If you want the e-mail notification to go to new users, ensure that the PERSON records for these users are migrated with proper e-mail IDs. If you want to alter the content of the e-mail notification, duplicate the PWRESET communication template. In the Users or Security Groups applications, use this new communication template to send notifications.

DMMAXGROUP object structure

Managing application	Supported objects
Security Groups	Security Groups
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic. This logic ensures that security signature options records for change password and start center functions can be loaded securely.
Carries long description	Yes, for the MAXGROUP business object.
Carries multi-language records	No

DMSIGOPTION object structure

Managing application	Supported objects
Security Groups	Signature Options
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the SIGOPTION business object.
Carries multi-language records	Yes, for the SIGOPTION business object.

DMMAXSERVSECURITY object structure

Managing application	Supported objects
Security Groups	Service Security
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, if a new user must be created, triggers the generation of a new password for the user. Sends an e-mail message with the password to the e-mail address that is specified in the person record of the user. If no e-mail address is specified, the user might not receive the password to log in to the product.
Carries long description	No
Carries multi-language records	No

DMCTRLGROUP object structure

Managing application	Supported objects
Application Designer	Control Security
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	Yes, for the CTRLCONDPROP business object.

DMSIGOPTFLAG object structure

Managing application	Supported objects
Application Designer	Signature Options Flags
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

Object structures in the Reporting migration group

The Reporting migration group manages the reporting capabilities of the product.

The tables in this section give detailed information about the object structures in the Reporting migration group.

DMREPORT object structure

Managing application	Supported objects
Report Administration	Reports
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure that REPORTAUTH and REPORTLOOKUP records are loaded safely.
Carries long description	No
Carries multi-language records	Yes, for the REPORT and REPORTLABEL business objects.

Object structures in the System migration group

DMREPORTDESIGN object structure

Managing application	Supported objects
Report Administration	Report Design
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

Object structures in the System migration group

The System migration group performs various server-side tasks in the product. Object structures in this group enable, for example, the execution of cron tasks, creation of log file entries, and managing system properties.

The tables in this section give detailed information about the object structures in the System migration group.

DMCRONTASKDEF object structure

Managing application	Supported objects
Cron Task Setup	Cron Tasks
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in target environment, ensures that any cron task that you add receives cron task parameters from the CRONTASKINSTANCE business object directly in the target environment.
Carries long description	Yes, for the CRONTASKDEF and CRONTASKINSTANCE business objects.
Carries multi-language records	No

DMMAXPROP object structure

Managing application	Supported objects
System Properties	System Properties
Processing details	
Outbound content processing	During package creation in a source environment, extracts only the system properties that are user-defined, do not have file override configured, and are common to all instances of the application server.
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

DMMAXLOGAPPENDER object structure

Managing application	Supported objects
Logging	Log Appenders
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

DMMAXLOGGER object structure

Managing application	Supported objects
Logging	Loggers
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

Object structures in the Integration migration group

The Integration migration group manages integrations to external systems, and export-import. This group enables the creation and management of integration interfaces, external systems and other integration components.

The tables in this section give detailed information about the object structures in the Integration migration group.

DMMAXIFACECONTROL object structure

Managing applications	Supported objects
External Systems, Publish Channels, Enterprise Services	Interface Controls
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the MAXIFACECONTROL business object.
Carries multi-language records	No

DMMAXIFACEOUT object structure

Managing application	Supported objects
Publish Channels	Publish Channels
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the MAXIFACEOUT and MAXIFACEPROC business objects.
Carries multi-language records	No

DMMAXIFACEINVOKE object structure

Managing application	Supported objects
Invocation Channels	Invocation Channels
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the MAXIFACEINVOKE business object.
Carries multi-language records	No

DMMAXIFACEIN object structure

Managing application	Supported objects
Enterprise Services	Enterprise Services
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the MAXIFACEIN and MAXIFACEPROC business objects.
Carries multi-language records	No

DMMAXENDPOINT object structure

Managing application	Supported objects
End Points	End Points
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the MAXENDPOINT business object.
Carries multi-language records	No

Object structures in the Integration migration group

DMMAXQUEUE object structure

Managing application	Supported objects
External Systems	Queues

Processing details

Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

DMMAXEXTSYSTEM object structure

Managing application	Supported objects
External Systems	External Systems

Processing details

Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the MAXEXTSYSTEM business object.
Carries multi-language records	No

Object structures in the Business Process Management migration group

The Business Process Management migration group manages workflow processes, roles, communication templates, e-mail listeners, actions, and escalations.

The tables in this section give detailed information about the object structures in the Business Process Management migration group.

DMWFPROCESS object structure

Managing application	Supported objects
Workflow Designer	Workflow Process
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure creates a new revision of a workflow process whenever you import workflow data. This object structure performs extra processing to ensure that other workflow-related records can be loaded without error. Before importing a workflow process, deploy into the target environment any subprocesses and communication templates that the workflow process depends on.
Carries long description	Yes, for the WFPROCESS, WFNODE, and WFASSIGNMENT business objects.
Carries multi-language records	No

DMROLE object structure

Managing application	Supported objects
Roles	Roles
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the MAXROLE business object.
Carries multi-language records	No

DMCOMMTEMPLATE object structure

Managing application	Supported objects
Communication Templates	Communication Templates
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure that DOCLINKS records for a communication template can be loaded without error.
Carries long description	No
Carries multi-language records	No

DMACTION object structure

Managing application	Supported objects
Actions	Actions
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, checks whether an action is linked to an escalation. If an action is linked to an escalation, the object structure does not delete the action and instead places a message in the product log file.
Carries long description	Yes, for the ACTION business object.
Carries multi-language records	No

DMACTIONGROUP object structure

Managing application	Supported objects
Actions	Action Groups
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No
Additional information	Actions and action groups are both managed in the Actions application. Action groups gather multiple actions and sequence them for execution by escalations. The Migration Manager application migrates actions before action groups.

DMESCALATION object structure

Managing application	Supported objects
Escalations	Escalations
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the ESCALATION business object.
Carries multi-language records	No
Additional information	An escalation can include a reference to an action group, which in turn can contain one or more actions. Therefore, migrate action groups and actions before escalations. Similarly, an escalation can include a reference to one or more communication templates. Therefore, migrate communication templates before actions.

DMINBOUNDCOMMCFG object structure

Managing application	Supported objects
E-mail Listeners	E-mail Listeners
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure that e-mail listener references to a workflow process are resolved correctly. Also ensures that e-mail listener configuration records are loaded safely.
Carries long description	Yes, for the MAXEXTSYSTEM business object.
Carries multi-language records	No

Object structures in the Migration migration group

The Migration migration group manages the Migration Manager applications. This group manages migration groups, dependencies, and migration packages.

The tables in this section give detailed information about the object structures in the Migration migration group.

DMCFGGROUP object structure

Managing application	Supported objects
Migration Groups	Migration Groups
Processing details	
Outbound content processing	None
Inbound content processing	During package deployment in a target environment, this object structure implements extra logic to ensure that migration group records with references to object structures can be loaded without error.
Carries long description	No
Carries multi-language records	No

DMDEPENDENCY object structure

Managing application	Supported objects
Migration Groups	Dependencies
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

DMPACKAGEDEF object structure

Managing application	Supported objects
Migration Manager	Package Definitions
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	Yes, for the DMPACKAGEDEF business object.
Carries multi-language records	No

DMPKGDSTRGT object structure

Managing application	Supported objects
Migration Manager	Package Targets
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No

Object structures in the Migration migration group

DMPACKAGE object structure

Managing application	Supported objects
Migration Manager	Packages
Processing details	
Outbound content processing	None
Inbound content processing	None
Carries long description	No
Carries multi-language records	No
Additional information	All the object structures that comprise the Migration Manager and Migration Groups applications are nonconfigurable, to prevent errors when packages are processed. You cannot add new business objects to the respective object structures. You cannot include or exclude attributes of individual business objects in the respective object structures.

Migration groups included with the product

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A migration group is a collection of related object structures that you can use to migrate your configuration data between product environments.

The following table shows the migration groups that are included with the product, the applications that they support, and other migration groups on which they have dependencies. For example, you are working with two migration groups - group A and group B. If group B is a dependent migration group of group A, records in group A require that related records in group B are also present in the database.

Migration groups included with the product

Migration group	Supported applications	Dependent migration groups
APPLICATION	<ul style="list-style-type: none"> ▼ Application Designer 	<ul style="list-style-type: none"> ▼ DATADictionary ▼ DOCUMENTLIBRARY
APPSECURITY	<ul style="list-style-type: none"> ▼ Security Groups ▼ Users ▼ Condition Expression Manager 	<ul style="list-style-type: none"> ▼ APPLICATION ▼ DATADictionary ▼ RESOURCES
BPM	<ul style="list-style-type: none"> ▼ Actions ▼ Communication Templates ▼ E-mail Listeners ▼ Escalations ▼ Roles ▼ Workflow Designer 	<ul style="list-style-type: none"> ▼ APPLICATION ▼ DATADictionary ▼ DOCUMENTLIBRARY ▼ FUNCTIONAL ▼ RESOURCES ▼ SYSTEM
DATADictionary	<ul style="list-style-type: none"> ▼ Database Configuration ▼ Domains ▼ Object Structures ▼ Currency Exchange Rates ▼ Sets ▼ Organizations ▼ Maxvars (managed in multiple applications) 	None
DOCUMENTLIBRARY	<ul style="list-style-type: none"> ▼ Communication Templates and others ▼ Migrates the document folder information and document information as stored in a product database ▼ Does not migrate the attached documents themselves 	None
FUNCTIONAL	<ul style="list-style-type: none"> ▼ Calendars 	<ul style="list-style-type: none"> ▼ DATADictionary

Migration group	Supported applications	Dependent migration groups
INTEGRATION	<ul style="list-style-type: none"> ▼ End Points ▼ Enterprise Services ▼ External Systems ▼ Invocation Channels ▼ Launch Entries ▼ Publish Channels 	▼ DATADictionary
MIGRATION	<ul style="list-style-type: none"> ▼ Migration Groups ▼ Migration Manager ▼ The MIGRATION migration group is managed by Migration Manager itself to migrate configuration data specific to Migration Manager. Because Migration Manager automatically includes this group in every package definition, you cannot select this group for inclusion in a package definition. 	None
REPORTING	<ul style="list-style-type: none"> ▼ KPI Manager ▼ Report Administration ▼ Start Center Templates 	<ul style="list-style-type: none"> ▼ APPLICATION ▼ DATADictionary
RESOURCES	<ul style="list-style-type: none"> ▼ People ▼ Person Groups 	<ul style="list-style-type: none"> ▼ DATADictionary ▼ FUNCTIONAL
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