Microsoft Dynamics AX 2012 Upgrade Guide

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Upgrade to Microsoft Dynamics AX 2012

This document provides upgrade administrators with an end-to-end guide to upgrading from Microsoft Dynamics® AX 4.0 or Microsoft Dynamics AX 2009 to Microsoft Dynamics AX 2012. The following sections are included.

Upgrade overview

This overview provides information about Microsoft Dynamics AX 2012 upgrade changes and requirements. It also includes comprehensive Quickstart guides for each of the supported upgrade paths. The following sections are included.

The upgrade process

Microsoft Dynamics AX 2012 provides a new approach to upgrade that significantly reduces your company's downtime during the upgrade process. Shorter downtime means less impact on your business operations and a lower total cost of upgrade.

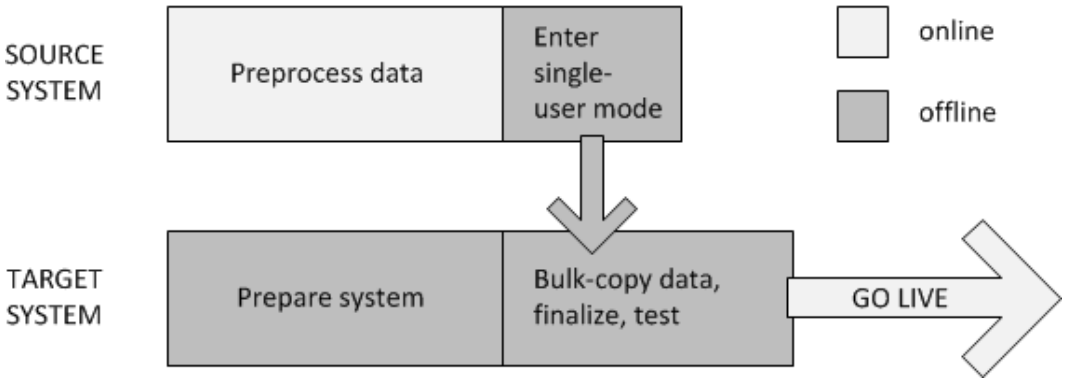
Source-to-target upgrade model

Microsoft Dynamics AX 2012 uses a source-to-target upgrade model that allows business users to work with maximum efficiency during upgrade. In previous versions of Microsoft Dynamics AX, all upgrade tasks were carried out on a single production system. A substantial part of the upgrade process was spent in single-user mode, and during that time the system was offline for regular users. Difficulties that arose during upgrade had to be resolved under time pressure before normal business operations could resume. Now, with Microsoft Dynamics AX 2012, you preprocess your business data on the *source* system (running Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009) while the system is live, free from time pressure and without halting normal operations.

Meanwhile, you build your separate, offline *target* system (running Microsoft Dynamics AX 2012). When preprocessing on the source system is complete and the target system is ready, you enter single-user

mode on the source system, bulk copy your data into the target system, run post-synchronization upgrade scripts, and perform testing. At this point the target system can go live.

The following diagram shows the phases of upgrade in the source-to-target model.



The source system (Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009) remains online during data preprocessing, and then goes offline when you enter single-user mode to prepare the data for bulk copying. When the target system (Microsoft Dynamics AX 2012) has been installed and code customizations have been applied, you bulk-copy the data into it, run post-synchronization scripts, perform final configuration tasks, test, and finally go live.

Important:
Source-to-target upgrade requires the source system and target system to be installed on separate server computers. Side-by-side installation on a single computer is possible, but should only be used for testing purposes. For more information, see Hardware and software requirements.

Supported upgrade paths

You can upgrade to Microsoft Dynamics AX 2012 directly from either Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009. If you have a version that is earlier than Microsoft Dynamics AX 4.0, you must upgrade to Microsoft Dynamics AX 2009 before you can upgrade to Microsoft Dynamics AX 2012.

For information about supported system configurations, use the following links:

- System requirements for Microsoft Dynamics AX 4.0
- Microsoft Dynamics AX 2009 System Requirements

Upgrading from a Microsoft Dynamics AX source system that uses an Oracle database

You cannot use an Oracle database with Microsoft Dynamics AX 2012. If you are upgrading from an installation of Microsoft Dynamics AX that uses an Oracle database, you must first migrate your data to a Microsoft SQL Server® database, and then upgrade to Microsoft Dynamics AX 2012.

Use the Oracle to Microsoft SQL Server Data Migration Assistant for Microsoft Dynamics AX tool to migrate your data to a SQL Server database. You can download the tool and the *Oracle to Microsoft SQL Server Data Migration Assistant for Microsoft Dynamics AX Installation Guide* from Customer Source.

Important:
The current version of the Oracle to Microsoft SQL Server Data Migration Assistant for Microsoft Dynamics AX is for testing purposes only. Production use can be enabled through TAP participation.

Hardware and software requirements

For up-to-date hardware and software requirements for Microsoft Dynamics AX, consult system requirements.

Quickstart: Upgrade from Microsoft Dynamics AX 4.0

This document provides a high-level overview of the tasks that you must complete to upgrade from Microsoft Dynamics® AX 4.0 to Microsoft Dynamics AX 2012. The upgrade process is divided into preprocessing tasks on the Microsoft Dynamics AX 4.0 source system and upgrade tasks on the Microsoft Dynamics AX 2012 target system.

Note:
The source and target systems must be installed on separate server computers when you upgrade your production system. However, for a test upgrade, you can install the source and target systems on the same computer

Preprocess data on the source system

Data is preprocessed on the live source system so that you can continue to use Microsoft Dynamics AX 4.0 while you prepare your data for copying to the target system. The source system remains live and available to users until you enter single-user mode to complete preprocessing. At that point, your system is down until you complete the upgrade on the Microsoft Dynamics AX 2012 target system.

1. Back up your Microsoft SQL Server® database, your Microsoft Dynamics AX 4.0 database, and your AOD application files (*.aod) and ALD label files (*.ald).

   Caution:
   Never attempt an upgrade without first backing up your database and customized code.

2. (Optional) If your Microsoft Dynamics AX 4.0 source system uses an Oracle database, you must migrate your data to a Microsoft SQL Server database before upgrading to Microsoft Dynamics AX 2012. For more information, see Supported upgrade paths.

3. (Optional) To help improve performance, set the Microsoft Dynamics AX database recovery model to **Simple** by using Microsoft SQL Server 2008 Management Studio. This applies to both the Microsoft Dynamics AX 2012 and Microsoft Dynamics AX 4.0 databases while in single-user mode.
4. Copy your existing source system AOD application files (*.aod) and ALD label files (*.ald) for use during code upgrade on the target system.
5. Locate the following files in the DatabaseUpgrade folder on the installation media:
   - UpgradeAX4.xpo. This file contains the preprocessing upgrade framework forms and scripts for data preprocessing.
   - axUPGen-us.ald. This file contains labels for the preprocessing upgrade framework. Select the appropriate file depending on your desired installation language.
   - UpgradePreprocessing.chm. This file provides Help content for the **Preprocessing upgrade checklist** tasks and forms.
6. Install these files by following the instructions in Install upgrade framework files.
7. Start the **Preprocessing upgrade checklist**. Click the project icon on the toolbar and navigate to **Projects** > **Shared**. Expand **Shared** and locate **Ax40PreUpgradeFramework**, right-click it, and click **Open**. Locate **SysChecklist_preupgrade40**, right-click it, and again click **Open**. For more information, see Start the Preprocessing upgrade checklist.
8. In the **Preprocessing upgrade checklist**, expand the **Prepare for upgrade** node to see the tasks that must be completed before upgrade preprocessing. Complete the following tasks.

Task	Form	User action
Check upgrade readiness	**Upgrade readiness**	Perform the upgrade readiness check. The form lists all the upgrade validation scripts that you can run before you begin to preprocess data on the source system. The upgrade readiness check identifies issues that will cause errors during preprocessing and lists the issues in the **Upgrade validation results** form, where you can fix them. **Note:** The upgrade readiness check is optional, but highly recommended. For more information, see Check upgrade readiness.
Initialize preprocessing	N/A	Initialize preprocessing to create the shadow and dictionary tables, and to load the upgrade scripts into the upgrade framework tables. These tables contain the preprocessed source data that will be copied to the target system. When this step is finished, you will see an **InfoLog** message that lists all the shadow and dictionary tables that were created. **Note:** You can connect to the source database from the target system at any time after you finish this step. This allows you to perform all the target system **Data upgrade checklist** tasks preceding **Launch data upgrade**, potentially saving upgrade time. For more information, see Initialize preprocessing.

9. Expand the **Prepare application data for preprocessing** node to view the application data upgrade tasks. Click each task to open a form and enter information as described in the following table.

Task	Form	User action
System parameters	**System parameters**	Set the system language for each company. For more information, see System parameters.
Set up number sequence for upgrade	**Set up number sequence for upgrade**	Set up number sequence for company accounts for data upgrade purposes. For more information, see Set up number sequence for upgrade.
Company priority setup	**Company priority setup**	Set the priority for each company or virtual company for inventory item mapping. If you have multiple companies set up, the form lists the companies along with information about whether they are virtual companies and what the company language is. For more information, see Company priority setup.
Upgrade global address book country/region code	**Country/region codes**	Add any country/region codes that you use in your Microsoft Dynamics AX source system that are not listed in the form. For more information, see Update country/region codes.
Global address book country/region mapping	**Country/region code mapping**	Map the two-letter country/region codes that are used in the Microsoft Dynamics AX 4.0 source system to the three-letter country/region codes that are used in Microsoft Dynamics AX 2012. For more information, see Map country/region codes.
Global address book default country /region upgrade	**Default country/region for addresses**	Assign a default country/region to addresses in your companies. For more information, see Default country/region
Prepare financial dimension framework for upgrade	**Prepare financial dimension framework for upgrade**	Validate the ledger account categories and dimension focuses for each company and ensure that the financial dimension framework is ready for upgrade. For more information, see Prepare financial dimension framework for upgrade.

Map fixed asset calendars	**Upgrade fixed asset calendars**	Resolve duplicate names for fixed asset calendars. If fixed asset calendars with the same name occur in multiple companies, the system proposes a new name in the **New name** field. You can keep the proposed name or enter a different one. For more information, see Map fixed asset calendars.
Prepare currencies for upgrade	**Prepare currencies for upgrade**	In releases previous to Microsoft Dynamics AX 2012, you could set up currencies for each company. In Microsoft Dynamics AX 2012, the currencies that you set up are shared by the legal entities that are set up in the **Legal entities** form, so the currencies can be used by any of those legal entities. Use the form to select and configure currencies. For more information, see Prepare currencies for upgrade.
Inventory dimension group upgrade	**Pre-upgrade inventory dimension group**	Prepare inventory dimension groups for upgrade. For more information, see Inventory dimension group upgrade.
Product upgrade	**Product upgrade**	Map items to products and approve all products, product mappings, and product variants in your inventory. Enter the information in this form and in the forms that open from it. For more information, see Product upgrade (preprocessing).
Configure site structure	**Configure site structure**	Define a structure for your sites, warehouses, and work center groups. Additionally, specify the default site, warehouse, and the fallback warehouse to assign to transactions for which this information is not available and cannot be deduced. For more information, see Configure site structure.
Task group upgrade	**Task group upgrade**	Task groups in previous versions of Microsoft Dynamics AX must be upgraded to *capabilities* in Microsoft Dynamics AX 2012. Use the form to map task groups to capabilities. For more information, see Map task groups to capabilities.

Product Builder Route nodes upgrade	**Product Builder – Route Operation nodes with variable allocations to Resource fields**	Prepare the route operation nodes for upgrade by mapping the allocation of variables to the allocation of values for work centers, load, quantity of work centers, task groups, and job requirements. For more information, see Product Builder Route nodes upgrade.
Units	**Pre-Upgrade of units**	Assign the units that you will use in your system. The form lists all the units by company and language ID. Assign the units in the Microsoft Dynamics AX 4.0 source system to shared global units in Microsoft Dynamics AX 2012. Specify the unit class (such as quantity or liquid volume) and the system the unit is part of (for example, metric or United States customary units). For more information, see Units.
Unit conversions	**Pre-upgrade of unit conversions**	Use the **Pre-upgrade of unit conversions** form to define how the company-specific units of measure and unit conversions that existed in previous releases of Microsoft Dynamics AX are going to be consolidated into shared global units of measure. For more information, see Unit conversions.
Fixed units	**Pre-Upgrade of fixed units**	Use the form to set and validate the fixed units that you use in your system. System units define the units for length, mass, and volume that will appear as suggested units of measure in Microsoft Dynamics AX. For more information, see Fixed units.
Unit texts	**Pre-Upgrade of unit texts**	Use the form to define how existing company-specific unit texts are consolidated to a set of shared language-specific unit texts. Unit texts are printed on external documents such as invoices. If no unit text is associated with a unit of measure, the symbol of the unit of measure is displayed. For more information, see Unit texts.

Configure for purchase order upgrade	**Configure for purchase order upgrade**	Use this form to select the journal name that you want to use as part of the upgrade process. The journal name is used to account for the relief of accruals for purchase order quantities that are received but not yet invoiced. For more information, see About purchase order upgrade.
User relations upgrade - invalid company users	**User relations upgrade - invalid company users**	Displays all the user relations that do not have a valid user ID. For more information, see User relations upgrade - invalid company users.
User relations upgrade missing contact person	**User relations upgrade missing contact person**	Use this form to resolve issues when a user relation is not assigned a contact representative in your business or organization. For more information, see User relations upgrade missing contact person.

10. Expand the **Preprocess data on live system** group. Complete the tasks in the following table to run the data upgrade scripts while Microsoft Dynamics AX 4.0 is still live for production.

Task	Form	User action
Run live preprocessing scripts	**Upgrade Live Pre-Processing**	Run the live preprocessing scripts that write the prepared data to the shadow and dictionary tables. For more information, see Run live preprocessing scripts.
Global address book country/region upgrade	**Addresses with no country/region**	This form lists all addresses in the global address book that do not have an associated country/region value. This step is available only after you run the live preprocessing scripts. For more information, see Country/region upgrade.

Global address book party upgrade	**Party upgrade**	Use this form to specify the name sequence for person-type party records when you upgrade from Microsoft Dynamics AX4 to Microsoft Dynamics AX 2012. For more information, see Party upgrade.
Run delta preprocessing scripts	**Upgrade Delta Pre-Processing**	Run delta scripts that identify data changes in the production database that were entered after you started to run the live preprocessing scripts. Running the delta scripts also updates data in the shadow and dictionary tables. For more information, see Run delta preprocessing scripts.

11. Expand the **Preprocess data in single-user mode** group. Complete tasks in this group to put the Microsoft Dynamics AX 4.0 source system into single-user mode and to run the final upgrade scripts that prepare the source data for bulk copy to the target system.

Task	Form	User action
Enter into single-user mode	**Online users**	Use the **Online users** form to end all current client sessions and ensure that no new client connections can be made. Only the administrator who is performing the upgrade should be connected to the AOS. Any changes to the production data after this point will invalidate the upgrade. For more information, see Enter into single-user mode. **Important:** After you enter single-user mode, you should back up your Microsoft SQL Server database and set its recovery model to **Simple**.
Run single-user mode preprocessing scripts	**Upgrade single-user preprocessing**	Run the upgrade scripts that prepare the data in the shadow and dictionary tables to be bulk copied to the Microsoft Dynamics AX 2012 target system. For more information, see Run single-user mode preprocessing scripts.

This completes data preprocessing on the Microsoft Dynamics AX 4.0 source system. The remaining upgrade tasks are performed on the Microsoft Dynamics AX 2012 target system.

Prepare the target system

While you prepare data for upgrade on the Microsoft Dynamics AX 4.0 source system, you can simultaneously prepare the target Microsoft Dynamics AX 2012 system for upgrade. These preparation tasks are not dependent on data upgrade tasks on the source system.

1. Install Microsoft Dynamics AX 2012 on the target system.

   Important:
   Be sure to select **Register database for upgrade** as an option during installation and to provide a name for the model store as prompted. For more information, see the Microsoft Dynamics AX Installation Guide.

2. Set appropriate user permissions. For permissions generally applicable to a new installation of Microsoft Dynamics AX 2012, see Verify that you have the required permissions for installation. For permissions specific to upgrade, see Set permissions specific to upgrade.
3. Copy the AOD application files (*.aod) that you want to upgrade from the source system to the target system. Also copy the associated ALD label files (*.ald). These files need to be copied into two locations: the standard application folder and an additional application folder labeled **Old**. Layer names that have changed since Microsoft Dynamics AX 4.0 need to be changed in both locations. For more information, see Copy application and label files to the target system.

Upgrade code on the target system

The following tasks import code from the Microsoft Dynamics AX 4.0 source system and upgrade it for use on the Microsoft Dynamics AX 2012 target system.

1. Start the Microsoft Dynamics AX client. The **Select the appropriate upgrade checklist** form opens automatically.
2. Select **AOD code upgrade checklist** and click **OK**.
3. Complete the **Upgrade preparation** tasks in the **AOD code upgrade checklist**, shown in the table below. These tasks include providing license information and importing Microsoft AODs into the baseline model store.

Task	Form	User action
Provide license information	**License information**	Use the **License information** form to provide Microsoft Dynamics AX with your purchased license. For more information, see Provide license information.
Import Microsoft AOD files into the baseline model store	**Import Microsoft AOD files into the baseline model store**	Import Microsoft application (AOD) files from the source system into the baseline model store. For more information, see Import layer AOD into the baseline model store.

4. Complete the **Code upgrade** tasks in the **AOD code upgrade checklist**, shown in the table below. The import tasks are iterative and must be performed for each AOD file (each layer) and each ALD label file that you copied to the target system for upgrade.

Task	Form	User action
Import AOD files into the baseline model store	**Import AOD files into the baseline model store**	Import application files (AOD files) from the source system into the baseline model store. For more information, see Import layer AOD into the baseline model store.
Import AOD files into the new model store	**Import AOD files into the new model store**	Import the application files (AOD files) to upgrade the desired application layers. Files will be imported from the source system into the new model store. Layers must be upgraded one at a time, and the remaining checklist steps must be completed after each import. For more information, see Import layer AOD into the new model store.
Import label files into the new model store	**Select file**	Optional. Import custom label files (ALD files) into the model store. This step is recommended for easier deployment. For more information, see Import layer labels into the new model store.
Restart Application Object Server	N/A	This task displays a notice that you must manually restart the Application Object Server after completing your layer import.
Compile application	**Compile application**	This step compiles the application to reset any dependencies that were introduced during code upgrade. For more information, see Compile the application (upgrade).

Detect code upgrade conflicts	**Detect code upgrade conflicts**	This task analyzes the system and creates projects containing application objects that must be upgraded manually. This allows you to resolve conflicts between application objects that may have been created during code upgrade. For more information, see Detect code upgrade conflicts.
Generate CIL	**Full CIL generation from X++**	Generate Common Intermediate Language code from the compiled application. For more information, see Generate Common Intermediate Language.

Upgrade data on the target system

The data upgrade tasks on the Microsoft Dynamics AX 2012 target system can be started after you enter single-user mode on the Microsoft Dynamics AX 4.0 source system and finish installation and all code upgrade tasks on the target system.

1. Start the Microsoft Dynamics AX client. The **Data upgrade checklist** opens automatically.
2. Complete the **Upgrade preparation** tasks in the **Data upgrade checklist**, shown in the table below. These tasks include providing license information and opting in or out of the Microsoft Customer experience Improvement Program.

3. Expand **Data upgrade** in the **Data upgrade checklist** to see the data upgrade tasks. Complete the following tasks.

Task	Form	User action
Provide license information	**License information**	Use the **License information** form to provide Microsoft Dynamics AX with your purchased license. For more information, see Provide license information.
Customer feedback options	**Microsoft Dynamics AX customer feedback options**	You have the opportunity to opt into the Microsoft Dynamics AX Customer Experience Improvement Program, which sends anonymized system information to Microsoft for analysis. By default, the **No, I don't wish to participate** option is selected. Links in the **Privacy options - Microsoft Dynamics AX client** form provide additional information about the program and associated privacy policies. For more information, see Set customer feedback options.

Connect to source database	**Connect to source database**	Using a properly configured domain account with administrative privileges on both systems, connect to the Microsoft Dynamics AX source system database from the Microsoft Dynamics AX 2012 target system. You can complete this step any time after you initialize preprocessing on the source system. For more information, see Connect to source database.
Set current time zone	**Current time zone**	When upgrading from Microsoft Dynamics AX 4.0, you cannot upgrade your data until you provide your local time. This allows the system to calculate the correct Universal Coordinated Time (UTC) time zone offset for data that is time or date sensitive. For more information, see Set current time zone.
Presynchronize	**Data upgrade cockpit (%1 -> %2)**	Run the upgrade scripts that prepare the target system database for bulk copy and synchronization. For more information, see Presynchronize (upgrade).
Create tables	**Synchronize table**	Create tables in the target database for the source data to be bulk-copied into. For more information about this step, see Create tables.
Generate table mappings	**Table mapping between source and target systems**	Verify that the tables and fields in the source database are mapped correctly to the tables and fields in the target database. The upgrade framework attempts to perform the mapping automatically. If mapping errors occur, they must be fixed before you start the next step. For more information, see Generate table mappings.
Generate upgrade task prioritization	**Prioritized upgrade scripts**	The form shows the priority for bulk copying data from the source system. The priority is based on the intelligent bulk-copy prioritization rules that are part of the upgrade framework. For more information, see Generate upgrade task prioritization.
Launch data upgrade	**Data upgrade cockpit (%1 -> %2)**	Run the upgrade scripts that copy data from the source system. This step includes bulk copy, synchronization, and post-synchronization of the database. These tasks are performed concurrently so that the process is completed with the least downtime possible.

4. Expand the **Finalize upgrade** group in the **Data upgrade checklist** and complete the final upgrade tasks.

Task	Form	User action
Post journal for relief of legacy accrual of unmatched quantities	**Create journal(s) for the relief of legacy accrual of unmatched quantities**	Create and post the general ledger journal for legacy accrual relief for unmatched quantities. For more information, see Post journal for relief of legacy accrual of unmatched quantities.
Configure system accounts	**System service accounts**	Use the **System service accounts** form to configure aliases and network domains for the Business Connector proxy, the workflow system account, the workflow execution account, the and the synchronization service account. You can also configure access to Bing Maps. For more information, see Configure system accounts.
Finalize Enterprise Portal upgrade	N/A	The upgrade process can cause the URLs for various Microsoft Dynamics AX Web pages to change in the Application Object Tree (AOT). If you upgraded Enterprise Portal, you should click the option to **Finalize Enterprise Portal upgrade** to ensure that the web pages are synchronized to use the correct URLs. For more information, see Finalize Enterprise Portal upgrade.

Specify Role Center website	**Administration of Web sites**	Use this task to specify which web site will host the *Role Centers*, which are customizable home pages included in the Enterprise Portal framework. Role Centers display specific data, reports, alerts, and common tasks associated with a user's role in the organization. Users can access Role Centers from the Microsoft Dynamics AX client or from an Enterprise Portal web site. For more information, see Specify Role Center web site.
Assign primary addresses to parties	**Parties without primary addresses**	View parties without a primary address and optionally assign a primary address. For more information, see Assign a primary address to parties.
Upgrade AIF code	N/A	Clicking the **Upgrade AIF code** task upgrades all AIF code, creating new service classes, new data classes, and AOT service nodes. AIF-related records in the database are also updated. This task is non-interactive, but you must prepare your AIF and services configuration before running it or the upgrade will fail. For more information, see Upgrade services and AIF.

5. Complete the **Additional upgrade tasks** in the **Data upgrade checklist**. These tasks configure additional features to ensure that the Microsoft Dynamics AX 2012 target system is fully functional.

Task	Form	User action
Upgrade additional features	**Data upgrade cockpit (%1 -> %2)**	With the **Data upgrade cockpit (%1 -> %2)**, you can run final data upgrade scripts on the Application Integration Framework, on reporting, and on other features. For more information , see Upgrade additional features
Compare data upgrade row counts	**Compare data upgrade row counts**	Comparing the table row counts in the source and target databases provides a preliminary check of your post-upgrade data integrity. For more information, see Compare data upgrade row counts.

6. Upgrade Enterprise Portal. This step is performed after all other upgrade tasks have been completed. For more information, see the complete guide Upgrade Enterprise Portal.
7. Test upgrade success and data integrity. For more information, see Test the system after upgrade.

Quickstart: Upgrade from Microsoft Dynamics AX 2009

This document provides a high-level overview of the tasks that you must complete to upgrade from Microsoft Dynamics® AX 2009 to Microsoft Dynamics AX 2012. The upgrade process is divided into preprocessing tasks on the Microsoft Dynamics AX 2009 source system and upgrade tasks on the Microsoft Dynamics AX 2012 target system.

Note:
The source and target systems must be installed on separate server computers when you upgrade your production system. However, for a test upgrade, you can install the source and target systems on the same computer

Preprocess data on the source system

Data is preprocessed on the live source system so that you can continue to use Microsoft Dynamics AX 2009 while you prepare your data for copying to the target system. The source system remains live and available to users until you enter single-user mode to complete preprocessing. At that point, your source system is offline until you complete the upgrade on the Microsoft Dynamics AX 2012 target system.

1. Back up your Microsoft SQL Server database, your Microsoft Dynamics AX 2009 database, and your AOD application files (*.aod) and ALD label files (*.ald).

   Caution:
   Never attempt an upgrade without first backing up your database and customized code.
2. (Optional) If your Microsoft Dynamics AX 2009 source system uses an Oracle database, you must migrate your data to a Microsoft SQL Server database before upgrading to Microsoft Dynamics AX 2012. For more information, see Supported upgrade paths.
3. (Optional) To help improve performance, set the Microsoft Dynamics AX database recovery model to **Simple** by using Microsoft SQL Server 2008 Management Studio. This applies to both the Microsoft Dynamics AX 2012 and Microsoft Dynamics AX 2009 databases while in single-user mode.
4. Copy your existing source system AOD application files (*.aod) and ALD label files (*.ald) for use during code upgrade on the target system.
5. Locate the following files in the DatabaseUpgrade folder on the installation media:
   - UpgradeAX5.xpo. This file contains the preprocessing upgrade framework forms and scripts for data preprocessing.
   - axUPGen-us.ald (for example). This file contains labels for the preprocessing upgrade framework. Select the appropriate file depending on your desired installation language.
   - UpgradePreprocessing.chm. This file provides Help content for the **Preprocessing upgrade checklist** tasks and forms.
6. Install these files by following the instructions in Install upgrade framework files.
7. Start the **Preprocessing upgrade checklist**. Click the project icon on the toolbar and navigate to **Projects** > **Shared**. Expand **Shared** and locate **Ax50PreUpgradeFramework**, right-click it, and click

Open. Locate **SysChecklist_preupgrade50**, right-click it, and again click **Open**. For more information, see Start the Preprocessing upgrade checklist.

Note:
This documentation applies to pre-release software. The actual order of tasks displayed in the **Preprocessing upgrade checklist** may differ from the order in the tables below.

8. In the **Preprocessing upgrade checklist**, expand the **Prepare for upgrade** node to see the tasks that must be completed before upgrade preprocessing begins. Complete the following tasks.

Task	Form	User action
Check upgrade readiness	**Upgrade readiness**	Perform the upgrade readiness check. The form lists all the upgrade validation scripts that you can run before you begin to preprocess data on the source system. The upgrade readiness check identifies issues that will cause errors during preprocessing and lists the issues in the **Upgrade validation results** form, where you can fix them. **Notes:** • The upgrade readiness check is optional, but highly recommended. • For more information, see Check upgrade readiness.
Initialize preprocessing	N/A	Initialize preprocessing to create the shadow and dictionary tables, and to load the upgrade scripts into the upgrade framework tables. These tables contain the preprocessed source data that will be copied to the target system. When this step is finished, you will see an **InfoLog** message that lists all the shadow and dictionary tables that were created. **Note:** You can connect to the source database from the target system at any time after you finish this step. This allows you to perform all the target system **Data upgrade checklist** tasks preceding **Launch data upgrade**, potentially saving upgrade time. For more information, see Initialize preprocessing.

9. Expand the **Prepare application data for preprocessing** node to view the application data upgrade tasks. Click each task to open a form and enter information as described in the following table.

Task	Form	User action
System parameters	**System parameters**	Set the system language for each company. For more information, see System parameters.
Set up number sequence for upgrade	**Set up number sequence for upgrade**	Set up number sequence for company accounts for data upgrade purposes. For more information, see Set up number sequence for upgrade.
Company priority setup	**Company priority setup**	Set the priority for each company or virtual company for inventory item mapping. If you have multiple companies set up, the form lists the companies along with information about whether they are virtual companies and what the company language is. For more information, see Company priority setup.
Upgrade global address book country/region code	**Country/region codes**	Add any country/region codes that you use in your Microsoft Dynamics AX source system that are not listed in the form. For more information, see Update country/region codes.
Global address book country/region mapping	**Country/region code mapping**	Map the two-letter country/region codes that are used in the Microsoft Dynamics AX 2009 source system to the three-letter country/region codes that are used in Microsoft Dynamics AX 2012. For more information, see Map country/region codes.
Global address book default country /region upgrade	**Default country/region for addresses**	Assign a default country/region to addresses in your companies. For more information, see Default country/region
Prepare financial dimension framework for upgrade	**Prepare financial dimension framework for upgrade**	Validate the ledger account categories and dimension focuses for each company and ensure that the financial dimension framework is ready for upgrade. For more information, see Prepare financial dimension framework for upgrade.

Map fixed asset calendars	**Upgrade fixed asset calendars**	Resolve duplicate names for fixed asset calendars. If fixed asset calendars with the same name occur in multiple companies, the system proposes a new name in the **New name** field. You can keep the proposed name or enter a different one. For more information, see Map fixed asset calendars.
Prepare currencies for upgrade	**Prepare currencies for upgrade**	In releases previous to Microsoft Dynamics AX 2012, you could set up currencies for each company. In Microsoft Dynamics AX 2012, the currencies that you set up are shared by the legal entities that are set up in the **Legal entities** form, so the currencies can be used by any of those legal entities. Use the form to select and configure currencies. For more information, see Prepare currencies for upgrade.
Inventory dimension group upgrade	**Pre-upgrade inventory dimension group**	Prepare inventory dimension groups for upgrade. For more information, see Inventory dimension group upgrade.
Product upgrade	**Product upgrade**	Map items to products and approve all products, product mappings, and product variants in your inventory. Enter the information in this form and in the forms that open from it. For more information, see Product upgrade (preprocessing).
Task group upgrade	**Task group upgrade**	Task groups in previous versions of Microsoft Dynamics AX must be upgraded to *capabilities* in Microsoft Dynamics AX 2012. Use the form to map task groups to capabilities. For more information, see Map task groups to capabilities.
Product Builder Route nodes upgrade	**Product Builder – Route Operation nodes with variable allocations to Resource fields**	Prepare the route operation nodes for upgrade by mapping the allocation of variables to the allocation of values for work centers, load, quantity of work centers, task groups, and job requirements. For more information, see Product Builder Route nodes upgrade.

Units	**Pre-Upgrade of units**	Assign the units that you will use in your system. The form lists all the units by company and language ID. Assign the units in the Microsoft Dynamics AX 2009 source system to shared global units in Microsoft Dynamics AX 2012. Specify the unit class (such as quantity or liquid volume) and the system the unit is part of (for example, metric or United States customary units). For more information, see Units.
Unit conversions	**Pre-upgrade of unit conversions**	Use the **Pre-upgrade of unit conversions** form to define how the company-specific units of measure and unit conversions that existed in previous releases of Microsoft Dynamics AX are going to be consolidated into shared global units of measure. For more information, see Unit conversions.
Fixed units	**Pre-Upgrade of fixed units**	Use the form to set and validate the fixed units that you use in your system. System units define the units for length, mass, and volume that will appear as suggested units of measure in Microsoft Dynamics AX. For more information, see Fixed units.
Unit texts	**Pre-Upgrade of unit texts**	Use the form to define how existing company-specific unit texts are consolidated to a set of shared language-specific unit texts. Unit texts are printed on external documents such as invoices. If no unit text is associated with a unit of measure, the symbol of the unit of measure is displayed. For more information, see Unit texts.
Configure for purchase order upgrade	**Configure for purchase order upgrade**	Use this form to select the journal name that you want to use as part of the upgrade process. The journal name is used to account for the relief of accruals for purchase order quantities that are received but not yet invoiced. For more information, see About purchase order upgrade.
User relations upgrade - invalid company users	**User relations upgrade - invalid company users**	Displays all the user relations that do not have a valid user ID. For more information, see User relations upgrade - invalid company users.

User relations upgrade missing contact person	**User relations upgrade missing contact person**	Use this form to resolve issues when a user relation is not assigned a contact representative in your business or organization. For more information, see User relations upgrade missing contact person.
User relations upgrade duplicate user IDs	**User relations upgrade duplicate user IDs**	Use this form to resolve conflicts when multiple user relations are mapped to a single Microsoft Dynamics AX user account. For more information, see User relations upgrade duplicate user IDs.

10. Expand the **Preprocess data on live system** group. Complete the tasks in the following table to run the data upgrade scripts while Microsoft Dynamics AX 2009 is still live for production.

Task	Form	User action
Run live preprocessing scripts	**Upgrade live preprocessing**	Run the live preprocessing scripts that write the prepared data to the shadow and dictionary tables. For more information, see Run live preprocessing scripts.
Assign missing global address book country/region codes	**Addresses with no country/region**	This form lists all addresses in the global address book that do not have an associated country/region value. This step is available only after you run the live preprocessing scripts. For more information, see Country/region upgrade.
Run delta preprocessing scripts	**Upgrade delta preprocessing**	Run delta scripts that identify data changes in the production database that were entered after you started to run the live preprocessing scripts. Running the delta scripts also updates data in the shadow and dictionary tables. For more information, see Run delta preprocessing scripts.

11. Expand the **Preprocess data in single-user mode** group. Complete tasks in this group to put the Microsoft Dynamics AX 2009 source system into single-user mode and to run the final upgrade scripts that prepare the source data for bulk copy to the target system.

Task	Form	User action
Enter into single-user mode	**Online users**	Use the **Online users** form to end all current client sessions and ensure that no new client connections can be made. Only the administrator who is performing the upgrade should be connected to the AOS. Any changes to the production data after this point will invalidate the upgrade. **Important:** After you enter single-user mode, you should back up your Microsoft SQL Server database and set its recovery model to **Simple**. For more information, see Enter into single-user mode.
Run single-user mode preprocessing scripts	**Upgrade single-user preprocessing**	Run the upgrade scripts that prepare the data in the shadow and dictionary tables to be bulk copied to the Microsoft Dynamics AX 2012 target system. For more information, see Run single-user mode preprocessing scripts.

This completes data preprocessing on the Microsoft Dynamics AX 2009 source system. The remaining upgrade tasks are performed on the Microsoft Dynamics AX 2012 target system.

Prepare the target system

While you prepare data for upgrade on the Microsoft Dynamics AX 2009 source system, you can simultaneously prepare the target Microsoft Dynamics AX 2012 system for upgrade. These preparation tasks are not dependent on data upgrade tasks on the source system.

1. Install Microsoft Dynamics AX 2012 on the target system.

   Important:
   Be sure to select **Register database for upgrade** as an option during installation and to provide a name for the model store as prompted. For more information, see the Microsoft Dynamics AX Installation Guide.

2. Set appropriate user permissions. For permissions generally applicable to a new installation of Microsoft Dynamics AX 2012, see Verify that you have the required permissions for installation. For permissions specific to upgrade, see Set permissions specific to upgrade.
3. Copy the AOD application files (*.aod) that you want to upgrade from the source system to the target system. Also copy the associated ALD label files (*.ald). These files need to be copied into two locations: the standard application folder and an additional application folder labeled **Old**. Layer names that have changed since Microsoft Dynamics AX 2009 need to be changed in both locations. For more information, see Copy application and label files to the target system.

Upgrade code on the target system

The following tasks import code from the Microsoft Dynamics AX 2009 source system and upgrade it for use on the Microsoft Dynamics AX 2012 target system.

1. Start the Microsoft Dynamics AX client. The **Select the appropriate upgrade checklist** form opens automatically.
2. Select **AOD code upgrade checklist** and click **OK**.
3. Complete the **Upgrade preparation** tasks in the **AOD code upgrade checklist**, shown in the table below. These tasks include providing license information and importing Microsoft AODs into the baseline model store.

Task	Form	User action
Provide license information	**License information**	Use the **License information** form to provide Microsoft Dynamics AX with your purchased license. For more information, see Provide license information.
Import Microsoft AOD files into the baseline model store	**Import Microsoft AOD files into the baseline model store**	Import Microsoft application (AOD) files from the source system into the baseline model store. For more information, see Import layer AOD into the baseline model store.

4. Complete the **Code upgrade** tasks in the **AOD code upgrade checklist**, shown in the table below. The import tasks are iterative and must be performed for each AOD file (each layer) and each ALD label file that you copied to the target system for upgrade.

Task	Form	User action
Import AOD files into the baseline model store	**Import AOD files into the baseline model store**	Import application files (AOD files) from the source system into the baseline model store. For more information, see Import layer AOD into the baseline model store.
Import AOD files into the new model store	**Import AOD files into the new model store**	Import the application files (AOD files) to upgrade the desired application layers. Files will be imported from the source system into the new model store. Layers must be upgraded one at a time, and the remaining checklist steps must be completed after each import. For more information, see Import layer AOD into the new model store.
Import label files into the new model store	**Select file**	Optional. Import custom label files (ALD files) into the model store. This step is recommended for easier deployment. For more information, see Import layer labels into the new model store.
Restart Application Object Server	N/A	This task displays a notice that you must manually restart the Application Object Server after completing your layer import.
Compile application	**Compile application**	This step compiles the application to reset any dependencies that were introduced during code upgrade. For more information, see Compile the application (upgrade).
Detect code upgrade conflicts	**Detect code upgrade conflicts**	This task analyzes the system and creates projects containing application objects that must be upgraded manually. This allows you to resolve conflicts between application objects that may have been created during code upgrade. For more information, see Detect code upgrade conflicts.

Generate CIL	**Full CIL generation from X++**	Generate Common Intermediate Language code from the compiled application. For more information, see Generate Common Intermediate Language.

Upgrade data on the target system

The data upgrade tasks on the Microsoft Dynamics AX 2012 target system can be started after you enter single-user mode on the Microsoft Dynamics AX 2009 source system and finish installation and all code upgrade tasks on the target system.

1. Start the Microsoft Dynamics AX client. The **Data upgrade checklist** opens automatically.
2. Complete the **Upgrade preparation** tasks in the **Data upgrade checklist**, shown in the table below. These tasks include providing license information and opting in or out of the Microsoft Customer experience Improvement Program.

3. Expand **Data upgrade** in the **Data upgrade checklist** to see the data upgrade tasks. Complete the following tasks.

Task	Form	User action
Provide license information	**License information**	Use the **License information** form to provide Microsoft Dynamics AX with your purchased license. For more information, see Provide license information.
Customer feedback options	**Microsoft Dynamics AX customer feedback options**	You have the opportunity to opt into the Microsoft Dynamics AX Customer Experience Improvement Program, which sends anonymized system information to Microsoft for analysis. By default, the **No, I don't wish to participate** option is selected. Links in the **Privacy options - Microsoft Dynamics AX client** form provide additional information about the program and associated privacy policies. For more information, see Set customer feedback options.

Connect to source database	**Connect to source database**	Using a properly configured domain account with administrative privileges on both systems, connect to the Microsoft Dynamics AX source system database from the Microsoft Dynamics AX 2012 target system. You can complete this step any time after you initialize preprocessing on the source system. For more information, see Connect to source database.
Set current time zone	**Current time zone**	This task is intended for use during upgrade from Microsoft Dynamics AX 4.0. During upgrade from Microsoft Dynamics AX 2009, this task is visible until completion of the task **Connect to source database**, at which point the target system recognizes that it is unnecessary and removes it. You may ignore this task.
Presynchronize	**Data upgrade cockpit (%1 -> %2)**	Run the upgrade scripts that prepare the target system database for bulk copy and synchronization. For more information, see Presynchronize (upgrade).
Create tables	**Synchronize database**	Create tables in the target database for the source data to be bulk-copied into. When the process is complete, the **Synchronize database** form summarizes the results. For more information about this step, see Create tables.
Generate table mappings	**Table mapping between source and target systems**	Verify that the tables and fields in the source database are mapped correctly to the tables and fields in the target database. The upgrade framework attempts to perform the mapping automatically. If mapping errors occur, they must be fixed before you start the next step. For more information, see Generate table mappings.

Generate upgrade task prioritization	**Prioritized upgrade scripts**	The form shows the priority for bulk copying data from the source system. The priority is based on the intelligent bulk-copy prioritization rules that are part of the upgrade framework. For more information, see Generate upgrade task prioritization.
Launch data upgrade	**Data upgrade cockpit (%1 -> %2)**	Run the upgrade scripts that copy data from the source system. This step includes bulk copy, synchronization, and post-synchronization of the database. These tasks are performed concurrently so that the process is completed with the least downtime possible. For more information, see Launch data upgrade.

4. Expand the **Finalize upgrade** group in the **Data upgrade checklist** and complete the final upgrade tasks.

Task	Form	User action
Post journal for relief of legacy accrual of unmatched quantities	**Create journal(s) for the relief of legacy accrual of unmatched quantities**	Create and post the general ledger journal for legacy accrual relief for unmatched quantities. For more information, see Post journal for relief of legacy accrual of unmatched quantities.
Configure system accounts	**System service accounts**	Use the **System service accounts** form to configure aliases and network domains for the Business Connector proxy, the workflow system account, the workflow execution account, the and the synchronization service account. You can also configure access to Bing Maps. For more information, see Configure system accounts.
Finalize Enterprise Portal upgrade	N/A	The upgrade process can cause the URLs for various Microsoft Dynamics AX Web pages to change in the Application Object Tree (AOT). If you upgraded Enterprise Portal, you should click the option to **Finalize Enterprise Portal upgrade** to ensure that the web pages are synchronized to use the correct URLs. For more information, see Finalize Enterprise Portal upgrade.
Specify Role Center website	**Administration of Web sites**	Use this task to specify which web site will host the *Role Centers*, which are customizable home pages included in the Enterprise Portal framework. Role Centers display specific data, reports, alerts, and common tasks associated with a user's role in the organization. Users can access Role Centers from the Microsoft Dynamics AX client or from an Enterprise Portal web site. For more information, see Specify Role Center web site.
Assign primary addresses to parties	**Parties without primary addresses**	View parties without a primary address and optionally assign a primary address. For more information, see Assign a primary address to parties.
Upgrade AIF code	N/A	Clicking the **Upgrade AIF code** task upgrades all AIF code, creating new service classes, new data classes, and AOT service nodes. AIF-related records in the database are also updated. This task is non-interactive, but you must prepare your AIF and services configuration before running it or the upgrade will fail. For more information, see Upgrade services and AIF.

5. Complete the **Additional upgrade tasks** in the **Data upgrade checklist**. These tasks configure additional features to ensure that the Microsoft Dynamics AX 2012 target system is fully functional.

Task	Form	User action
Upgrade additional features	**Data upgrade cockpit (%1 -> %2)**	With the **Data upgrade cockpit (%1 -> %2)**, you can run final data upgrade scripts on the Application Integration Framework, on reporting, and on other features. For more information , see Upgrade additional features
Compare data upgrade row counts	**Compare data upgrade row counts**	Comparing the table row counts in the source and target databases provides a preliminary check of your post-upgrade data integrity. For more information, see Compare data upgrade row counts.

6. Upgrade Enterprise Portal. This step is performed after all other upgrade tasks have been completed. For more information, see the complete guide Upgrade Enterprise Portal.
7. Test upgrade success and data integrity. For more information, see Test the system after upgrade.

Preprocess data on the source system

This section details data preprocessing on the Microsoft Dynamics AX source system. Data preprocessing is the most important new feature in the Microsoft Dynamics AX 2012 upgrade. By preprocessing your data, you can prepare your Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 system for upgrade with less downtime than in previous versions. The following sections are included.

Install upgrade framework files

Start the Preprocessing upgrade checklist

Prepare for upgrade

Prepare application data for preprocessing

Preprocess data on the live system

Preprocess data in single-user mode

Using the preprocessing upgrade state transfer tool

Install upgrade framework files

The Microsoft Dynamics AX 2012 upgrade process requires manual installation of three files on your source Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 system. An XPO file provides the forms and scripts that are required for data preprocessing, an ALD file provides user interface labels, and a CHM file provides user Help. The sections below describe how to install these files from your Microsoft Dynamics AX 2012 installation media.

If you have lean manufacturing for Microsoft Dynamics AX 2009 installed, and you plan to migrate your current data to Microsoft Dynamics AX 2012, there is an additional XPO file to install. For more information, see the section Optional: Install XPO file for lean manufacturing upgrade later in this topic.

Install and import the XPO upgrade framework file

The preprocessing XPO file installs an upgrade framework containing the following components:

- The **Preprocessing upgrade checklist**
- The user-input forms opened by the items in the checklist
- The preprocessing upgrade scripts
- Changes to the upgrade cockpit for upgrade readiness, live preprocessing, live delta preprocessing, and final preprocessing in single-user mode

You will import the preprocessing XPO into the USR layer on the Microsoft Dynamics AX source system. You can see the current application layer in the lower right of the Microsoft Dynamics AX client window.

Note:
If the current application layer is not the USR layer, you must exit Microsoft Dynamics AX and then create or modify the configuration by using the **Microsoft Dynamics AX Configuration Utility**. In Microsoft Dynamics AX 4.0, the path is **Start** > **Administrative Tools** > **Microsoft Dynamics AX Configuration Utility**. In Microsoft Dynamics AX 2009, the path is **Start** > **Administrative Tools** > **Microsoft Dynamics AX 2009 Configuration**. Reconfigure the client so that it opens in the USR layer.

Be sure to back up your application files (*.aod) and label files (*.ald) before you import the preprocessing XPO. You will need these files for code upgrade on the Microsoft Dynamics AX 2012 target system.

To install the preprocessing XPO on the Microsoft Dynamics AX source system, do the following:

1. Open the Application Object Tree (AOT) from its icon on the toolbar.
2. (Optional.) It is advisable to make sure that the Application Object Directory (AOD) is synchronized with the Microsoft Dynamics AX database schema before you begin to import of the XPO. Synchronize them as follows:
   - Right-click **Data Dictionary**, and then click **Synchronize**.

   Synchronization may take several minutes.
3. Click the import icon on the AOT menu bar.
4. In the **Import** dialog box, click **Browse**. The XPO is located in the DatabaseUpgrade folder on the installation media. The XPO file that you import depends on the Microsoft Dynamics AX source system that you are upgrading from.
   - On a Microsoft Dynamics AX 4.0 source system, import UpgradeAX4.xpo.
   - On a Microsoft Dynamics AX 2009 source system, import UpgradeAX5.xpo.
5. In the **Import** dialog box, make sure that the option **Import with ID values** is cleared.
6. Click **OK**.
7. In the **Import** message box, click **Yes to all** when you are prompted to continue the import.
8. During synchronization, the **Problems during synchronization** message box may warn you that tables will be dropped. You should be aware of what objects are being over-written so that you can

stop the process if necessary and merge your custom code with the XPO code for objects common to them both. To allow an object to be overwritten, click **Yes**.

Microsoft Dynamics AX 2009 automatically performs multiple compilation passes to make sure that validation is successful. For example, if a child object in the code is validated before its parent object, the system will display a compilation error, but in a subsequent compilation pass, the parent-child object relationship will be established and the error will no longer be displayed.

Microsoft Dynamics AX 4.0 does not automatically perform multiple compilation passes. If you import the preprocessing XPO into Microsoft Dynamics AX 4.0, you may have to manually recompile the application until no compilation errors are returned.

Install the ALD label file

The ALD file contains the labels that appear in the upgrade framework user interface. The **Preprocessing upgrade checklist** and associated forms will not be displayed properly without this file. To install the ALD file, do the following:

1. On your installation media, navigate to the folder DatabaseUpgrade folder and locate the ALD label file that you plan to use. Your choice will depend on the default language that you want to install. For example, the file axUPGen-us.ald provides labels in United States English for the upgrade framework forms. Each language and language region that is supported by Microsoft Dynamics AX has its own ALD file.
2. Copy axUPGen-us.ald (or other selected ALD file) to the label folder on your source system.
   - On a typical Microsoft Dynamics AX 4.0 system, copy the file to C:\Program Files (x86)\Microsoft Dynamics AX\40\Application\Appl\Standard\.
   - On a typical Microsoft Dynamics AX 2009 system, copy the file to C:\Program Files\Microsoft Dynamics AX\50\Application\Appl\Standard\.
3. Restart the application object server.

Install the CHM file for user Help

The CHM file provides the documentation that opens when you click **Help** next to an item on the **Preprocessing upgrade checklist**. To install the CHM file, do the following:

1. Locate the file UpgradePreprocessing.chm in the DatabaseUpgrade folder on your installation media.
2. Copy the file to the appropriate directory on your Microsoft Dynamics AX source system.
   - On a Microsoft Dynamics AX 4.0 system, copy the file to C:\Program Files\Microsoft Dynamics AX\40\Client\Bin\Help\EN-US\.
   - On a Microsoft Dynamics AX 2009 system, copy the file to C:\Program Files\Microsoft Dynamics AX\50\Client\Bin\Help\EN-US\.

Tip:
An additional CHM file, UpgradeScripts.chm, can also be found in the DatabaseUpgrade folder. This file provides documentation of the data upgrade preprocessing scripts that are included with the upgrade framework.

Optional: Install XPO file for lean manufacturing upgrade

If you plan to migrate current lean manufacturing data from Microsoft Dynamics AX 2009 to Microsoft Dynamics AX 2012, you must install the SharedProject_AX50PreUpgrade_Lean.xpo file after you have installed the XPO upgrade framework file.

Note:
To carry out this procedure, lean manufacturing for Microsoft Dynamics AX 2009 must be installed.

The SharedProject_AX50PreUpgrade_Lean.xpo file installs the following additional components:

- Additional items in the **Preprocessing upgrade checklist** for lean manufacturing
- The user-input forms opened by the items in this checklist
- The preprocessing upgrade scripts for lean manufacturing

Start the Preprocessing upgrade checklist

The **Preprocessing upgrade checklist** guides you through the data preprocessing tasks on the Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 source system when you upgrade to Microsoft Dynamics AX 2012.

Avoid downtime with the source-to-target upgrade model

Because upgrade for Microsoft Dynamics AX 2012 uses a source-to-target model, you can complete some of the steps in the **Preprocessing upgrade checklist** concurrently with upgrade tasks that you complete on the Microsoft Dynamics AX 2012 target system. For an overview of the upgrade process for Microsoft Dynamics AX 2012 and more information about how data preprocessing tasks on the source system relate to upgrade tasks on the target system, see The upgrade process.

Open the Preprocessing upgrade checklist

You install the framework for the **Preprocessing upgrade checklist** in the USR layer of the Microsoft Dynamics AX source system by importing an XPO file. The XPO file also installs all the forms that are required for completing the data preprocessing tasks and includes changes to the data upgrade cockpit so that you can better manage the preprocessing scripts. For information about importing the upgrade XPO file, see Install upgrade framework files.

After the XPO upgrade file has been imported, open the **Preprocessing upgrade checklist** as follows:

1. Click the Project icon on the toolbar and navigate to **Projects> Shared**.
2. Expand **Shared** and locate either **Ax40PreUpgradeFramework** or **Ax50PreUpgradeFramework**, depending on the version that you are upgrading from. Right-click it, and click **Open**.
3. Locate **SysChecklist_preupgrade40** or **SysCheckList_PreUpgrade50**, depending on the version you are upgrading from. Right-click it, and click **Open** to start the **Preprocessing upgrade checklist**.

Sections and tasks in the Preprocessing upgrade checklist

The **Preprocessing upgrade checklist** displays the required and optional tasks that are involved in upgrade. The system records the completion of tasks and indicates this status with a check mark. The list

of tasks is divided into four sections. When you open the **Preprocessing upgrade checklist**, these sections are collapsed. Expand each section to access the tasks. You can also collapse an expanded section when you have completed the tasks within it.

The following table contains the sections and types of task you will complete during data preprocessing on the Microsoft Dynamics AX source system.

Section	Description
Prepare for upgrade	The tasks in this section test and prepare the source system for upgrade. The tasks include creating the shadow and dictionary tables where the upgrade framework will write the data that you prepare for upgrade in the next section.
Prepare application data for preprocessing	The tasks in this section prepare the Microsoft Dynamics AX source system data for preprocessing while the source system is live for production. Completing these tasks does not affect your production system data. When you click a task, a form opens and prompts you for information. Because these tasks require knowledge of the application data that you are preparing for upgrade, you will need guidance from a business user in each of the application areas.
Preprocess data on live system	These tasks run data preprocessing scripts while the source system is still live for production. The prepared data is written into shadow tables in preparation for bulk copy to the Microsoft Dynamics AX 2012 target system.
Preprocess data in single-user mode	These tasks apply final preparation to the source data prior to bulk copy. When you begin the tasks in this section, you start your system downtime window. Your system will not be available for production until you complete the data upgrade tasks on the Microsoft Dynamics AX 2012 target system.

Each task in the **Preprocessing upgrade checklist** links to a Help topic that explains the task and provides steps for completing it.

Prepare for upgrade

This section of the **Preprocessing upgrade checklist** contains tasks performed before data preprocessing begins. The following sections are included.

Check upgrade readiness

Initialize preprocessing

Check upgrade readiness

You can check upgrade readiness before you begin upgrading data on the Microsoft Dynamics AX source system. The readiness check produces a report that identifies issues that could potentially affect data upgrade. Checks include identifying data that might cause failure of the data upgrade scripts and identifying scenarios that will need extra planning before the upgrade. No changes to data are made during the checks.

The upgrade readiness check is optional, but highly recommended. Running the readiness check will save you time and reduce the number of times you need to rerun the tasks Run live preprocessing scripts and Run delta preprocessing scripts.

Run the upgrade readiness check

1. In the **Preprocessing upgrade checklist**, click **Check upgrade readiness**. The **Upgrade readiness** form opens to display a grid of readiness scripts waiting to be run. The grid provides a description of each script, the method being invoked, the Microsoft Dynamics AX module that the script applies to, and other information.
2. Click **Run** to begin running the scripts.

Tip:
By using the batch processing framework, you can set the number of batch server threads available to the upgrade readiness scripts. For more information see Batch processing overview.

View readiness results and details

After the readiness scripts have run, a list of discovered issues is available. To review and resolve these issues, complete the following steps:

1. In the **Upgrade readiness** form, click **Readiness results**.
2. In the **Upgrade validation results** form, review the **Validation results** grid, which lists the scripts that have run. Each script has a status of **Incomplete**, **Pass**, **Error**, or **Advisory**.
3. The **Log** grid shows diagnostic information about jobs that have failed or that have an advisory. Select a job in the **Validation results** grid to display information about it in the **Log** grid.
4. To see details for a job that is flagged as having issues, display it in the **Log** grid and then click **Details** to open the **Upgrade validation details** form.
5. If there is a form available where you can resolve the issue, the **Fix** button is available. Click **Fix** to open the form and then provide the required information.
6. If the **Fix** button is not available, you must resolve the issue manually or by writing an upgrade script that resolves it. For information about scripts, see the white paper How to Write Data Upgrade Scripts for Microsoft Dynamics AX 2012.

Rerun the upgrade readiness scripts

After you fix any issues that were identified by the readiness scripts, you can rerun any or all of the failed scripts. Each run of the upgrade readiness scripts results in a new report. You can refer to past readiness reports by selecting one from the **Run date** menu in the **Upgrade validation results** form.

To rerun a single script or multiple scripts when upgrading from Microsoft Dynamics AX 4.0, complete any of the following procedures that apply:

1. In the **Upgrade readiness** form, select one or more scripts and click **Rerun job**.
2. To rerun all readiness scripts, click **Reset status** and then click **Run**.

To rerun a single script or multiple scripts when upgrading from Microsoft Dynamics AX 2009, complete any of the following procedures that apply:

- In the **Upgrade readiness** form, select one or more scripts and click **Rerun script**.
- To rerun all failed scripts, click **Rerun all failed scripts**.

- To rerun all readiness scripts, click **Reset status** and then click **Run**.

  Important:
  After you resolve issues in the scripts or in the data, you can rerun the readiness check as many times as necessary until the scripts pass validation. Do not attempt an upgrade of your production data until you have identified and resolved all of the upgrade issues flagged by the upgrade readiness check.

Initialize preprocessing

The **Initialize preprocessing** task prepares the Microsoft Dynamics AX source system for data upgrade by creating shadow and dictionary tables for all the data tables that are in the live production database. The task also initializes the preprocessing scripts. The tables that are created by this step will hold the data that is created during upgrade preprocessing. Most of the data in the shadow and dictionary tables is created by the live and delta preprocessing scripts, though some records are created by each of the other preprocessing tasks.

To initialize preprocessing and create the shadow and dictionary tables, complete the following steps:

1. In the **Preprocessing upgrade checklist**, expand **Prepare for upgrade**.
2. Click **Initialize preprocessing**.

The upgrade framework creates the shadow and dictionary tables that are not created during importation of the preprocessing XPO and, when it finishes, opens an **Infolog** form that lists all the tables that were created. This step also loads the preprocessing scripts into upgrade framework tables.

After you finish the **Initialize preprocessing** task, you can connect to the source database from the Microsoft Dynamics AX 2012 target system and begin preparing the target database for upgrade. This allows you to save time by carrying out upgrade tasks concurrently on both systems.

Prepare application data for preprocessing

This section of the **Preprocessing upgrade checklist** contains tasks that involve manual changes to application data in preparation for upgrade. The following sections are included.

System parameters

Set up number sequence for upgrade

Company priority setup

Update country/region codes

Map country/region codes

Default country/region

Prepare financial dimension framework for upgrade

Map fixed asset calendars

Prepare currencies for upgrade

Inventory dimension group upgrade

Product upgrade (preprocessing)

Configure site structure

Map task groups to capabilities

Product Builder Route nodes upgrade

Units

Unit conversions

Fixed units

Unit texts

About purchase order upgrade

User relations upgrade - invalid company users

User relations upgrade missing contact person

User relations upgrade duplicate user IDs

System parameters

The system language is the default language that is used by the application for text translations.

Use the **System parameters** form to specify a shared system language.

Set the system language

1. Click **System parameters** to open the **System parameters** form.
2. Select a system language in the **System language** field.
3. In the **Chart of accounts delimiter** field, select a symbol to use as the separator between financial dimensions.

Set up number sequence for upgrade

In releases before Microsoft Dynamics AX 2012, the general ledger was always related to a single voucher, regardless of the source document. Now that some subledger journal entries can be summarized when they are transferred to the general ledger, a new numbering sequence is needed for the general journal entries.

Use the **Set up number sequence for upgrade** form to set up the number sequence code for the legal entities.

1. Click **Set up number sequence for upgrade** in the **Preprocessing upgrade checklist** to open the **Set up number sequence for upgrade** form.
2. In the **Company accounts** field, select the set of legal entity accounts to upgrade the number sequence for.
3. Click **Set up number sequence** to open the **Set up number sequence** form, where you can select the number sequence code to use for the general journals.
4. To use the same number sequence code for all sets of legal entity accounts, click **Apply to remaining companies**. Otherwise, repeat steps 2 and 3 until you have selected a number sequence code for all sets of legal entity accounts.
5. Click **Set to ready for upgrade** to select this checklist item as ready for upgrade.

Company priority setup

When you merge the data from more than one company, the priority of the companies determines which company's values take priority for the data.

Use the **Company priority setup** form to define the priority of companies.

Note:
You must set up the company priority only if you upgrade items from more than one company.

Company priority affects product numbers and item dimension values

The company priority affects the following data when items are mapped to products:

- The sequence of product numbers
- The names and descriptions for sizes, colors, and configurations

Company priority and the sequence of product numbers

If the items that you map to a product have identical numbers but come from different companies, the sequence of product numbers is determined by the company priority. For more information, see the description of the 1:1 mapping method in Product upgrade (preprocessing).

Company priority and the names and descriptions of item dimensions

If the items that you map to a product have identical item numbers but come from different companies, the active item dimensions of these items may have different names and descriptions. When several items are mapped to one product, the names and descriptions of the item dimensions are consolidated. The names and descriptions from the company that has the highest priority are used.

Example

- Three identical items are mapped to one product. The items come from three different companies, C1, C2, and C3.
- The priority of C1 is 1, the priority of C2 is 2, and the priority of C3 is 3.
- The item has one active dimension, Color. However, the name of the dimension is not the same in the three companies.

The following table shows this setup.

Company	Item	Item dimension	Item dimension name
C1	INV-1000	Color	Red
C2	INV-1000	Color	_Red
C3	INV-1000	Color	"Red"

The items are mapped to one product, PROD-1000. The name of the Color dimension is consolidated to Red, because this name is used in C1, the company that has the highest priority.

Company priority and product translations

When items are mapped to products, product translations are derived in the same way as dimension names and descriptions. When several items are mapped to one product, if more than one translation into

a particular language exists for the items, the translations are consolidated. The translation from the company that has the highest priority is used.

The initial company takes priority

When a mapping is completed, there is always a one-to-one relationship between items and products. Furthermore, an item is always initiated from one company. An item's initial company is the company where the item was first created. Therefore, if you map items to existing products by aligning the product numbers in the **Product upgrade** form, the initial company always has the highest priority, regardless of how company priority is set up.

Example

In the previous example, product PROD-1000 inherited the dimension name from item INV-1000 in company C1, because C1 had the highest company priority. You now want to map an additional item, INV-A100, to PROD-1000. Item INV-A100 comes from another company, CA, which has a higher priority than C1. However, C1 takes precedence when properties such as the dimension name are copied to PROD-1000, because C1 is assigned as the initial company of PROD-1000. Therefore, when properties are copied, the order of priority is C1, CA, C2, and C3.

The following table shows this setup.

Company priority	Item	Initial mapping	Additional mapping	Initial company
CA	INV-A100		PROD1	C1
C1	INV-1000	PROD1	PROD1	C1
C2	INV-1000	PROD1	PROD1	C1
C3	INV-1000	PROD1	PROD1	C1

Tip:
You can view the initial company of a product in the **Company** field on the **Mapping** tab of the **Product preview** form.

See Also

Product upgrade (preprocessing)

Update country/region codes

A list of default country/region codes is delivered in Microsoft Dynamics AX 2012. This list also includes 18 default address formats and component information for the countries/regions, such as state/province, county, city, district, and ZIP/postal code.

If you want to change the default address format that is assigned to a country/region code, you can select another address format in the **Address format** column. For example, the country/region for Antarctica has a default address format of 001. This means that the address components are displayed in the following way:

Street name

City_State_ZIP/postal code

Country/region

You might select to change the default address format to 013. After you make the change, the address components are displayed in the following way:

Street name

City, ZIP/postal code

Country/region

Use this form to view default country/region codes and the corresponding address formats. You can also add new country/region codes and select corresponding address formats for them. The country/region codes and address formats will be used for address records in Microsoft Dynamics AX 2012.

Note:
In the **Map country/region codes** form, you will map the countries/regions from Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 to the countries/regions that are displayed in the form. You cannot map more than one country/region code from the same company to a country/region code listed in the **Country/region codes** form. You must manually create a unique country/region code for all countries/regions in the same company before the upgrade.

1. In the **Preprocessing upgrade checklist**, click **Update country/region codes** to open the **Country/region codes** form.
2. Review the list and verify the short name, long name, and address format for the countries/regions.
   - You can modify the short name and long name by editing the field. The countries/regions that you add to this list will appear in Microsoft Dynamics AX 2012 in the user language. Any other translations must be entered manually in Microsoft Dynamics AX 2012 after upgrade is completed.
   - You can select a different address format in the **Address format** field. This list includes default address formats and any address formats from Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009.
3. To add a country/region code that was used in Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 but does not appear in the list, press CTRL+N and do the following:
   a. In the **Country/region code** field, enter the country/region code that you want to add.
   b. Enter the short name and long name for the country/region, and then in the **Address format** field, select the address format that corresponds to the selected country/region.
4. Click **Set to ready for upgrade**.

Map country/region codes

In Microsoft Dynamics AX 4.0 and Microsoft Dynamics AX 2009, more than one country/region code could be assigned to a country/region. Only one country/region code per company from Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 can be mapped to a country/region code in Microsoft Dynamics AX 2012. Before you upgrade Microsoft Dynamics AX 2012, all country/region codes in your current version of Microsoft Dynamics AX must be mapped to a country/region code in Microsoft Dynamics AX 2012.

For example, in Microsoft Dynamics AX 4.0, you may have assigned the country/region code GBR to both Great Britain and the United Kingdom. Before you can upgrade to Microsoft Dynamics AX 2012, you must reassign the GBR code to one of those countries/regions and assign a new unique country/region code to the other country/region.

Use this form to map the country/region codes in all companies in Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 to the country/region codes in Microsoft Dynamics AX 2012. All country/region codes must be mapped from the earlier version to Microsoft Dynamics AX 2012.

1. In the **Preprocessing upgrade checklist**, click **Map country/region codes** to open the **Country/region code mapping** form.
2. For each country/region in the grid, in the **Mapped country/region** column, use the menu to select the Microsoft Dynamics AX 2012 country/region code that corresponds to the country/region code from your earlier version of Microsoft Dynamics AX. The country/region code from your earlier version is displayed in the **Country/region code** column.
3. After you map all the country/region codes from the earlier version of Microsoft Dynamics AX to the country/region codes in Microsoft Dynamics AX 2012, click **Set to ready for upgrade**.

Default country/region

In Microsoft Dynamics AX 2012, all postal addresses must have a corresponding country/region. Use this form to validate and update the default country/region code for each company in your organization. When you upgrade from Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009, the country/region that you select here for a company becomes the country/region for address records in that company that do not have a specified country/region. After you have completed the **Prepare application data for preprocessing section** of the **Preprocessing upgrade checklist**, you can use the **Addresses with no country/region** form to change the country/region for an address record.

1. In the **Preprocessing upgrade checklist**, click **Default country/region** to open the **Default country/region for addresses** form.
2. Review the country/region that is assigned to the companies in the list. This is the country/region code that will be assigned to any address that does not already have a country/region code assigned.
3. To change the country/region for a company, select a country/region in the **Default country/region code** field.
4. After you have verified the country/region defaults for each company, click the **Set to ready for upgrade** button.

Prepare financial dimension framework for upgrade

A main account category is a classifier of a main account. A financial dimension is a financial data classifier that is created from the parties, locations, products, and activities in an organization, and that is used for management reporting.

In Microsoft Dynamics AX 2009, you could create ledger account categories and financial dimensions for each company. In Microsoft Dynamics AX 2012, the main account categories and financial dimensions that

you create are shared, and can be used by any of the legal entities that are set up in Microsoft Dynamics AX.

Note:
Dimension focuses have been renamed to financial dimension sets and are shared by the legal entities that are set up in the **Legal entities** form. Therefore, the financial dimension sets can be used by any of those legal entities. Financial dimension sets in Microsoft Dynamics AX 2012 differ from the dimension sets in previous releases.

Use the **Prepare financial dimension framework for upgrade** form to select the main account categories and financial dimension sets that will be shared by the legal entities.

1. Click **Prepare financial dimension framework for upgrade** to open the **Prepare financial dimension framework for upgrade** form.
2. In the **Company accounts** field in the **Ledger account categories** field group, select the company account that contains the main account categories that will be available as shared main account categories.

   Note:
   This field is available only if you are upgrading from Microsoft Dynamics AX 2009.
3. In the **Generate shared dimension focuses** field, select how to create financial dimension sets:
   - **For each company account** – All the financial dimension sets that currently are set up for the accounts in each company will be available as shared financial dimension sets.
   - **Specific company account** – Only the financial dimension sets for the accounts in the company that you select in the **Company accounts** field in the **Dimension focuses** field group will be available as shared financial dimension sets.
4. If you selected **Specific company account**, select the company account that contains the financial dimension sets that will be shared. Otherwise, continue to step 5.
5. Optional: Click **Ledger account categories upgrade validation** to display the ledger account categories that have upgrade errors.

   Note:
   This button is available only if you are upgrading from Microsoft Dynamics AX 2009.
6. Optional: Click **Dimension focus upgrade validation** to display the shared financial dimensions sets and the upgrade error status of each financial dimension set.
7. Click **Set to ready for upgrade** to select this checklist item as ready for upgrade.

Warning:
Do not change financial dimension names after you start the **Preprocessing upgrade checklist**, and before the upgrade is completed.

Map fixed asset calendars

When you upgrade to Microsoft Dynamics AX 2012, you must use the **Upgrade fixed asset calendars** form to upgrade existing fixed asset calendars to fiscal calendars that can be shared by multiple legal entities.

You can then use the **Ledger** form in Microsoft Dynamics AX 2012 to select a fiscal calendar.

Note:
When you upgrade fixed asset calendars, each new fiscal calendar must have a unique name.

1. Review the list of companies that use fixed asset calendars, and then review the names of the fixed asset calendars in the **Calendar name** column.
   - If all the calendar names in the **Calendar name** column are unique, you do not need to make any changes.
   - If two or more calendars have the same name in the **Calendar name** column, a new name must be assigned so that each calendar name is unique. For each duplicate calendar name, a new name is suggested in the **New name** column. You can change these suggested names.
2. When you are finished, click **Set to ready for upgrade** to upgrade the fixed asset calendars to fiscal calendars.

Example

Both Legal entity A and Legal entity B have fixed asset calendars named RBA01 (Reducing Balance Asset 1). Your task is to upgrade the fixed asset calendars to fiscal calendars. In the **New name** column, you change the names of the calendars to RBA01-A and RBA01-B. After you upgrade the calendars, the calendars are shared and can be used by any legal entity or by multiple legal entities.

Prepare currencies for upgrade

In releases previous to Microsoft Dynamics AX 2012, you could set up currencies for each company. In Microsoft Dynamics AX 2012, the currencies that you set up are shared by the legal entities that are set up in the **Legal entities** form, so the currencies can be used by any of those legal entities.

Use the **Prepare currencies for upgrade** form to select the currencies, a triangulation currency, and the exchange rates that will be shared by the legal entities.

1. Click **Prepare currencies for upgrade** to open the **Prepare currencies for upgrade** form.
2. In the **Generate shared currencies** field, select which currencies will be available as shared currencies:
   - **For each company** – All the currencies that currently are set up in each company will be available as shared currencies.
   - **Specific company account** – Only the currencies for the company that you select in the **Company accounts** field in the **Currencies** field group will be available as shared currencies.
3. If you selected **Specific company account**, select the company account that contains the currencies that will be shared.
4. In the **Company accounts** field in the **Triangulation currency** field group, select the company account that contains the triangulation currency to upgrade. This triangulation currency will represent the euro currency.
5. In the **Generate shared exchange rates** field, select which exchange rates will be available as shared exchange rates:
   - **For each company** – All the exchange rates that currently are set up in each company will be available as shared exchange rates.
   - **Specific company account** – Only the exchange rates for the company that you select in the **Company accounts** field in the **Generate shared exchange rates** field group will be available as shared exchange rates.

6. If you selected **Specific company account**, select the company account that contains the exchange rates that will be shared.
7. Optional: Click **Currency code upgrade validation** to display the shared currency codes and the upgrade error status of each code.
8. Click **Set to ready for upgrade** to select this checklist item as ready for upgrade.

Inventory dimension group upgrade

Use the **Preprocess inventory dimension groups** form to define how company-specific inventory dimension groups are consolidated into a set of inventory dimension groups that are shared between companies.

The inventory dimension grouping is new

In Microsoft Dynamics AX 2012, the inventory dimension groups are split into three groups: product, storage, and tracking. The groups contain the following dimensions.

Group	Dimensions
Product	**Color**, **Size**, **Configuration**
Storage	**Site**, **Warehouse**, **Location**, **Pallet ID**
Tracking	**Batch number**, **Serial number**

The **Color**, **Size**, and **Configuration** dimensions, which were previously called item dimensions, are now found in the product dimension group. Furthermore, the storage dimensions are now divided between a storage dimension group and a tracking dimension group.

Each inventory dimension group that already exists must be mapped to one of the new product, storage, or tracking dimension groups.

Note:
If an inventory dimension group has no active item dimensions, the mapping methods do not create a product dimension group. A product dimension group cannot be created if there are no active dimensions.

Map preexisting company-specific inventory dimension groups to the new dimension groups

When you start preprocessing inventory dimension groups, the **Preprocess inventory dimension groups** form contains a list of all preexisting inventory dimension groups from all companies. You must map the company-specific inventory groups to the new product, storage, and tracking dimension groups.

1. Click **Inventory dimension group upgrade** to open the **Preprocess inventory dimension groups** form.
2. Click **Dimension group mapping**, and then select a method of mapping. The following options are available:
   - **Map dimension groups 1:1** – For each preexisting inventory dimension group, create three dimension groups: a product dimension group, a storage dimension group, and a tracking dimension group. The active dimension in each new dimension group corresponds to one type of

active dimensions in the original, company-specific inventory dimension group. The names of the new dimension groups consist of consecutive numbers prefixed by PDG_, SDG_, or TDG_.

> **Note:**
> You can change this naming convention in the **Map dimension groups 1:1** form.

- **Map dimension groups ID** – For each preexisting inventory dimension group, create product, storage, and tracking dimension groups, just as when you use the **Map dimension groups 1:1** method. The difference between this method and the 1:1 mapping method is the naming convention. When you use this method, the names of the new dimension groups are copied from the original, company-specific inventory dimension groups.

  > **Note:**
  > Consolidating inventory dimension groups from different companies that use identical naming conventions for dimension groups can cause validation errors. For example, if both company 1 and company 2 have an inventory dimension group that is named DimGroup1, the identical names can cause a validation error. The active dimensions and the setup of the active dimensions must be identical. Otherwise, the upgrade consolidation is not successful.

- **Map dimension groups by setup** – Map dimension groups according to the setup of the active dimensions and settings of the inventory dimension groups. For more information, see the next section.

3. Click **Dimension groups** to view and change the names and descriptions of the new dimension groups.
   a. To change the name of a new dimension group, you must first change the name of the original inventory dimension group in the **Preprocess product dimension groups**, **Preprocess storage dimension groups**, or **Preprocess tracking dimension groups** form.
   b. Then select the new name for the product, storage, and tracking dimension groups in the **Preprocess inventory dimension groups** form.
4. Click **Validation report** to check for validation errors before you set the dimension groups to ready for upgrade.
5. After you resolve all validation errors, click **Set to ready for upgrade**.

Mapping according to the setup of the inventory dimension groups

You can map the new, shared product, storage, and tracking dimension groups according to the active item and storage dimension setup in the original inventory dimension groups. For each preexisting inventory dimension group, the program proposes a product dimension group, a storage dimension group, and a tracking dimension group. When new groups are created, the configurations in all the existing inventory groups is considered. The new product, storage, and tracking groups are based on information that is merged from all the existing inventory groups.

When you map inventory dimension groups by setup, the program may propose the same product, storage, or tracking dimension group for more than one inventory dimension group. This is because the existing inventory dimension groups have the same setup of active product, storage or tracking dimensions.

Example: Map inventory dimension groups by setup

In the following example, three company-specific inventory dimension groups, InvGroup1, InvGroup2, and InvGroup3, are consolidated into product, storage, and tracking dimension groups.

Tip:
The three inventory groups can come from three different companies, or they can all come from the same company.

The following table shows the setup of the active dimensions in the three inventory dimension groups.

InvGroup1	InvGroup2	InvGroup3
	Color	
Size		Size
Configuration		Configuration
Site	Site	Site
Warehouse	Warehouse	Warehouse
Serial number		Serial number
	Batch number	Batch number

The following table shows the dimension groups that Microsoft Dynamics AX proposes, based on the setup of the preexisting company-specific inventory dimension groups.

- For the item dimensions, **Color**, **Size**, and **Configuration**, the setup of active dimensions in InvGroup2 differs from the setup in InvGroup1 and InvGroup3. Therefore, two product dimension groups are created.
- For the storage dimensions, **Site** and **Warehouse**, the setup of active dimensions is identical in InvGroup1, InvGroup2, and InvGroup3. Therefore, one storage dimension group is created.
- For the **Batch number** and **Serial number** dimensions, the setup of active dimensions is different in InvGroup1, InvGroup2, and InvGroup3. Therefore, three tracking dimension groups are created.

Product dimension groups	Storage dimension groups	Tracking dimension groups
PDG_1	SDG_1	TDG_1
- Size	- Site	- Serial number
- Configuration	- Warehouse	- Batch number
PDG_2		TDG_2
- Color		- Serial number
		TDG_3
		- Batch number

Product upgrade (preprocessing)

In Microsoft Dynamics AX 2012, there are new processes for handling items. A new structure requires any item that is configured in a company to be based on a product definition. Therefore, any item that is handled in inventory, or during the purchase or sales process, must be associated with a product definition. Product definitions reside at the shared level.

You use the **Product upgrade** form to define how existing, company-specific items are mapped to products.

Note:
Before you can start mapping items to products, you must set the company's priority and complete the preprocessing of inventory dimensions.

New product concepts

To understand how items are mapped to products, you must be familiar with the following new concepts that are introduced in Microsoft Dynamics AX:

- Product master – A standard or functional representation of a product that is the basis for configuring product variants.
- Product variant – A configuration of a product master.
- Distinct product – A uniquely identifiable product.

Items are upgraded to product masters and distinct products

Existing items that have active item dimensions are created as product masters. Items that do not have active item dimensions are created as distinct products.

Combinations of item dimensions are created as variants

When you map items to products, combinations of item dimensions are created as product variants. Therefore, product variants are created for product masters, and product masters are based on items that have active item dimensions.

Tips:

The mapping process

There are two mapping methods. The method that you choose determines the level of manual work that you must do to map items. Your choice depends on factors such as the number of items and the number of different companies for which items must be merged. For example, if you upgrade two lists of items, and each list contains identical items, you may want to map by item number. If you map by item number, items that have identical item numbers are merged. You can complete a clean-up of the data after the mapping instead of after the upgrade. However, when you map by item number instead of using the 1:1 method, there is a higher risk of validation errors. There is also a greater likelihood that you must perform manual work later.

Synchronize

When you synchronize items, you synchronize the data in the upgrade environment with the existing data in the system.

Note:
The first time that you open the **Product upgrade** form, the fields are empty. The fields are not populated until you synchronize items.

Synchronize items

1. Click **Product upgrade** to open the **Product upgrade** form.
2. Click **Synchronize items** to synchronize the items in the upgrade environment.

Notes:

You cannot continue the mapping process until the synchronization is completed.

If item data is changed during the upgrade process, you can synchronize items at any time to make sure that the upgrade environment includes the most recent data.

Map items

You can choose between the following two mapping methods:

- **Map all items 1:1** – Each item is mapped to a unique product of the Product master or Distinct product subtype. The item number is replicated in the new product number. The name and search name of the product are identical to the name and search name of the item.
- **Map all items by item number** – All items that have identical item numbers are mapped to the same product. For example, if you map items from two different companies, items that have the same item number can be mapped to one product.

Note:
If two items that have identical item numbers have different names or different setups for their item dimensions, for example, you receive a validation error. The solution depends on the problem. If the names of the two items are different, you can change the text in the **Product name** fields in the **Product preview** form. If the dimensions are different, you must change the original data in the system. However, you may not be able to make the changes if transactions exist in the system.

Map items 1:1

1. In the **Product upgrade** form, click **Product mapping**, and then select **Map all items 1:1**.
2. In the **Map all items 1:1** form, enter a prefix in the **Product number prefix** field, and then enter an initial number in the **Initial number** field.

   Note:
   The numbering convention that you define in the **Product number prefix** and **Initial number** fields is only applied if you map items that have identical numbers but come from different companies. For these items, the product numbers are replaced with numbers based on this convention.

   The sequence of product numbers is based on the company's priority. To view or change the priority of companies, click **View** > **Company priority setup**.

   Example

   Three items from three different companies have the item number XL-1000. For the numbering convention, the product number prefix is PXL, and the initial number is 99.

   The three item numbers come from three companies, C1, C2, and C3. The priority of C1 is 1, the priority of C2 is 2, and the priority of C3 is 3.

   The following product numbers are generated:

   - Item XL-1000 from company C1 – Product number: XL-1000
   - Item XL-1000 from company C2 – Product number: PXL99
   - Item XL-1000 from company C3 – Product number: PXL100

Map items by item number

1. In the **Product upgrade** form, click **Product mapping**, and then select **Map all items by item number**.
2. Click **OK** to continue.

Approve the mapping

Product mappings must be approved before you can set the items to ready for upgrade. You can approve all mappings, or reverse the approval of all mappings, from either the **Product upgrade** form or the **Product preview** form. You can approve or reverse the approval of selected items only from the **Product preview** form.

Approve or reverse all mappings from Product upgrade

1. In the **Product upgrade** form, click **Product mapping approval**.
2. Select **Approve all mappings** to approve all mappings. Select **Reverse all mapping approvals** to reverse the approval of all mappings.

Approve or reverse all or selected mappings from Product preview

1. In the **Product upgrade** form, click **View** > **Product preview** to open the **Product preview** form.
2. Click **Product mapping approval** and select one of the following submenu commands:
   - Select **Approve all mappings** to approve all mappings.
   - Select **Reverse all mapping approvals** to reverse the approval of all mappings.
   - Select **Approve selected mappings** to approve mappings of the products that you have selected in the **Product preview** form.
   - Select **Reverse selected mapping approvals** to reverse the approval of mappings for the products that you have selected in the **Product preview** form.

Clear all product numbers

In the **Product upgrade** form, click **Clear all product numbers** to remove all product numbers from a previous mapping.

Validate mappings

After you map items and approve the mappings, you can request a validation report. The validation report shows the validation errors that are caused by inconsistencies or data violations, such as when two items that have identical names are mapped to the same product. If you mapped all items by item number, you may have to repeat the mapping process and the validation several times to resolve all of the validation errors. You must repeat the mapping process and the validation until all errors are resolved.

Note:
You cannot complete the upgrade until all validation errors are resolved. In addition to validation errors, you may receive validation warnings. Validation warnings are just warnings about inconsistent data. The upgrade can be completed if there are validation warnings.

Validate all product mappings

1. In the **Product upgrade** form, click **View** > **All validation results**.
2. In the **Product validation** form, click **Validate all** to update the view.

   Note:
   You must click **Validate all** to update this form, even if you are opening the form for first time, or if you previously validated the mappings.

Set to ready for upgrade

In the **Product upgrade** form, click **Set to ready for upgrade** to indicate that the products are ready to be upgraded.

Note:
You must approve all product mappings before you set products to ready for upgrade. If validation errors exist, you must resolve the errors before you can continue.

Troubleshoot product variants with no association to a product master

On rare occasions, the preexisting data set can include item dimension combinations where one or more of the corresponding item dimensions are inactive on the associated dimension group.

If this applies to your data set, we recommend that before you start to preprocess your data, you consider how you want to handle these item dimension combinations.

In the upgrade process, all item dimension combinations are created as product variants. Product variants depend on an association with a product master. If the potential product masters for the product variants are based on items with inactive item dimensions, these items are mapped to distinct products rather than to product masters. Product variants that lack an association with a product master prevent the data from being properly upgraded.

To resolve this issue we recommend the following:

- If possible, on the dimension groups, activate any item dimensions that are associated with item dimension combinations.
- If you cannot activate the dimensions, you can try to delete the item dimension combinations. Before you delete, make sure that you back up your data.

Product preview

Use the **Product preview** form to view products, and to perform tasks on all products or selected products. From this form, you can see how items are mapped to products of the Distinct product or Product master subtype. You can also lock products, approve the mapping of products, and view product details.

Tip:
Some tasks, such as product mapping and product approval, can be completed in both the **Product upgrade** form and the **Product preview** form. However, the two forms are not identical. For example, the perspective in the forms is different. In the **Product preview** form, you view data from the product's perspective. However, in the **Product upgrade** form, you view data from the item's perspective. In addition, you can use the **Product preview** form to approve the mapping of selected products. However, you approve product mappings from the **Product upgrade** form, the approval applies to all items in the form.

View mappings and perform tasks on products

1. In the **Product upgrade** form, click **View** > **Product preview** to open the **Product preview** form.
2. Click the buttons to complete the following tasks:
    - **Product mapping** – Map all items, either by item number or by using the 1:1 method.
    - **Product locking** – Lock all products or selected products. Locked products are disregarded during the mapping process. When you consider the mapping of a set of products final, you can lock the products. The locked products are not affected if you later repeat the mapping process.
    - **Product mapping approval**: – Approve or reverse the approval of the mappings for all items or selected items.
    - **Validation** – Validate all mappings or selected mappings.

Tip:
You can validate mappings at any time. When you validate a mapping, you receive a list of validation errors and guidelines to help you resolve the errors.

- **Variants** – View the product variants that were created for products of the Product master subtype.

Tip:
The variants of a product correspond to the combinations of item dimensions for an item.

- **Configurations**, **Sizes**, and **Colors** – View the setups for configuration, size, and color that are inherited from the items.
- **Translations** – View any text translations in different languages that were set up for the items.

See Also

Company priority setup

Inventory dimension group upgrade

Configure site structure

This topic explains how to define a structure for your sites, warehouses, and resource groups. Additionally, you can specify the default site, warehouse, and the fallback warehouse to assign to transactions for which this information is not available and cannot be deduced.

To configure the site structure

1. In the **Configure site structure** form, in the **Filter by company** field, select the company account for which you want to define a site structure.
2. In the **Site** field, enter a unique identifier for the site.
3. In the **Name** field, enter the name of the site.
4. To assign a warehouse or resource to this site, click the **Warehouses** or **Work center groups** tab, and then select the site in the **Site** field.
5. To specify the default site, warehouse, and fallback warehouse for this site, click the **Defaults** tab and then select the site in the **Default site**, **Default warehouse**, or **Fallback warehouse** field.

Map task groups to capabilities

Use this item on the preprocessing checklist to specify the capability that you must have in order to convert task groups during the upgrade process. Task groups are not available in the target system.

Update task groups to capabilities

1. On the **Preprocessing upgrade checklist**, click **Prepare application data for preprocessing** > **Task group upgrade**
2. Select a task group, and then click the **Map task groups** button and choose one of the following conversion methods:

- To map a task group conversion manually, select the task group and then enter a unique identifier in the **Capability** field for each task group.
- To automate the mapping and use the task group ID as the identifier for the capability, click the **Map task groups** button and select **Map task groups by task group ID across all company accounts**.
- To automate the mapping using a 1:1 relationship between task groups and capabilities, click the **Map task groups** button and select **Map task groups 1:1**.

Note:
To delete existing mapping information, click the **Map task groups** button and select **Clear mapping of all task groups**.

Product Builder Route nodes upgrade

This topic describes how to map modeling variables assigned to product models and nodes in the modeling tree to fixed values during the upgrade process. The target system does not support modeling variables. Therefore, existing modeling variables must be mapped to fixed values. The fields that are available on the right side of the form can vary, depending on the modeling variables that are allocated for each product model.

Example

If a modeling variable is allocated for a resource in a product model, the **Resource (Variable)** field shows the modeling variable. You must then select the fixed resource that you want to map the variable to in the **Resource** field.

To map route variables for upgrade

1. Click **Prepare application data for preprocessing** > **Product builder route nodes upgrade**.
2. Select a product model in the grid on the left side of the form. Depending on the modeling variables that require mapping, do one of the following in the available fields.

    - In the **Resource** field, select the fixed resource to which you want to map the modeling variable shown in the **Resource (Variable)** field.
    - In the **Load** field, enter a number for the load that you want to map the modeling variable to.
    - In the **Qty. of Resources** field, enter a number for the quantity of resources that you want to map the modeling variable to.
    - In the **Job Requirement** field, enter a number for the job requirement that you want to map the modeling variable to.

3. To mark this item on the preprocessing checklist as completed, and continue to the next item on the preprocessing checklist, click the **Set to ready for upgrade** button.

Units

A unit of measure is a standard base or a derived division of quantity that is used for measurement or exchange. For example, when you enter an order in Microsoft Dynamics AX, you specify both a quantity and the unit of measure that the quantity represents.

Use the **Preprocess units** form to define how existing company-specific units of measure are mapped to shared units of measure.

Note:
You must set a system language before you can start this task.

Shared units of measure replace company-specific units of measure

Shared units of measure replace the company-specific units of measure that are used in previous versions of Microsoft Dynamics AX. You must map each company-specific unit of measure that exists to a unit of measure that is shared across companies.

Note:
You can change a shared unit of measure so that it differs from the company-specific unit of measure in the number of decimal places or in the description. The existing data in the system is updated so that it reflects the changes.

Map company-specific units of measure to shared units of measure

When you start preprocessing units of measure, the **Preprocess units** form lists all units of measure from all existing companies. When you map units of measure from different companies to one set of shared units of measure, you must align information such as the number of decimal places. This information must be aligned for each unit of measure.

1. Click **Units** to open the **Preprocess units** form.
2. In the **Unit (shared)** field, select the symbol that represents the shared unit of measure. Repeat this step for each line.

   Tip:
   Click **Automatic assignment** to automatically assign each company-specific unit of measure to a new shared unit of measure. When you click **Automatic assignment**, the value of the **Unit** field is copied to the **Unit (shared)** field on all lines where the **Unit (shared)** field is blank. However, you can manually change the value of the **Unit (shared)** field.

   Tip:
   We recommend that you use the international symbols for units of measure. For more information, see General Tables of Units of Measurements.
3. Confirm that the values of the **Description** and **Decimals** fields are the same for every company.

   To consolidate a unit of measure from two companies, you select the same unit symbol in the **Unit (shared)** field on each line. The values of the **Description** and **Decimals** fields may be different on each line. You must align the values of these fields for each shared unit of measure. When the values of these fields are identical, the system can identify the lines that must be merged during the upgrade.

Notes:

- If units of measure from different companies have identical unit symbols, but the values of the **Decimals**, **System of units**, and **Description** fields are different, the mapping cannot be completed. In the **Preprocess units** form, you can use one of the following methods to resolve the issue:
- The solution that you choose depends on the company setup. If the properties of the units of measure differ by mistake, you can align the values of the fields for the properties. If the properties must remain different, you must change one of the unit symbols.

Tip:
To filter the contents of a column, select a field, and then click **Filter By Selection** on the toolbar. For example, to identify all lines that use the unit symbol kg, select the **Unit (shared)** field that has this value.

4. In the **Unit class** field, select a classification for the unit of measure.

   Tip:
   The unit class represents a logical grouping of units of measure, such as area or quantity. The unit classes specify base units and standard units. Base units can be used to streamline the setup of a conversion.

   Note:
   When you start preprocessing units of measure, all units that are derived from existing units of measure are assigned to the **Undefined** class. For each shared unit of measure, you must select a unit class other than **Undefined**. For a shared unit of measure, the unit class must be identical on every line that is associated with the unit of measure.

5. In the **System of units** field, verify that the appropriate system of units is applied.

   The field is set to **None** when company-specific units of measure are created manually. For units such as box and piece, **None** is an appropriate system of units. However, if **None** is not appropriate for a unit of measure, select **Metric** or **United States customary units**. Examples of units of measure that use the **None** category are Box and Pieces.

   Note:
   For a shared unit of measure, the system of units must be identical on every line that is associated with the unit of measure.

6. Click **Validate** to check for validation errors before you set the units of measure to ready for upgrade.
7. After you resolve all of the validation errors, click **Set to ready for upgrade**.

See Also

System parameters

Unit conversions

Unit conversions define formulas for converting between units of measure. One unit conversion can be associated with each unit of measure.

Use the **Preprocess unit conversions** form to define how you want company-specific unit conversions that exist for company-specific units of measure to be consolidated for shared units of measure.

Notes:
You must complete the definition of shared units of measure before you can start this task.

Company-specific unit conversions are consolidated

Each company-specific unit of measure that was created in earlier versions of Microsoft Dynamics AX may have an associated unit conversion. The shared units of measure that you define are based on company-specific units of measure. The associated unit conversions may differ from company to company. The unit conversions can differ in one or more of the following aspects: factor, additional quantity, or rounding information. You must consolidate the unit conversions for each shared unit of measure.

Note:
You may change the factor, additional quantity, or rounding information for a shared unit conversion, so that it differs from the factor, additional quantity, or rounding information in the company-specific unit conversion. In this case, the existing data in the system is updated to reflect the changes.

Consolidate the unit conversions for the shared units of measure

When you start preprocessing unit conversions, all conversions for each shared unit of measure are listed in the **Preprocess unit conversions** form. Before you can consolidate the list of conversions, you must make sure that the factor, additional quantity, and rounding information are identical for each unit conversion. For example, if the conversion from centiliters (cl) to deciliters (dl) is specified on two lines, and the rounding information is different on each line, you must align the rounding information for the cl to dl conversion.

1. Click **Unit conversions** to open the **Preprocess unit conversions** form.
2. In the **Factor**, **Additional quantity**, and **Round-off** fields, verify that the information is identical if more than one line has the same conversion formula.

   Tip:
   Click **Product number** or **From unit (shared)** to change the sort order of the columns.

   Note:
   An additional quantity can be used only with units that belong to the temperature unit class.
3. Click **Validate** to check for validation errors.
4. After you resolve all validation errors, click **Set to ready for upgrade**.

See Also

Units

Fixed units

System units define the units for length, mass, and volume that appear as suggested units of measure in Microsoft Dynamics AX.

Use the **Preprocess fixed units** form to set up the system units.

Note:
You must define shared units of measure before you can begin this task.

Shared system units replace fixed units

System units that are shared across all companies now replace fixed units, which were used in earlier versions of Microsoft Dynamics AX.

Set up system units

1. Click **Fixed units** to open the **Preprocess fixed units** form.
2. In the **Length**, **Mass**, and **Liquid volume** fields, select the system units that you want to use.

   Note:
   The units that you select must belong to the unit classes for length, mass, and liquid volume. You assign units of measure to unit classes in the **Preprocess units** form.
3. Click **Validate** to check for validation errors.
4. After you resolve all validation errors, click **Set to ready for upgrade**.

Unit texts

Unit texts are printed on external documents such as invoices. If no unit text is associated with a unit of measure, the symbol of the unit of measure is applied.

Use the **Preprocess unit texts** form to define how company-specific unit texts that exist are consolidated to a set of shared language-specific unit texts.

From Microsoft Dynamics AX onwards, the language is shared between companies and there is only one shared language. For this reason, text in external documents is not automatically printed in company-specific languages. To accommodate this change and preserve a representation of, for example units of measure, in different languages, you must create new unit texts. The new unit texts must be created for each unit of measure in each of the languages that you want to be represented.

Set the unit texts for different languages

When you start preprocessing unit texts, all unit texts associated with each unit of measure are listed in the **Preprocess unit texts** form. In cases where there is more than one unit text per language for a shared unit of measure, the texts must be aligned so that there is only one text per language.

1. Click **Unit texts** to open the **Preprocess unit texts** form.
2. Verify the text in the **Unit** field. If there is more than one unit text per language associated with a unit, you must align the texts.

   Tip:
   To align unit texts, change the content of the **Unit** fields.
3. Click **Validate** to check for validation errors before you set the unit texts to ready for upgrade.
4. Click **Set to ready for upgrade** when you have resolved all validation errors.

About purchase order upgrade

When you invoice in Microsoft Dynamics AX 2012, the accounting framework does not relieve any accounting entries for accruals that were generated in an earlier version of the program. To upgrade to Microsoft Dynamics AX 2012, you must first relieve any accrual entries that remain for purchase order quantities received but not yet matched to vendor invoices.

To begin the upgrade, select the journal name. The journal name identifies the journal that make up the relief of accruals for purchase order quantities received but not yet matched to vendor invoices.

Notes:

Set these parameters in Microsoft Dynamics AX 2009 to ensure that accounting entries are generated. The accounting entries are generated for the accrual for purchase quantities received but not yet matched to vendor invoices:

User relations upgrade - invalid company users

Users can be internal or external. Internal users include employees, and external users include vendors, customers, and prospects. After you specify user relations, a user's information, such as the employee ID or customer account ID, is automatically displayed in fields when that user opens a page in Enterprise Portal for Microsoft Dynamics AX. For external relations, data in the self-service portal for vendors is trimmed according to the user's designated account. For example, if a user has an external relation for vendor account 1003, the user sees data only for that account in the self-service portal for vendors.

Use the following procedure to delete user accounts for a company when the user ID is not valid.

Delete records when a user account has a an invalid ID

1. Click **User relations upgrade – invalid company users**.
2. Click **Delete all**.
3. Click **Set to ready for upgrade**.

See Also

User relations upgrade duplicate user IDs

User relations upgrade missing contact person

Users can be internal, such as employees, or external, such as vendors, customers, or prospects. After you specify user relations, a user's information (such as employee ID or customer account ID) is automatically displayed in fields when that user opens an Enterprise Portal page. For external relations, data is trimmed on the vendor self-service portal according to account access. For example, if a user has an external relation for vendor account 1003, the user only sees data for that account in the vendor self-service portal.

Use this form to resolve issues when a user relation is not assigned a contact representative in your business or organization.

Specify a contact for a user relation

1. Click **User relations upgrade missing**.
2. Select a user in the list and then click **User relations**.
3. Click the **General** tab.

4. Use the **Contact** person drop-down list to select a contact representative in your business or organization.

User relations upgrade duplicate user IDs

Users can be internal, such as employees, or external, such as vendors, customers, or prospects. After you specify user relations, a user's information (such as employee ID or customer account ID) is displayed automatically in fields when that user opens an Enterprise Portal page. For external relations, data is trimmed on the vendor self-service portal, according to account access. For example, if a user has an external relation for vendor account 1003, the user sees data for only that account in the vendor self-service portal.

Use this form to resolve conflicts when multiple user relations are mapped to a single Microsoft Dynamics AX user account. When each user relation has been assigned a unique Microsoft Dynamics AX user account, click **Set to ready for upgrade**.

Preprocess data on the live system

This section of the **Preprocessing upgrade checklist** contains data preprocessing tasks that can be carried out on a live system. While these tasks are being performed, your business operations can continue without interruption. The following sections are included.

Run live preprocessing scripts

Country/region upgrade

Party upgrade

Run delta preprocessing scripts

Run live preprocessing scripts

The **Run live preprocessing scripts** task opens the **Upgrade live preprocessing** form and displays the scripts that will write prepared data into the shadow and dictionary tables that were created by the Initialize preprocessing task. After you run the live preprocessing scripts, you must correct any issues that are flagged with an error status in the grid. After you correct an issue, you must rerun the failed script, or all failed scripts, until all live preprocessing scripts finish without error. You cannot proceed to running the single-user mode preprocessing scripts until you resolve all live preprocessing script errors.

Run the live preprocessing scripts

Depending on the amount of data you are processing, running the live preprocessing scripts may take a long time. The scripts run while your Microsoft Dynamics AX source system is live and being used for production. This can slow system performance. To lessen the impact of preprocessing on your live system, you can pause some or all of the scripts during business hours and resume them after business hours.

Note:
Some live preprocessing scripts cannot be paused. These scripts appear in the grid with a task status of **The task does not support pausing**.

Complete the following steps to begin running the live preprocessing scripts.

1. In the **Preprocessing upgrade checklist**, click **Run live preprocessing scripts**.

2. In the **Upgrade live preprocessing** form, click **Run**.

Pause and resume live preprocessing scripts

Complete the following steps to pause live preprocessing scripts.

1. In the **Upgrade live preprocessing** form, click **Manage running tasks**.
2. In the **Manage running tasks** form, do one of the following:
   - To pause a single script, select the script in the grid, and then click **Pause task**.
   - To pause all scripts, click **Pause all tasks**.

Complete the following steps to resume a paused script.

1. In the **Upgrade live preprocessing** form, click **Manage running tasks**.
2. In the **Manage running tasks** form, select a paused script in the grid, and then click **Resume task**.

Country/region upgrade

Earlier in the process, you used the **Default country/region** form to specify for a company the default country/region to assign to address records that do not already have a specified country/region. For example, you selected a default country/region for Fabrikam, and that country/region will be assigned to any Fabrikam customer that does not already have a country/region selected for their address record. But Fabrikam has customers in multiple countries/regions, and the default country/region will not apply to all customers.

Use this form to change the country/region for individual addresses.

1. Click **Country/region upgrade** to open the **Addresses with no country/region** form. The form contains a list of addresses that do not have a country/region assigned.
2. Do one of the following:
   - To apply the same country/region to all the addresses in the list, select a country/region in the **Select a default country/region to apply** field, and then click **Apply**.

     You can filter the list and then apply a default country/region to the records that are displayed.
   - To set country/regions for addresses individually, select the address and then select a country/region in the **Country/region** field.
3. Update other address information as necessary.
4. Click the **Set to ready for upgrade** button.

Party upgrade

A party is a person or organization that can be internal or external to your organization. Each party has its own record within Microsoft Dynamics AX. In Microsoft Dynamics AX 2012, every customer, vendor, prospect, and competitor must be categorized as either a person or an organization. When you are upgrading to Microsoft Dynamics AX 2012, all customer, vendor, prospect, and competitor records are assigned the party type **Organization** by default.

Use this form to indicate any customers, vendors, prospects, and competitors that should be categorized as a **Person** party type and to verify the name components for each **Person** party record. You can also use

this form to specify the name sequence, for example, First, Middle, Last, that will be used on a **Person** party record. **Person** party records also include contacts and employees.

1. Click **Party Upgrade** to open the **Party upgrade** form.
2. In the **Select the default person name sequence** field, select the sequence in which you want names to be displayed for a **Person** party record.
3. In the **Type** field, update any party records whose record type is changing from **Organization** to **Person**.
4. After you have updated all your party records, click **Set to ready for upgrade**.

Run delta preprocessing scripts

You run the delta preprocessing scripts after you complete the **Global address book country/region upgrade** task on the Microsoft Dynamics AX source system. The delta preprocessing scripts check for changes to the production data that have occurred since you started running the live preprocessing scripts. Then, like the live preprocessing scripts, the delta scripts process the updated data into the shadow and dictionary tables.

Like the live preprocessing scripts, the delta preprocessing scripts run while your Microsoft Dynamics AX source system is live and being used for production. To optimize performance, you can pause some or all of the delta scripts by using the **Manage running tasks** form.

Note:
Some delta preprocessing scripts cannot be paused. These scripts appear in the grid with a **Task state** that says *The task does not support pausing*.

You can run the delta preprocessing scripts multiple times until you are ready to enter single-user mode. To minimize downtime, make sure to run the delta preprocessing scripts just before entering single-user mode.

Run the delta preprocessing scripts

1. In the **Preprocessing upgrade checklist**, click **Run delta preprocessing scripts**.
2. In the **Upgrade delta preprocessing** form, click **Run**.

Pause and resume the delta preprocessing scripts

Complete the following steps to pause delta preprocessing scripts.

1. In the **Upgrade delta preprocessing** form, click **Manage running tasks**.
2. In the **Manage running tasks** form, do one of the following:
   - To pause a single script, select a running script from the grid, and then click **Pause task**.
   - To pause all running scripts, click **Pause all tasks**.

Complete the following steps to resume a paused script.

1. In the **Upgrade live preprocessing** form, click **Manage running tasks**.
2. In the **Manage running tasks** form, select a paused script from the grid, and then click **Resume task**.

Preprocess data in single-user mode

This final section of the **Preprocessing upgrade checklist** contains data preprocessing tasks that must be performed in single-user mode. Your system is offline for non-administrative users from now until the end of the upgrade process. The following sections are included.

Enter into single-user mode

You enter into single-user mode on the Microsoft Dynamics AX source system to make sure that the system is unavailable for business use. In single-user mode, only an upgrade user who has administrative permissions is connected. No other users can start a client session when the source system is in final preprocessing and source data is being bulk copied to the Microsoft Dynamics AX 2012 target system. After you enter into single-user mode, you can run the single-user mode preprocessing scripts and begin bulk copy of data to the target system.

In this step, you will do the following:

- Enter into single-user mode and end current user sessions by using the **Online users** form.
- Reopen client sessions for an administrative user on a single instance of the AOS (Microsoft Dynamics AX 4.0 only).
- Back up the source system database.
- Set the Microsoft SQL Server database recovery model to *simple*.

Enter single-user mode and end current user sessions

To enter single-user mode

1. In the **Preprocessing upgrade checklist**, click **Enter into single-user mode**.
3. Click the **Server Instances** tab to see a list of all instances of the AOS that are running.
4. Select a server instance, click **Reject new clients**, and then click **OK** to confirm that you want to stop the AOS from accepting new client sessions.

   In the **Status** column, the status changes to **Draining**. This status means that no users can start a new client session in the AOS instance. However, rejecting new clients does not end any current sessions.
5. Repeat step four for all server instances that are running.

After you set the AOS instances to reject new client sessions, end all current client sessions. Before you do, make sure that all users who have active client sessions have finished their work.

To end client sessions

1. In the **Online users** form, click the **Client Sessions** tab.
2. Select the user sessions that you want to end (other than a single administrative user session), and then click **End sessions**.
3. In the **End sessions** window, click **OK**, and then click **Close**.

Reopen client sessions to set up batch threads in Microsoft Dynamics AX 4.0

The client-based batch framework in Microsoft Dynamics AX 4.0 supports only a single batch thread for each active client session. If you are upgrading from Microsoft Dynamics AX 4.0, you can open up to eight

user sessions to allow multiple batch threads. These batch threads are necessary for running the final preprocessing scripts and bulk copying data to the target system. All user sessions must be opened by an upgrade user who has administrative permissions. Open these client sessions on a single AOS instance.

To allow new client sessions

1. In the **Online users** form, click the **Server instances** tab.
2. Select a server instance, and then click **Accept new clients**.

   After you begin running the preprocessing upgrade scripts in the next checklist task, **Run single-user mode preprocessing scripts**, you can open the new client sessions for batch threads on Microsoft Dynamics AX 4.0. If you open additional sessions before starting the script run, the run will fail.
3. After you have opened the client sessions that you need for batch threads, return to the **Online users** form and click **Reject new clients** to prevent additional sessions from being opened.

Warning:
If you allow reopening client sessions in Microsoft Dynamics AX 4.0, you must take steps to ensure that no other users log on to make transactions when preprocessing scripts are being run and bulk copy is in progress. If any transactions are made on the Microsoft Dynamics AX source system during this time, your data will be invalid and the upgrade will fail.

Back up the source system database

Back up the source system SQL Server database to protect your data from any loss that may be caused by unexpected issues during single-user mode preprocessing. The backup also sets the initial recovery point for the simple recovery model that you will set for your SQL Server database during this stage of upgrade. To find the procedures for backing up your SQL Server database, use the following links:

- To back up a SQL Server 2008 database, see How to: Back Up a Database (SQL Server Management Studio)
- To back up a SQL Server 2005 database, see How to: Back Up a Database (SQL Server Management Studio)

Set the Microsoft SQL Server recovery model to simple

Before you begin final preprocessing on the source system, set the source system SQL Server recovery model to *simple*. By setting the recovery model to simple, you permit the high-performance bulk copy process that is optimal for running the single-user mode preprocessing scripts and bulk copy of the source data to the target system.

1. Open Microsoft SQL Server Management Studio (**Start** > **All Programs** > **Microsoft SQL Server [version]** > **SQL Server Management Studio**).
2. In **Object explorer**, select the database to open the **Database properties - <database name>** form.
3. In the **Select a page** pane, click **Options**.
4. In the **Recovery model** list, select **Simple**.
5. Click **OK**.

Run single-user mode preprocessing scripts

Run single-user mode preprocessing scripts is the final task in the **Preprocessing upgrade checklist**. This task first checks that the system is running with only a single administrative user logged in. If this test is successful, the **Upgrade single-user preprocessing** form opens. Clicking **Run** on this form launches the delta upgrade scripts for a final time and then launches the upgrade scripts that prepare data to be bulk copied to the target system. These scripts run using set-based operation.

Use parallel processing to reduce downtime

Single-user mode operation of your Microsoft Dynamics AX system means that the system is unavailable for business transactions. The upgrade framework enables parallel processing of the source system data in order to keep downtime to a minimum. If you are upgrading from Microsoft Dynamics AX 2009, this checklist task will initiate parallel processing of the data automatically. If you are upgrading from Microsoft Dynamics AX 4.0, you can manually initiate parallel processing.

When you run single-user mode preprocessing on a Microsoft Dynamics AX 4.0 system, each client connection enables a single batch thread to run. To run multiple batch threads and improve performance, you allow the system to accept new connections, and then open multiple clients using the administrative login. While the system is accepting new connections, you must insure that no non-administrative users connect and make transactions. Any transaction made after you enter single-user mode will invalidate the data and the upgrade will fail. Also, if the source system uses multiple instances of the application object server (AOS), you must make sure that only one instance of the AOS allows new connections.

For more information, see Enter into single-user mode.

Prepare for single-user mode preprocessing

Before you run the single-user mode preprocessing scripts, back up the Microsoft SQL Server database and set the database recovery model to *simple*. For more information about how to prepare for running the single-user mode preprocessing scripts, see Enter into single-user mode.

Single-user mode preprocessing scripts on the source system run concurrently with the bulk copy of data to the Microsoft Dynamics AX 2012 target system, synchronization of the Microsoft SQL Server database on the source system, and post-synchronization of the database. This process will take several hours.

Run the single-user mode preprocessing scripts

Complete the following steps to run the single-user mode preprocessing scripts and complete the tasks on the **Preprocessing upgrade checklist**

1. In the **Preprocessing upgrade checklist**, click **Run single-user mode preprocessing scripts**.
2. In the **Upgrade single-user preprocessing** form, click **Run** to start running the single-user mode preprocessing scripts.

Using the preprocessing upgrade state transfer tool

The preprocessing upgrade state transfer tool helps you minimize downtime during upgrade. The tool also helps you avoid putting an additional load on your production Microsoft Dynamics AX system while you prepare to upgrade it. This topic describes how to create a test system that is a replica of your production system, perform data preprocessing on the test system, and then transfer the completed preprocessing state back to the production system.

How the state transfer tool works

The state transfer tool operates on a Microsoft Dynamics AX source system where some of the tasks of the **Preprocessing upgrade checklist** have been completed. The tool analyzes the code in the upgrade preprocessing project to identify the upgrade staging and framework tables that are required to capture the state of the **Preprocessing upgrade checklist**. The tool then uses the Microsoft SQL Server Bulk Copy Program (BCP) utility to copy these tables to a second Microsoft Dynamics AX source system. During bulk copy, you can add processor threads to improve data throughput.

Plan before you use the state transfer tool

The state transfer tool is intended to help minimize the amount of upgrade preprocessing that must be performed on a production system. Use the state transfer tool if you want to offload the live upgrade preprocessing task to a test server. However, note that use of this tool requires careful consideration and planning. We recommend that you test the tool on a non-production system before you use it for upgrade in your production environment. Also, after you perform a state transfer, you must reconcile the updated data in your test system with the data in your production system.

Prepare to perform a state transfer

Before you perform a state transfer, you must complete the following tasks on the test and production source systems.

Prepare the production system

1. On the production system, import the preprocessing XPO that is appropriate for the Microsoft Dynamics AX version that you are upgrading. For more information, see the Microsoft Dynamics AX 2012 Upgrade Guide.
2. On the production system, install the upgrade-related label file (.ald) files. Also install the upgrade-related Help files (.chm) files. For more information, see the Microsoft Dynamics AX 2012 Upgrade Guide.
3. On the **Preprocessing upgrade checklist**, complete the **Check upgrade readiness** task and resolve any validation errors. Enable triggers to track necessary data, based on prompts from the upgrade readiness checks. For more information about this step, see Check upgrade readiness.
4. The test system must be an exact replica of the production system. Copy the USR layer (.aod) file on the production system, and back up the production system database:
   a. Copy the USR layer (.aod) file. Typically, this file is located at C:\Program Files (x86)\Microsoft Dynamics AX\40\Application\<application instance>\axusr.aod or C:\Program Files\Microsoft Dynamics AX\50\Application\<application instance>\axusr.aod. Have this file available for installation on the test system.
   b. Use Microsoft SQL Server Management Studio to back up the Microsoft Dynamics AX database. Have this backup file available for installation on the test system.

Important:
After you copy the USR layer and make backup of the database, you must avoid making changes to the application on your production system. Data transactions may continue (allowing continued business operations), but metadata changes, customizations, changes to the AOT, and anything that changes the behavior of the application can cause the state transfer to fail.

Prepare the test system

The following steps produce a test source system that is configured identically to the production source system.

Warning:
Do not import the upgrade XPO into the test source system. The necessary upgrade framework code is provided in the AOD file that you copied from the production source system. Importing the XPO overwrites element IDs and causes runtime errors.

1. Install the upgrade-related label files (.ald) files. Also install the upgrade-related Help (.chm) files. For more information, see the Microsoft Dynamics AX 2012 Upgrade Guide.
2. Install the USR layer (.aod) file that you copied from the production system. Typically, this file is installed at C:\Program Files (x86)\Microsoft Dynamics AX\40\Application\Appl\Standard\axusr.aod or C:\Program Files\Microsoft Dynamics AX\50\Application\Appl\DynamicsAX5\axusr.aod.
3. Use SQL Server Management Studio to restore the database backup from the production system as the Microsoft Dynamics AX database on the test system.

Important:
After you complete these steps, you must restart Application Object Server (AOS).

The test source system is now ready for upgrade preprocessing. We recommend that you complete the following tasks on the **Preprocessing upgrade checklist**:

1. All tasks in the **Prepare application data for preprocessing** section
2. **Run live preprocessing scripts**
3. **Run delta preprocessing scripts**

Enable the database connection

Windows integrated security is used to connect to the production source system from the test source system. The administrative user who is performing the state transfer must have access to the Microsoft Dynamics AX database on the production source system. Otherwise, the production source system rejects the database connection. Open SQL Server Management Studio on the production source system, and follow these steps:

1. Grant access to the Microsoft Dynamics AX database to a domain user who has administrative privileges on the test source system.
2. Add this user to the **db_owner** and **public** database roles.

Open the Preprocessing upgrade state transfer form

After you have completed upgrade preprocessing on the test system, open the **Preprocessing upgrade state transfer** form on the production system. The form is opened from a private project that is installed by the preprocessing framework XPO.

1. Click the **Project** icon on the Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 toolbar.
2. Expand **Private**.
3. Double-click **xferUpgState (usr)**.
4. Scroll down to **xferUpgState (usr)**, right-click, and then click **Open**.

Perform the state transfer

1. In the **Server name** field, enter the name of the test system.
2. In the **Database name** field, enter the name of the Microsoft Dynamics AX database for the test system.
3. Click **Run** to start the upgrade state transfer. The state transfer tool validates conditions in both the test system and the production system. If no errors are found, the tool schedules batch jobs to bulk copy all shadow, dictionary, auxiliary, and framework tables from the test source system to the production source system.

A form opens so that you can monitor and manage the bulk copy process. The form is called **Batch list** in Microsoft Dynamics AX 4.0 and **Batch tasks** in Microsoft Dynamics AX 2009. You can use the form to pause or rerun jobs if you have to.

Important:
To use the state transfer tool, you must enable administrative user access between the test and production systems by using Windows integrated security.

Perform post-transfer tasks

After the state transfer is complete, run open the **Preprocessing upgrade checklist** and rerun the tasks in the section **Prepare application data for preprocessing**. This will allow you to make manual adjustments to new data from the delta between production system backup and completion of the state transfer.

Finally, run the delta preprocessing scripts, and then continue with upgrade preprocessing in single-user mode.

Create the target system

After you preprocess data on the source Microsoft Dynamics AX system, or concurrently with preprocessing data, you must install Microsoft Dynamics AX 2012 on a target computer system. This section presents the steps that are involved in installing and setting up the new system. The following sections are included.

Verify that you have the required permissions for installation

Set permissions specific to upgrade

Install Microsoft Dynamics AX (upgrade)

Configure the model store for upgrade

Import application files into the model store

Import label files into the model store

Verify that you have the required permissions for installation

Before beginning the Microsoft Dynamics AX installation process, work with a system administrator to ensure that the account you log on with at each server has appropriate permissions. The permissions listed below are implemented according to the principle of least privilege.

In all cases, you must be a member of the **Administrators** group on the local computer where you are installing a component. The following table lists permissions that are required in addition to administrator access on the computer.

Component	Additional permissions required to install
Databases	Member of the **dbcreator** role on the SQL Server instance. If you are installing the databases remotely from a computer other than the database server, you must log on to the remote computer with an account that is an administrator on the SQL Server computer. Setup requires access to SQL Server services.
Application Object Server (AOS)	Member of the **securityadmin** role on the SQL Server instance you want to connect to.
Enterprise Portal	Member of the **System administrator** role in Microsoft Dynamics AX and a member of the **dbcreator** role on the SQL Server instance being used for Microsoft SharePoint® Services.
Enterprise Search	Member of the **System administrator** role in Microsoft Dynamics AX, a member of the **Administrator** group in Microsoft SharePoint Services, and a member of the **dbcreator** role on the SQL Server instance being used for Microsoft SharePoint Services.
Help server	Member of the **System administrator** role in Microsoft Dynamics AX.
Reporting Services extensions	Member of the **System administrator** role in Microsoft Dynamics AX.
Analysis Services configuration	Member of the SQL Server **db_accessadmin** role for the Microsoft Dynamics AX database.
Client	None
Office add-ins	None
Remote Desktop Services integration	None
Debugger	None
Visual Studio® Tools	None
Trace Parser	None
Web services on IIS	Member of the **System administrator** role in Microsoft Dynamics AX.
.NET Business Connector	None
Synchronization proxy	Member of the **dbowner** database role on the SQL Server database for Microsoft Project Server.
Synchronization service	Member of the **System administrator** role in Microsoft Dynamics AX.
Management utilities	None

Set permissions specific to upgrade

Before you begin the Microsoft Dynamics AX installation process, work with a system administrator to ensure that the account you log on with at each server has the following permissions that are specific to upgrade. These permissions are implemented according to the principle of least privilege.

Set permissions

The following table lists permissions that must be set for upgrade.

Component	Additional permissions required
Upgrade checklists	Member of the SYSADMIN role in Microsoft Dynamics AX.
Source database (the database that will be upgraded to Microsoft Dynamics AX 2012)	Same domain user (using Windows integrated security) must have ownership privileges on both the source Microsoft Dynamics AX and target Microsoft Dynamics AX 2012 databases.

Install Microsoft Dynamics AX (upgrade)

You must install Microsoft Dynamics AX 2012 on a new server computer before completing the upgrade from Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009. For complete installation instructions, refer to the Microsoft Dynamics AX Installation Guide.

Important:
Be sure to select **Register database for upgrade** as an option during installation.

Copy application and label files to the target system

Customized AOD application files in Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 must be manually copied to the target system in preparation for code upgrade. The associated ALD label files must also be copied.

Complete the following tasks to copy and prepare the AOD and ALD files for upgrade.

1. Copy the source system AOD (*.aod) files that you are upgrading to the standard location on the target system:
   <system>:\Program Files\Microsoft Dynamics AX\60\Application\appl\<instancename>\
2. Copy the source system ALD (*.ald) files that you are upgrading to the standard location on the target system:
   <system>:\Program Files\Microsoft Dynamics AX\60\Application\appl\<instancename>\
3. Create a folder called **Old** at <system>:\Program Files\Microsoft Dynamics AX\60\Application\appl\<instancename>\Old\. Copy the source system AOD (*.aod) and ALD (*.ald) files that you plan to upgrade into this folder.
4. Update layer names that have changed from Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009.

- If you are upgrading an axbus.aod file, rename it to axisv.aod in both the standard and **Old** directories.
- If you are upgrading an axbup.aod file, rename it to or axisp.aod in both the standard and **Old** directories.
- If you are upgrading an axlos.aod or axsl2.aod file, rename it to axsln.aod in both the standard and **Old** directories.
- If you are upgrading an axlop.aod or axsl3.aod file, rename it to axslp.aod in both the standard and **Old** directories.
- If you are upgrading an axdis.aod or axhfx.aod file, rename it to axfpk.aod in both the standard and **Old** directories.
- If you are upgrading an axdip.aod or axsl1.aod file, rename it to axfpp.aod in both the standard and **Old** directories.

5. In each case described above, also change the name of the associated ALD label file to match the AOD application file.

Import application files into the model store

This topic describes the process of importing application (AOD) files into the model stores that are introduced with Microsoft Dynamics AX 2012. There are two model stores, referred to here as *old* and *new*. These databases are functionally equivalent to the old (legacy) and new (upgraded) application file shares in previous versions of Microsoft Dynamics AX.

Use the following procedure to import your AOD files into the new and old model stores. If you are upgrading more than one layer, start from the lowest layer and repeat these procedures for each layer, working up.

1. Import an AOD file in the new application folder into the new model store.
   a. In the Microsoft Dynamics AX client, open a developer workspace (CTRL+Shift+W).
   b. On the toolbar, click **Tools > Development tools > Import AOD file**.
   c. Choose the layer that you want to import, make sure that **Old** is not selected, and click **OK**.

   The AOD file is imported into the new model store and is ready to upgrade.
2. Import an AOD file in the old application folder into the old model store.
   a. In the Microsoft Dynamics AX client, open a developer workspace (CTRL+Shift+W).
   b. On the toolbar, click **Tools > Development tools > Import AOD file**.
   c. Choose the layer that you want to import, select **Old**, and click **OK**.

   The AOD file is imported into the old model store.

Import label files into the model store

This topic describes the process of importing label (ALD) files into the model store that is introduced with Microsoft Dynamics AX 2012. The model store database is functionally equivalent to the application file share in previous versions of Microsoft Dynamics AX.

For each customized application (AOD) that you import, there is a corresponding ALD file. If you are upgrading more than one layer, start from the lowest layer and repeat this procedure for each layer, working up.

You import your ALD files into the standard (new) model store only. They cannot be imported into the old model store.

Important:
Before you begin this procedure, you must finish the process of importing the customized application (AOD) files. For more information, see Import application files into the model store.

To import your custom ALD label files

1. In the Microsoft Dynamics AX client, open a developer workspace (CTRL+Shift+W).
2. Open the Application Object Tree (AOT) in the layer that you are editing, for example, the ISV layer.

   Warning:
   Be careful to import the ALD file into the layer that you intend. A label node cannot be removed after it has been added to the AOT, and this may cause problems during later attempts to manipulate labels.
3. In the AOT tree, right-click the **Label Files** node, and then click **Create from File**.
4. In the **Select file** window, navigate to the folder <system>:\Program Files\Microsoft Dynamics AX\60\Application\appl\<instancename>\ and select the label file for the layer and language you are upgrading. (If you followed the procedures in Copy application and label files to the target system, the ALD files should have been copied to this folder.)

   For example, to import the label file for the ISV layer and United States English, select axISVen-us.ald.
5. Click **Open**. The label layerID, LableID, and text are imported into the elementlabel table in the model store.
6. Repeat the previous steps for each language that you want to support in Microsoft Dynamics AX 2012.

After you import the ALD files into the model, you can perform normal operation on the labels, including editing them in the label editor.

Checklist tasks on the target system

This section covers the tasks that are involved in copying your custom application code to the target Microsoft Dynamics AX 2012 system, importing it into the model store, and upgrading it for use on the new system. The following sections are included.

Upgrade preparation

Code upgrade

Data upgrade

Finalize upgrade

Additional upgrade tasks

Upgrade preparation

This section covers tasks on the Microsoft Dynamics AX 2012 target system that prepare your business data for upgrade. The following sections are included.

Compile the application (upgrade)

Generate Common Intermediate Language

Provide license information

Set customer feedback options

Compile the application (upgrade)

When the Microsoft Dynamics AX application is compiled, its source code is translated into a machine-readable format that can be interpreted by the Microsoft Dynamics AX server and clients. You compile the application to ensure that all object references are updated and the application is ready to use.

This task is optional in the **Data upgrade checklist**. However, to prevent unexpected program behavior, we advise you to compile all of your code after code upgrade.

Important:
Depending on your hardware, compilation can take an hour or more. It is critical to let compilation run until it is complete.

Generate Common Intermediate Language

If you are upgrading customized code as part of an upgrade to Microsoft Dynamics AX 2012, you must complete the **Generate CIL** task. This task converts your customized code to code that can be consumed by the Microsoft.NET Framework.

Important:
Before you can perform this task, you must complete the **Compile application** task, which comes before this task in the **Data upgrade checklist**.

Common Intermediate Language (CIL) is the bytecode language that the just-in-time (JIT) compiler of the .NET Framework interprets. Microsoft Dynamics AX converts compiled X++ code, or p-code, to CIL. This conversion provides interoperability with .NET classes, and it also provides performance advantages. The following Microsoft Dynamics AX components rely on the speed of CIL:

- Batch jobs
- AIF and services
- Run-as scenarios, in which .NET functions are substituted for X++ functions at run time

Provide license information

To be able to use Microsoft Dynamics AX, the administrator must enter license information. By entering license codes, you enable the general functionality covered by the license. Then, you can enable or disable access to more specific features by changing configuration keys.

Note:
If you change the current license settings because license keys are updated, the new functionality will not be available until the client is restarted.

In addition to license codes for Microsoft Dynamics AX functionality, there are licenses for access to the Microsoft Dynamics AX development environment. For more information, see the Developer Help, available from the Microsoft Dynamics AX Help menu.

If you do not have a license, you can set up Microsoft Dynamics AX in demonstration mode. Demonstration mode provides all the functionality of Microsoft Dynamics AX, and enables all configuration keys by default.

Language-specific licenses

If your license includes specific languages, you must restart the AOS after importing the license file or entering license information. Restarting the AOS ensures that the correct languages are listed in the **Options** form (**Microsoft Dynamics AX** > **Tools** > **Options...**).

If you do not restart the AOS, end users will be able select unlicensed languages, which would prevent the Microsoft Dynamics AX client from starting.

Import license information

1. **License information**
2. Click **Load license file** to import the license codes from a file.

   The **Load license file** dialog box appears.
3. Click the folder icon and browse for the license file.

   Note:
   We recommend that you store the license file in a secure location that is known only to Microsoft Dynamics AX administrators.
4. Click **OK**. A message appears, asking whether you want to synchronize the database.
5. Click **Yes**.
6. Close the **License information** window.

Enter license information

As an alternative to importing the license information, you can enter the license information manually.

1. **License information**
2. Enter the name of the license holder, the system's serial number, and the expiration date. The information is in the license document.
3. On the **System** tab, enter the license code and verify that the **Status** field displays the expected text.

   The license code indicates whether you have a standard, professional, or enterprise solution.

   Important:
   The first four entries (name of the license holder, the system's serial number, expiration date, and license code) determine what appears in the remaining codes. Therefore, they must be entered correctly.
4. Enter the remaining codes.

For each, review the **Status** field to make sure that the code is accepted.

Set customer feedback options

Open the **Microsoft Dynamics AX customer feedback options** form from the initialization checklist or the **Data upgrade checklist**.

Join the Customer Experience Improvement Program to help improve the quality, reliability, and performance of Microsoft software and services.

The program collects information about computer hardware and how you use Microsoft Dynamics AX, without interrupting you. This helps Microsoft identify which Microsoft Dynamics AX features to improve. No information collected is used to identify or contact you.

For more information and a complete privacy statement for the Customer Experience Improvement Program, visit the Customer Experience Improvement Program Web site.

Code upgrade

This section covers the tasks that are required to import and upgrade your customized code on the Microsoft Dynamics AX 2012 target system. The following sections are included.

Import layer AOD into the baseline model store

Import layer AOD into the new model store

Import layer labels into the new model store

Detect code upgrade conflicts

Import layer AOD into the baseline model store

Import the .aod file for the layer that you want to upgrade from the source system into the baseline model store.

For more information about how to upgrade code, see the white papers about code upgrade that are available on the Microsoft Download Center.

Importing .aod files into the baseline model store

Import .aod files into the baseline model store as follows.

1. On the server, create a folder that is named Old in the following location: %ProgramFiles%\Microsoft Dynamics AX\60\Server\MicrosoftDynamicsAX\bin\Application\Appl\Standard.
2. Copy the .aod file for the current layer from the source system to the Old folder.

3. Some layers have been renamed in Microsoft Dynamics AX 2012. Rename each .aod file to the new name of the layer in Microsoft Dynamics AX 2012. The following table shows the names of the layers in different versions of Microsoft Dynamics AX.

Microsoft Dynamics AX 4.0 layer	Microsoft Dynamics AX 2009 layer	Microsoft Dynamics AX 2012 layer (Rename to this)
axbup.aod	axbup.aod	axisp.aod
axbus.aod	axbus.aod	axisv.aod
axlop.aod	axsl3.aod	axslp.aod
axlos.aod	axsl2.aod	axsln.aod
axdip.aod	axsl1.aod	axfpp.aod
axdis.aod	axhfx.aod	axfpk.aod

4. In the **Import layer AOD into the baseline model store** dialog box, select the name of the .aod file that you want to import. When you import layer files, you must start with the lowest layer.
5. Click **OK** to import the .aod file.

   If the .aod file contains items that cannot be imported, an **Infolog** message is displayed. For more information, see the log file referenced in the message. Usually, an application object cannot be imported because of one of the following reasons:

   - A method was added to a class that no longer exists in the Application Object Tree (AOT).
   - There is an ID conflict between two elements that have the same name and type, but different IDs.
   - You customized a hybrid class or a table that supports inheritance.

   To resolve these issues, identify all the application objects that were not imported from your Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 system. Export these application objects to an .xpo file. Then import the .xpo file into the Microsoft Dynamics AX 2012 system by clicking **Import** on the AOT toolbar.
6. In the **Code upgrade checklist**, continue with the next steps for the layer file that you imported. Then return to this procedure when you are ready to import the next layer file.

   Important:
   For information about how to upgrade code, see the white papers about code upgrade that are available on the Microsoft Download Center.

See Also

Import layer AOD into the new model store

Import layer AOD into the new model store

Import the .aod file for the layer that you want to upgrade from the source system into the new model store.

Importing .aod files into the new model store

Import .aod files into the new model store as follows.

1. Copy the .aod file for the current layer from the source system to the following folder: %ProgramFiles%\Microsoft Dynamics AX\60\Server\MicrosoftDynamicsAX\bin\Application\Appl\Standard. Do not copy the .aod files for the layers that Microsoft owns into this folder.

2. Some layers have been renamed in Microsoft Dynamics AX 2012. Rename the .aod file to the new name of the layer in Microsoft Dynamics AX 2012. The following table shows the names of the layers in different versions of Microsoft Dynamics AX.

Microsoft Dynamics AX 4.0 layer	Microsoft Dynamics AX 2009 layer	Microsoft Dynamics AX 2012 layer (Rename to this)
axbup.aod	axbup.aod	axisp.aod
axbus.aod	axbus.aod	axisv.aod
axlop.aod	axsl3.aod	axslp.aod
axlos.aod	axsl2.aod	axsln.aod
axdip.aod	axsl1.aod	axfpp.aod
axdis.aod	axhfx.aod	axfpk.aod

3. In the Import layer AOD into the new model store dialog box, select the name of the .aod file that you want to import. When you import layer files, you must start with the lowest layer. However, do not import the layers that Microsoft owns into the new model store.

4. Select the model that you want to import the .aod file into.

5. Click OK to import the .aod file. If the .aod file contains items that cannot be imported, an Infolog message is displayed. For more information, see the log file referenced in the message. Usually, an application object cannot be imported because of one of the following reasons:

   - A method was added to a class that no longer exists in the Application Object Tree (AOT).
   - There is an ID conflict between two elements that have the same name and type, but different IDs.
   - You customized a hybrid class or a table that supports inheritance.

   To resolve these issues, identify all the application objects that were not imported from your Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 system. Export these application objects to an .xpo file. Then import this .xpo file into the Microsoft Dynamics AX 2012 system by clicking Import on the AOT toolbar.

6. In the Code upgrade checklist, continue with the next steps for the layer file that you imported. Then return to this procedure when you are ready to import the layer file for the next layer. You can then import the remaining layers one at a time, starting with the lowest layer.

See Also

Import layer labels into the new model store

Import layer labels into the new model store

Import custom label files, or .ald files, into the new model store.

For more information about how to upgrade code, see the white papers about code upgrade that are available on the Microsoft Download Center.

Importing label files into the new model store

Import label files into the new model store as follows.

1. On the Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009 source system, create a label file for the layer that you are importing by using the Label File Wizard. Then copy the label file to the Microsoft Dynamics AX 2012 system.

2. In the Select file dialog box, select the name of the label file that you want to import. You must select the label file that corresponds to the .aod file that you imported in the previous step of the Code upgrade checklist.

3. Click OK to import the label file.

4. In the Code upgrade checklist, continue with the next steps for the label file that you imported. Then return to this procedure when you are ready to import the next label file. You can then import the remaining layers one at a time, starting with the lowest layer.

Detect code upgrade conflicts

Create an upgrade project that contains objects that have conflicts because of modif/ications or updates. The project contains objects that have been changed both in the new release and in your application object layer.

For more information about how to upgrade code, see the white papers about code upgrade that are available on the Microsoft Download Center.

Creating an upgrade project

1. From the Microsoft Dynamics AX developer workspace, click **Tools** > **Code upgrade** > **Detect code upgrade conflicts**.
2. Select **Create layer conflict project**.
3. (Optional) To create separate projects for conflicting record IDs and table IDs, select **Create framework conflict project or projects**, and then select the **Record and table ID references** check boxes.
4. Click **OK**.

One or more new upgrade projects are created.

Alternatives to the Detect code upgrade conflicts tool

Instead of using the **Detect code upgrade conflicts** tool, you can use the **Compare layers** tool to compare any two layers. You can also use the **Compare layers** tool to create a project that contains the objects that differ.

Note:
When you use the **Detect code upgrade conflicts** tool, you can delete duplicates. However, you cannot delete duplicates when you use the **Compare layers** tool. Therefore, the **Compare layers** tool may be more useful as a general tool, for example, to provide an overview of the modifications that were made in a certain layer.

During the upgrade, you can use the **Project filter** tool instead of both the **Detect code upgrade conflicts** tool and the **Compare layers** tool. You can use the **Project filter** tool to create a project that is based on criteria that you specify in a query form. For example, the project can contain all objects that are from a specific layer, all objects that have a specific prefix, or all objects that were created by a specific user.

See Also

Generate Common Intermediate Language

Data upgrade

This section covers the process of upgrading your business data on the Microsoft Dynamics AX 2012 target system. The following sections are included.

Connect to source database

Set current time zone

Presynchronize (upgrade)

Create tables

Generate table mappings

Generate upgrade task prioritization

Launch data upgrade

Connect to source database

The **Connect to source database** task in the **Data upgrade checklist** establishes a connection between the Microsoft Dynamics AX source system database and the target system database. After you make this connection, you can begin preparing the target database for the bulk-copy operation that occurs during data upgrade.

Configure matching user permissions

Windows integrated security is used to connect to the source database from the target system. If the administrative user who is performing the upgrade on the target system does not have access to the source system database, the source system will reject the database connection. Open Microsoft SQL Server Management Studio on the source system and perform the following steps:

1. Grant Microsoft Dynamics AX database access to a domain user with administrative privileges on the target Microsoft Dynamics AX 2012 system.
2. Add the user to the **db_owner** and **public** roles.

Connect to source database

Complete the following steps:

1. In the **Data upgrade checklist**, expand the **Data upgrade** group.
2. Click **Connect to source database**.
3. In the **Connect to source database** form, do the following:
   a. In the **Server name** field, type the name of the server and the Microsoft SQL Server database in the format *SERVER\DATABASE*.
   b. In the **Database** field, type the name of the Microsoft Dynamics AX source database instance, for example, *DynamicsAX50*.
4. Click **OK**.

The upgrade framework searches the network for the server and database that you specified. When the computers connect successfully, the **Presynchronize** task becomes available in the **Data upgrade checklist**.

Set current time zone

Before you upgrade your data from Microsoft Dynamics AX 4.0, you must specify your local time zone. This task opens the **Current time zone** form so that you can enter this information.

Important:
This checklist item applies only when you are upgrading from Microsoft Dynamics AX 4.0. The **Data upgrade checklist** will always display this task prior to communication between the source and target databases. At that point, the task disappears unless a Microsoft Dynamics AX 4.0 source system is detected.

The preferred method of storing date and time data in Microsoft Dynamics AX is Coordinated Universal Time (UTC), as specified by the utcDateTime data type. During data upgrade, both shipped and custom tables are scanned to identify system date and time fields. Your local time zone setting determines the offsets to apply to these fields when they are converted to UTC.

If custom date or time fields have been added to Microsoft Dynamics AX, you must decide whether those fields should be merged into new utcDateTime fields during upgrade. For more information, see Walkthrough: upgrading date and time table field pairs into UtcDateTime.

Presynchronize (upgrade)

When you perform the **Presynchronize** task in the target system, you use the **Data upgrade cockpit (%1 -> %2)** to run scripts that map the database schema on the source Microsoft Dynamics AX system to the database schema on the target system. This table-to-table and column-to-column mapping is new with Microsoft Dynamics AX 2012, and prepares the target database for synchronization. If like-to-like mapping fails and errors result, you can manually repair the mapping and rerun the script.

Indexing is disabled while the presynchronization scripts are running.

The presynchronization scripts that ship with Microsoft Dynamics AX 2012 are meant to serve as models for developers of new Microsoft Dynamics AX modules.

Prepare your database for synchronization as follows:

1. In the **Data upgrade checklist**, click **Presynchronize**. The **Data upgrade cockpit (%1 -> %2)** opens and lists the upgrade tasks to be completed.
2. Click **Run**. In the **Upgrade job** grid, an icon next to each job indicates the job's status as the presynchronization scripts run.
3. Address any errors that occur and then rerun the scripts.

Create tables

You perform the **Create tables** task to prepare the Microsoft Dynamics AX 2012 target database for upgrade. During this step, the Microsoft Dynamics AX 2012 database schema is created based on Application Object Tree (AOT) definitions, including tables, unique clustered indexes, default constraints, and views. (In previous releases of Microsoft Dynamics AX, the database schema was created during the synchronization step.) Other indexes and check constraints are created on tables after bulk copy but before the post-synchronization scripts run.

This task only creates the target database schema; no data is copied from the source system at this time.

Important:
Before you begin this task, use the Microsoft Dynamics AX Server Configuration Utility to confirm that the AOS statement cache is set to 40.

Create the target database schema as follows:

1. In the **Data upgrade checklist**, click **Create tables**.

   The **Synchronize table** form displays a progress bar that indicates the status of the operation while the upgrade framework queries the AOT and determines what tables, fields, and indexes to create in the target database. This process may take several minutes to finish.
2. When the query process is finished, the **Synchronize database** form opens. Information that was collected during the previous step is displayed on four tabs. You can select items to view details about them.

Tab	Description
Overview	Shows what tables need to be created in the target database and summarizes the detailed results provided on the other tabs.
Errors	Lists errors that occurred while determining what tables to create. You must fix any errors before you proceed with creating tables.
Warnings	Lists all warnings about possible data conflicts that may arise after tables are created. You should review the warnings and decide which of them require developer action.
Info	Lists all the tables that will be created in the target database.

Address any errors or warnings before you continue with the data upgrade. Unresolved table errors will cause the data upgrade to fail. After you verify that there are no errors or warnings, click

Continue on the **Synchronize database** form. The upgrade framework creates the tables in the target database.

Generate table mappings

The **Generate table mappings** task in the **Data upgrade checklist** creates the mapping between the tables and fields in the Microsoft Dynamics AX source database and the tables and fields that were created in the Microsoft Dynamics AX 2012 database during the **Create tables** step in the **Data upgrade checklist**.

Before you start the **Generate table mappings** task, you must complete the **Data upgrade checklist** steps **Connect to source database** and **Create tables**. If any errors were generated in the **Create tables** step, you must fix them before you proceed with mapping the tables and fields, otherwise the mapping will be incorrect.

Generate table and field mappings

To generate mapping between tables and fields in the source and target databases, perform the following steps:

1. In the **Data upgrade checklist**, click **Generate table mappings**.

   The upgrade framework begins the mapping process and, when mapping is complete, opens the **Table mapping between source and target systems** form. This form provides separate tabs where you can see all the tables and fields from the source database and how they are mapped to tables and fields in the target database. You can also view a list of the extended data types that are used in the source fields and have been brought into the target database.
2. Review the mapping on the **Tables** and **Fields** tabs in the form and note any errors.
3. Address mapping errors and rerun the **Generate table mappings** step.

Mapping errors

You may encounter the following table-mapping errors for tables that are listed on the **Tables** tab in the **Table mapping between source and target systems** form.

Status	Description
OK	Mapping for the table is complete without error.
No mapping defined	Mapping has not been created because no metadata was found in the Microsoft Dynamics AX 2012 database to map the source table to the target table.
Field error	An error has occurred that resulted in a source field not being mapped to a target field. The error could be that there is an inconsistency in the field data type, no field to import, or a string-length difference in the field name. You can see which fields have errors on the **Fields** tab.
Mapping conflict	Two source-database tables are mapped to the same target table. You must resolve the conflict by renaming the table or assigning it a different ID.
Waiting on source	A source table is still being used in preprocessing on the Microsoft Dynamics AX source system.

Status	Description
Target table not empty	The table that was created in the Microsoft Dynamics AX 2012 target database has data in it. The source data cannot be copied into a table that already contains data. Clear all data from the target table.

Generate upgrade task prioritization

Use the **Data upgrade checklist** item **Generate upgrade task prioritization** to plan the sequence of bulk copy and post-synchronization script operations during data upgrade. Data upgrade takes place while both the source system and the target system are in single-user mode. Consequently, business operations on Microsoft Dynamics AX are suspended during this time. Bulk copy and script operations, which run concurrently to minimize system downtime, must be prioritized to make the most efficient use of available processing capacity. Microsoft Dynamics AX uses a weighting algorithm to create a default prioritization, though you can use the **Prioritized upgrade scripts** form to override default priorities as needed to increase efficiency.

Determining task priorities

To preserve data integrity, upgrade tasks must be run in a certain sequence. Upgrade scripts cannot be run until their associated tables have been copied to the Microsoft Dynamics AX target system, and large tables with millions of records take longer than other tables to copy and process. Additionally, dependencies among scripts can result in delays as one script waits for another to finish. The **Prioritized upgrade scripts** form analyzes all of the upgrade tasks and calculates a prioritization resulting in the least downtime. The prioritization algorithm achieves this by assigning a weight to each task. The weight of a table is based on its physical size and on the number of records. The weight of a script derives from the weight of the tables it updates and on the cumulative weights of all its dependent scripts. In either case, the highest weight results in the highest priority, since heavily weighted jobs are likely to block other jobs until they finish running.

Weight-ranked results are displayed in grids on the **Top tables and scripts** tab. The **Top tables and scripts** field contains an integer value that specifies the number of tables and scripts that will be processed concurrently during data upgrade. For example, a value of 20 means that a block of 20 tables and a block of 20 scripts will be run concurrently before proceeding to the next block of 20 and 20. You may achieve efficiency gains by overriding the default value of the **Top tables and scripts** field. This field also determines the number of top tables and top scripts displayed in their respective grids.

In most cases, the ranking algorithm will produce the best prioritization. However, you can override the algorithm by manually assigning higher or lower weights to tables or scripts and then regenerating the prioritization. Custom priorities are useful when you have knowledge of the actual loads that your system will encounter while upgrading certain tables.

Important:
When you are regenerating the prioritization after assigning custom weights, select “No” if a dialog asks to overwrite your customization.

Adding new tasks

The **Prioritized upgrade scripts** form allows to you to add tables or scripts to the grids manually. To insert an additional table or script, press Ctrl+F3 to create a new row, and then fill in the table or script information. This method can also be used to override the calculated weight of an existing table or script that is not displayed in its grid:

1. Press Ctrl+F3 to create a new row.
2. Enter the name of the table or script whose weight you wish to change.
3. Enter a custom weight.

Launch data upgrade

The **Launch data upgrade** task opens the **Data upgrade cockpit (%1 -> %2)**, where you can begin bulk copying data from the source Microsoft Dynamics AX system and running data upgrade scripts on the target system.

Run bulk copy and scripts

In the **Data upgrade cockpit (%1 -> %2)**, click **Run** to perform the bulk copy, run post-synchronization scripts on the copied data, and create check constraints and indexes.

Warning:
Prior to this point in the upgrade process, it has been possible to keep the source system online. Beginning with this step, you must enter single-user mode on both your source and target systems, making them unavailable to regular users.

Finalize upgrade

The tasks in this section must be performed after code and data upgrade have been completed on the Microsoft Dynamics AX 2012 target system.

The following topics are included in this section.

Post journal for relief of legacy accrual of unmatched quantities

Configure system accounts

Finalize Enterprise Portal upgrade

Specify Role Center web site

Assign a primary address to parties

Upgrade services and AIF

Post journal for relief of legacy accrual of unmatched quantities

Use this procedure to post a journal that relieves any legacy accrual accounting entries that still remain for unmatched quantities. Unmatched quantities are quantities of purchased products that are received but not yet invoiced. Select the journal name that you have defined during the pre-processing upgrade. After you select the name, post the journal.

Post the journal

1. Check that the journal name is correctly displayed in the **Task description** field, and then click **OK** to post the journal. To set up a batch job to post the journal, select a batch group to associate the journal with in the **Batch group** field and then follow the rest of this procedure.
2. Click **Private** if you want to make sure that only the user who set up the batch job can run it.
3. Click **Batch processing** if you want to run the task as a batch job.
4. Click **Recurrence** and **Alerts** to define the frequency of the batch job, and whether any alerts should be defined for the job.
5. Click **OK** to post the journal or start the batch job.

Configure system accounts

Use the **System service accounts** form to configure the accounts used to run Microsoft Dynamics AX services. Service accounts include the Business Connector proxy account, the Workflow system account, the Workflow execution account, the synchronization service account, and the Bing Maps account.

Configure the Business Connector proxy account

In the **Alias** and **Network domain** fields, enter the user name and domain for the Business Connector proxy account.

The Business Connector proxy account is used for communication between Microsoft Dynamics AX and other applications.

For more information about the requirements for this account, see Specify the .NET Business Connector proxy account.

Configure the Workflow execution account

The Workflow execution account is used for running application business logic and accessing Microsoft Dynamics AX data. You can use one of the following accounts.

- Enter a domain account in the **Alias** and **Network domain** fields to use a domain user for the Workflow execution account.
- Enter a new or existing Microsoft Dynamics AX user to access the database.

For more information about the requirements for this account, see Specify the workflow execution account.

Configure the synchronization service account

The synchronization service account is used for communication between Microsoft Dynamics AX, Windows Message Queuing, and Microsoft Project Server. You can use one of the following accounts.

- Enter a domain account in the **Alias** and **Network domain** fields to use a domain user for the synchronization service account.
- Enter a Microsoft Dynamics AX user for the synchronization service to communicate with. You can associate the service with a new or existing Microsoft Dynamics AX user.

Configure the Bing Maps account

The Bing Maps account is used to access the online Bing Maps when working in Enterprise Portal.

You can find the Bing Maps account name and password on Customer Source.

By selecting the check box and entering the information, you agree to be bound by the Microsoft Bing Maps and MapPoint Web Service End User Terms of Use.

Finalize Enterprise Portal upgrade

The upgrade process can cause the URLs for various Microsoft Dynamics AX web pages to change in the Application Object Tree (AOT). If you upgraded Enterprise Portal, you should select the option to **Finalize Enterprise Portal upgrade** to make sure that the web pages are synchronized to use the correct URLs.

Specify Role Center web site

Microsoft Dynamics AX and the Enterprise Portal framework include customizable home pages called *Role Centers*. Role Centers display specific data, reports, alerts, and common tasks that are associated with a user's role in the organization. Users can access Role Centers from the Microsoft Dynamics AX client or from an Enterprise Portal web site.

Use this information to specify which web site will host the Role Centers.

1. Click the option to **Specify Role Center website** in the **Data upgrade checklist**. The **Administration of Web sites** form opens.
2. Locate the **Website used to display Role Centers in the client** field at the bottom of this form.
3. Select a site by using the lookup icon to the right of the field and then close the form. If you are not certain which site should host Role Centers, skip this step. You can select the site later by using this form.
4. If no web sites are listed in this form, Enterprise Portal has not been installed or an Enterprise Portal web site has not been created. To learn more, see "Install Enterprise Portal and Role Centers" in the Microsoft Dynamics AX 2012 Installation Guide.

Assign a primary address to parties

If a party or customer has been associated with one or more addresses, it is required in Microsoft Dynamics AX 2012 that one address be designated as a primary address. You are not required to define an address for a party. Use this form to assign the first listed address for the party or customer as the primary address when upgrading from Microsoft Dynamics AX 4.0 or Microsoft Dynamics AX 2009.

1. From the **Data upgrade checklist** click **Assign primary addresses to parties** to open the **Parties without primary addresses** form.
2. Review the list of parties. You can manually select the address that you want to designate as the primary address by navigating to the party record.
3. Click the **Update addresses** button to designate the first address as the primary address for all of the parties that display in the list.

Upgrade services and AIF

This topic describes the **Upgrade AIF code** task in the **Data upgrade checklist**. The Application Integration Framework (AIF) is used to exchange data between Microsoft Dynamics AX and external systems. During the upgrade process, the **Data upgrade checklist** includes a step to upgrade the AIF code.

In the checklist pane, click **Upgrade AIF code**. This step includes the following two components:

- Code upgrade. This process upgrades all AIF code including creation of new service classes, creation of new data classes, and creation of AOT service nodes. Click **Upgrade AIF code** and wait for the step to complete. Check the Infolog dialog window to verify that this step has completed without any errors.
- Data upgrade. This process upgrades all AIF-related records in the database.

Important:
The upgrade of AIF code and data is a two-step process. After you successfully upgrade AIF code, you must upgrade the data. For more information, see Upgrade additional features.

Before you upgrade

Review the following sections before you begin the upgrade process. Microsoft Dynamics AX 2012 introduces the concept of integration ports to simplify and streamline administration of services and AIF. Read the *What's new for Milestone 3* document before you proceed with this topic. This topic assumes that you have the prerequisite knowledge about the new functionality that is described in the *What's new* document.

Process messages on the source system

Make sure your AIF messages on the source system are completely processed before you run the upgrade. Check the following locations to verify that all messages on the source system are processed.

- All inbound message locations such as file system directories, Message Queuing queues, or any location where AIF retrieves inbound messages.
- The queue manager. All messages in the queue manager are unprocessed and must be deleted. To navigate to the queue manager, click **Basic** > **Periodic** > **Application Integration Framework** > **Queue manager**.

Upgrade considerations

In Microsoft Dynamics AX 2012, enhancements to the services framework result in significant changes in functionality, configuration, database schema, and document schemas (XSDs). When planning an upgrade from previous releases of Microsoft Dynamics AX, consider the following points.

- You must recompile and test all interfaces that used the previous release of Microsoft Dynamics AX to work with services in Microsoft Dynamics AX 2012.
- Microsoft Dynamics AX 2012 replaces the MSMQ and BizTalk adapters with equivalent functionality available in WCF. You must recompile any automated integration processes, such as the BizTalk Server orchestration, that used these adapters.
- The upgrade framework will migrate AIF endpoints and related configurations from previous releases to integration ports in Microsoft Dynamics AX 2012. You must configure the integration ports upon successful completion of the upgrade process before you use Microsoft Dynamics AX 2012 services and AIF functionality.

Troubleshoot services and AIF

In Microsoft Dynamics AX 2009, the troubleshooting and logging of AIF was performed at the service operation level. In Microsoft Dynamics AX 2012, troubleshooting and logging of services and AIF are performed at the integration port level. For this reason, the upgrade process cannot automatically set the logging mode for newly created integration ports. You must specify the logging mode after upgrading.

Upgrade AIF Code

This section describes the process that the upgrade framework will follow to upgrade the AIF code.

Code upgrade

The AIF code upgrade step upgrades existing `Axd`<*Document*> classes and methods. The code upgrade process includes:

- The `Axd`<*Document*> classes that ship with Microsoft Dynamics AX
- Custom `Axd`<*Document*> classes
- Custom classes that implement the `AifServicable` interface

Data upgrade

The data upgrade process upgrades AIF data in the Microsoft Dynamics AX database. This step migrates configuration settings for AIF endpoints to configuration settings for *integration ports*, a new concept in Microsoft Dynamics AX 2012.

After the upgrade

The following table describes the changes in the key concepts and configuration settings after successful upgrade to Microsoft Dynamics AX 2012. In Microsoft Dynamics AX 2012, configuration and administration of services and AIF are streamlined through the concept of integration ports.

Microsoft Dynamics AX 2009 functionality	Microsoft Dynamics AX 2012 functionality	Description
AIF endpoints	Integration ports	The concept of integration ports subsumes AIF endpoints. The **Inbound ports** and **Inbound ports** forms replace the AIF configuration forms. The AIF endpoints become integration ports with the same name. Endpoints that expose the Microsoft Dynamics AX functionality are converted to inbound integration ports. Endpoints that submitted messages are converted to outbound integration ports. The upgrade framework combines the endpoint name and the company name to create the name of the integration port. For example, an endpoint called EndpointA in CompanyB will become an integration port called EndpointA_CompanyB. Inbound integration ports expose the Microsoft Dynamics AX functionality. Outbound integration ports deliver the message to a destination. In Microsoft Dynamics AX 2012, each integration port has an associated address or channel. The integration port functionality in Microsoft Dynamics AX 2012 forms a one-to-one mapping between the integration port and the channel that you associate with the integration port. In previous releases of Microsoft Dynamics AX, you could associate an endpoint with multiple channels or addresses.
Endpoint constraints	Not converted	This information is not migrated to Microsoft Dynamics AX 2012. You must use the legal value framework and the integration port functionality to manually configure the constraints. Configure each integration port to apply service and parameter restrictions.

Endpoint data and action policies	Apply the Schema and operation constraints to the integration ports	This information is not migrated. Data and action policies in Microsoft Dynamics AX 2009 were applied at an action level. However, in Microsoft Dynamics AX 2012, the data and action policies are applied at an integration port level. You must use the integration port functionality to manually apply your data and action policies after the upgrade.  **Note:** In previous releases of Microsoft Dynamics AX, you had to manually assign data policies for each endpoint action policy. In Microsoft Dynamics AX 2012, configuration of data policies is optional. You can use integration ports to enforce data policies.
AIF adapters	Integration ports	This information is not migrated. Use the integration ports functionality to associated adapters with integration ports.
AIF channels	Integration ports	This information is not migrated. Use the integration ports functionality to configure your source and destination points for each integration port.
AIF pipelines	Integration port pipelines	AIF pipelines are upgraded to pipelines for the integration port.
Service code attributes	Microsoft Dynamics AX 2012 services framework	The service code is stamped with the correct attributes such as create, read, find, and so on This is performed so that the auto-inference functionality in Microsoft Dynamics AX 2012 works correctly with the upgraded code.  **Warning:** You must manually configure each upgraded service to assign appropriate attributes, as detailed in the next section.

Configuration is company-specific	Configuration is not company-specific by default but you can make it company-specific	In previous releases, each AIF endpoint was associated with a specific company. Microsoft Dynamics AX 2012 does not require that you associate integration ports with a specific company. However, you can use the integration port functionality to restrict service calls to a specific company. For an inbound message, the services framework obtains the company from the message header. If the message header does not contain a company context, the services framework uses the default company for the submitting user.

After you upgrade

Use the following steps to configure the SysEntryPointAttribute attribute for all upgraded services. Microsoft Dynamics AX 2012 does not automatically assign this attribute to the upgraded service classes.

1. In the Application Object Tree (AOT), browse to the **Services** node. Obtain the corresponding class name from the **Properties** pane.
2. In the AOT, browse the **Classes** node and locate the class you obtained from the preceding step.
3. Edit all service operations in the class and add `SysEntryPointAttribute` with a value of `true` or `false`. We recommend that you set the attribute to true. When you set the attribute value to true, the service operation will honor the permission that is assigned to it by the Microsoft Dynamics AX role-based security framework. The following code shows the attribute for the `create` operation of the SalesSalesOrderService class.

```
[AifDocumentCreateAttribute, SysEntryPointAttribute(true)]
public AifEntityKeyList create(SalesSalesOrder _salesSalesOrder)
{ return this.createList(_salesSalesOrder); }
```

Work with the Microsoft Dynamics AX 2012 integration ports functionality to validate and configure the migrated AIF endpoints. Use the following steps to work with the AIF endpoints that are migrated to integration ports.

1. Launch the Microsoft Dynamics AX Windows client.
2. Click **Administration** > **Services and Application Integration Framework**. Click **Inbound ports** to work with the inbound ports. Click **Inbound ports** to work with the outbound ports.
3. Click the **Register adapters** button in the action pane strip to create the list of available adapters. Wait for the process to finish.
4. Click the **Register adapters** button in the action pane strip to create the list of services that are enabled. Wait for the process to finish.
5. Review the list of integration ports to make sure that the AIF endpoints are migrated as integration ports.
6. Work with each integration port to validate migrated settings and provide settings that are not migrated such as adapters and service operations constraints. Click an integration port in the list to work with it.
7. Under **Address**, in the **Adapter** field, select an appropriate adapter from the list.

Warning:
The **Configure** button will open the Configuration Editor Tool if you have installed the Windows Server® SDK. If the Configuration Editor Tool is not installed, the **Configure** button will open the configuration file in Notepad. You can download the Windows Server SDK for the .NET Framework 3.5 from the Microsoft Download Center.

8. Under **Address**, in the **URI** field, select an appropriate value from the list. You must manually configure data policies by using the legal values framework and the integration port functionality. To configure data policies, select **Restrict operation parameters** and then click **Operation parameter constraint**.
9. Use the **Service contract customizations** tab to expose service operations and apply data policies
10. Use the **Processing options** tab to work with processing options. These include selection for processing when errors are encountered in a batch, preprocessing of requests, and post-processing of responses.
11. Use the **Troubleshooting** tab to apply troubleshooting options such as logging mode and propagation of errors.
12. Use the **Security** tab to work with the security options. These include restrictions on authorized users, trusted intermediary users, and restricting the integration port to a specific company.
13. Browse to the Microsoft Dynamics AX web service and confirm that the web server returns the WSDL. In your browser, use this URL to browse to the web service: http://<hostname:port>/MicrosoftDynamicsAXAif60/xppservice.svc?wsdl. Microsoft Dynamics AX uses port 8081 by default.

Additional upgrade tasks

When upgrade has been completed, some features in Microsoft Dynamics AX 2012 still must be configured before they become fully functional.

The following topics are included in this section.

Upgrade additional features

Compare data upgrade row counts

Upgrade additional features

The **Upgrade additional features** task in the **Data upgrade checklist** completes the upgrade process for the Application Integration Framework (AIF) and for business intelligence and reporting. When you click the task, the **Data upgrade cockpit (%1 -> %2)** opens and displays a grid of upgrade jobs that you can run.

Run upgrade jobs

Select the jobs that you want to run and click **Upgrade job**.

Compare data upgrade row counts

The **Compare data upgrade row counts** task in the **Data upgrade checklist** checks the data integrity on the Microsoft Dynamics AX 2012 target system following upgrade. Correctly correlated row counts among

the source, shadow, and target tables suggest, but do not confirm, that bulk copy and data upgrade finished successfully.

Warning:
Row counts are only a preliminary check of data integrity. It is vital to perform more granular checks on data integrity before putting your Microsoft Dynamics AX 2012 system into production.

Compare source and target row counts

The **Compare data upgrade row counts** form displays related tables as records in a grid. It also provides status figures that report possible problems. At a glance, you can compare table row counts across the upgrade process starting with the source tables, passing to the shadow tables, and ending with the target tables.

Row count is strictly a check on *likely* success or failure of a table upgrade. When counts fail to match, you should investigate the table involved and the script that processed it. However, even a successful match does not guarantee that the upgrade was successful, and a failed match may not correspond to a problem. To be confident that the upgrade succeeded, you must perform validation tailored to your particular business data.

Upgrade Enterprise Portal

This topic describes how to upgrade Enterprise Portal for Microsoft Dynamics AX. You must meet all of the prerequisites and complete the procedures in this topic to upgrade an Enterprise Portal site to Microsoft Dynamics AX 2012.

Important details about Enterprise Portal upgrade

This section describes changes to Enterprise Portal data, code, pages, and other objects when you run the Microsoft Dynamics AX 2012 **Data upgrade checklist**.

- The **Data upgrade checklist** automatically upgrades Microsoft Dynamics AX 2009 ASP.NET pages to Microsoft Dynamics AX 2012.
- You can upgrade Enterprise Portal from Microsoft Dynamics AX 4.1 to Microsoft Dynamics AX 2012 using the procedures in this topic. However, know that Microsoft Dynamics AX 4.1 supported X++ objects in the Enterprise Portal framework. The Enterprise Portal framework for Microsoft Dynamics AX 2012 does not support X++ objects. It only supports ASP.NET objects. After you upgrade to Microsoft Dynamics AX 2012, the **Data upgrade checklist** creates a list of all X++ objects that you must manually convert to ASP.NET before they can work with the Enterprise Portal framework in Microsoft Dynamics AX 2012.
- The **Data upgrade checklist** does not change any Enterprise Portal parameters.
- The **Data upgrade checklist** and Enterprise Portal Setup manage all changes to the Web.config file. If your earlier implementation of Enterprise Portal was configured to connect to a different Application Object Server (AOS) using an .axc file, this configuration is upgraded automatically.
- Enterprise Portal setup automatically upgrades themes and style sheets. If you modified a style sheet for your earlier implementation of Enterprise Portal, merge the changes when you run the **Data upgrade checklist** and before you run Enterprise Portal setup.

- The **Data upgrade checklist** identifies proxy files and user controls that must be updated before they will work with Enterprise Portal in Microsoft Dynamics AX 2012. You must resolve code differences in the proxy files and recompile user controls before they will work with Enterprise Portal.
- End user personalization and customization settings for Enterprise Portal must be reset after the upgrade.

Before you upgrade

You must complete the following tasks before you upgrade Enterprise Portal. If you do not complete these tasks, the upgrade will fail.

1. Use IIS manager to configure the site for Integrated Windows (NTLM) authentication. The Enterprise Portal upgrade process fails if an Enterprise Portal site is configured to use anonymous authentication. After the site is upgraded, you can configure the site for anonymous authentication. For information about how to configure authentication in IIS, see the IIS documentation online.
2. You must complete the Microsoft Dynamics AX 2012 **Data upgrade checklist** before you upgrade Enterprise Portal. The **Data upgrade checklist** makes important changes to data and Enterprise Portal objects. These changes are described later in this topic.
3. For Enterprise Portal sites that are running Microsoft Dynamics AX 4.0 or earlier, you must upgrade to Microsoft Dynamics AX 4.1 before you can upgrade to Microsoft Dynamics AX 2012.
4. Enterprise Portal for Microsoft Dynamics AX 2012 requires either Microsoft SharePoint Foundation 2010 or Microsoft SharePoint Server 2010. You must upgrade earlier versions of SharePoint to one of these versions before you upgrade Enterprise Portal. For more information, see Upgrading to SharePoint Foundation 2010 or Upgrading to SharePoint Server 2010.

Upgrade Enterprise Portal

This section describes how to upgrade an Enterprise Portal site. You must complete the procedures in this section in the following order.

1. Use SharePoint Central Administration to create a new web application.
2. Install Enterprise Portal on the new application.
3. Attach the content database from your Microsoft Dynamics AX 2009Enterprise Portal site to the new web application.
4. Resolve URL conflicts.
5. Install Enterprise Portal again to start code upgrade.

Create a new web application

Use SharePoint 2010 Central Administration to create a new web application. For more information, see Create a Web application (SharePoint Server 2010).

Install Enterprise Portal on the new web application

Use the following procedure to install Enterprise Portal on the new web application.

1. Start Microsoft Dynamics AX Setup.
2. Step through the initial wizard pages.
3. On the **Modify Microsoft Dynamics AX installation** page, select **Add or modify components**. Click **Next**.
4. On the **Add or modify components** page, expand **Server Components**, expand **Web Server Components**, and then select **Enterprise Portal (EP)**. Click **Next**.
5. On the **Specify Business Connector proxy account information** page, enter the domain\username and password for the service account. Click **Next**.
6. On the **Configure a Web site for Enterprise Portal** page, select the existing Microsoft Dynamics AX 2009Enterprise Portal web site.
7. Select the **Configure for Windows SharePoint Services** option so that Setup can configure the application pool to run under the Business Connector proxy account and set the authentication method to Windows NTLM.
8. Clear the **Create Web site** option. If you select this option Setup will upgrade your Microsoft Dynamics AX 2009Enterprise Portal site and create an additional site.
9. On the **Ready to install** page, click **Install**.
10. Complete the wizard. Setup might take as long as one hour to complete the upgrade and installation.

Attach the content database from your Microsoft Dynamics AX 2009 Enterprise Portal site to the new web application

To retain content from an earlier version of Enterprise Portal and display that content in your Microsoft Dynamics AX 2012 Enterprise Portal site, you must attach the old content database to your new web application. For more information, see Attach databases and upgrade to SharePoint Server 2010.

Resolve URL conflicts

If the Enterprise Portal site URL changed because you specified a new port number or a new computer name when you created the new web application, then you must delete the old web site in the Microsoft Dynamics AX client by using the **Web sites** form:

After you delete the old site, click **Register site** and enter the information about the new site. Repeat this process until you have registered each site. If you need assistance finding information about your sites, open SharePoint Central Administration and then click **Application Management** > **View all site collections**. If necessary, use the **Web Application** list to select the application that hosts your Enterprise Portal sites.

Install Enterprise Portal again to upgrade code

Install Enterprise Portal again on the new web application so that the site upgrades the Enterprise Portal code. Repeat the installation process described earlier in this topic.

After you upgrade Enterprise Portal

After the installation and upgrade is finished, do the following:

1. If you upgraded an Enterprise Portal site that uses anonymous authentication and you configured the site for Integrated Windows (NTLM) at the start of the upgrade process, you can now reconfigure the site for anonymous authentication. For information about how to configure authentication, see the IIS documentation online.
2. Verify that existing SharePoint and Microsoft Dynamics AX permissions have been retained through the upgrade process.
3. Test the upraded site on a staging server before moving the site into a production environment.

Test the system after upgrade

After you finish upgrade, test whether your Microsoft Dynamics AX 2012 upgrade installation is functioning properly. This is a good time to test any documentation and training you have created.

To test whether upgrade has succeeded, you should at a minimum perform these steps:

- Restart all Application Object Server (AOS) instances.
- Launch a client that is connected to each AOS instance that is running.
- Test that users can execute the most common tasks for your system.
- Test that the administrator can run the system maintenance tasks.
- Test that developers can create a new development workspace and create code projects.
- Test that users can execute the most vital tasks for your system.
- Test that users can read the reports that are generated.
- Test that the security roles are working right by checking that users in Microsoft Dynamics AX 2012 have access to the data they had access to on the source system and that they can do all the tasks for their assigned role.
- Validate that your Microsoft Dynamics AX 2012 data is consistent with the Microsoft Dynamics AX source system data prior to upgrade.
- Verify that any features that required code upgrade function as expected.

Application upgrade notes

Release notes for the Go Live release of Microsoft Dynamics AX 2012 can be obtained on Microsoft Connect.