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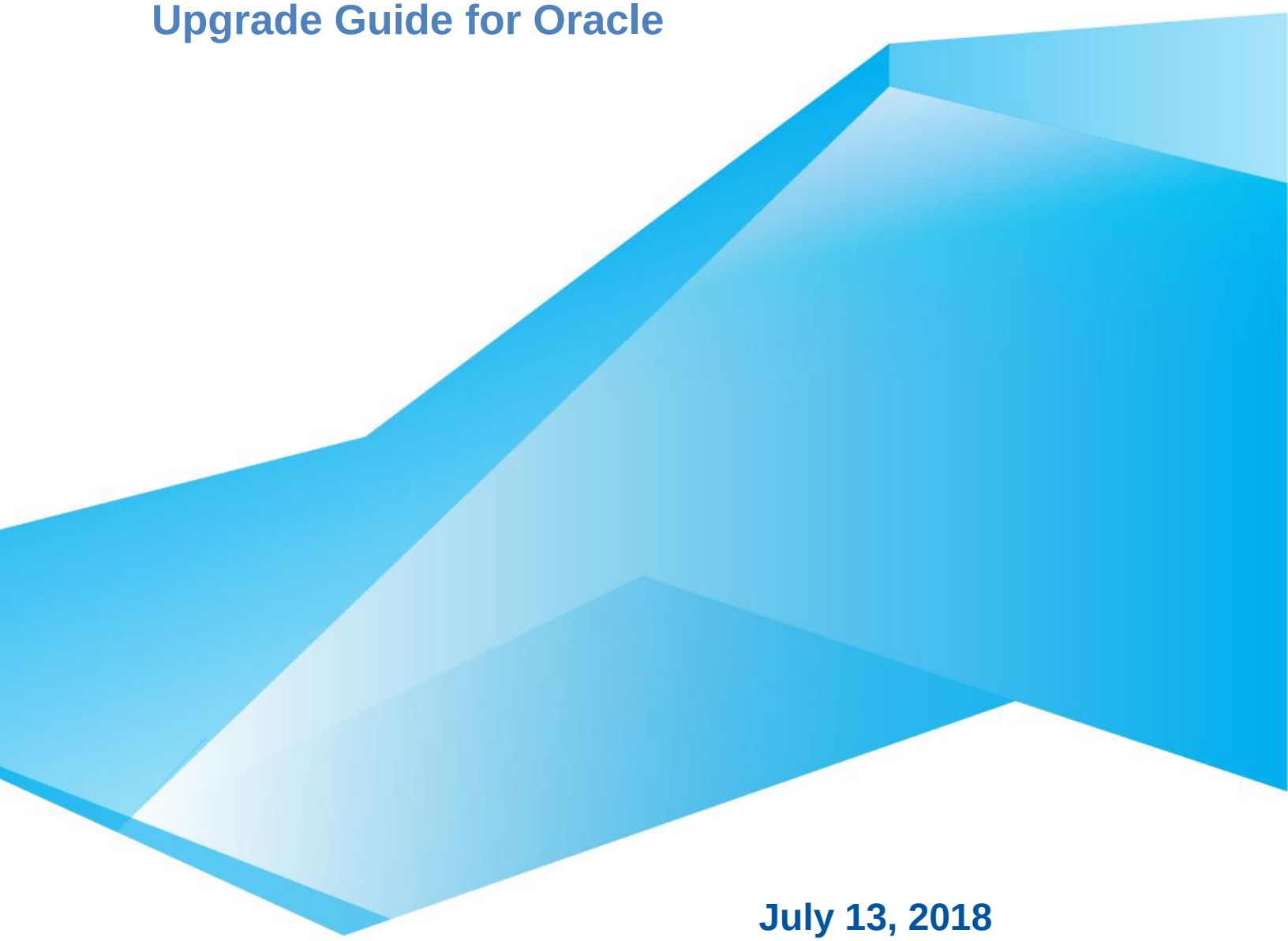
Deltek Maconomy® 2.4.2

Upgrade Guide for Oracle



July 13, 2018

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Contents

1 Introduction

This document describes how to upgrade from 2.1 or later to Maconomy 2.4.x tools version 20.

Note: For upgrades older than 2.1, a database conversion to Unicode is required. See Unicode Conversion for details.

This document describes each step needed for the upgrade. All examples are based on one company, and this company has the shortname **myshort**. The preferred version database is Oracle 12c. This document does not describe how to upgrade database versions.

You must execute SQL scripts using the commands that are installed by MConfig. For an Oracle database, the command is StartOracle.cmd.

The directory names used for the old application in the examples are the MConfig standard names.

The following table provides an overview of external and internal Maconomy versions.

Maconomy Version	Tools Version
X+	11.0
X1	16.0
2.0	15.0
2.1	16.0, SP0,SP1
2.1.1	16.0 SP2
2.1.4	16.0 SP4
2.2	17
2.3	19
2.4	20

1.1 Main Upgrade Phases

The steps covered in this guide can be divided into the following groups:

- Review prerequisites and perform critical actions prior to upgrade
- Install tools and the application
- Delete old components
- Expand and convert databases and data
- Convert to Unicode
- Create components
- Install the new Portal
- Convert source files
- Install source files

2 Prerequisites

Be sure that the following prerequisites are met before you begin the upgrade process, including:

- Obtain the upgrade kit
- Review hardware and resources
- Check upgrade preconditions
- Perform any necessary critical actions prior to upgrade

2.1 Obtain Upgrade Kit 2.4.x

You must obtain the Upgrade Kit for 2.4.x as well as the TPU and the APU. This document is included in the Upgrade Kit.

Always look for the latest and updated version of the Upgrade Kit on the Deltek Maconomy Download Site before beginning an upgrade.

The tools that the Upgrade Kit includes may provide automatic conversion of kernel strings and tools for converting data in the database. The Upgrade Kit consists of several SQL scripts to be run and tools to modify export files and localize customized data in the database, such as Windows and Print Layouts (MDL and MPL).

Some of the functionality that the Upgrade Kit provides is available only on Windows platforms. Thus, access to a Windows computer is required during the upgrade. The procedure is outlined in detail in the upgrade steps where this is required.

2.2 Review Hardware and Resources

When running the Unicode conversion tools on an Oracle database it is recommended to have at least 20 gigabytes PGA size. Having a smaller PGA may result in severe performance degradation. It is not advisable to run the Oracle tools on virtual hardware unless the virtual hardware can provide comparable I/O performance to that of a physical machine. If both the new and old databases are on the same server, and there is a limited amount of memory available, it is recommended to allocate the most PGA to the Unicode database.

The recommended storage configuration is RAID 10. This is not required; however, the tools are I/O bound, and the database conversion time heavily depends on the I/O throughput.

A minimum of 4 physical CPU cores, 2.4 Ghz or higher, is required, but 12 cores or more are recommended for larger databases.

For Oracle: Check that disk space is available for the original database as well as the new Unicode database. Expect the database to grow up to 20% during the upgrade.

2.3 Check Upgrade Preconditions

Check that the UpgradePreCondition script runs without any errors or warnings before continuing the upgrade procedure. If you encounter errors, **STOP** and fix all errors before you continue.

3 Critical Actions Prior to Upgrade

3.1 Use MyxL Tool to Convert Syntax Files

Between the major versions of Maconomy, syntax updates occur that may not be backwards compatible with some of the specification languages. This occurs when specification files delivered with the product in the new version are automatically converted to the new syntax, but customized specification files are not. To correct this you must run a conversion of the relevant files to convert them to the new syntax. The MyxL tool facilitates the conversion of Maconomy's specification files, including MDML, MWSL, MMSL, MNSL, and MCSL.

To convert specification files, you must:

- Check out all the specification files that are present in GitHub
- Convert the files using the MyxL tool
- Check the files back in to GitHub

Before You Begin

Make sure that you are running the Java version corresponding to the branch with which you are working, which is Java 8 for 19 and onwards. Verify that the correct version is picked up by using the typing 'java –version' at the command prompt.

If needed, install a correct 32-bit JDK.

Convert Specification Files

To convert files using the MyxL tool:

1. Go to the TPU in the **/bin** directory and find the MyxL tool.
2. Extract the tool to a local directory.

As you extract, notice that there are **Convert{version}.exe** and **Convert{version}.ini** files present in the main directory, where **{version}** corresponds to the branch from which the tool was built. Check the version to verify that it corresponds to the correct TPU.

3. Supply various parameters to successfully run the conversion. The parameters are provided either in the Convert-20.0.101.0.ini file, or as command line arguments if the Converter is run from the command line.
   - convertdirectory — *Mandatory*. The path to the file or directory to convert. If no other output method is specified, all files in this directory (or this file) are converted in place.
   - writeconversion — *Optional*. If this parameter is not set, no converted output is generated. Only a summary is written to the console and a summary report is generated. It is not set by default to prevent conversion errors. Must be explicitly set to write the conversion changes.
   - outputdirectory — *Optional*. A path to a directory to write the converted files to, if writeconversion was set. If this parameter is set the original files in the convertdirectory are not altered.
   - consolepreview — *Optional*. If this parameter is set the result of the conversion is written to the console and a summary report is generated, if writeconversion was set.

- convertreadonly — *Optional*. If this parameter is set read-only files are converted.
- debuginfo — *Optional*. If this parameter is set debug information such as stack trace is written to the error section of the summary report.
- logconfigpath — *Optional*. You can specify a path to a log configuration file here. As default the logback file provided with the Converter is used.

4. Check to verify the updated syntax of the specification language. This includes checking to ensure that all the breaking changes were fixed and no unnecessary conversions were made (meaning that the tool does exactly what it is supposed to do and no more).

   The output method precedence is:

   - outputdirectory (writeconversion was set)
   - consolepreview (writeconversion was set)
   - in-place conversion (none of the above parameters set and writeconversion was set)

The tool takes different actions depending on what parameters are supplied. If both outputdirectory and consolepreview are set, then the action associated with outputdirectory takes precedence.

5. Submit the changes back to GitHub.

Ensure Correct Conversion

Technical Consultants are responsible for checking that the conversion is correct before submitting the changes back to GitHub.

If Errors Occur

At times, errors occur during the conversion process. If you experience errors you cannot resolve, refer to the Kona conversation (link below) or create a support case attaching the error message and possibly the file that caused the error when converting.

Example

The following example shows a change for 2.4 for MDML. The tool removes the **titleValue**, **firstTitleValue**, **secondTitleValue**, **titleSource**, **firstTitleSource** and **secondTitleSource** attributes from various elements and replaces those with **title** attributes that allow the use of placeholder expressions.

If the customized layouts do not include the removed attributes listed above, no conversion is necessary.

See *Deltek Maconomy Language Quick Reference MDML* for the 2.4 release for details.

Example (Windows)

1. Insert the parameters into the Convert-20.0.101.0.ini file:

```
--convertdirectory
```

```
c:\maconomy\w_20_0\CustomizationDir
--outputdirectory
c:\test\outputdir
--convertreadonly
--writeconversion
```

2. Insert them when running from the command line:

```
>Convert-20.0.101.0 --convertdirectory
"c:\maconomy\w_20_0\CustomizationDir" --outputdirectory "c:\test\outputdir"
--convertreadonly --writeconversion
```

3.2 Upgrade from Early Versions

If you upgrade to 2.4.x from any version prior to Maconomy 2.1.1, you must take a special action and run an MConfig scriptlet to process the language upgrades in this release.

Run the MConfig scriptlet **prior to** installing the Service Pack APU.

To run the MConfig scriptlet, follow these steps:

1. Locate the MConfig scriptlet **ChangeToIsoLanguage.mcp**, which is located within the MConfigScriptlets directory of the TPU.
2. Run the script as follows:

   <MConfig program> -r <scriptlet file> <application> <shortname> <password> [<new enterprise language>]

   - Note the inclusion of the **"-r"** in the line above.
   - Also note that on UNIX, you must specify the full path to the scriptlet file.

3. Enter an optional *<new enterprise language>* parameter as needed. For applications using one of the standard languages, such as the languages for which APUs contain Translations files, the scriptlet selects the corresponding new language, and the <new enterprise language> parameter can be omitted. Clients with applications that use non-standard languages must specify the parameter.

3.3 Upgrade from MAS or MCS

Starting with Maconomy 2.2, Deltek no longer releases the legacy solutions MAS and MCS. We recommend that if you are using one of these solutions and upgrading to version 2.2.x, that you implement one of the current (PSO or CPA) solutions. However, if you want to retain functionality

from your current system, we have produced a package of files that can be used as a basis for customizing a standard system.

To upgrade from a legacy system and customize a standard system:

1. Upgrade the system using the standard procedure. However, do not install the SPU.
2. Create an Extender project for the upgraded system.
3. Extract the files from the package and copy them to the Extender project.
4. Deploy the Extender project.
5. Run the batch file w_20_0\ExtenderDeployFolder\ImportData\CopyToCustomInstallation.bat.
6. In MConfig, for the field **Load Shortname Data**, select **Custom Data (Import only)**.
7. Click **Install**.

This installs a system with a portal, prints, and screen layouts in the custom layer matching the former solution.

Further Customizations

If needed, you can add further customizations to the Extender project after step 3.

Removing Layouts

A standalone program RemoveSolutionWindowLayouts can be used to remove the layouts from solutions left in the database.

To run the program, use a command similar to this:

MaconomyServer_20_0 -Smyshort -xRemoveSolutionWindowLayouts

The program should be run after attaching the database being upgraded to the new application, but before installing any new layouts, for instance, just after –xRemove_Old_Layouts command in the current chapter 10.3 Reinstalling Standard Layouts in the *DeltekMaconomy221Upgrade Guide*.

3.4 Remove BPM Database Objects

When upgrading to Maconomy 2.4.x, you must remove all BPM-related database objects from the Maconomy database, including materialized views, materialized view logs, database views, and triggers.

Everything except materialized views can be removed by using MConfig and deselecting all check boxes in the BPM section of shortname window. Materialized views and logs must be removed directly from the database.

To remove BPM-related objects from the database:

1. Deselect all check boxes in the BPM section found in MConfig shortname window and apply pending changes.
2. Check in the database that there are no Materialized views or Materialized view logs remaining. If Materialized views or Materialized view logs are present, delete them.

3.5 Application Pre-Upgrade

(See Appendix)

4 Installation

This section describes how to install the new TPU and the 2.4. LA application to which you are upgrading Maconomy.

For the purpose of this guide we will assume two applications exist. The base application, 'w_12_0.b' and a target application, 'w_20_0.t'.

We also assume that the main drive is 'C' for Windows environments.

In all of the examples used in this section, the shortname is **myshort**, and the password is **myshort**.

4.1 Install the New Tools (TPU)

You must install a new TPU when upgrading—the most recent one that belongs to the W 20.0 application.

Copy MConfig, TPU (Tools version 20), and the 2.4.x APU to the PU (PackingUnit) directory on the server. You use MConfig to specify the location of that directory by going to 'Global Settings' and defining the directory in 'Packing Units Directory'.

For older versions of Maconomy there is only one TPU for all systems. With MConfig, different applications can use different TPUs. You must use the new TPU and the new application; installing the new TPU as global tools is required.

To install the TPU, use MConfig, the installation and configuration tool for Maconomy. Always use the most recent MConfig version unless you have been explicitly instructed otherwise. Consult the MConfig documentation if necessary.

4.2 Install the New Application (APU)

Use Mconfig to install the 2.4.x application. When upgrading a solution, you must install the new application with the same enterprise language. You select the solution as one of the final steps in the upgrade process—not when installing the APU and TPU.

Be aware that enterprise language has been changed from w_16_0 SP2. The previous languages, such as US, W_MCS, and so on, are no longer valid. Check the release notes here. Access to home.deltek.com is required.

To check the enterprise language on an existing database:

- Run this in the command prompt to login sqlplus:
  - Windows: set ORACLE_SID=<sid for the base system>
  - Unix: export ORACLE_SID=<sid for the base system>
- Log in the database: 'sqlplus <shortname>/< password >'
- Type the following SQL command:

```
Select ENTERPRISETEXT from ENTERPRISETEXT where
ENTERPRISETEXTNAME='CountryCodeForEnterpriseLanguage';
```

Depending on how the shortname is transferred to the new application, you probably do not need to create a shortname when installing the new application.

Deltek does not recommend attaching the existing shortname to the new application until step 10.1.1. or 7.1.4 for Oracle Unicode upgrades (You must create dependencies, reading information from the database, which may fail.) The shortname might already be attached to the application, if the new application was installed before the database dump was imported into the database. In that case, you do not need to detach the shortname from the new application; just leave the shortname attached as it is.

If the original application has an SPU installed and is not a legacy MAS or MCS solution please make sure to install the matching SPU on the new application and remember to prepare the system for the selected solution during the main application installation process.

This concludes the installation of the new application.

5 Check Upgrade Preconditions

Before starting the upgrade, you must check preconditions for the upgrade. Some versions require that specific conditions in the application be fulfilled to perform an upgrade. To check whether all of the requirements have been met, use the UpgradePreconditions script. Additionally, you must remove old BPM database objects and change the default linesize value for Oracle.

It is a good idea to run this script well in advance of the update (for example, a week before) to let the customer know what they need to do, in addition to running it as part of the update.

The process of checking precondition differs according to the database type.

5.1 Check Preconditions for Upgrade

There is one upgrade precondition script for each old version.

You must select the appropriate script, for example:

- **Oracle:** UpgrPrecond.w12sv3-w200.sql

The old schema version must be taken into consideration when you upgrade the application. You can find the schema version in:

```
Win: <path to old application>\MaconomyDir\Installation\version.info
Unix: <path to old application>/MaconomyDir/Installation/version.info
```

For example, when upgrading from W 12.0 schema version 12 on Oracle, you must use the UpgrPrecond.w120sv12-w200.sql script.

To check preconditions for the upgrade on Oracle, type the following commands:

1. **(navigate to target application folder)**
   a. **Win: cd c:\maconomy\w_20_0.t\MaconomyDir\Database**
   b. **Unix: cd /data/maconomy/w_20_0.t/MaconomyDir/Database**
2.
   a. **Win: StartOracleSQL2 myshort myshort UpgrPrecond.w120sv12-w200.sql c:\Logs\UpgrdPrecond.myshort.log**
   b. **Unix: StartOracleSQL2 myshort myshort UpgrPrecond.w12sv12-w200.sql Logs/UpgradePreconditions.myshort.log**

If the upgrade precondition script returns a message like “Please create a support case,” this is due to duplicate keys in the DimensionPeriod table. You must resolve this issue before continuing with the upgrade.

The result should be 0 rows selected for all. If this is not your result, you cannot continue the upgrade until you have fixed the results. Check the Product Information for each version to see which requirements exist.

5.2 Change the Default Linesize Value for Oracle

To avoid errors in several of the upgrade scripts, change the default linesize to 3000. We recommend you do so by changing the glogin.sql file.

To change the default linesize value:

1. Edit **one** of the following Site Profile script glogin.sql files, depending on your operating system:
   - Win — **ORACLE_HOME\sqlplus\admin\glogin.sql**
   - UNIX — **$ORACLE_HOME/sqlplus/admin/glogin.sql**
2. Add the following line to the file **glogin.sql**:

   ```
   set LINESIZE 3000
   ```
3. Check that there are no other changes to the linesize value in the glogin.sql file, then save and close the file.

5.3 Integration with Talent Management

If you are upgrading from Maconomy 2.2.2 to 2.4.x or later, and you integrate with Talent Management, you must delete old monitors and create background tasks.

To delete standard monitors and create background tasks:

1. Log in sqlplus as shown before in the document (5.2)
2. Use the SQL query on the Maconomy database to search for standard monitors:

   ```
   select * from Monitor where MonitorNumber = 'SynchronizeHRSmartUsers' or
   MonitorNumber = 'ImportDTMUsers';
   ```
3. In the Monitors Single Dialog Workspace, locate and delete these two standard monitors: ImportDTMUsers and SynchronizeHRSmartUsers
4. See *Deltek Maconomy Integration With Talent Management Guide* for steps to create background tasks.

5.4 Put the Application into maintenance mode

Prior to starting the upgrade, make sure the Maconomy application you are upgrading is set to Maintenance Mode using MConfig 8.15 or later. This is required to ensure background tasks are not executed during the upgrade process. The new Maconomy application is in maintenance mode by default as a new installation. There is no maintenance mode for older Maconomy versions.

Note: If you have extensions, you must re-install these after installing a service pack before de-selecting the Maintenance Mode field.

To enable Maintenance Mode:

1. In the Application window, select the **Maintenance Mode** field.
2. Click **OK > Next > Next** to apply.
3. Complete your maintenance tasks.
4. Go back to the Application window, and de-select the Maintenance Mode field.
5. Click **OK > Next > Next** to apply.

To manually restart scheduled background tasks:

1. On the command line enter:

   ```
   system.maintenance = not batch.active
   ```

6 Delete Old Components

6.1 Delete Old Constraints

For large databases see Drop Constraints (does not apply to 2.4.x or LA).

First, drop instance key constraints temporarily.

Enter the following command:

```
MaconomyServer.w_12_0.b -UD -Smyshort
```

This part of the step is required only if the database system is Oracle. You must use the DropConstraints script that belongs to the W 12.0, or W 20.0 version—note the change of directory to that of the old application.

Enter the following commands:

```
Win:
       cd c:\Maconomy\w_12_0.b\MaconomyDir\Database
       StartOracleSQL myshort myshort DropConstraints.sql
c:\Logs\DropConstraints.sqlshort.log


Unix:
       cd /data/maconomy/w_12_0.b/MaconomyDir/Database
       StartOracleSQL myshort myshort DropConstraints.sql >
Logs/DropConstraints.myshort.log
```

Other Constraints

On Oracle systems, constraints may have been created to track down errors. To check whether any constraints remain, enter the following command from an sqlplus session or create an SQL script and execute it.

Do not delete any constraints that start with “SYS” or “REPCAT.”

```
select table_name, constraint_name from user_constraints where
constraint_type = 'U';
```

Drop each constraint “C” found in a table “T” by typing the following command:

```
alter table T drop constraint C;
```

6.2 Dump Changes to the Standard Index Set

For large databases see Dump Changes to Standard Indexes.

An integral part of a Maconomy application is its indexes. Indexes are created to improve performance. For all Maconomy application versions there is a standard set of indexes. All standard indexes are created with a unique name (unique within 18 characters) that identifies the index. For example, one index might be named Account04 and contain an index on the relation Account and the field AccountNumber.

For an installed Maconomy system, indexes may have been changed for performance purposes. Compared with the standard set of indexes, new indexes may have been added, or some standard indexes may have been deleted. The changes may be different for different short names.

When upgrading the application version, you typically want to preserve these changes. Use MConfig to dump a list of the changes. This function is implemented for MConfig version 4.1 or later. However, you should always use the newest MConfig version, unless you have been explicitly instructed otherwise. Consult the MConfig documentation if necessary.

To use MConfig to get a list of changes to preserve:

1. In the Main window, select the old application and click **Edit**.
2. In the Application window, for each shortname complete the following steps:
   - Select the shortname in the **Shortnames** list and click **Edit**.
   - In the Shortname window, click **Index management**.
   - In the **Compare with application** list, select the old application again and then click **Choose**. One of the following messages is displayed:
     - No index differences found compared with application.

     or

     - Comparing indexes with application … NN indexes added … NN indexes dropped … Index compare file 'IndexCompareWith<shortname>.<old application>.idx' generated.

       In the latter case, IndexCompareWith…idx is a file that is located in the MaconomyDir/Database directory.
   - Copy the file **IndexCompareWith<shortname>.<old application>.idx** to the new application's MaconomyDir/Database directory. The file then appears in the Index spec. files list in the Index management window for the new application. Later, when creating indexes, you can use this file to preserve the local changes.

6.3 Delete Old Indexes

For large databases see Drop Indexes.

Each new version has new indexes, and you must delete all of the old ones before you can proceed with the upgrade.

Use MConfig for this purpose. Deleting indexes is supported for MConfig version 7.1 or later. However, you should always use the newest MConfig version unless you have been explicitly instructed otherwise. Consult the MConfig documentation if necessary.

To use MConfig to delete the old indexes:

1. In the Main window, select the old application (the application to which the shortname is attached) and click **Edit**.
2. In the Application window, for each shortname complete the following steps:
   - Select the shortname in the **Shortnames** list and click **Edit**.
   - In the Shortname window, click **Index management**.

- Select the **Remove indexes** check box. Then click **OK** and **OK** again to return to the Application window to continue with other shortnames.

6.4 Dump Materialized View Definitions

Large customers who are using Oracle as their database may have used materialized view functionality to speed up frequently used reports. You must identify, drop, and convert these views to the new database schema after the upgrade. A BPM consultant normally performs this task. As part of the upgrade it is important to retrieve the current view definitions.

A materialized view consists of a view log and the view itself.

To retrieve the view log definitions, enter the following SQL command, after logging in sqlplus:

- **`select log_owner,master, rowids, include_new_values from dba_mview_logs;`**

Output from this statement should look like the following example.

```
LOG_OWNER                      MASTER                         ROW INC
------------------------------ ------------------------------ --- ---
MYSHORT                        JOBENTRY                       YES
MYSHORT                        JOBINVOICELINE                 YES
```

To retrieve the materialized view definition, enter the following commands:

1. **`set pagesize 10000;`**
2. **`set long 10000;`**
3. **`column refresh_mode format a12;`**
4. **`select owner, mview_name, refresh_mode, query from dba_mviews where owner='MYSHORT';`**

Output from this command may contain a lot of data. The following example is a subset of the real definition.

```
OWNER                          MVIEW_NAME                     REFRESH_MODE
------------------------------ ------------------------------ ------------
QUERY
-------------------------------------------------------------------------------
MYSHORT                        JOBENTRYJOBINVOICELINEMV       COMMIT
SELECT
       JOBENTRY.ROWID JOBENTRYROWID
        ...
```

6.5 Delete Views

Three different types of views are in use by Maconomy:

- Views used by the Maconomy Client for access control
- Views used by third-party software using ODBC access to ensure proper access control
- Views used by the Maconomy Analyzer

You must remove the first two types before you can perform an upgrade.

When updating from one application to another, the scripts must be run to ensure proper functioning of the new application version. The programs are located in the Maconomy bin

directory in the TPU that is installed for the application, for example, the ‘C:\maconomy\ tpu.NTx86.12_0.p29.dir\bin’ folder (and not the ‘C:\maconomy\bin’ folder, which is the global TPU folder).

The DeleteAnalyzerViews is an Mconfig scriptlet and requires MConfig to be run. MConfig 8.0 or later is required to run the scriptlet. MConfig must be started from the command line. Specify the path to MConfig, then –r (or MConfig will think it is an MConfig installation script), then the path to the script or just the name – MConfig searches for the script in the TPU that is installed for the application (that is, not the global TPU). These scripts are located in the MConfigScriptlets folder in the TPU folder, for example, ‘C:\maconomy\ tpu.NTx86.12_0.p29.dir\MConfigScriptlets’. Lastly, the arguments to the script must be given. These are the application name (for example, w_12_0.b) and the shortname and password.

Make sure that the ORACLE_SID environment variable is set, or the scripts may fail with the preceding error message.

Win:

set ORACLE_SID=<sid>

UNIX:

export ORACLE_SID=<sid>

Delete the views for the user with the following commands.

Win:

cd C:\maconomy\tpu.NTx86.12_0.p29.dir\MConfigScriptlets

```
DeleteDHViews myshort myshort
Delete3PStuff myshort myshort
C:\PUs\MConfig-8.13 -r DeleteAnalyzerViews w_12_0.b myshort myshort
```

UNIX:

cd maconomy/tpu.NTx86.12_0.p29.dir/MConfigScriptlets

```
DeleteDHViews myshort myshort
Delete3PStuff myshort myshort
MConfig-8.13 -r DeleteAnalyzerViews w_12_0.b myshort myshort
```

The output from the delete views scripts for all platforms is:

Done!

If the scripts did not delete any views, the following error message is displayed (on all platforms).

Something went wrong (or nothing to delete)

It may be OK if the customer was not using the functionality. Check with the old access rights.

The DeleteAnalyzerViews script will report the number of views that it deletes. In case of errors, check the log file (the output of the script shows the path to the complete log file) to see the SQL that failed.

6.6 Delete Portal Standard Components

If you use the Portal, you must delete the standard components from the Portal, using the DeletePortalStandard.sql SQL script. This script deletes standard components and leaves only

customized components in the database. This ensures that no standard components are left in the database when upgrading and converting the Portal (names may have changed).

This script is part of the Upgrade Kit, so you must change the directory to that folder.

To delete standard components from the Portal if you use Oracle, enter the following commands:

1. **Win:**
   a. `cd \PUs\DeltekMaconomyUpgradeKit24GA\SQL\`
   b. `StartOracleSQL.w_12_0.b myshort myshort DeletePortalStandard.sql > c:\Logs\DeletePortalStandard.myshort.log`
2. **UNIX:**
   a. `cd /data/DeltekMaconomyUpgradeKit24GA/SQL`
   b. `StartOracleSQL.w_12_0.b myshort myshort DeletePortalStandard.sql > Logs/DeletePortalStandard.myshort.log`

You must delete standard print and window layouts from the database, using the DeleteStandardLayouts script. This ensures that there are no orphaned layouts left in the database (names that have changed in later versions). The customized layouts are left in the database for conversion at a later step. To delete the standard layouts, you must run this SQL script.

This script is part of the Upgrade Kit, so you must change the directory to that folder.

To delete standard print and window layouts from the database, enter the following commands:

Do not run DeleteStandardLayouts when upgrading to Maconomy 2.4 or later as it will cause errors in the upgrade process.

1. **Win:**
   a. `cd \PUs\DeltekMaconomyUpgradeKit24GA\SQL\`
   b. `StartOracleSQL.w_12_0.b myshort myshort DeleteStandardLayouts.sql > c:\Logs\DeletePortalStandard.myshort.log`
2. **UNIX:**
   a. `cd /data/DeltekMaconomyUpgradeKit24GA/SQL`
   b. `StartOracleSQL.w_12_0.b myshort myshort DeleteStandardLayouts1.sql > Logs/DeletePortalStandard.myshort.log`

   Examine the log file. Locate and correct errors.

There may be SQL errors stating that a relation (for instance PDMCOMPONENT) does not exist. You can ignore these errors. However, only errors about tables not existing can be ignored. All other errors must be corrected.

7 Update the Database Schema

7.1 Expand Relations

For large databases see Expand Script.

The purpose of an expand script is to update the fields and relations of the existing database to the new fields and relations.

This can include the following tasks:

- Create relations
- Add new fields to an existing relation
- Change the type of an existing field
- Move existing fields in existing relations
- Delete relations
- Delete fields from relations
- Extend field and relation names to 28 characters

An expand script is version-dependent, and you must never run “wrong” expand scripts on a database.

There are three important things to check regarding the version:

- The source version
- The source schema version
- The target version

Assume that the source application is W 12.0, and a service pack with schema changes has been applied; you should use the expand script “expand.w120svX-w200.sql”, where X is the current schema version number. The schema version is shown in the “<path to W 12.0 application>/MaconomyDir/Installation/Version.info file.

You will always get error messages when running expand scripts, but it is important to check that you only receive the expected messages. Thus, it is important to enable logging **before** you run the expand script. On large databases this script may run for some time.

You cannot restart the expand script.

To run the expand script, enter the following commands:

1. **Win:**
   a. `cd c:\maconomy\w_20_0.t\MaconomyDir\Database`
   b. `StartOracleSQL myshort myshort expand.w120sv12-w200sv2.sql > c:\Logs\Expand.myshort.log`
2. **UNIX:**

a. **cd /data/maconomy/w_20_0.t/MaconomyDir/Database**

b. **StartOracleSQL myshort myshort Expand.w120sv12-w200.sql > Logs/expand.myshort.log**

After completion, check the “expand.myshort.log” file using a text editor. You may find several error messages regarding attempts to drop non-existing tables. Ignore tables that end with ‘_T’.. You should make sure that there are no other error messages.

After, check the error log.

Check the expand.myshort.log file using a text editor and search for the text “ORA-.” You should see several error messages about attempts to drop nonexistent tables. You can ignore those errors, but make sure that there are no other error messages.

Regardless of which database you are running you may see error messages in the expand script stating that the following tables do not exist:

```
DEV_CompanyCustomerCC
DEV_CompanySetupCC
DEV_EmailalertsDistribution
DEV_EmailalertsTemplates
DEV_EntrySelectionCC
DEV_ExpenseJustificationDes
```

This happens if standard extensions have not been installed in the system that is being upgraded; in that case you can ignore these messages because these tables will be created during the standard extension install (if standard extensions are needed).

Make sure that there are no other error messages.

You might also see error messages stating that the previously mentioned DEV_ tables already exist. In that case verify that the DEV_ table definitions in the expand script match the tables that are already in the schema. If the existing tables match the ones that are defined in the expand script, it is safe to continue.

Compare the DEV_ tables to their definitions in Maconomy version 2.4.x, because any newer version of Maconomy might contain changes to these tables.

If the existing tables do **not** match the tables from the expand script of Maconomy version 2.4.x, it is a customization that you must deal with on a case-by-case basis, working with the Deltek Services team.

When upgrading to Maconomy version 2.3 or higher a postexpand script needs to be executed before moving forward

To run the postexpand script, enter the following commands:

1. **Win:**
   a. **cd c:\maconomy\w_20_0.t\MaconomyDir\Database**
   b. **StartOracleSQL myshort myshort PostExpand.sql > c:\Logs\PostExpand.myshort.log**
2. **UNIX:**
   a. **cd /data/maconomy/w_20_0.t/MaconomyDir/Database**
   b. **StartOracleSQL myshort myshort PostExpand.sql > Logs/postexpand.myshort.log**

7.2 Delete Unused Columns

The Oracle expand script does not physically delete columns from the database. It makes the columns invisible by using the ALTER TABLE..SET UNUSED command.

To physically delete the columns you must run the DeleteUnusedColumns scriptlet. This is an MConfig scriptlet that is located in the TPU.

To run the DeleteUnusedColumns scriptlet, complete the following steps:

1. Run Mconfig from the command line with the following command:

```
Win:
       c:\PUs\MConfig-8.13 -r DeleteUnusedColumns w_12_0.b myshort
myshort
UNIX:
       MConfig-8.13 -r DeleteUnusedColumns w_12_0.b myshort myshort
```

where:

- The first argument, w_12_0.b, is the application name, such as w_12_0.b.
- The second argument, myshort, is the shortname.
- The third argument, myshort, is the password.

For small databases, you might want to run this scriptlet immediately after having attached the shortname to the new application. However, for large databases you might save time by postponing this task until later. It is recommended that you perform this task before you perform the Unicode conversion.

7.3 Create Access Control Views

The access control views ensure that end users only have access to data that they are allowed to see. The access control itself is specified in the Maconomy application. These views are recognized by their name, which is AC<TableName>.

7.3.1 Create DHViews

You use the DHViewMake command to create data access security views for the client. You must run DHViewMake before you update common relations.

To create data access security views for the client, enter the following commands:

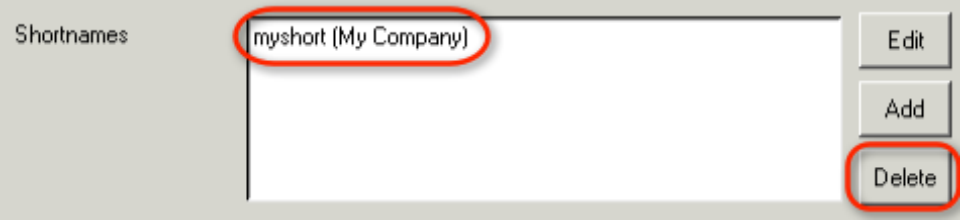
1. Win:
   a. `cd c:\maconomy\w_20_0.t\MaconomyDir\Database`
   b. `StartOracleSQL myshort myshort DHViewMake.sql > c:\Logs\DHViewMake.myshort.log`
2. UNIX:
   a. `cd /data/maconomy/w_20_0.t/MaconomyDir/Database`
   b. `StartOracleSQL myshort DHViewMake.sql > Logs/DHViewMake.myshort.log`

7.3.2 Detach shortname from the Old Application

Use MConfig to detach the shortname from the old Maconomy environment. MConfig does not touch the database or the original environment. Wait until the upgrade is finished and approved by the customer before you delete the old environment.

To detach the shortname from the old application, complete the following steps:

1. Open the old environment using MConfig.



2. Click **Delete** to detach the shortname.

8 Update Business Logic and Components

Do not continue until the Unicode conversion is finished without any errors. If there are errors in this section the upgrade may be invalid and unable to be fixed.

8.1 W_20_0 Upgrade

After the Unicode conversion has finished without error, you must remove the shortname from the old application and attach it to the new application using MConfig (if that is how the transfer of data from the old to the new application is being performed).

8.1.1 Attaching the Shortname

The following commands (in this step and the rest of this document) assume that the application w_20_0.t has the shortname '**myshort'** attached (so the MaconomyServer.w_20_0.t command is available).

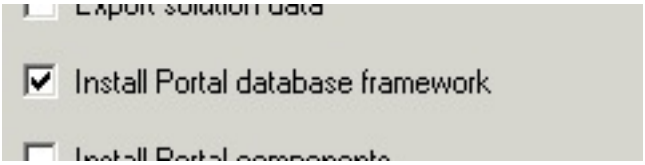
When attaching the shortname, be sure to install the new Portal database. Otherwise, the step in which you export part of the database for conversion with ModifyExportFile will fail.

If the system that you are upgrading from has a Special.txt file in the MaconomyDir\Analyze folder, the file must be installed in the MaconomyDir\Analyze folder on the new 2.3 system before new installation numbers are installed.

The Special.txt file contains definitions of special menus, and is needed when generating the Dependencies file. If the file is missing, dialog group assignments in the database for the special menus are automatically removed.

To install the new Portal database and attach the shortname:

1. Select the **Install Portal database framework** check box in the shortname window of the shortname that you are attaching to the new application.

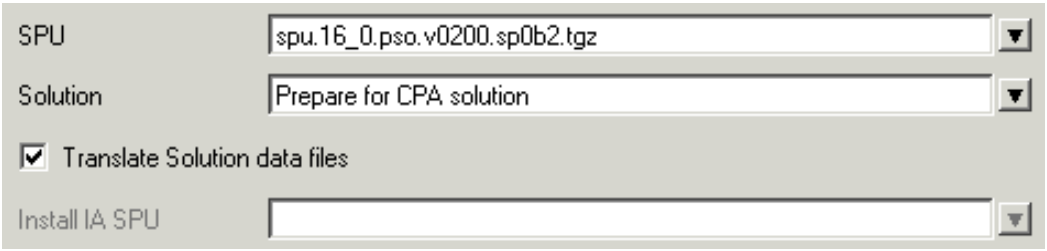


If the shortname is not detached from the old application now, SQL scripts that run using StartOracleSQL.cmd, and so on, may fail, so detach the shortname from the old application now.

If the system that you are upgrading from contains a solution, you must specify the right solution and install it when the shortname is attached (PSO or CPA).

In Maconomy, there is on Custom layer and one Extension layer. This means that adding new customizations or accelerators may overwrite already installed files. This means that the order in which accelerators are installed may be significant.

2. In MConfig go to the Application Instance window and select the SPU and the Solution. The following figure shows some examples.



Be aware that these choices cannot be changed. A wrong selection in this section requires a database restore and a reinstallation of the application.

8.1.2 Create Other Views

Creation of data access security views for ODBC connections is a bit more complicated. First, you must create the views. Then you must add all windows to the Administrator user and recreate the internal relations between View Groups and views. Then you must recreate access to the views from the list of report users. Finally, you must clean up and reinstall the Analyzer views.

You must perform the following commands.

To create other views, enter the following commands:

1. **Win:**
   a. `cd c:\maconomy\w_20_0.t\MaconomyDir\Database`
   b. `StartOracleSQL myshort myshort DHViewMake.sql > c:\Logs\DHViewMake.myshort.log`
   c. `StartOracleSQL myshort myshort ViewInit.sql > c:\Logs\ViewInit.myshort.log`
   d. `MaconomyServer.w_20_0.t -f -3 -Smyshort`
   e. `Recreate3PStuff myshort myshort`
   f. `MaconomyServer.w_20_0.t -Smyshort --ConvertAnalyzerFiles`

2. **UNIX:**
   a. `cd /data/maconomy/w_20_0.t/MaconomyDir/Database`
   b. `StartOracleSQL myshort myshort ViewMake.sql Logs/ViewMake.myshort.log`
   c. `StartOracleSQL myshort myshort ViewInit.sql Logs/ViewInit.myshort.log`
   d. `MaconomyServer.w_20_0.t -f -3 -Smyshort`
   e. `Recreate3PStuff myshort myshort`
   f. `MaconomyServer.w_20_0.t -Smyshort --ConvertAnalyzerFiles`

The analyzer views previously deleted are created when running the individual analyzer for the first time; therefore, no special action is needed.

8.1.3 Errors

In the log file for the SQL scripts there may be some Oracle errors related to DROP VIEW statements.

```
ERROR at line 1:
ORA-00942: table or view does not exist
```

This is normal, and no action is required.

8.2 Update Common Relations

This phase ensures that certain global relations that describe the relations and fields in the database contain the correct data. This data depends on the application version only, and is therefore updated during the upgrade procedure.

The command UpdateFieldsAndRelations imports the tables DatabaseField and DatabaseRelation from Newdb.dbd. Run this script as the maconomy user.

8.2.1 Update Common Relations

To update common relations for all platforms, enter the following command:

1. **`UpdateFieldsAndRelations.w_20_0.t myshort myshort -NC`**

   No errors may occur.

This step may take a long time because it creates instance keys and constraints after importing new field and relation descriptions. **Do not cancel it under any circumstances as the step is not repeatable and if killed mid execution will require the upgrade to be restarted or at the very least the Database would have to be restored from a backup prior to the execution of this step if such a backup exists.**

2. To test for a successful completion, enter the following command in an interactive SQL session:

   ```
   select RelationName from DatabaseRelation where InternalRelationName =
   'Account';
   ```

The result should be expressions in the enterprise language of the system (the language of all fixed texts stored in the database, such as names of system parameters, and so forth). Be sure that UserLanguage in Maconomy.ini is set to the company's enterprise language.

8.2.2 Create Indexes

As mentioned earlier, each version has its own indexes, and you create the indexes that belong to the new version using MConfig. Creating indexes is supported for MConfig version 8.0 or later. However, you should always use the newest MConfig version unless you have been explicitly instructed otherwise. Consult the MConfig documentation if necessary.

Use MConfig to create indexes by completing the following steps:

1. In the Main window, select the new application and click **Edit**.
2. In the Application window, for each shortname do the following:

   - Select the shortname in the **Shortnames** list and click **Edit**.

- In the Shortname window, click **Index management**. You might also want to check the Index tablespace if you are using Oracle and have reattached the existing shortname to the new application using MConfig. MConfig will not know where to put the indexes; you must check that they are put in the right tablespace yourself.
- Select the **Create standard indexes** check box. If the index comparison revealed local changes to the standard set of indexes, also select the **Create additional indexes** check box and select the comparison file IndexCompareWith<shortname>.<old application>.idx in the **Index spec. files** list box. (There may be comparison files for different shortnames listed; be sure to select the right one).

3. Click **OK** to return the Main window. Continue with **Next**, and so on, as for any other MConfig task (if in doubt, see the MConfig manual).

On large databases the creation of indexes typically runs for a long time.

8.3 Reinstall Standard Layouts for all Platforms

To reinstall standard layouts:

1. Type the following commands:

```
Win:
        cd c:\maconomy\w_20_0.t\MaconomyDir\MSLScripts
        MaconomyServer.w_20_0.t -Smyshort -xRemove_Old_Layouts

UNIX:
        cd /data/maconomy/w_20_0.t/MaconomyDir/MSLScripts
        MaconomyServer.w_20_0.t -Smyshort -xRemove_Old_Layouts
```

2. If upgrading to Maconomy 2.3 or higher from Maconomy 2.2 or lower, the following SQL statements need to be executed against the database before moving forward with the upgrade. If upgrading from 2.4.x, continue to step 3.

   ALTER TABLE TEXTDOCUMENT NOLOGGING;

   ALTER TABLE TEXTDOCUMENT MODIFY (DOCUMENTDATA CLOB) LOB (DOCUMENTDATA) STORE AS (NOCACHE NOLOGGING);

   ALTER TABLE TEXTDOCUMENT MODIFY LOB (DOCUMENTDATA) (CACHE);

   ALTER TABLE TEXTDOCUMENT LOGGING;

   ALTER TABLE BINARYDOCUMENT NOLOGGING;

   ALTER TABLE BINARYDOCUMENT MODIFY (DOCUMENTDATA BLOB) LOB (DOCUMENTDATA) STORE AS (NOCACHE NOLOGGING);

   ALTER TABLE BINARYDOCUMENT MODIFY LOB (DOCUMENTDATA) (CACHE);

   ALTER TABLE BINARYDOCUMENT LOGGING;

This action may require up to double the tablespace used by the binary document table during the execution of this SQL.

3. Run the MaconomyServer command with the –UW –UP options to reinstall the standard layouts that were deleted earlier.

   Note: The –UW option will return errors because the layer functionality is removed. Ignore these errors.

4. Type the following command to reinstall standard layouts:

   ```
   MaconomyServer.w_20_0.t -Smyshort -UW -UP
   ```

You should not install the layouts until after the conversion of exported data, and you must import them before running the MSL script to convert data, so you should install them in this step.

When you upgrade Maconomy, new versions of layouts are installed. If you do not install the solution because it is no longer in the release, there may not be a new version to install. See the Deltek Maconomy 2.4.x Release Notes for details.

8.4 Create Indexes for Data Conversion

For large databases see Create Index for Data Conversion.

In general, you do not need to create special indexes for the data conversion because the new Convert_data program will create them automatically.

There are some exceptions, which are nonstandard conversion indexes that are found during the test upgrade. You must specify these indexes in the PULSE schema; you can add them at this point.

Create the following indexes prior to upgrade to optimize data conversion.

CREATE INDEX DATACONV_IDX101 ON APPROVALLINE (INTEGERKEYVALUE1, INTEGERKEYVALUE2, INTEGERKEYVALUE3);

CREATE INDEX DATACONV_IDX102 on APPROVALHEADER (INTEGERKEYVALUE1,INTEGERKEYVALUE2);

CREATE INDEX DATACONV_IDX103 ON USERINFORMATION (EMPLOYEENUMBER);

CREATE INDEX DATACONV_IDX104 on APPROVALLINE(APPROVALGROUPINSTANCEKEY, EFFECTIVE, INSTANCEKEY) include (APPROVER,SUBSTITUTE, SUPERAPPROVER);

CREATE INDEX DATACONV_IDX105 ON APPROVALLINE (APPROVALDATE, APPROVEDORREJECTEDBY);

CREATE INDEX DATACONV_IDX106 ON COMPANYCUSTOMER (ACCOUNTMANAGERNUMBER);

CREATE INDEX DATACONV_IDX107 ON APPROVALGROUP (MAINRELATIONINSTANCEKEY);

CREATE INDEX DATACONV_IDX108 on INVOICEEDITINGHEADER(PAYMENTCUSTOMER,INVOICEEDITINGNUMBER);

CREATE INDEX DATACONV_IDX109 on APPROVALGROUP (APPROVALTYPE);

CREATE INDEX DATACONV_IDX110 on APPROVALHEADER (APPROVALTYPE,INTEGERKEYVALUE1,INTEGERKEYVALUE2);

CREATE INDEX DATACONV_IDX111 on APPROVALHEADER (APPROVALTYPE,INTEGERKEYVALUE1);

CREATE INDEX DATACONV_IDX112 on APPROVALLINE (APPROVALNUMBER,INTEGERKEYVALUE1);

CREATE INDEX DATACONV_IDX113 on JOBENTRY (TYPEOFENTRY);

CREATE INDEX DATACONV_IDX114 on VENDORINVOICEJOURNAL (POSTED,STATUS,SUBMITTEDBY);

CREATE INDEX DATACONV_IDX115 on PAYMENTMODE (REMOVEDPAYMENTMODENUMBER);

CREATE INDEX DATACONV_IDX116 on CUSTOMERPAYMENTMODE (REMOVEDCUSTOMERPAYMENTMODENU);

CREATE INDEX DATACONV_IDX117 on PAYMENTAGENTINFORMATION(REMOVEDPAYMENTAGENTNUMBER);

8.5 Convert the Portal Database

To upgrade the Portal database, complete the following sets of steps (replace the base and target application main version numbers accordingly):

UPDATE COMPONENT

SET CALLBACKSCRIPT = REPLACE(CALLBACKSCRIPT, 'W_12_0', 'W_20_0')
WHERE CALLBACKSCRIPT LIKE '%W_12_0%';

UPDATE MACONOMYWINDOW

SET SPECFILENAME = REPLACE(SPECFILENAME, 'W_12_0', 'W_20_0')
WHERE SPECFILENAME LIKE '%W_12_0%';

UPDATE MSCRIPTCOMPONENT

SET MSCRIPTFILENAME = REPLACE(MSCRIPTFILENAME, 'W_12_0', 'W_20_0')
WHERE MSCRIPTFILENAME LIKE '%W_12_0%';

UPDATE PDMCOMPONENT

SET CONFIGURATIONFILE = REPLACE(CONFIGURATIONFILE, 'W_12_0', 'W_20_0')
WHERE CONFIGURATIONFILE LIKE '%W_12_0%';

UPDATE PDMCOMPONENT

SET TABFUNCTION = REPLACE(TABFUNCTION, 'W_12_0', 'W_20_0')
WHERE TABFUNCTION LIKE '%W_12_0%';

In rare cases, the letter W in the version name can be lowercase. For those situations, replace **W** with **w** in the preceding queries, and continue.

8.6 Convert Data to the New Version

For large databases see Convert_Data_From_9.0.

The purpose of the Convert_Data.* MSL scripts is to update the database with the appropriate information for the new version (similar to the OracleUpdate script). This can include entering required data in new fields and/or relations or calculating the values of specific fields.

You can restart Convert_Data; that is, if it stops because of an error, you can fix the error and then restart the program. This includes restarting if the data conversion is running in the foreground on a UNIX machine and your terminal connection is interrupted for some reason.

In Maconomy version 16 ServicePack 2 the enterprise languages were changed. You therefore update the current enterprise language to match the ones that are available in the new version.

To update the current enterprise language to match those that are available in the new version:

- Run the following MConfig command:

```
Win:
       C:\PUs\MConfig-8.13.exe -r
c:\maconomy\tpu.NTx86.20_0.p100.dir\MConfigScriptlets\ChangeToIsoLanguage
.mcp w_20_0.t myshort en_US
UNIX:
       MConfig-8.13 -r
data/maconomy/tpu.NTx86.20_0.p100.dir/MConfigScriptlets/ChangeToIsoLangua
ge.mcp w_20_0.t myshort myshort en_US
```

In the preceding example, the enterprise language US is changed to en_US.

The output looks like the following:

```
MConfig will run the MCP-Scriptlet 'c:\maconomy\tpu.NTx86.20_0.p100.dir
\MConfigScriptlets\ChangeToIsoLanguage.mcp'
-------------------------------------------------------------------------
Log file:
c:\maconomy\tpu.NTx86.20_0.p100.dir\MConfigScriptlets\ChangeToIsoLanguage.log
Setting enterprise language to en_US for application w_20_0.t
Updating registry for application w_20_0.t
Updating Maconomy.ini
Updating database
-------------------------------------------------------------------------
Script done.
You may now close the window.
```

This functionality requires MConfig 8.3 or later.

Before you run Convert_Data, check that the UserLanguage chosen in Maconomy.ini is the same as the Enterprise language of the installation, that is, the language for fixed texts that are stored in the database. You do this by running the CheckEnterpriseLanguage MSL script.

You must drop user-created statistics for Convert_Data to run; you can recreate these statistics after the script finishes.

Win:

```
cd c:\maconomy\w_20_0.t\MaconomyDir\MSLScripts
MaconomyServer.w_20_0.t -xCheckEnterpriseLanguage -Smyshort
```

UNIX:

```
cd /data/maconomy/w_20_0.t/MaconomyDir/MSLScripts
MaconomyServer.w_20_0.t -xCheckEnterpriseLanguage -Smyshort
```

In general, MSL scripts might ask for input when run.

```
Variable to change ($ to list all, <return> to continue, $$ to exit)
```

If you are prompted for this, press **Return** to continue.

If the script completes without errors, the language setting is correct; otherwise, you must change it to the Enterprise language.

Four new variables are introduced in Convert_data.

1. AllowIndexCreationVar — Boolean. Default value 1 (or true)

   This variable indicates whether it is allowed for Convert_data to create needed indexes during the conversion.

2. TableSpaceNameVar:String — Default value ‘ ‘.

   If AllowIndexCreationVar is true this variable specifies the table space for index creation.

3. OracleDataBaseVar: Boolean — Default value 0 (or false).

   This variable specifies whether the database is Oracle or SQL Server. The default is SQL Server.

4. TransactionTypeInitializationVar — Boolean. Default value 0 (or false).

   This variable specifies whether the optimization described in Unicode Conversion is performed. Convert_data checks the change in the expand script anyway.

Start Convert_Data by using the following commands.

Win:

```
cd c:\maconomy\w_20_0.t\MaconomyDir\MSLScripts
MaconomyServer.w_20_0.t -xConvert_Data_From_9.0 -Smyshort
```

UNIX:

```
cd /data/maconomy/w_20_0.t/MaconomyDir/MSLScripts
MaconomyServer.w_20_0.t -xConvert_Data_From_9.0 -Smyshort
```

The script may display lines that state that it is converting, for instance from 9.0 SP 5 to X, while the application installed is on, for instance, X1 SP 2. This is expected behavior, and these conversion steps will be skipped quickly.

Use the following command (with sqlplus) to check the data conversion status manually:

```
select DATACONVERSIONSTATUS from SYSTEMINFORMATION;
```

If no language is specified in Maconomy.ini, the default language of the Maconomy version is selected (US). If in doubt about the enterprise language, select some fixed texts from the database.

```
select DESCRIPTION from SYSTEMPARAMETER where INTERNALNAME < '@B';
```

This should print some texts that are all in the enterprise language. If you are changing the setting for UserLanguage, remember to set it back after you run Convert_Data.

On large databases this script typically runs for a long time.

To generate a log file on a UNIX system by starting the ConvertData program:

- Enter the following command:

  ```
  MaconomyServer.w_20_0.t -xConvert_Data_from_9.0 –Smyshort < Import.Data
  >&! ../Logs/ConvertData.myshort.log &
  ```

  Where Import.Data is a text file created with a text editor and contains only one blank line.

8.7 Remove Indexes for Data Conversion

For large databases see Remove Indexes from Data Conversion.

You should remove all indexes created for use. If you created the indexes DataConversion01, DataConversion02, and DataConversion03, execute the following commands from an interactive SQL shell (or write a script and execute it).

To remove indexes for data conversion for all databases, enter the following commands in sqlplus:

DROP INDEX APPROVALLINE.DATACONV_IDX101;

DROP INDEX APPROVALHEADER.DATACONV_IDX102;

DROP INDEX USERINFORMATION.DATACONV_IDX103;

DROP INDEX APPROVALLINE.DATACONV_IDX104;

DROP INDEX APPROVALLINE.DATACONV_IDX105;

DROP INDEX COMPANYCUSTOMER.DATACONV_IDX106;

DROP INDEX APPROVALGROUP.DATACONV_IDX107;

DROP INDEX INVOICEEDITINGHEADER.DATACONV_IDX108;

DROP INDEX APPROVALGROUP.DATACONV_IDX109;

DROP INDEX APPROVALHEADER.DATACONV_IDX110;

DROP INDEX APPROVALHEADER.DATACONV_IDX111;

DROP INDEX APPROVALLINE.DATACONV_IDX112;

DROP INDEX JOBENTRY.DATACONV_IDX113;

DROP INDEX DATACONV_IDX114.DATACONV_IDX114;

DROP INDEX PAYMENTMODE.DATACONV_IDX115;

DROP INDEX CUSTOMERPAYMENTMODE.DATACONV_IDX116;

DROP INDEX PAYMENTAGENTINFORMATION.DATACONV_IDX117;

9 Validate Custom Components

All standard components are now upgraded, but there may still be customized layouts and Portal components that need to be validated by the new Maconomy version.

9.1 Validate Layouts

Modified layouts might need adjustments in the new application version if the following conditions are true:

- Database fields have been removed or renamed.
- Variables have been removed or renamed.
- Cursors have been removed or renamed.
- New mandatory fields have been added.
- The structure of a print layout's parent layout has changed.

Most of the possible problems (renamed fields and relations) should have been handled in the step that converts the database export files that also contain the layouts, so layouts should not fail to validate because of name changes.

However, you must still perform a validation of all modified screen and print layouts against the new application. You perform screen layout validation on the server only—there is no way to validate screen layouts from the Windows client.

You perform print layout validation on the server or from a Maconomy Client.

You must convert all layouts to MPL4. For custom layouts, you do this by running a Java script before importing them. The Java Runtime Environment is part of the TPU.

9.1.1 Screen Layout Validation on the Server

To validate all screen layouts for all platforms, enter the following command:

```
MaconomyServer.w_20_0.t –Smyshort -UVW
```

This process validates all of the modified screen layouts in the database for the selected company.

9.1.2 Print Layout Validation on the Server

Run the following command to validate customized print layouts.

You can find the MPL3to4MigrationTool.jar tool in the TPU\JavaMPL directory. If you see the MPL3MigrationTool.jar file instead, you should be using a newer TPU. The MPL3to4MigrationTool.jar tool converts MPL 3 layouts to MPL 4. Any MPL 1 or MPL 3 layouts remain untouched.

To validate customized print layouts enter the following commands:

1. `MaconomyServer.w_20_0.t -Smyshort -UEP`
   a. `UNIX: java -jar MPL3to4MigrationTool.jar -dir /data/maconomy/w_20_0.t/MaconomyDir/ExportedLayouts/`
   b. `WIN: java -jar MPL3to4MigrationTool.jar -dir c:\maconomy\w_20_0.t\MaconomyDir\ExportedLayouts`
2. `MaconomyServer.w_20_0.t -Smyshort -UIP`

3. **MaconomyServer.w_20_0.t -Smyshort -UVP**

9.2 Create Constraints

This step introduces consistency constraints that will be checked by the database system during use.

9.2.1 Instance Keys

All Platforms

```
MaconomyServer.w_20_0.t -UC -Smyshort
```

9.2.2 Other Constraints

Oracle-specific constraints:

WIN:

```
cd c:\maconomy\w_20_0.t\MaconomyDir\Database

StartOracleSQL myshort myshort CreConstraints.sql >
c:\Logs\CreConstraints.myshort.log
```

UNIX:

```
cd /data/maconomy/w_20_0/MaconomyDir/Database

StartOra myshort myshort CreConstraints.sql
Logs/CreConstraints.myshort.log
```

Check the log file for errors.

- There may be errors concerning constraints that cannot be created because they already exist. You can ignore those errors.
- There may be errors concerning constraints that cannot be created because they are not fulfilled by the existing data (ORA-02299). These errors are not severe, but you must reported them via a support case to the Maconomy Customer Care, including the log file.
- The error “ORA-22661: such unique or primary key already exists in the table” is a known issue that you can ignore if it appears during the creation of constraints.

The upgrade can continue, and the system can be put into operation, no matter which errors have occurred during the installation of constraints.

Create a support case with Deltek if any errors other than “constraint already exists” occurred. Ignoring constraint creation errors can lead to database inconsistencies.

9.3 Install and Upgrade the Portal

If you use the Portal, you must upgrade it to the newest Portal version. You use MConfig to install the new Portal that belongs to the upgraded application and run some scripts and tools to ensure that the sure the database is converted properly. In addition, you must upgrade customized files; however, the process for doing that is not covered in this document. The following information describes how to update the Portal.

In Maconomy, there is *one* Custom layer and *one* Extension layer. This means that adding new customizations or accelerators may overwrite already installed files. This means that the order in which accelerators are installed may be significant.

In the early PSO solutions, industry accelerators were considered customizations and treated as such; that is, they were installed in the custom layer on both the Maconomy server and the web server. This means that "standard" customizations are potentially mixed with "true" customizations.

Since PSO 1.4, industry accelerator files have been installed in a separate Extension layer.

In both cases, Portal components from accelerators are still marked as "not standard" in the Portal Designer.

When upgrading a system from a PSO solution prior to 1.4, you can take **one** of two possible paths for the upgrade:

- Keep the entire custom layer "as is," or
- Remove the accelerator parts and keep only true customizations.

If you choose the first option, you should transfer all of the files in the custom layer to the new application both on the Maconomy server and the web server. Going forward, anything that is in the custom layer will be treated as true customizations. No service packs will be released that support accelerators on the custom layer, and they may hide updated layouts and configurations in the extension layer released in later service packs.

If you choose the second option, the procedure for removing accelerator files from the custom layer depends on the previously installed industry accelerator. You should include this in the upgrade of customizations, which is not covered by this document.

9.3.1 Install the Web Server and Portal

You must install the new web server and the Portal for the new application, using MConfig.

To install the web server and Portal:

1. In MConfig, use the Web Products screen to set up web products for the application.
2. Select Install Portal database in shortnames and Install Portal components in shortnames.

Be sure to force the import of Portal components and upgrade of the database schema for the shortname in question, by selecting 'Unconditionally'.

3. Select **Install Unconditionally** in **(Re)Install Application component files**.
4. If you are installing industry accelerators, select the first accelerator in **Custom Portal files directory**.
5. Click **OK** in the main screen to install.
6. Repeat for each accelerator.

9.3.2 Install Maconomy Server Industry Accelerator Files

You can install the industry accelerators that are supplied with the PSO SPU by using the data import feature in MConfig:

To install the industry accelerators that are supplied with PSO SPU:

1. Access MConfig.
2. On the shortname screen, select **Solution Setup Data (import only)** in **Load shortname data**.
3. In **Data configuration options**, select the appropriate industry accelerators and select **Accelerator Runtime Files Only**. This installs files—but no data—in the database.

For third-party accelerators, select **IA.<Accelerator Name> (Import Only) in Load shortname data**. See the documentation for the accelerator for data configuration options, and verify that the upgrade without import option is supported.

9.3.3 Set Up the Portal Component

You can install updated versions of solution and industry accelerator components if appropriate. This may be necessary when upgrading from a “native” solution to a PSO solution or when upgrading from a pre-PSO1.4 solution if the “custom” industry accelerators are exchanged for the new standard accelerators.

Use the Portal Designer import features to install updated versions of solution and industry accelerator components, using **one** of the following methods:

- Inside the Portal — Open the Portal Designer » Import / Export component, choose Import, and select the files to be imported.
- From the command line — Type the following commands:

```
Win:
       cd C:\maconomy\WebServers\w_20_0.t\cgi-bin\Maconomy
       MaconomyPortal.myshort.en_US.exe -e -q
"filename=solution_module_comps.xml&username=Administrator&password=123456&i
mporttype=components" Framework/import/importportal.ms
```

If you import from the command line, you must copy the import files to a location that the web server can see, for example, ‘C:\maconomy\WebServers\ w_20_0.t\MaconomyPortal’. The files are located in ‘C:\maconomy\w_20_0.t\Portal\Installation’

Check that the ‘MaconomyPortal.myshort.en_US.exe’ file exists and that you are using the correct one for your language settings. Ex.: for danish, you should use ‘MaconomyPortal.myshort.da_DK.exe’ instead

The files to be imported are located in ‘c:\maconomy\w_20_0.t\Portal\Installation’ on Windows. Component definitions and default role setup and menus are available.

Import files for industry accelerators are located in ‘c:\maconomy\w_20_0.t\IA.<Industry Accelerator>\Portal\Installation’ on Windows.

9.3.4 Validation of Portal Components

You must manually validate the customized Portal components for the upgraded Portal and database schema.

To manually validate customized Portal components, complete the following steps, using the Portal Designer:

1. Choose the component.

2. Click **Update** without changing anything.

If you have a large number of components to validate manually, it is easier to export all of the components using the Portal Designer export menu and then import the components again. Importing also performs the validation. You must export and import after the upgrade—exporting before the upgrade and importing after can cause unpredictable behavior.

You can also export component definitions using the command window. In the following example the web server is a Windows server, and the home directory for the web server is 'C:\maconomy\WebServers\w_20_0.t\'.

Example: Export the component definition

```
cd C:\maconomy\WebServers\w_20_0.t\cgi-bin\Maconomy
MaconomyPortal.myshort.en_US.exe -e -q
"filename=Maconomy2_1.portal_comps.xml&username=Administrator&password=123456&e
xporttype=components" Framework/export/exportportal.ms
```

The export file is located in:

```
C:\maconomy\WebServers\w_20_0.t\MaconomyPortal\Maconomy2_1.portal_comps.xml
```

Example: Import and validate the components

```
MaconomyPortal.myshort.W.exe -e -q
"filename=Maconomy2_1.portal_comps.xml&username=Administrator&password=123456&imp
orttype=components" Framework/import/importportal.msselect
```

At this point you should update the database statistics for oracle by running the following commands in sqlplus:

```
begin
dbms_stats.delete_schema_stats( ownname=> '"MYSHORT"' );
end;
/

begin
dbms_stats.gather_schema_stats(
ownname=> '"MYSHORT"' ,
options=> 'GATHER AUTO');
end;
/
```

10 Post Upgrade tasks

This section covers various cleanup tasks and items to check once the main upgrade process is complete and before allowing users onto the new Maconomy application

10.1 Recreating BPM Objects

This section is only relevant if the original system has BPM.

To recreate all BPM-related database objects, use the Business Performance Management section in the shortname window in MConfig. At this point in the upgrade process, all the check boxes in the BPM section should be unchecked. To recreate all BPM database objects, select the relevant values and proceed with the installation.

Skipping this step results in the database containing invalid BPM objects that do not match the upgraded schema.

10.2 Clean Up

After you have installed a new version, you should make sure that no users can connect to the old Maconomy application version. You can decide to completely remove the old version or just to disable it (by changing the port number). Deltek recommends that you remove the version completely using MConfig.

10.3 Check Related Product Compatibility

After upgrading Maconomy to a new version, it is important to check if all the integrations are still compatible or if they also require a new version. Integrations that should be checked after upgrade include:

- iAccess
- Touch
- People Planner

10.4 Advanced Logging

If advanced logging was configured on the original Maconomy application please remember to migrate it to the new Maconomy application after the upgrade. For more on advanced logging configuration please read the system administrator guide for Maconomy.

10.5 Disable Maintenance Mode

At this point the Maconomy application should be put out of maintenance mode using MConfig 8.15 or later. Putting the system out of maintenance mode will re-enable background tasks.

11 Hints, Tips and Tricks

11.1 Large Databases

When upgrading databases larger than 25 GB (data files only) Deltek recommends that you read the following information carefully to optimize the upgrade. The philosophy of this approach is to not drop things that you can reuse later in the upgrade procedure.

This should only be considered if upgrading from Maconomy version 11, 12, or 15 to Maconomy version 2.4.x.

Upgrades from Version 8 may benefit from a special upgrade kit and upgrade procedure. Contact Deltek Engineering for additional information.

11.2 Drop Constraints (does not apply to 2.4.x or LA)

Not all constraints must be removed when upgrading to older versions of Maconomy (2.2 or older) Therefore steps 8.1 and 8.2 can be replaced.

In versions 11 and 12 constraints are not allowed in the following tables:

- JobInvoicing
- Jobregistration
- Dimensioncombusage

To drop constraints in an Oracle database:

1. Enter the following SQL command in sqlplus to find the constraints' names:

```
select table_name, constraint_name from user_constraints where
constraint_type = 'U' and table_name in ('JONINVOICING',
'JOBREGISTRATION', 'DIMENSIONCOMBUSAGE');
```

2. Enter the following SQL command to drop each constraint "C" found in a table "T":

```
alter table T drop constraint C;
```

11.3 Dump Changes to Standard Indexes

When you dump index changes from MConfig check whether there are any indexes on the following combination of table name and column name. If there are any, drop them.

- JobInvoiceLine: NOTINCLUDEDINFIXEDPRICE
- JobEntry: NOTINCLUDEDINFIXEDPRICE

To find and drop indexes in an Oracle database, enter the following command:

1.
```
select 'drop index '||index_name||';' from user_ind_columns where
column_name='NOTINCLUDEDINFIXEDPRICE' group by index_name;
```

Execute the output from the preceding script to drop indexes.

11.4 Drop Indexes

You are not required to drop all indexes. They are recreated at a later stage. See the preceding section for information regarding which indexes to delete.

11.5 Expand Script

You can speed up upgrades from Maconomy version X or earlier by optimizing the expand script.

To optimize the expand script:

- Replace the following:

```
TRANSACTIONTYPE     VARCHAR(FULLFIELDLENGTH)     DEFAULT ' '
```

with:

```
TRANSACTIONTYPE     VARCHAR(FULLFIELDLENGTH)     DEFAULT 'Standard'
```

This change only works if you also perform the changes that are described in Convert_Data_From_9.0.

If the enterprise language is NL, “Standard” is replaced with “Staandard.” It is extremely important that you make the change in the correct expand script. There are 44 entries that must be changed.

11.6 Create Index for Data Conversion

You are not required to create any indexes for the data conversion. Convert_data creates the necessary indexes.

11.7 Convert_Data_From_9.0

Four new variables are introduced in Convert_data_From_9.0. You access these variables by entering a $ sign after the MSL program is started.

The four variables are:

- ALLOWINDEXCREATIONVAR — Type Boolean; default value 1 (Do not create indexes). Indicates whether Convert_Data is allowed to create indexes for the data conversion.
- TABLESPACENAMEVAR — Type String; default value ‘ ‘. Specifies the temporary index tablespace name.
- ORACLEDATABASEVAR — Type Boolean; default value 0. Specifies the database type: 0 = Oracle; 1 = SQL Server.
- TRANSACTIONTYPEINITIALIZEDVAR — Type Boolean; default value 0. If TransactionType is changed in the expand script you must change this variable to 1.

If you do not change any of these variables Convert_data works as in previous versions.

12 Appendix: Error Messages

There are two distinct groups of errors that you may run into during an upgrade:

- Oracle errors typically related to rollback space
- Maconomy errors typically related to ConvertData

The following two sections cover these in more detail.

12.1 Oracle Considerations

Before you perform an upgrade there should be at least 30% free space in the Maconomy tablespace, or if auto extension is used, at least 30% free disk space (to extend tablespaces).

Equally important, enough space should be allocated for the rollback tablespace or enough UNDO_RETENTION time if undo is used.

How much space you need depends on the following:

- The version you are upgrading from.
- The version you are upgrading to.
- The size of the data.
- The allocation of the data between different tables.

You need more space if you are:

- Moving over several versions (for instance from Version 9 to Version 2.1).
- Have a lot of data (more than 50 GB).
- Have a concentration of data in specific tables. You can check this by looking at the log-file from an export of the company.

You need less space if you:

- Move between versions that are very close (for example, X1 to 2.1).
- Only have limited data (less than 10 GB), in which case you probably do not have to worry about Undo/Rollback.

12.2 Using UNDO

Using UNDO is much easier than ROLLBACK and is highly recommended. All you need to worry about is having enough UNDO tablespace and setting the UNDO_RETENTION time init.ora parameter correctly. The latter may be guesswork, but for large databases an UNDO tablespace of 10GB and a retention time of 4 hours (14400 seconds) is not unusual. After running the update script, resize the UNDO tablespace to normal and set retention time back to normal. Note that the UNDO_RETENTION parameter can be set dynamically using the ALTER SYSTEM command.

12.2.1 Rollback Segments

Instead of creating or changing Rollback Segments, clients that run Oracle 10g or higher should use Undo Segments.

12.2.2 Rule-Based Indexing during Upgrade

It is very important to set the Oracle Instance to operate with Rule-Based Indexing. You do this by adding the following line to the init.ora configuration file:

```
optimze_mode=rule
```

You must then restart the Oracle Instance.

Remember to remove the setting if you are running Cost-Based Indexing. Always remember to update the statistics after the upgrade if you are running Cost-Based Indexing.

12.3 Maconomy Errors

If unexpected errors occur, they usually happen while running the ConvertData MSL-program. They can look something like the following:

Check_Fatal, Routine 'STATUS33CREATECOMPANYCUSTOMER', line 68, message''
Script Terminated with an error: 'Maconomy system error:
STATUS33CREATECOMPANYCUSTOMER line 68: '

Normally these require assistance from Application Development; if you have such an error call Customer Support Services.

12.4 MConfig Errors

During an upgrade you use MConfig for the following:

- Dumping local changes to the standard set of indexes.
- Deleting existing indexes.
- Creating indexes.

For these tasks, MConfig “knows” which error messages are acceptable and which are not. Thus, you should not expect error feedback during these actions (and of course not program crashes, either). If errors occur, call Deltek Support.

13 Appendix: NameChanger Tool

In Maconomy version 2.4.x many names, especially those of database fields, were changed. It can therefore be expected that modifying source files for customer customizations can be a complex task during the upgrade process.

To help to simplify this work the NameChanger tool is released as a part of the Upgrade Kit (it is in the Tools folder). It is provided for all server platforms—Windows, Linux, AIX, and SunOS.

The following is an example of how to use the NameChanger tool:

```
NameChanger.exe -s C:\CustomizedFiles -t C:\ModifiedCustomizations -F 15 -T 17
-y MDL,MDML
```

This command processes all files in the folder tree C:\CustomizedFiles and stores modified files in the folder tree C:\ModifiedCustomizations. In this example only files of types MDL and MDML are modified. All files in C:\CustomizedFiles appear in C:\ModifiedCustomizations, some of them (for example, files of types other than MDL and MDML) possibly unchanged. The source files are for Maconomy version 15 (that is, 2.0), and the modified files are for Maconomy version 19 (that is, 2.3 GA).

If you add the option “-p” (for "preview") you can see which changes would be done, without any creating any modified files.

The file types that are currently handled are MDL, MDML, MDXL, MEXL, MNSL, MPL, MUL, MWSL, and RDL.

Run the NameChanger tool with the option “-h” (for "help") to see a complete list of options.

The log file, which is located in the same folder as the NameChanger tool, lists the changes. It also lists occurrences of ambiguities where a term has multiple possible changes. The log file also lists where terms have been changed to something starting with "Deprecated" or "Removed," since such terms are likely not to be supported in the new version.

Note that Deltek does not guarantee that the NameChanger tool makes all of the required changes to the source files. This tool might sometimes make changes that should not have been made. You must still manually verify the changes. However, tests show that at least when upgrading to version 2.4.x, the number of correct translations by far outnumbers the number of mistakes.

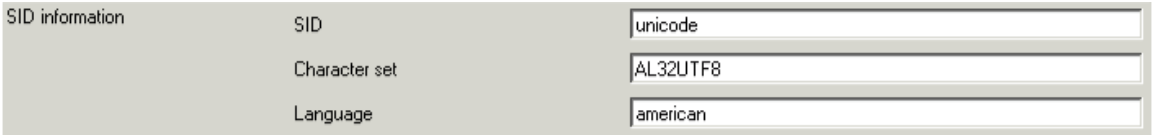
14 Appendix: Unicode Conversion

14.1 Create the Unicode Database

Oracle version 11.2.0.2 or higher is required.

You are required to create a database using the UTF8 character set. You do not need to create the Unicode database at this stage in the upgrade process, but it makes the Unicode conversion more structured if you do. If there is a lack of disk space on the server or you are just investigating the complexity of the Unicode conversion, you can wait to create the database until you get to the stage of the upgrade process that is described in Oracle Conversion.

Use MConfig version 8.3 or later to create the database. In this example the old database SID is maconomy (NLS_LANGUAGE=WE8ISO8859_P1), and the new SID is Unicode. This name may be used by the old database if both databases are on the same hardware.



The rest of the database creation process has not changed. Be aware that the Unicode database may grow up to 20%.

Deltek Maconomy version 2.4.x requires that all databases are Unicode (UTF8). The conversion takes place before the Maconomy upgrade process, but be aware that no Maconomy clients before Main version 2.1 can run on a Unicode database.

Upgrade preconditions must be met before you start the procedures in this section.

We recommend that you delete unused columns before you perform the Unicode conversion. See Delete Unused Columns for more information.

In all of the examples used in this section, the former database is called **Maconomy**, and the new database is called **Unicode**. The shortname is **myshort**, and the password is **myshort** in both databases.

14.2 Oracle Conversion

Migrating an Oracle database involves a few utilities:

- DMU — Oracle Database Migration assistant for Unicode, a tool developed by Oracle.
- DCU — Data Conversion Utility, a proprietary tool developed by Deltek. Used to enable Maconomy database migration to Unicode.

- SMU — String Manipulation Utility, a proprietary tool developed by Deltek. Used for reducing the length of offending strings (strings that exceed 255 bytes when converted into UTF8).

Deltek recommends that you install the DMU tools well in advance of the Unicode conversion to get an overview of the amount of work needed to convert the database. Download from Oracle's website the appropriate version for the Oracle version you are using.

14.2.1 Export Metadata from the ISO Database (the Former Database)

To export metadata from the former database:

1. Connect to the non-Unicode database and create a dump directory to be used by the expdp utility program from Oracle.

   The expdp utility is faster than the regular export program (exp).

2. Log in using sqlplus and type the following command:

   ```
   create directory dump_dir as 'c:\maconomy\Backup';
   ```

   If this command fails, the dump_dir object already exists; this is not a concern. The metadata dump file will be placed in that directory.

   Check the NLS_LANG environment parameter. It must match the setting in the MaconomyServer…I file.

3. Export the metadata for the old database (the one that uses the ISO character set) by typing the following commands:

   ```
   set NLS_LANG=AMERICAN.WE8ISO8859P1
   set ORACLE_SID=Maconomy
   expdp myshort/myshort dumpfile=expdp.myshort.dmp logfile=
   expdp.myshort.log directory=dump_dir schemas= myshort
   exclude=index,index_statistics,table_statistics,trigger,comment,post_tabl
   e_action,constraint,view,materialized_view,materialized_view_log
   content=metadata_only
   ```

   The schema created in the Unicode database is without indexes, views, constraints, and materialized views. All of these are recreated during the upgrade process.

The output should look like the following:

```
Processing object type SCHEMA_EXPORT/USER
Processing object type SCHEMA_EXPORT/SYSTEM_GRANT
Processing object type SCHEMA_EXPORT/ROLE_GRANT
Processing object type SCHEMA_EXPORT/DEFAULT_ROLE
```

14.2.2 Import Metadata into the UTF Database

Remember to set the NLS_LANG and the ORACLE_SID. In the remainder of this section the new database is called Unicode, and the TNS name is also unicode. You should use a more distinctive name for customer databases.

To import metadata into the UTF database:

1. Enter the following to set the value of NLS_LANG and the ORACLE_SID:

   ```
   set NLS_LANG=AMERICAN.AL32UTF8
   ```

```
set ORACLE_SID=unicode
```

2. Create the shortname and create the dump directory:

```
Grant dba to myshort identified by mypassd;
Alter user myshort default tablespace Maconomy temporary tablespace mactmp;
create or replace directory dump_dir as 'c:\maconomy\Backup';
```

   The output should look like the following:

```
Processing object type SCHEMA_EXPORT/USER
ORA-31684: Object type USER:"MYSHORT" already exists
Processing object type SCHEMA_EXPORT/SYSTEM_GRANT
Processing object type SCHEMA_EXPORT/ROLE_GRANT
```

   The following error is not of concern; it is displayed when the MYSHORT user has been created for an earlier test upgrade:

```
USER:"MYSHORT" already exists
```

3. Log in to the Unicode database and create a database link to the old database:

```
create database link maconomy connect to myshort identified by myshort using 'maconomy';
```

14.2.3 Install Oracle DMU

The Oracle DMU is written in Java and is supported on selected Windows- and Unix-based platforms for which the Java SE Development Kit 6 is available. The database must meet certain requirements to support the DMU as follows:

- Oracle version 11.2.0.1 patch 13 is required for the DMU.
- You must create an Oracle password file:
  - For Windows:

```
orapwd file=%ORACLE_HOME%\database\PWD%ORACLE_SID%.ora
PASSWORD=<mypasswd> ENTRIES=30
```

  - For Unix:

```
orapwd file=$ORACLE_HOME/dbs/orapw$ORACLE_SID PASSWORD=<mypasswd>
ENTRIES=30
```

- You must have a user with the sysdba privilege:

```
grant sysdba to system;
```

  or

```
grant sysdba to myshort;
```

- You must have the SYS.DBMS_DUMA_INTERNAL package:

```
cd $ORACLE_HOME
sqlplus / as sysdba
   @?/rdbms/admin/prvtdumi.plb
```

- The Oracle XDB component must be installed in the database.

  You can do this with or without Database Configuration Assistant (DBCA). However, using DBCA is the easiest way to install the XDB.

  - Start dbca in a command line:

Click <Next> <Configuration Database Options> <Next> ”Select database” <Next> <Standard Database Components> ”Select Oracle XML DB” <OK> <Netxt> ”Select Dedicated Server Mode” <Finish>

You can get the DMU installation unit at the following location:

http://www.oracle.com/technetwork/products/globalization/dmu/downloads/index.html

You can get the DMU installation instructions at this location:

http://www.oracle.com/technetwork/database/globalization/dmu/learnmore/start-334681.html

Installing the DMU involves unzipping the DMU installation unit. If all of the requirements are fulfilled, you can start the DMU tool by running dmuW64.exe. This program is located in the dmu directory structure. If the DMU is unable to start, you need a patch for Oracle.

When the DMU is started for the first time it asks for the path to the java executable.

Only JDK version 1.6 is supported (jdk1.6.0_45 is tested and works).

DMU stores the java executable path in ~/.dmu_jdk for Unix-based platforms. If you remove this file, the tool asks for the full path again. If the java executable is found in PATH or JAVA_HOME is defined, it does not prompt you. On Windows, you can edit the JDK location in the file dmu\dmu\bin\dmu32.conf (DMU with 32-bit JDK) or in the file dmu\dmu\bin\dmu64.conf (DMU with 64-bit JDK) under the DMU installation folder. Look for the keyword SetJavaHome.

14.2.4 Clean Up the Database

Oracle version 10g and higher introduced a recycle functionality. Deleted records show up as tables with names like BIN$.... (for example, BIN$3yZFlL0MQaWu+5wW9eh6aA==$0). Do not convert these tables; it is recommended that you empty the recycle bin before you generate the DMU report.

You cannot roll a PURGE statement back.

To list the contents of the recycle bin, enter the following commands:

```
select * from recyclebin;
```

or

```
select * from user_recyclebin;
```

To remove the entire contents of the recycle bin, enter the following command:

```
Purge recyclebin;
```

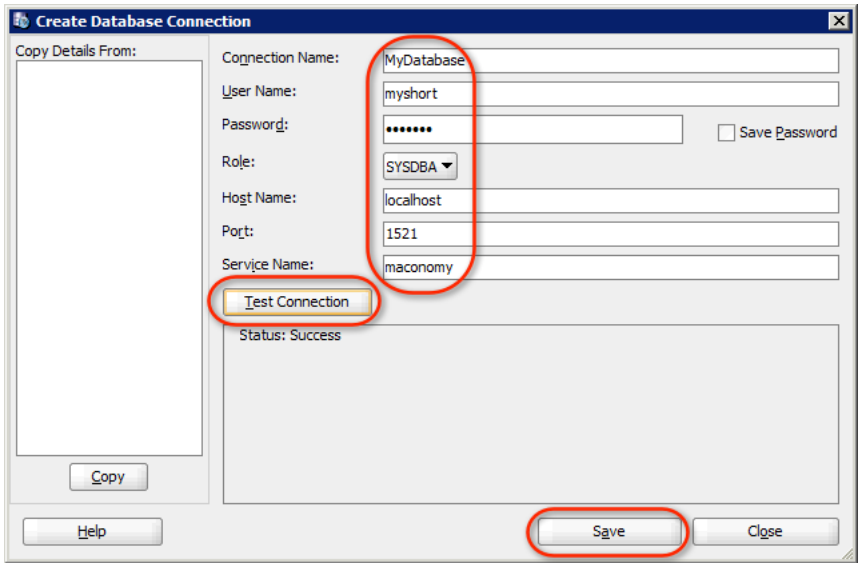
14.2.5 Generate the DMU Report

A database connection to the old database is required when you start the DMU.

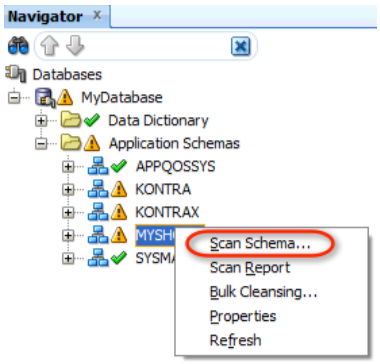
To generate the DMU report:

1. Right-click on **Databases** or choose **File » Create New Connection**.

2. Enter the information for the connection.

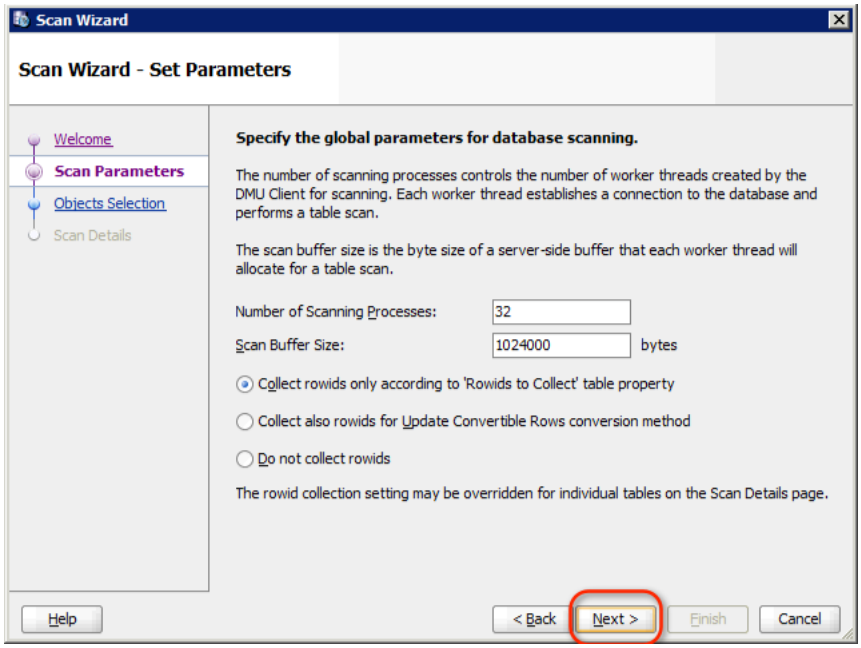


3. Click **Test Connection** to test the connection.
4. Click **Save** to save the connection.
5. Right-click on the name of the connection.
6. Right-click on the application schema name, then choose **Scan Schema**.

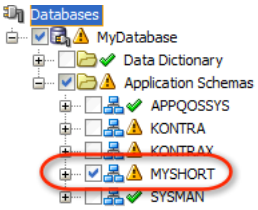


The Scan Wizard is displayed.

7. Keep the default values in the Scan Wizard and click **Next**.



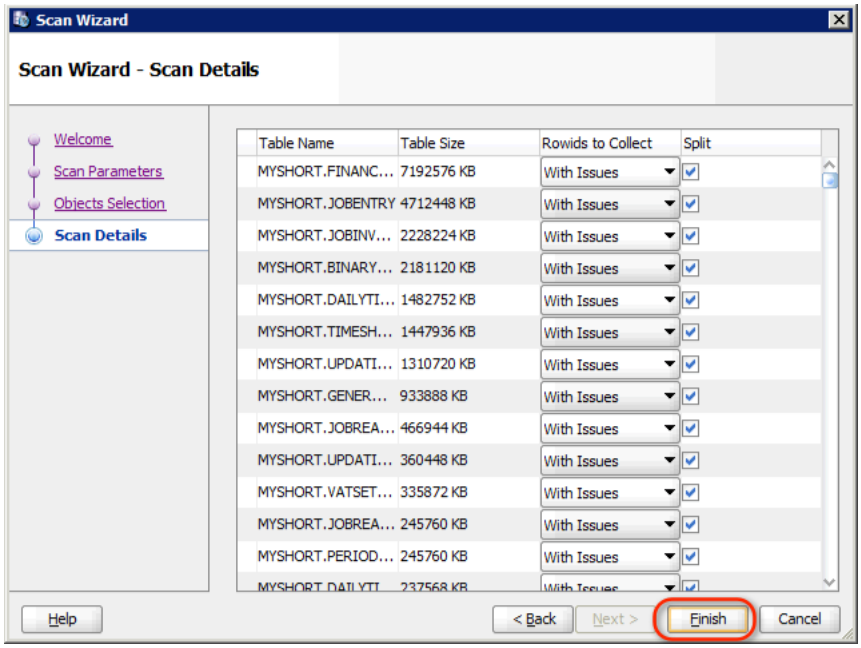
8. Expand the Application Schemas folder and select the schema that you want to analyze.



9. Click **Next**.

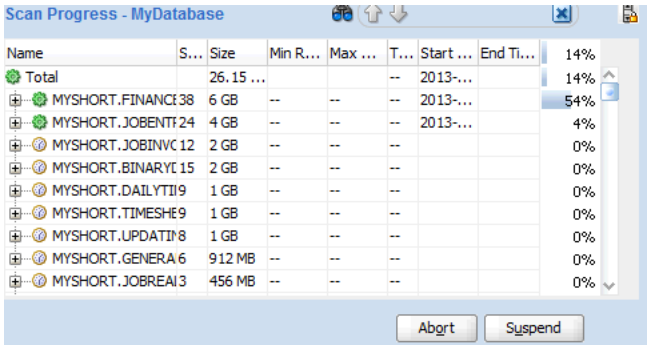
   The Scan Wizard – Scan Details window is displayed.

10. Validate the details to ensure that only rows that have issues are collected.

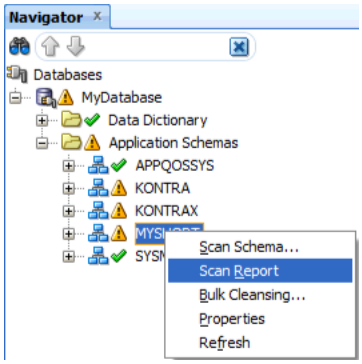


11. Click **Finish** to start the database scan.

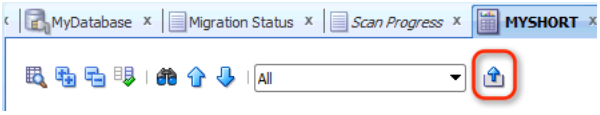
    Scanning should not take more than a few minutes if the database size is less than 100 GB.



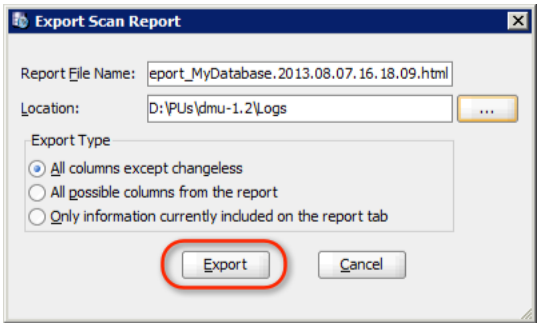
12. Right-click on the schema name when the scan is finished, then choose **Scan Report**.



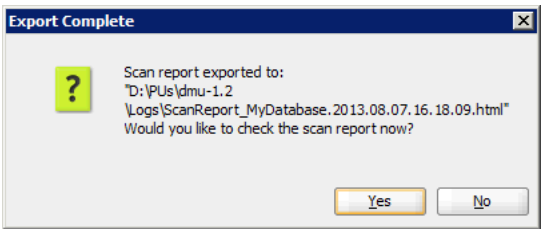
13. Export the result as an HTML document by clicking the export icon.



14. Choose a file name and location for the report and click **Export**.



When the report is generated, the Export Complete dialog box enables you to view the report in a browser.



15. Click **Yes** to view the report.

The HTML report file is saved to your hard drive (such as C: in the following example) with the following path and name:

```
c:\PUs\dmu-1.2\Logs\ScanReport_MyDatabase.2013.08.07.16.18.09.html
```

14.2.6 Interpreting the DMU Report

Customers' DMU reports are very different due to the way employees have entered data and which Maconomy CC_Tables they have used. Most customers are not aware of this because it has always been a Maconomy TIA task to set up these CC_Tables.

Most Western databases use Oracle's WE8ISO8859P1 Character set. In this character set all ASCII values between 128 and 160 (decimal) are undefined. In the past, Maconomy used these values to store some special characters. Microsoft products also use this space to store their special characters, such as a soft hyphen, and so on. When the DMU analyzes the database, all characters that are stored in these positions are shown as invalid characters. When converting these characters using Oracle's tools, they are stored in position 191, shown as "¿" in our clients.

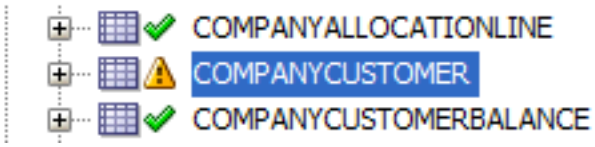
Open the DMU report in a browser and look for this symbol:  . This symbol can appear next to the table and again next to the column.

Name	Need Conversion (Scheduled)	Invalid Representation (Scheduled)	Over Column Limit (Scheduled)
COMPANYCUSTOMER	2967	15	0
ATTENTION	431	1	0
CONTACTPERSON	17	0	0
CREATEDBY	3	0	0
ELECTRONICMAILADDRESS	3	0	0
INTERCOMPANYJOBPRICELIST	0	1	0
JOBPRICELIST	0	1	0
NAME1	613	1	0
NAME2	882	4	0
NAME3	217	4	0
NAME4	63	0	0
NAME5	51	0	0
POSTALDISTRICT	613	0	0
TELEFAX	2	0	0
TELEPHONE	1	2	0
TELEX	31	0	0
VATNUMBER	1	0	0
ZIPCODE	39	1	0

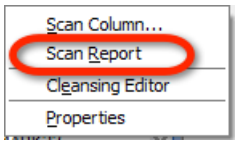
In the preceding figure the table name is CompanyCustomer, and 15 rows out of 2967 need attention. The 15 rows are spread over several columns, all flagged by the exclamation point.

To examine the report:

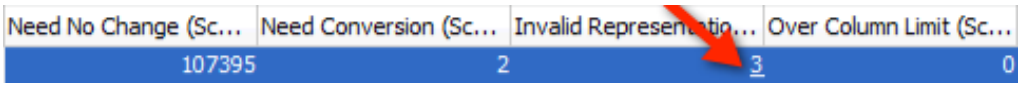
1. Open the DMU and expand the tables.
2. Look for items flagged by the exclamation point.

   In this example, COMPANYCUSTOMER needs attention.
3. Expand the COMPANYCUSTOMER table, right-click on the column, and select **Scan Report**.

4. Look to see how many records need to be converted and how many invalid characters the DMU tool found.

   Continuing the example, there are 3 invalid characters (highlighted by the red arrow).
5. Click on the number to see the records.

   Invalid characters are displayed as .
6. Double-click on a record to see the char value of the invalid character.

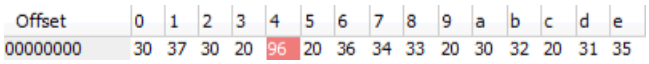
   In this case it is a chr(96_{hex}) or chr($150_{decimal}$), which is the ` defined in Word.

All character values are displayed in hexadecimal representation.

The char value is displayed in the following fashion.

One way to resolve this invalid character is to substitute another one for it, like ‘ or chr(2).

7. Click on the value **96**, change it to **27**, and click **OK**.



8. Continue with the remaining records.

You can update each record directly in the DMU tool, but this is not recommended. That process is totally manual, requires a lot of time, and cannot be reused.

The only scenario in which changing characters manually is advisable is when there are just a few records to be changed, in very large tables such as FinanceEntry and JobEntry.

Make a note about the required character change, and then make the actual change later, using the DCU configuration file. You make the change(s) in the OverwriteChars section.

14.2.7 DCU Utility Program

The DCU utility program generates SQL statements, PL/SQL stored procedures, and export parameter files, which are used for character conversion.

To use the DCU utility program for character conversion:

1. Create SQL scripts that change all string definitions to 765 bytes.
2. Create a PL/SQL procedure to convert all tables that need special character mappings.
3. Run the PL/SQL procedure for those tables.
4. Create an export parameter file for the tables that do not need special mappings.

If there are errors or special needs in regard to the DCU utility program, see the *Unicode Conversion Guide*, which is included in the upgrade kit.

The DIMENSIONPERIOD table is converted with the DCU procedures regardless of what is specified in the spec file. This is done to ensure the correct conversion of the DIMENSIONKEY column. Any character replacement/conversion rules still take effect on the DIMENSIONPERIOD table if specified in the spec file, but the DIMENSIONKEY column is regenerated.

This step fails if duplicate keys are present. Make sure that the upgrade precondition script executed with no errors or warnings before continuing with running the DCU-generated procedures.

14.2.8 Install the DCU

Unpack the zip file that contains the DCU. Be sure to use the latest version of the DCU, which can be found in the latest version of the Upgrade Kit.

14.2.9 Configure the DCU

Before you use the dcu.exe file for the first time, edit the config.cfg file to match the current database configuration. The following is an example of a config.cfg file:

```
[General]
#threadcount indicates how many threads are to be executed in parallel minimum
4 recommended 12
#not more than 1 thread per cpu core
threadcount=32
#dblink is the name of database link which has to be created in the database
dblink=Maconomy

[DestinationDB]
#destination database logon information
ip=172.16.185.226
sid=Unicode
port=1521
username=myshort
password=myshort

[Files]
#Location of the specification file to be used with DCU
specfile=c:\PUs\dcu\spec.myshort.cfg
```

The thread count should match the total number of cores in the server.

The MakeScannerSpec utility helps you to specify the spec.cfg file. The program scans the DMU report and generates a first version of the DCU spec file.

```
Cd c:\PUs\dcu
MakeScannerSpec.exe c:\PUs\dmu-
1.2\Logs\ScanReport_MyDatabase.2013.08.07.16.18.09.html spec.myshort.cfg
```

There is a Kona space for character conversion tests where you can get the latest character mapping tables.

Be aware that there are at least two different CC_tables:

- Version 2, where some special characters are remapped.
- Version 3, which does not remap any characters.

There are also some custom CC_Tables, but they are believed to be rare. All data entered using the Java client does not use the CC_Tables.

Modify the spec file that you created to match the current character mapping. The following example is a mapping for a win-1252 character set mapped in an iso-8859-p1 database. You can also use these replacements in a standard ISO database to convert some of the special

characters used in Word. By replacing these characters at this stage, strings that contain these characters may not violate the string length of 256 characters later.

```
replace=145:39;
replace=146:39;
replace=130:39;
replace=147:34;
replace=148:34;
replace=150:45;
replace=151:45;
replace=152:126;
replace=159:163;
replace=128:14844588;
replace=131:14844588;
replace 159: 49827
replace 161: 49829
```

The UTF character 14844588 is a € sign; 49827 is a £ sign; and 49829 is a ¥ sign. The rest of the signs that are remapped are special characters used in Word. It is common for customers to copy/paste text from Word and other applications directly into Maconomy dialogs.

All character values must be entered in decimal numbers, not hexadecimal.

14.2.10 Alter the Length of VARCHAR

You must change all strings from VARCHAR(255) to VARCHAR(765) in the unicode database. This reserves space for multi-byte characters.

To change strings from VARCHAR(255) to VARCHAR(765), enter the following commands:

1. `cd c:\PUs\dcu`
2. `mkdir SQLs`
3. `dcu --genstrlen SQLs\expandStrings.myshort.sql`
4. `sqlplus myshort/myshort@unicode < SQLs\expandStrings.myshort.sql logs\expandStrings.myshort.log`

Check the log files logs\dcu.main.log and logs\expandStrings.myshort.log. You cannot have any errors or warnings.

14.2.11 Generate a PL/SQL Procedure for Conversion

To generate the source code for the PL/SQL procedure in the Unicode database, enter the following commands:

1. `dcu.exe --genproc SQLs\pl-sql.myshort.sql`
2. `sqlplus myshort/myshort@unicode < SQLs\pl-sql.myshort.sql logs\pl-sql.myshort.log`

Check the log files logs\dcu.main.log and logs\pl-sql.myshort.log. You cannot have any errors.

14.2.12 Convert Tables Defined in DCU spec.cfg File

To generate the source code for the PL/SQL procedure, enter the following command:

```
dcu.exe –runproc
```

Check the log file logs\dcu.main.log. You cannot have any errors.

If there are errors consult the advanced documentation in the *Unicode Conversion Guide*.

DO NOT continue if this part has errors.

If errors occur in this stage you can run the conversion again for one of the tables that failed. An error message could look like the following:

```
[2013-08-09 13:03:24.152000] Conversion failed for table: NOTELINE
```

To investigate errors, run the following commands in the Unicode database:

1. `sqlplus myshort/myshort@unicode`
2. `truncate table NOTELINE;`
3. `set serveroutput on;`
4. `var ret1 number;`
5. `exec NOTELINE_CONV(:ret1);`

Fix the error and rerun `dcu.exe –runproc`. This process converts only those tables that failed. All tables that are converted are listed in the file logs\proclist.log. If a table is already converted, it is possible to remove the table in this file.

14.2.13 Convert the Remaining Tables

To convert the remaining tables in the old database, export all of the tables that were converted in the previous section and then import them into the Unicode database. The **gendatapumpparams** parameter generates an export parameter file that Oracle's data pump program can use.

```
dcu.exe --gendatapumpparams
```

The following parameter files are generated:

- expparams.txt — All tables listed in the file logs\proclist.log are excluded from the dump file.
- impparams.txt — Parameters for importing all tables in the dump file.

To export all unconverted tables on the iso database, enter the following commands:

```
SET NLS_LANG=AMERICAN.WE8ISO8859P1
SET ORACLE_SID=Maconomy
expdp myshort/myshort PARFILE= expparams.txt
```

To switch to the Unicode database and import the file that was generated, enter the following commands:

```
SET NLS_LANG=american.AL32UTF8
SET ORACLE_SID=Unicode
impdp myshort/myshort PARFILE= impparams.txt
```

14.2.14 Attach the Shortname

For the Unicode upgrade, you must attach the shortname to the application that was installed in the Installation section. The shortname does not need to be detached from the original application because it is on a different SID and will not affect the new application. This only applies to Oracle upgrades, as in SQL Server the shortname is upgraded in place.

During the attach process, you may receive an MConfig warning message claiming that Binarydocument, Textdocument, and a list of Portal database tables are not as expected in the database. As long as the warning only contains the mentioned tables, it can be ignored. If there are any other tables in the warning message, please investigate before proceeding with the upgrade.

14.3 Convert Text Strings

Check whether the database contains any offending strings by running the SMU with the --extract parameter. (An offending string is any string that is longer than 255 characters after the Unicode conversion.) You must fix any offending strings that are found before proceeding. The DCU (or DCUSQL) configuration file can be used with the SMU as well.

Enter the following command to find offending strings:

```
smu --extract
```

Check the offendingstrings.txt file located in the same directory as the smu.exe file.

14.3.1 Shorten Offending Strings

If the number of offending strings is small (fewer than 50) it can be faster just to change them manually. Alternatively, you can change the offendingstrings.txt file automatically by replacing/shortening strings listed in the file.

All strings that are listed in the offendingstrings.txt must be fewer than 255 characters long before the conversion can continue.

Based on the contents of the offending strings you must edit a file called replacements.txt. The following is an example of that file:

```
/‟/:/"/
/ ‟ /:/"/
/”/:/"/
/ ” /:/"/
/’/:/'/
/ ’ /:/'/
/‘/:/'/
/ ‘ /:/'/
/–/:/-/
/ – /:/-/
/—/:/-/
/ — /:/-/
/ + /:/+/
/ = /:/=/
/million/:/M/
```

Keep a record of the replacement files that you used to optimize this process.

To see the effect of the replacements, enter the following command:

```
smu --translate
```

Review the offending string file and try to find common patterns—which would make the strings shorter and still retain their original meanings—until all string lengths are fewer than 255 characters.

When all strings are fixed, enter the following command:

```
smu --import
```

To check that all strings are valid, enter the following command:

```
smu --extract
```

and check that the offendingstrings.txt file is empty.

14.4 Restore String Length

Restore database string field lengths to their original values of 255 bytes. You do this in the Unicode database.

To restore database string lengths to their original values for Oracle only, enter the following commands in the Unicode database:

1. `dcu.exe -- genrestoresql SQLs\RestoreStrings.myshort.sql`
2. `sqlplus myshort/myshort < SQLs\RestoreStrings.myshort.sql Logs\RestoreStrings.myshort.log`

15 Appendix: Application Pre-Upgrade

15.1 Refresh Database Views after ETL Upgrade

Users are unable to use Analysis reports that utilize the Job Cost universe unless they do a full refresh of the database views. This is due to mapping errors on the database views after ETL has modified the tables.

To refresh database views, run the following script:

```
OracleRecreateView.sql
```

15.2 Add Scripts for Missing Validations

Customers upgrading to 2.3 LA or later from versions older than 2.3 LA are missing validations for company vendors. The following scripts return the vendor number and company number for which company vendors are missing.

Running these SQL scripts in the database may return some rows with columns named VN and CN, where VN is vendor number, and CN is company number.

You must create company vendors with VN - vendor number and CN - company number before beginning the upgrade.

SQL 1

select distinct

```
RequisitionHeader.SuggestedSupplierNumber VN,
RequisitionHeader.CompanyNumber CN
```

from

```
RequisitionHeader
```

where

```
RequistionHeader.SuggestedSupplierNumber <> ' '
and not exists (select 1
```

from

```
CompanyVendor
```

where

```
RequisitionHeader.SuggestedSupplierNumber=CompanyVendor.VendorNum
ber
and
RequisitionHeader.CompanyNumber=CompanyVendor.SettlingCompany);
```

SQL 2

select distinct

```
RequestForQuoteHeader.SupplierNumber VN
RequestForQuoteHeader.CompanyNumber CN
```

from

```
      RequestForQuoteHeader
```

where

```
      RequestForQuoteHeader.SupplierNumber <> ' '
      and not exists (select 1
```

from

```
      CompanyVendor
```

where

```
      RequestForQuoteHeader.SupplierNumber=CompanyVendor.VendorNumber
      and
RequestForQuoteHeader.CompanyNumber=CompanyVendor.SettlingCompany);
```

SQL 3

select distinct

```
      PurchaseOrderHeader.SupplierNumber VN
      PurchaseOrderHeader.CompanyNumber CN
```

from

```
      PurchaseOrderHeader
```

where

```
      PurchaseOrderHeader.SupplierNumber <> ' '
      and not exists (select 1
```

from

```
      CompanyVendor
```

where

```
      PurchaseOrderHeader.SupplierNumber=CompanyVendor.VendorNumber
      and
PurchaseOrderHeader.CompanyNumber=CompanyVendor.SettlingCompany);
```

SQL 4

select distinct

```
      VendorInvoiceJournal.SupplierNumber VN
      VendorInvoiceJournal.CompanyNumber CN
```

from

```
      VendorInvoiceJournal
```

where

```
      VendorInvoiceJournal.VendorNumber <> ' '
      and not exists (select 1
```

from

```
      CompanyVendor
```

where

```
      VendorInvoiceJournal.VendorNumber=CompanyVendor.VendorNumber
      and
VendorInvoiceJournal.SettlingCompany=CompanyVendor.SettlingCompany);
```

15.3 Ensure Instancekeys in Userinformation and Approvalgroup Tables

Ensure that the **approvalgroup** and **userinformation** tables hve **instancekeys** prior to starting the upgrade. The instance keys are used to link user, user role, and user dialog group together. This enables the administrator user to expand the data base schema to the new version. Otherwise the upgrade will fail, as this is executed by the administrator user.

To enable instance keys, follow these steps prior to upgrade:

1. Go to **Setup > System Setup > Database Relations**.
2. Select the Relation Name **Approval**.
3. Ensure the **Instance Keys Applied** field shows **Yes**. If so continue to step 5.
4. If the **Instance Keys Applied** field shows **No**, click the action **Initialize Instance Keys.**
5. Select the Relation Name **User**.
6. Ensure the **Instance Keys Applied** field shows **Yes**. If so, no further action is needed.
7. If the **Instance Keys Applied** field shows **No**, click the action **Initialize Instance Keys.**

It is important that the **Approval** relation gets instance keys prior to **User**.

15.4 Update Layouts for Global and Local Dimensions

This section applies only if you are upgrading from a pre-2.3 version. If upgrading from 2.3 LA or newer, skip this section.

Several global and local dimensions were added in Maconomy version 2.3. Maconomy assigns a default value to all of the new dimensions on existing transaction data. You can specify the default values before the upgrade. Maconomy uses [**–**] (dash) as the default value if you do not specify a default value before the upgrade.

A consultant can execute a script before you perform the technical upgrade. The script indicates whether there is a correctly specified conversion table for the new dimensions. Fields and variables for the existing global and local dimensions have been renamed; the same naming strategy was used in all places. You must update layouts.

Create Option Lists

Maconomy 2.3 introduced 13 new dimensions: Specification 4-10, Local Specification 4-10, and Local Account. Due to this, during the upgrade, we can create the specification 4-10 and local specification 4-10 lists.

However, we need to know what list names and standard names should be assigned to these new lists. Because of this you can create option lists with this information.

To create an option list for new Specification dimensions:

1. Go to **Single Dialogs » Set-Up » Set-up > Option Lists.**

2. Create an option list, and in the **Option List No.** column, select **Specification Data Conversion**. Now, each line in the table represents a new specification list.
3. Add a new line in the table as needed.

   For example, if you add a new line in the table with **Name** field set to **Specification5** and **Remarks 1** field set to **Test**, during the upgrade a **Specification5** list is created with the name specified in **Remarks 1** field, in this case, **Test**.

   Note: Lists for new dimensions are created even if you do not create this options list. In this case, the **Specification 5** list **Name** is set to [**–**] (dash).

To create an option list for new Local Specification dimensions:

1. Go to **Single Dialogs » Set-Up » Set-up » Option Lists**.
2. Create an option list, and in the **Option List No.** column, select **Local Specification Data Conversion**.

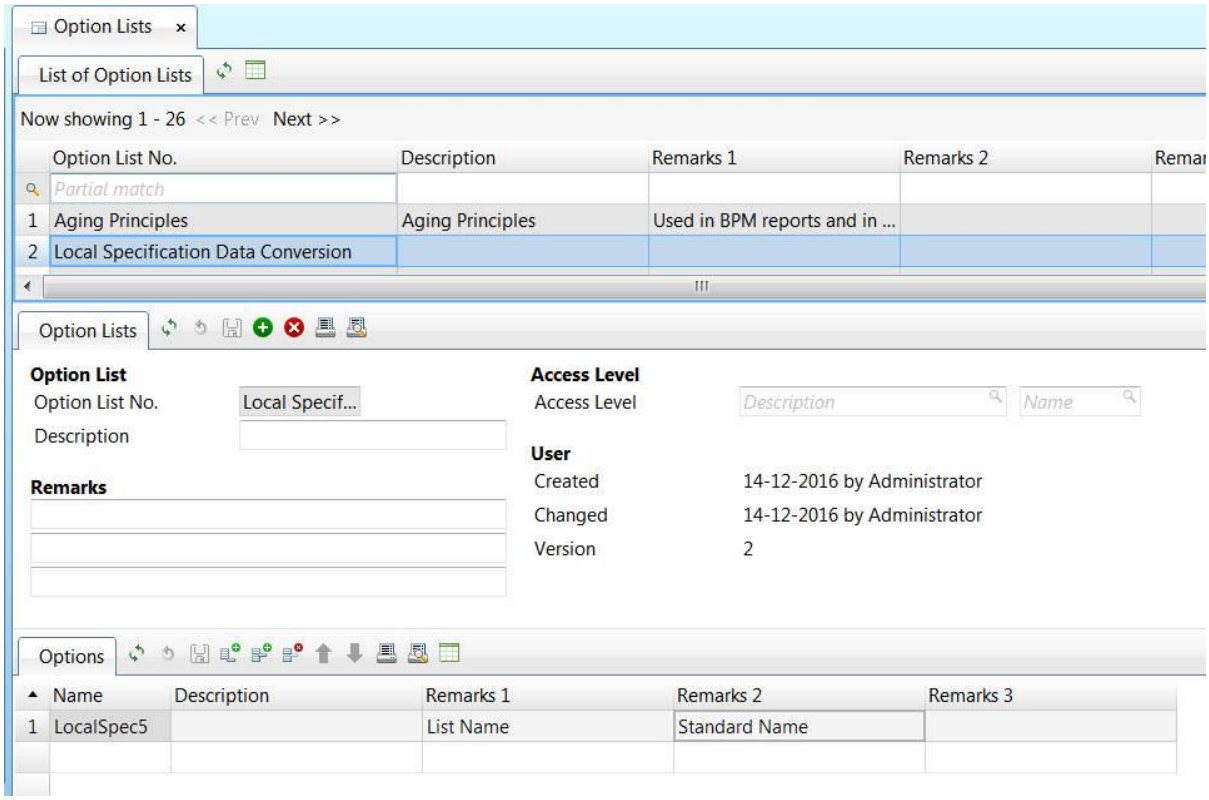
   Now, each line in the table represents a new local specification list.
3. Add a new line in the table as needed.

   For example, if you add a new line in the table with **Name** field set to **LocalSpec5** and **Remarks 1** field set to **Test** and **Remarks 2** field set to **Test 2**, during the upgrade a **Local Specification 5** list is created with the name specified in **Remarks 1** field, in this case **Test**, and standard name specified in the **Remarks 2** field.

Lists for new dimensions are created even if you do not create this options list. In this case, the **Local Specification 5** list **Name** is set to **Local Spec. 5** list, and **Standard Name** is set to [**–**] (dash).

Example of Setup

The following is an example of the setup described above.



15.5 Local Charts of Accounts

Maconomy introduced support for local charts of accounts in version 2.3. Previously you could use one of the local dimensions as a local chart of accounts.

The new local chart of accounts dimensions are validated as a local account dimension, so you must, for example, enter a link from the local account to the global account. This is not a requirement for the local dimensions. Maconomy cannot convert a local dimension to a local account if there are local dimension values that do not have global account references.

Consultants can execute a script before performing the technical upgrade. The script displays any problems that might prevent the conversion. Those problems must be resolved before you can perform the upgrade.

To run the script:

1. Go to **SQL/Basics/LocalChartOfAccountsPreUpgrade.sql**.
2. Run **LocalChartOfAccountsPreUpgrade.sql**.

This file does not apply to upgrades from 2.3 LA to 2.3 GA.

You can still use one of the local dimensions as a local chart of accounts, but all standard reports have been changed, and all future development will assume that you use the local chart of accounts dimension, rather than a local dimension.

The purpose of the LCoA Pre-upgrade script is to verify that there will not be issues when upgrading to 2.4 in relation to the Local Chart of Account functionality, ensure that dimension grouping setup is correct, and verify that deprecated fields are not used in some dialogs.

You must run this script prior to the upgrade to 2.3 LA and later, because it lists all of the problems that must be corrected before the upgrade to avoid various problems during or after the upgrade.

Because any issues must be resolved prior to upgrade, we recommend that business consultants execute this script a few days prior to upgrade to ensure sufficient time to resolve any issues.

Before You Begin

Before running the script you must change a setting in Preferences.

To change the Preferences Setting:

1. Open the Maconomy client and go to **Edit » Preferences**.
2. From the dropdown list, select **Formats**.
3. In the **No. of decimals** field, select **2** from the dropdown.
4. Click **Apply**.
5. Click **OK**.

Run the Script

To run the script:

1. Locate the script in the Upgrade Kit, which is located on the drive to which it was extracted. For example, if the Upgrade Kit was extracted to C: find the script here:

   C:\UpgradeKit_2.3GA\sql\LocalChartOfAccountsPreUpgrade.sql
2. Open the Workspace/Java client of the version you are upgrading. For example, if you are upgrading from 2.1 to 2.3 LA, run the script in your 2.1 Maconomy system.
3. Open the Maconomy client and go to **Setup » System Setup » Support Documentation** and choose **Import SQL Statements** in the filter.
4. In the card part **Statement No.** field, select **1**.
5. Click **Create Documentation**. A new dialog opens.
6. In the new dialog, browse to the location of the LocalChartOfAccountsPreUpgrade.sql file and click **Open**.

   The SQL script runs and executes various SQL statements in the database. After it is done executing the SQL statements, it produces an output file with the feedback (see the following image).
7. Click **Save** to save this output file so that you can investigate and verify that the system setup satisfies the requirements for upgrade.

You must now evaluate the output and create options lists.

Evaluate the Output

The script simply runs various SQL statements against the database to make sure that the system is ready for the upgrade.

The following sample output is color-coded to more easily indicate the content of the output and any action that you must take.

- Yellow — Shows information on what the SQL statements are supposed to do.
- Green — Shows the exact SQL statements that will be run in the database.
- Red — Shows that the system has incorrect setup and / or issues that must be addressed before continuing the upgrade.

Example Output

```
--
-------------------------------------------------------------------------------------------------
-- Check to see if the option lists have been created for the new local spec. lists and new
-- specification entries
-------------------------------------------------------------------------------------------------
--
select 'Could not find the option list with names for the new Local Spec. Lists' as Message
from SystemInformation
where not exists (select 1
                  from OptionList
                  where OptionListNumber = 'Local Specification Data Conversion')
union
select 'Could not find the option list with names for the new Specification entries' as Message
from SystemInformation
where not exists (select 1
                  from OptionList
```

```
                where OptionListNumber = 'Specification Data Conversion')

|MESSAGE                                                                  |
|-------------------------------------------------------------------------|
|Could not find the option list with names for the new Local Spec. Lists  |
|Could not find the option list with names for the new Specification entries|


2 rows processed

-------------

SQL statement
```

In this case, we received two RED messages: **Could not find the option list with names for the new Local Spec. Lists** and **Could not find the option list with names for the new Specification entries**.

In this example, you create option lists, and then you can add entries to the tables of those options lists, where you specify default names for the new dimensions. The Create Option Lists procedure is described in the Dimensions section above.

15.6 Reporting Structures

The structure of financial reports was previously specified in three different places, depending on the reporting technology. Built-in MPL reports were based on structure tables (account structures, location structures, and so on), portal universe reports were based on reporting hierarchies, and BPM reports were based on dimension groupings.

Structure tables and dimension groupings are replaced by reporting structures. Reporting structures are used for both built-in MPL reports and BPM reports.

Dimension groupings are, where possible, converted into a reporting structure. Structure tables and reporting hierarchies are not converted. You must create dimension groupings for all of the structure tables and reporting hierarchies that you need after the upgrade.

The new reporting structures are a tree structure (in the same format as finance budgets and job budgets), so it is important that lines in the existing dimension groupings are ordered in the same way as the report is printed. It is easier if you do the cleanup before the upgrade.

MPL reports and standard BPM reports are updated so that they are based on the new structures. You must update any BPM reports that you created.

15.7 Change References to Depreciated Fields on Customers and Vendors

- **Active Status** replaces **Blocked** on Customers, Company Customers, Vendors, and Company Vendors.
- **Allow Payments** replaces **Stop Payment** on Vendors and Company Vendors.
- **Allow Delivery** replaces **Blocked for Delivery** on Customers and Company Customers.

These fields were added in version 2.1, so you can change the setup before you perform the upgrade, if you upgrade from version 2.1 or later.

15.8 Update Custom ControlHours.1.ms File

You should update the custom ControlHours.1.ms file in function getTableData(userValue). See 619035 for more information. Update to the following:

```
jobBudgetDialogRows = maconomy::sql(sprint(#S'SQL',
format::toSql(userValue[userValueId].JobNumber),
format::toSql(userValue[userValueId].BudgetType))).result.rows; // Secured
select
TaskListLine.TaskName, TaskListLine.TaskName as InstanceKey, TaskListLine.ActivityNumber,
Activity.ActivityType, TaskListLine.Description as Text,
nvl((select sum(nvl(NumberOf, 0))
from JobBudgetLine
where JobNumber = ^1
and BudgetType = ^2
and (BelongsToLatestApprovedRevis = 1
or not exists (select 1
from JobBudgetRevision
where JobNumber = JobBudgetLine.JobNumber and BudgetType = JobBudgetLine.BudgetType)
and BelongsToLatestRevision = 1)
and TaskName = TaskListLine.TaskName), 0) as NumberOf,
nvl((select sum(nvl(NumberRegistered, 0))
from JobEntry
where JobNumber = ^1
and TaskName = TaskListLine.TaskName), 0) as NumberRegistered
from
TaskListLine, Activity, JobHeader
where
TaskListLine.TaskList = JobHeader.TaskList
and TaskListLine.ActivityNumber = Activity.ActivityNumber
and JobHeader.JobNumber = ^1
and Activity.ActivityType = 0
and (exists (select 1 from JobBudgetLine where TaskName = TaskListLine.TaskName and
JobNumber = ^1)
or exists (select 1 from TimeSheetLine where TaskName = TaskListLine.TaskName and
JobNumber = ^1))
order by
LineNumber
SQL
```

15.9 Facilitate Workflow of MCSInvoiceApproval

From 2.1.x, the workflow for approval of invoice drafts MCSInvoiceApproval is no longer supported as standard functionality in Maconomy.

When upgrading customers that use this workflow, separate upgrade steps are needed to facilitate the workflow. Upgrade the workflow in one of the following ways:

- **Workspace Client Users**: Reimplement the approval of invoice drafts by using approval hierarchy functionality.
- **Portal Users:** Upgrade the existing MWL workflow. This requires a manual update of the workflow. Contact development for instructions.

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