

HP Client Automation Enterprise Configuration Server

for Windows® and UNIX® operating systems

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Configuration Server and Database Migration Guide

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1 Upgrading the HPCA Configuration Server and Database

This guide will help you upgrade an existing HP Client Automation Configuration Server (HPCA CS) and the HP Client Automation Configuration Server Database (CS Database) for Windows or UNIX systems. The following section and chapters detail the required pre-requisites and steps for the upgrade process:

- [Pre-requisites for the CS Database Upgrade](#) on page 9
- [The Upgrade Process for Windows](#) on page 11
- [The Upgrade Process for UNIX](#) on page 23

 Be sure to back up your existing database before beginning the upgrade process.

Pre-requisites for the CS Database Upgrade


- Latest Configuration Server 7.20 media.


System Requirements for the CS Database

- You must have free space that is equal to three times the size of your CS Database. For space limitation considerations, see [Space Limitation Considerations](#) on page 10.

Platform Support

- See the release note document that accompanies this release for detailed platform support

 The locations and directory names presented below are only suggestions used to help with the database upgrade procedure.

 If you currently use Distributed Configuration Servers, you cannot replicate a version 7.20 CS Database to pre-7.20 destination databases. Destination databases must be upgraded to the same version as the source.

▶ The following note applies to HPCA versions prior to 5.10:
The connection to the agent computer will fail if any object in storage is larger than 6k bytes. An Agent cannot receive a heap size larger than 6k bytes (or 247 attributes). This does not include the README field, since the README field is not included in the transfer.

Use the CSDB Editor to view actual instance sizes. Note that the object size may grow if more variables are added to the object.

To avoid an agent connection failure during data transfer:

Turn on the STATS [MGR_TRACE] option to print the size of the persistent object. The Configuration Server reports the object-size when it is deleted. Monitor this for any object that may grow larger than the current limit of 6k bytes.

Additionally, the VAR trace option will display variable sizes that are being added to an object.

For more information, refer to the *Configuration Server Guide*.

▶ ZTASKEND rexx is frequently customized. If your current ZTASKEND rexx is customized, you must port the custom code to the latest version of ZTASKEND rexx after installing the new Configuration Server. You can place the copy of the ZTASKEND rexx (prior to customizations) in the rexx/Novadigm directory of the RCS. After porting your customizations, place the customized ZTASKEND rexx in the rexx directory of the RCS.

OS Manager Updates

!! After you upgrade, any customizations made to `rombl.cfg` in the LSB package will be lost. Use the CSDB Editor to save the existing `rombl.cfg` (right-click the file and use the **Edit this Component** shortcut menu option). In the migrated environment, the `rombl.cfg` will be in the LSB Common Package.

Space Limitation Considerations

This upgrade process requires space available up to three times the size of your existing CS Database. If free space is limited, the following considerations can be applied:

- Do not copy the original database to create export decks.
- Delete backup copy of the original database before updating the target database.
- Move existing database RESOURCE folder to the target database. This allows you to avoid creating and importing large XPR files.

▶ Before moving a RESOURCE folder, be sure there are no extended ASCII characters in the domain or class names of the existing database.

2 The Upgrade Process for Windows

The upgrade process for Windows systems consists of the following steps:

- Step 1 – Install the Configuration Server on page 11.
- Step 2 – Verify the Existing Database on page 11.
- Step 3 – Create Export Decks on page 15.
- Step 4 – Run the DB Scanner on page 16.
- Step 5 – Create a New Database Directory on page 17.
- Step 6 – Import Class Deck into the New Database on page 17.
- Step 7 – Export the Class Deck for Comparison on page 18.
- Step 8 – Compare Databases on page 18.
- Step 9 – Review Database Differences on page 20.
- Step 10 – Import Instances and Resources on page 21.

Step 1 – Install the Configuration Server

- 1 Use the HPCA media to install the latest Configuration Server. During the installation:
 - Do not overwrite your existing installation.
 - Select the optional components OS Manager, Patch Manager and Usage Manager.
 - Select **No** when prompted to automatically start the Configuration Server after it is installed.
- 2 After you've installed the new Configuration Server, unzip the contents of the DB Migration Pack zip file to a temporary location. This file is located on the media in the Configuration Server, `management_infrastructure\configuration_server\migrate_db` directory.
- 3 Copy `dbdiff\NVDKIT` to:
`C:\Program Files\Hewlett-Packard\CM\ConfigurationServer\bin`
- 4 Now you can remove the newly installed CS Database, as this is not necessary for the migration process.

To remove the new CS Database

- Remove the DB folder, installed by default: `C:\Program Files\Hewlett-Packard\CM\ConfigurationServer\DB`

Step 2 – Verify the Existing Database

Before you upgrade your HP Client Automation Configuration Server Database (CS Database), it is strongly recommended that you use the Verify Database Utility (a non-

invasive database analysis tool) to check the status and integrity of the elements in the Database.

Once your existing Database has been verified and you have performed any recommended maintenance, use the Database Difference Utility to compare your existing CS Database class templates to the new CS Database class templates. This utility creates a file that contains the verbs that will be used to update your Database. You should then review this file and specify what changes to include or exclude. When finished reviewing the file, complete the several procedures which are included in this chapter to create the new Database.

When using the Verify Database Utility to check the status and integrity of the elements in the Database, you will:

- Create a backup copy of your current CS Database.
- Run the Verify Database Utility to verify the contents of your Database.
- Review the resulting log and perform the recommended maintenance.

To use the Verify Database Utility

- 1 If running, stop the Configuration Server service.
- 2 Create a new directory, such as MyDatabase, that you will use to store a backup of your existing CS Database and a copy of the Verify Database Utility.
- 3 Copy your existing Configuration Server database directory to the newly created MyDatabase directory.

The default database location for CS installations prior to 5.xx was:

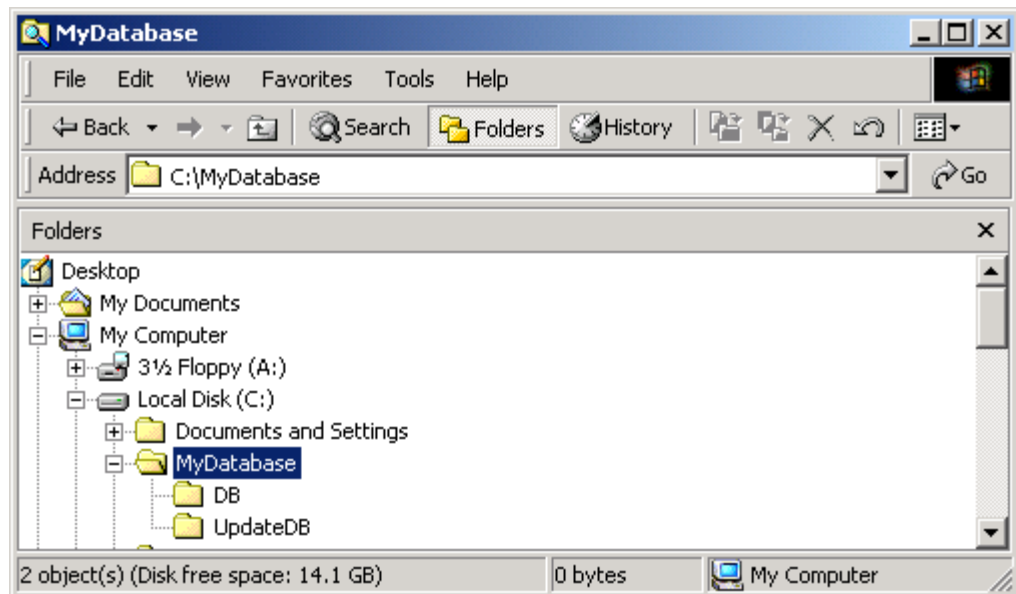
C:\Novadigm\ConfigurationServer\DB.

For 5.xx and later, the default database location is:

C:\Program Files\Hewlett-Packard\CM\ConfigurationServer\DB.

- 4 Create a sub-directory in MyDatabase to store the Verify Database Utility, such as UpdateDB.

Your directory structure should appear similar to the following figure.



- 5 Copy your original EDMPROF.DAT file (located in the Configuration Server \bin directory) to the UpdateDB directory.
- 6 Copy ZEDMAMS.EXE from the DB Migration Pack \zedmams folder to the UpdateDB directory.
- 7 Copy the 5 dlls from the DB Migration Pack \zedmams folder to the UpdateDB directory. These files are:
 - EDMMAPI.dll
 - MGRLOGTB.dll
 - NVDCMPEX.dll
 - OBJAPI.dll
 - ZSYS.dll
- 8 Use a text editor and open the EDMPROF.DAT file in the UpdateDB directory.
- 9 Go to the [MGR_DIRECTORIES] section and use the DBPATH argument to specify the path to the backup of your CS Database.


```
[MGR_DIRECTORIES]
DBPATH = C:\MyDatabase\DB
```
- 10 Save and close the file.
- 11 Open a command prompt and change to the directory where you stored the Verify Database Utility (C:\MyDatabase\UpdateDB).
- 12 To ensure the BEHAVIOR class follows standard naming conventions, run the following command against your database:


```
ZEDMAMS VERB=EDIT_CLASS_PREFIX, FILE=PRIMARY, DOMAIN=SOFTWARE,
CLASS=BEHAVIOR, PREVIEW=NO, KEEPDATE=YES, FIELD=CLASTYPE, VALUE=T
```
- 13 Run the ZEDMAMS Verify Database Utility. The following is a sample command that you might use to verify the integrity of all of the domains in the database:


```
ZEDMAMS VERB=VERIFY_DATABASE, DOMAIN=ALL, LOGFILE=VerifyDb.log, DEPTH=
RESOURCE, ZFILE=VERIFYZFILE.BAT
```

Table 1 Parameters for Verify Database Utility

Parameter	Explanation
VERB	Specifies the verb that you are running. In this case, you must use VERIFY_DATABASE.
DOMAIN	Specifies the domain that you want to verify. DOMAIN=ALL Verifies all domains, except for the PROFILE domain, which cannot be verified using this utility. DOMAIN=DomainName Verifies the domain that you specify, such as SOFTWARE.
LOGFILE	An optional parameter that can be used to specify the name of the log that contains information about the status of your database. By default, the log file is ZEDMAMS.log. This log is stored in the same directory as the Verify Database Utility.

Parameter	Explanation
DEPTH	<p>Use the depth parameter to restrict the verification in the database. The following are acceptable values:</p> <ul style="list-style-type: none"> • resource • instance • class • domain <p>Usage: <code>depth=(Domain/class/instance/resource)</code></p>
ZFILE	<p>Use the zfile parameter to create a batch file with all of the verbs reported in the <code>veify_database</code> log to fix the inconsistencies in the database. Output can be executed using the following command. (Note: ZFILE is case sensitive):</p> <p><code>ZEDMAMS ZFILE (FILENAME)</code></p> <p>Type a fully qualified path and filename to designate the batch file.</p>



The Verify Database Utility may run for several minutes or several hours depending on the size of your Database.

- 14 Open the log (`VerifyDb.log` from the example above) to review information about the state of your CS Database. For more information about any of the verbs in the recommended solutions see the HP Technical Support web site.
- 15 Review the newly created `ZFILE` batch file (`VERIFYZFILE.BAT` created when you ran `ZEDMAMS` with the `ZFILE` parameter in step 12).
- 16 When you are satisfied, run the file against the database using the following command:

```
ZEDMAMS ZFILE "VERIFYZFILE.BAT"
```

- 17 After performing the recommended solutions, run the Verify Database Utility again and then review your `ZEDMAMS.LOG` file to ensure that the issues have been resolved. Messages containing Improper Instance Name in the `ZEDMAMS` log file can be ignored. A sample message follows:

```
<18:02:04:308> Improper Instance Name <SAMPLE_INSTALL_REX> in Component
Class <PRIMARY.SOFTWARE.BEHAVIOR>
```



Run the Verify Database Utility as many times as needed to assist you in determining the health of your database.

If you continue to package and publish to your production Database, be sure to create another backup copy and run the Verify Database Utility again immediately before performing the upgrade. This ensures that all potential issues are analyzed.

After you start the Configuration Server with the migrated database, the Configuration Server log file may contain many duplicate object IDs within the Base Instance. These messages can be ignored. An example message follows:

```
ERROR, DUPLICATE OBJECT ID <DABCB40992AB> FOUND WHILE
ADDING<PRIMARY.SOFTWARE.BEHAVIOR._BASE_INSTANCE_>
```

Step 3 – Create Export Decks

Create the following export decks from your existing Database:

- **CS Database Classes (.XPC)**
Used with the Database Difference Utility to compare your existing CS Database against the new database.
- **CS Database Instances (.XPI)**
This is the source instance deck that is imported into the new Database.
- **CS Database Resources (.XPR)**
This is the source resource deck that is imported into the new Database.



Use the export decks as a:

- Base for your comparison against the new CS Database.
- Back-up file of your current CS Database.

To create an export deck of your existing CS Database

- 1 Create a new directory, such as ExpDeck.
- 2 If running, stop the Configuration Server service.
- 3 Copy `raddbutil` from the Configuration Server's `\bin` folder to the UpdateDB directory you created earlier.

- 4 Open a command prompt, change to the UpdateDB directory and run the following command:

```
raddbutil delete -walk 1 -preview 0 PRIMARY.OS.PACKAGE.LSB*
```

This command removes the existing OS Manager LSB packages. You can verify this worked by viewing the `raddbutil.log` in the log folder and making sure it resulted in a return code 0.

- 5 Create three export decks, one deck for the classes, one deck for the resources and one deck for the instances in the directory that you created.



Each time you run ZEDMAMS, a new log file is created (by default `ZEDMAMS.log`). If you would like to save the individual log files from each ZEDMAMS session, either rename or move the default log file after you run ZEDMAMS, or use the `ZEDMAMS LOGFILE` parameter and specify a new log file name (see Table 1).

For example, after creating an export deck for your classes, rename the `ZEDMAMS.log` file to `zedmams.xpc.log`.

- To create an export deck for your classes named `YOUR_DB.XPC.xpc`, run:

```
ZEDMAMS VERB=EXPORT_CLASS, FILE=PRIMARY, PREVIEW=NO, OUTPUT=C:  
\ExpDeck\YOUR_DB.XPC
```

- To create an export deck for your instances named `YOUR_DB.XPI`, run:

```
ZEDMAMS VERB=EXPORT_INSTANCE, FILE=PRIMARY, PREVIEW  
=NO, OUTPUT=C:\ExpDeck\YOUR_DB.XPI
```

- To create an export deck for your resources named `YOUR_DB.XPR`, you would run:

```
ZEDMAMS VERB=EXPORT_RESOURCE, FILE=PRIMARY, PREVIEW=NO,  
OUTPUT=C:\ExpDeck\YOUR_DB.XPR
```

- ▶ You may receive the warning "no resource found". These warnings are reported on the instances, which have no resources (non data-bearing instances).

After each command is run, review the `ZEDMAMS.LOG` file (located in the directory where you stored the Verify Database Utility, (such as UpdateDB) to ensure that there were no errors, and that your export completed with RC 0 or RC 4.

- ▶ It may take a long time to create export decks of your entire CS Database.

Step 4 – Run the DB Scanner

Use the DB Scanner Utility to check for extended ASCII characters and string sizes to ensure they will fit within the allocated space in the class templates and instances.

The DB Scanner Utility (`csdbscanner`) is included with the media in the `management_infrastructure\configuration_server\migrate_db` folder in an operating system specific zip file (`win32_csdbscanner.zip`).

After running the scanner, you may be required to run `null2blank.rxx`, which is also included in the DB Migration Pack.

To run the DB Scanner Utility

- 1 Copy the contents of the DB Migration Pack `\csdbscanner` directory to the folder where you stored your existing export decks (ExpDeck).
- 2 Run the scanner against your exported database decks using the following command:

```
csdbscanner xpc=YOUR_DB.XPC,xpi=YOUR_DB.XPI
```
- 3 Review the log files created.
 - a If the log files indicate conversion of characters to UTF-8 format will exceed string size, you must expand the string size for the fields indicated in the log files in your existing database.
 - b If the scanner determines there are NULL characters in fields that should be blank, run the `null2blank.rxx` against your newly created XPC file. For example, to replace NULL characters in `YOUR_DB.XPC`, run the following command:

```
rxx null2blank.rxx YOUR_DB.XPC
```

For more details on running the scanner, see Appendix A, [Configuration Server Database Scanner](#) on page 36 .

- 4 Once you've made the recommended changes, re-export your class templates and instances (XPC, and XPI files) and run the `csdbscanner` again.

When the `csdbscanner` log files indicate no additional changes are required, you can move to the next section, below.

Step 5 – Create a New Database Directory

In this section, you will create a directory for your new database.

To create a new database directory

- 1 Navigate to newly installed Configuration Server directory. The default location is:
C:\Program Files\Hewlett-Packard\CM\ConfigurationServer
- 2 Create a new directory, such as C:\Program Files\Hewlett-Packard\CM\ConfigurationServer\New_DB.
- 3 Within this new directory, create two sub-directories:
C:\Program Files\Hewlett-Packard\CM\ConfigurationServer\New_DB\PRIMARY
C:\Program Files\Hewlett-Packard\CM\ConfigurationServer\New_DB\RESOURCE
These directories **must** be named PRIMARY and RESOURCE and the names **must** be capitalized.
- 4 Backup your EDMPROF file.
- 5 Use a text editor to open EDMPROF file.
- 6 Find the argument DBPATH in the [MGR_DIRECTORIES] section and change the value to point to the new Database directory that you created.

```
[MGR_DIRECTORIES]
DBPATH = C:\Program Files\Hewlett-Packard\CM\ConfigurationServer\New_DB
```
- 7 Save and close the file.
- 8 Copy the updated EDMPROF file to the UpdatedDB directory.

Step 6 – Import Class Deck into the New Database

Import your class deck (YOUR_DB.XPC) into the newly created database structure.

To import the your database decks

- 1 Change the current directory to the C:\MyDatabase\UpdatedDB and run one of the following commands depending on the status of your existing CS Database:

— If your existing database is **not** in UTF-8 format (pre-5.xx):

```
ZEDMAMS VERB=IMPORT_CLASS,FILE=C:\ExpDeck\YOUR_DB.XPC,
PREVIEW=NO,from_codepage=1252,to_codepage=65001
```

— If your existing database is already in UTF-8 format (5.xx or above):

```
ZEDMAMS VERB=IMPORT_CLASS,FILE=C:\ExpDeck\YOUR_DB.XPC, PREVIEW=NO
```

Be sure to include the correct fully qualified path to your database decks in the command line.

- 2 Review the ZEDMAMS.LOG to ensure that there were no errors, and that your import completed with RC 0 or RC 4.
- 3 Save the log file (copy zedmams.log to zedmams.Import.log).

Step 7 – Export the Class Deck for Comparison

Now, export the UTF-8 flagged class deck for comparison to the latest CS Database class templates (CORE.XPC). These steps will overwrite your original class export deck (YOUR_DB.XPC).

To create a new export deck for comparison

- 1 If running, stop the Configuration Server service.
- 2 Open a command prompt and change to the directory where you stored the latest ZEDMAMS.EXE, such as UpdatedB.
- 3 Create a new class export deck (you can overwrite the existing class export deck from earlier). After the command is run, review the ZEDMAMS.LOG to ensure that there were no errors, and that your export completed with RC 0 or RC 4.

— To create an export deck for your classes named YOUR_NEW_DB.XPC, run:

```
ZEDMAMS VERB=EXPORT_CLASS, FILE=PRIMARY, PREVIEW=NO,  
OUTPUT=C:\ExpDeck\YOUR_NEW_DB.XPC
```

Step 8 – Compare Databases

Use the Database Difference Utility (dbdiffc.tcl) to compare the two class export decks.

To compare the databases

- 1 Create a new directory, such as C:\MyDatabase\DBDiff.
- 4 Copy the following files into this directory.
 - Your .XPC file (such as YOUR_DB.XPC)
 - Supplied .XPC file (CORE.XPC, located on the media in the \management_infrastructure\configuration_server\migrate_db folder)
 - Database Difference Utility (dbdiffc.tcl from the DB Migration Pack \dbdiff folder)
 - nvdkit.exe (from the DB Migration Pack \dbdiff folder)
- 5 Open a command prompt and navigate to the directory that you created (DBDIFF).
- 6 Run the Database Difference Utility. The following is an example command line:

```
nvdkit.exe dbdiffc.tcl SOURCE_CLASS_DECK=CORE.XPC,  
TARGET_CLASS_DECK=YOUR_NEW_DB.XPC, BATCH_OUT=OUTPUT.DAT, DELETE=N
```

Table 2 Required arguments for the Database Difference Utility

Argument	
SOURCE_CLASS_DECK	The filename of the HP export deck (CORE.XPC).
TARGET_CLASS_DECK	The filename of the export deck that you created from your existing Database (YOUR_NEW_DB.XPC).
BATCH_OUT	The name of the file that contains a list of the verbs to be executed after you review the file. Several text files will be created in the same directory where this file is stored. These files represent the new classes that will be added to the Database.
DELETE	If a field or class exists in the source XPC file, but does not exist in the HP supplied target XPC file (CORE.XPC): Set DELETE=Y to delete the fields or classes. Set DELETE=N to keep the fields or classes.

- 7 Use a text editor to open the output file (specified in the BATCH_OUT argument), such as OUTPUT.DAT.
- 8 In order to allow the database to be updated with the latest version number, un-comment (by removing the leading asterisk before) the following line:
VERB=CHANGE_FLD_VALUE, FILE="PRIMARY", DOMAIN="SYSTEM", CLASS="DBVER", FLDNAME=DBVER, KEEPDATE=YES, TYPE=V, DEFAULT="7.20.000"
- 9 Review the entire file and determine what additional changes you would like to make. If you want to exclude any changes, place an asterisk (*) in front of the verbs that you do not want to run. If you want to include changes that are currently excluded (denoted by an asterisk at the beginning of the line), remove the asterisk
 - ▶ While reviewing output, note that two classes SVR4DEP and SDDEP will be imported. In order to remove these classes, comment out the import class verbs.
 - ▶ The NOVADIGM domain will be imported by default. If this is not required for your implementation, comment out the appropriate import class verbs.

Below is a table that defines some of the most common ZEDMAMS verbs that you will encounter when reviewing the output file.

Table 3 Common Verbs in the Output File

Verb	Description
ADD_FIELD	Adds a variable at the end of a template. This verb has a KEEPDATE= option which allows for an update of a variable without updating the ZOBDATE/ZOBTIME of the Base_Instance.
CHANGE_FIELDNAME	Changes variable names in the class template. This verb has a KEEPDATE= option which allows for an update of the class without updating the ZOBDATE/ZOBTIME instance.
CHANGE_FLD_VALUE	Changes a template's variable length, type Configuration Server, and client flags. This verb has a KEEPDATE= option which allows for the value to be updated without updating the ZOBDATE/ZOBTIME instance.

Verb	Description
CHANGE_INS_FIELD	Changes one field in each instance of a class and verifies connects. This verb has a KEEPDATE= option which allows for the field to be updated without updating the ZOBJDATE/ZOBJTIME instance.
CHANGE_INST_DATA	Globally changes data in instance records by class. This verb has a KEEPDATE= option which allows for the instance to be updated without updating the ZOBJDATE/ZOBJTIME instance.
COPY_FIELD	Copies attribute data to a new attribute or to an existing attribute. This verb has a KEEPDATE= option which allows for the field to be updated without updating the ZOBJDATE/ZOBJTIME instance.
DELETE_FIELD	Deletes an attribute from a template. This value does not alter the ZOBJDATE/ZOBJTIME instance.
DELETE_CLASS	Deletes a class from the database.

10 Save and close the file.

Step 9 – Review Database Differences

Review the output from the steps above. When you have reviewed this file and are ready to make changes, you will run ZEDMAMS with the ZFILE keyword.

- ▶ Be sure that you have reviewed the output file thoroughly and commented out any verbs that you do not want to be executed.
- ▶ Be sure no Configuration Servers are running before you proceed with the following steps.

To make the suggested changes included in the output file

- 1 Go to the directory where your BATCH_OUT file is stored (such as C:\MyDatabase\DBDiff). Remember, this directory will also contain several files that represent the new classes that will be added to the database.
- 2 Copy OUTPUT.DAT to the UpdateDB directory.
- 3 Change the current working directory to the UpdateDB directory and run the following:

```
ZEDMAMS ZFILE "OUTPUT.DAT"
```

where *OUTPUT.DAT* is the name of the file that you specified in the BATCH_OUT parameter when you ran the Database Difference Utility. Note that ZFILE must be in all caps.
- 4 Review ZEDMAMS.LOG to ensure that there were no errors, and that your import completed with RC 0 or RC 4.

Step 10 – Import Instances and Resources

Finally, you must import the remaining export decks that you created earlier, as well as the new supplied decks (CORE.XPI and CORE.XPR) to finish building the database.

- ▶ Be sure no Configuration Server is running before you proceed with the following steps.

To import the instance and resource decks

- 1 Copy the .XPI and .XPR files from the ExpDeck directory to the UpdateDB directory.
- 2 Also copy CORE.XPI and CORE.XPR from the latest media in the `\management_infrastructure\configuration_server\migrate_db` folder to the UpdateDB directory
- 3 Open a command prompt.
- 4 Change the directory to `UpdateDB` and run the following to import the new version instances and resources:

```
ZEDMAMS VERB=IMPORT_INSTANCE, FILE=CORE.XPI, XPR=CORE.XPR,  
TIME=OLD, PREVIEW=NO, DUPLICATES=MANAGE, CONTINUE=YES, REPLACE=YES
```

- ▶ Each time you run ZEDMAMS, a new log file is created (by default `ZEDMAMS.log`). If you would like to save the individual log files from each ZEDMAMS session, either rename or move the default log file after you run ZEDMAMS, or use the ZEDMAMS logfile parameter and specify a new log file name.

- 5 Run the following command to import your existing instances and resources:

```
ZEDMAMS VERB=IMPORT_INSTANCE, FILE=YOUR_DB.XPI,  
XPR=YOUR_DB.XPR, TIME=OLD, PREVIEW=NO, DUPLICATES=MANAGE,  
CONTINUE=YES, REPLACE=NO
```

The filename used in this example represents the name of the export deck that you created earlier.

- ▶ The new CORE import decks contain the necessary updates needed to run HPCA at the current level. Therefore, in the command line above, `REPLACE=NO` is required to ensure the updated database obtains the latest functionality. Customizations made to instances that have the same name as instances contained in CORE will appear as differences in the ZEDMAMS log. When the log file is reviewed, be aware of any differences that are not going to be included in the upgrade, and decide if these differences can be added to the existing entry or if an additional entry is required.

After the upgrade process is complete, the HPCA CSDB Editor can be used to edit ZSTOP expressions to include any required custom values.

- 6 Review the `ZEDMAMS.LOG` to ensure that there were no errors, and that your import completed with RC 0 or RC 4.
- 7 Run the Verify Database utility and make sure no errors are reported in the log file other than Improper Instance Name errors, which can be ignored.
- 8 To confirm that the upgrade completed successfully, perform an Agent Connect (for example, open the Application Self-Service Manager catalog). If you receive the same results as you did prior to the upgrade, then the upgrade was successful.



If you commented out the import class verbs for the NOVADIGM domain, the import instance will result in 504 errors because as of version 5.xx the CS Database does not contain the NOVADIGM domain).

Your CS Database upgrade process for Windows is now complete.

3 The Upgrade Process for UNIX

The upgrade process consists of the following steps:

- Step 1 – Install the Configuration Server on page 11.
- Step 2 – Verify the Existing Database on page 11.
- Step 3 – Create Export Decks on page 15.
- Step 4 – Run the DB Scanner on page 16.
- Step 5 – Create a New Database Directory on page 17.
- Step 6 – Import Class Deck into the New Database on page 17.
- Step 7 – Export the Class Deck for Comparison on page 18.
- Step 8 – Compare Databases on page 18.
- Step 9 – Review Database Differences on page 20.
- Step 10 – Import Instances and Resources on page 21.

Step 1 – Install the Configuration Server

- 1 Use the version 7.20 media to install the latest Configuration Server. During the installation:
 - Do not overwrite your existing installation.
 - Select the optional components OS Manager, Patch Manager and Usage Manager.
 - Select **No** when prompted to automatically start the Configuration Server after it is installed.
- 2 After you've installed the new Configuration Server, extract the contents of the operating system-specific DB Migration Pack tar file to a temporary location. This file is located on the media in the Configuration Server, `management_infrastructure\configuration_server\migrate_db` directory.
- 3 Now you can remove the newly installed CS Database, as this is not necessary for the migration process.

To remove the new CS Database

- Remove the DB folder, installed by default: `/opt/HP/CM/ConfigurationServer/DB`

Step 2 – Verify the Existing Database

Before you upgrade your HP Client Automation Configuration Server Database (CS Database), it is strongly recommended that you use the Verify Database Utility (a non-invasive database analysis tool) to check the status and integrity of the elements in the Database.

Once your existing Database has been verified and you have performed any recommended maintenance, use the Database Difference Utility to compare your existing HPCA CS Database class templates to the new CS Database class templates. This utility creates a file that contains the verbs that will be used to update your Database. You should then review this file and specify what changes to include or exclude. When finished reviewing the file, complete the several procedures which are included in this chapter to create the new Database.

When using the Verify Database Utility to check the status and integrity of the elements in the Database, you will:

- Create a backup copy of your current CS Database.
- Run the Verify Database Utility to verify the contents of your Database.
- Review the resulting log and perform the recommended maintenance.

To use the Verify Database Utility

- 1 If running, stop the Configuration Server service.
- 2 Create a new directory, such as `MyDatabase`, that you will use to store a backup of your existing CS Database and a copy of the Verify Database Utility.
- 3 Copy your existing Configuration Server database directory to the newly created `MyDatabase` directory.

The default database location for installations prior to 5.xx was:

```
/opt/Novadigm/ConfigurationServer/DB
```

For 5.xx and later, the default database location is:

```
/opt/HP/CM/ConfigurationServer/DB
```

- 4 Create a sub-directory in `MyDatabase` to store the Verify Database Utility, such as `UpdateDB`.

Your directory structure should appear similar to the following figure.

```
/opt
  | -/MyDatabase
      | -/DB
      | -/UpdateDB
```

- 5 Copy ZEDMAMS from DB Migration Pack `/zedmams` directory to the `UpdateDB` directory.
- 6 Copy the following files from the DB Migration Pack `/zedmams` directory to the `UpdateDB` directory:

For Linux and Solaris:

- `libedmmapi.so`
- `libmgrlogtb.so`
- `libnvdcmpex.so`
- `libobjapi.so`
- `libzsys.so`

For AIX:

- `libedmmapi.a`

- libmgrlogtb.a
- libnvdcmpex.a
- libobjapi.a
- libzsys.a

For HP-UX:

- libedmmapi.sl
- libmgrlogtb.sl
- libnvdcmpex.sl
- libobjapi.sl
- libzsys.sl

- 7 Use a text editor and open the `.edmprof` file in the `$HOME` directory.
- 8 Go to the `[MGR_DIRECTORIES]` section and use the `DBPATH` argument to specify the path to the backup of your CS Database.

```
[MGR_DIRECTORIES]
DBPATH = /opt/MyDatabase/DB
```

- 9 Save and close the file.
- 10 Open a command prompt and change to the directory where you stored the Verify Database Utility (`/opt/MyDatabase/UpdateDB`).
- 11 If your previous database is version 5.x or above:

- Run the following command:

```
export LC_ALL=cc_RC.UTF-8
```

Where `cc_RC.UTF-8` is equal to your country code.

- Then, confirm your environment settings are UTF-8 by running the following:

```
locale
```



If you are not sure what `cc_RC.UTF8` locales are available, you can list them using the following command: `locale -a | grep -i UTF`. Select the locale that matches your country and region. If you cannot find a match, contact your system administrator or software vendor for information on how to get the necessary I18N functionality or UTF8 locales installed on your system

- 12 If your database is a version prior to 5.x:

- Run the following commands:

```
locale -a | grep -i cc_RC.ISO
export LC_ALL = cc_RC.ISO
```

Where `cc_RC.ISO` is equal to your country code.

- 13 In order for `ZEDMAMS` to execute in the current environment, set the shared library path using the following command:

```
export SHLIB_PATH=$SHLIB_PATH:/opt/MyDatabase/UpdateDB
```



If `SHLIB_PATH` is not defined, you may receive an error. If this is the case, you can set the path using the following command:

```
export SHLIB_PATH=/opt/MyDatabase/UpdateDB
```

- 14 To ensure the BEHAVIOR class follows standard naming conventions, run the following command against your database:

```
./ZEDMAMS VERB=EDIT_CLASS_PREFIX,FILE=PRIMARY,DOMAIN=SOFTWARE,  
CLASS=BEHAVIOR,PREVIEW=NO,KEEPDATE=YES,FIELD=CLASTYPE,VALUE=T
```

- 15 Run the ZEDMAMS Verify Database Utility. The following is a sample command that you might use to verify the integrity of all of the domains in the database:

```
./ZEDMAMS VERB=VERIFY_DATABASE,DOMAIN=ALL,LOGFILE=VerifyDb.log,DEPTH=  
RESOURCE,ZFILE=verifyzfile.sh
```

Table 4 Parameters for Verify Database Utility

Parameter	Explanation
VERB	Specifies the verb that you are running. In this case, you must use VERIFY_DATABASE.
DOMAIN	Specifies the domain that you want to verify. DOMAIN=ALL Verifies all domains, except for the PROFILE domain, which cannot be verified using this utility. DOMAIN= <i>DomainName</i> Verifies the domain that you specify, such as SOFTWARE.
LOGFILE	An optional parameter that can be used to specify the name of the log that contains information about the status of your database. By default, the log file is ZEDMAMS.log. This log is stored in the same directory as the Verify Database Utility.
DEPTH	Use the depth parameter to restrict the verification in the database. The following are acceptable values: <ul style="list-style-type: none"> • resource • instance • class • domain Usage: depth=(Domain/class/instance/resource)
ZFILE	Use the zfile parameter to create a batch file with all of the verbs reported in the verify_database log to fix the inconsistencies in the database. Output can be executed using the following command. (Note: ZFILE is case sensitive): ./ZEDMAMS ZFILE (FILENAME) Type a fully qualified path and filename to designate the batch file.



The Verify Database Utility may run for several minutes or several hours depending on the size of your Database.

- 16 Open the log (VerifyDb.log from the example above) to review information about the state of your CS Database. For more information about any of the verbs in the recommended solutions see the HP Technical Support web site.
- 17 Review the newly created ZFILE batch file (VERIFYZFILE.BAT created when you ran ZEDMAMS with the ZFILE parameter in step 12).
- 18 When you are satisfied, run the file against the database using the following command:

```
./ZEDMAMS ZFILE "verifyzfile.sh"
```

- 19 After performing the recommended solutions, run the Verify Database Utility again and then review your ZEDMAMS.LOG file to ensure that the issues have been resolved. Messages containing Improper Instance Name in the ZEDMAMS log file can be ignored. A sample message follows:

```
<18:02:04:308> Improper Instance Name <SAMPLE_INSTALL_REX> in Component  
Class <PRIMARY.SOFTWARE.BEHAVIOR>
```



Run the Verify Database Utility as many times as needed to assist you in determining the health of your database.

If you continue to package and publish to your production Database, be sure to create another backup copy and run the Verify Database Utility again immediately before performing the upgrade. This ensures that all potential issues are analyzed.

After you start the Configuration Server with the migrated database, the Configuration Server log file may contain many duplicate object IDs within the Base Instance. These messages can be ignored. An example message follows:

```
ERROR, DUPLICATE OBJECT ID <DABCB40992AB> FOUND WHILE  
ADDING<PRIMARY.SOFTWARE.BEHAVIOR._BASE_INSTANCE_>
```

Step 3 – Create Export Decks

Create the following export decks from your existing Database:

- **CS Database Classes (.XPC)**
Used with the Database Difference Utility to compare your existing CS Database against the new Database. Later, this is the source class deck that is imported into the new Database.
- **CS Database Instances (.XPI)**
This is the source instance deck that is imported into the new Database.
- **CS Database Resources (.XPR)**
This is the source resource deck that is imported into the new Database.



Use the export decks as a:

- Base for your comparison against the CS Database.
- Back-up file of your current CS Database.

To create an export deck of your current CS Database

- 1 Create a new directory, such as /opt/ExpDeck.
- 2 Make sure the Configuration Server service is stopped.

3 Copy `raddbutil` from the `\exe` folder to the UpdateDB directory you created earlier.

4 Change to the UpdateDB directory and run the following command:
`raddbutil delete -walk 1 -preview 0 PRIMARY.OS.PACKAGE.LSB*`

This command removes the existing OS Manager LSB packages. You can verify this worked by viewing the `raddbutil.log` in the log folder and making sure it resulted in a return code 0.

5 Create three export decks—one deck for the classes, one deck for the resources and one deck for the instances—in the directory that you created.

► Each time you run ZEDMAMS, a new log file is created (by default `ZEDMAMS.log`). If you would like to save the individual log files from each ZEDMAMS session, either rename or move the default log file after you run ZEDMAMS, or use the `ZEDMAMS LOGFILE` parameter and specify a new log file name.

For example, after creating an export deck for your classes, rename the `ZEDMAMS.log` file to `zedmams.xpc.log`.

— To create an export deck for your classes named `YOUR_DB.XPC`, run the following:

```
./ZEDMAMS VERB=EXPORT_CLASS, FILE=PRIMARY, PREVIEW=NO, OUTPUT=/opt/ExpDeck/YOUR_DB.XPC
```

— To create an export deck for your instances named `YOUR_DB.XPI`, run the following:

```
./ZEDMAMS VERB=EXPORT_INSTANCE, FILE=PRIMARY, PREVIEW=NO, OUTPUT=/opt/ExpDeck/YOUR_DB.XPI
```

— For example, to create an export deck for your resources named `YOUR_DB.XPR`, run the following:

```
./ZEDMAMS VERB=EXPORT_RESOURCE, FILE=PRIMARY, PREVIEW=NO, OUTPUT=/opt/ExpDeck/YOUR_DB.XPR
```

► You may receive the warning "no resource found". These warnings are reported on the instances, which have no resources (non data-bearing instances).

After each command is run, review the `ZEDMAMS.LOG` file (located in the directory where you stored the Verify Database Utility, (such as `/opt/mydatabase/UpdateDB`) to ensure that there were no errors, and that your export completed with RC 0 or RC 4.

► It may take a long time to create export decks of your entire CS Database.

Step 4 – Run the DB Scanner

Use the DB Scanner Utility to check for extended ASCII characters and string sizes to ensure they will fit within the allocated space in the class templates and instances.

The DB Scanner Utility files are included with the DB Migration Pack in the `/csdbscanner` directory.

After running the scanner, you may be required to run `null2blank.rxx`, which is also included in the DB Migration Pack.

To run the DB Scanner Utility

- 1 Copy the contents of the DB Migration Pack /csdbscanner directory to the folder where you stored your existing export decks (ExpDeck).

- 2 Run the scanner against your exported database decks using the following command:

```
./csdbscanner xpc=YOUR_DB.XPC,xpi=YOUR_DB.XPI
```

- 3 Review the log files created.

- c If the log files indicate conversion of characters to UTF-8 format will exceed string size, you must expand the string size for the fields indicated in the log files in your existing database.
- d If the scanner determines there are NULL characters in fields that should be blank, run the null2blank.rxx against your newly created XPC file. For example, to replace NULL characters in YOUR_DB.XPC, run the following command:

```
./rxx null2blank.rxx YOUR_DB.XPC
```

For more details on running the scanner, see Appendix A, [Configuration Server Database Scanner](#) on page 36 .

- 4 Once you've made the recommended changes, re-export your class templates and instances (XPC, and XPI files) and run the csdbscanner again.

When the csdbscanner log files indicate no additional changes are required, you can move to the next section, below.

Step 5 – Create a New Database Directory

In this section, you will create a directory for your new database.

To create a new database directory

- 1 Navigate to newly installed Configuration Server directory. The default location is:
/opt/HP/CM/ConfigurationServer/

- 2 Create a new directory, such as /opt /HP/CM/ConfigurationServer/New_DB.

- 3 Within this new directory, create two additional directories:

```
/opt/HP/CM/ConfigurationServer/New_DB/PRIMARY  
/opt/HP/CM/ConfigurationServer/New_DB/RESOURCE
```

These directories **must** be named PRIMARY and RESOURCE and the names **must** be capitalized.

- 4 Backup your .edmprof file.

- 5 Use a text editor to open .edmprof file.

- 6 Find the argument DBPATH in the [MGR_DIRECTORIES] section and change the value to point to the new Database directory that you created.

```
[MGR_DIRECTORIES]  
DBPATH = /opt/HP/CM/ConfigurationServer/New_DB
```

- 7 Save and close the file.

Step 6 – Import Class Deck into the New Database

Import your class deck (YOUR_DB.XPC) into the newly created database structure.

To import your database decks

- 1 Change the current directory to the `/opt/MyDatabase/UpdatedDB`.
- 2 Run the following command:

```
export LC_ALL=cc_RC.UTF-8
```

Where `cc_RC.UTF-8` is equal to your country code.



If you are not sure what `cc_RC.UTF8` locales are available, you can list them using the following command: `locale -a | grep -i UTF`. Select the locale that matches your country and region. If you cannot find a match, contact your system administrator or software vendor for information on how to get the necessary I18N functionality or UTF8 locales installed on your system

- 3 Then, confirm your environment settings are UTF-8 by running the following:

```
locale
```

- 4 Depending on the status of your existing CS Database, run one of the following commands:

- If your existing database is **not** in UTF-8 format (pre-5.xx):

```
./ZEDMAMS VERB=IMPORT_CLASS,FILE=/opt/ExpDeck/YOUR_DB.XPC,  
PREVIEW=NO,from_locale=cc_RC.ISO,to_locale=cc_RC.UTF-8,  
from_codepage=1252,to_codepage=65001
```

Where `cc.RC.ISO` is equal to the existing country code and `cc_RC.UTF-8` is equal to the new UTF-8-compliant country code. Note that these values are case-sensitive.

- If your existing database is already in UTF-8 format (5.xx or above):

```
./ZEDMAMS VERB=IMPORT_CLASS,FILE=/opt/ExpDeck/YOUR_DB.XPC,PREVIEW=NO
```

Be sure to include the correct fully qualified path to your database decks in the command line. Note that the values for `from_locale` and `to_locale` are case sensitive and should match the value found on your system.

- 5 Review the `ZEDMAMS.LOG` to ensure that there were no errors, and that your import completed with RC 0 or RC 4.
- 6 Save the log file (copy `zedmams.log` to `zedmams.Import.log`).

Step 7 – Export the Class Deck for Comparison

Now, export the UTF-8 flagged class deck for comparison to the latest -CS Database class templates (CORE.XPC). These steps will overwrite your original class export deck (YOUR_DB.XPC).

To create a new export deck for comparison

- 1 If running, stop the Configuration Server service.

- 2 Open a command prompt and change to the directory where you stored the latest ZEDMAMS, such as UpdateDB.
- 3 Create a new class export deck (you can overwrite the existing class export deck from earlier). After the command is run, review the ZEDMAMS.LOG to ensure that there were no errors, and that your export completed with RC 0 or RC 4.
 - To create an export deck for your classes named YOUR_NEW_DB.XPC, run:


```
./ZEDMAMS VERB=EXPORT_CLASS,FILE=PRIMARY,PREVIEW=NO,
OUTPUT=/opt/ExpDeck/YOUR_NEW_DB.XPC
```

Step 8 – Compare Databases

Use the Database Difference Utility (`dbdiffc.tcl`) to compare the two class export decks.

To compare the databases

- 1 Create a new directory, such as `/opt/MyDatabase/DBDiff`.
- 2 Copy the following files into this directory.
 - Your `.XPC` file (such as `YOUR_DB.XPC`)
 - Supplied `.XPC` file (`CORE.XPC`, located on the HPCA media in the `/management_infrastructure/configuration_server/migrate_db` folder)
 - `dbdiffc.tcl` (Database Difference Utility) from the DB Migration Pack `/dbdiff` directory.
 - `nvdkit` from the DB Migration Pack `/dbdiff` directory).
- 3 Open a command prompt and navigate to the directory that you created (DBDiff).
- 4 Run the Database Difference Utility. The following is an example command line:




```
./nvdkit dbdiffc.tcl SOURCE_CLASS_DECK=CORE.XPC,
TARGET_CLASS_DECK=YOUR_NEW_DB.XPC,BATCH_OUT=output.sh,DELETE=N
```

Table 5 Required arguments for the Database Difference Utility

Argument	
SOURCE_CLASS_DECK	The filename of the HP export deck (<code>CORE.XPC</code>).
TARGET_CLASS_DECK	The filename of the export deck that you created from your existing Database (<code>YOUR_NEW_DB.XPC</code>).
BATCH_OUT	The name of the file that contains a list of the verbs to be executed after you review the file. Several text files will be created in the same directory where this file is stored. These files represent the new classes that will be added to the Database.

Argument	
DELETE	If a field or class exists in the source XPC file, but does not exist in the HP supplied target XPC file (CORE.XPC): Set DELETE=Y to delete the fields or classes. Set DELETE=N to keep the fields or classes.

- 5 Use a text editor to open the output file (specified in the BATCH_OUT argument), such as `output.sh`.
- 6 In order to allow the database to be updated with the latest version number, un-comment (by removing the leading asterisk before) the following line:

```
VERB=CHANGE_FLD_VALUE, FILE="PRIMARY", DOMAIN="SYSTEM", CLASS="DBVER", FLDNAME=
DBVER, KEEPDATE=YES, TYPE=V, DEFAULT="7.20.000"
```
- 7 Review the entire file and determine what additional changes you would like to make. If you want to exclude any changes, place an asterisk (*) in front of the verbs that you do not want to run. If you want to include changes that are currently excluded (denoted by an asterisk at the beginning of the line), remove the asterisk
 -  While reviewing output, note that two classes SVR4DEP and SDDEP will be imported. In order to remove these classes, comment out the import class verbs.
 -  The NOVADIGM domain will be imported by default. If this is not required for your implementation, comment out the appropriate import class verbs.

Below is a table that defines some of the most common ZEDMAMS verbs that you will encounter when reviewing the output file.

Table 6 Common Verbs in the Output File

Verb	Description
ADD_FIELD	Adds a variable at the end of a template. This verb has a KEEPDATE= option which allows for an update of a variable without updating the ZOBJDATE/ZOBJTIME of the Base_Instance.
CHANGE_FIELDNAME	Changes variable names in the class template. This verb has a KEEPDATE= option which allows for an update of the class without updating the ZOBJDATE/ZOBJTIME instance.
CHANGE_FLD_VALUE	Changes a template's variable length, type Configuration Server, and client flags. This verb has a KEEPDATE= option which allows for the value to be updated without updating the ZOBJDATE/ZOBJTIME instance.
CHANGE_INS_FIELD	Changes one field in each instance of a class and verifies connects. This verb has a KEEPDATE= option which allows for the field to be updated without updating the ZOBJDATE/ZOBJTIME instance.
CHANGE_INST_DATA	Globally changes data in instance records by class. This verb has a KEEPDATE= option which allows for the instance to be updated without updating the ZOBJDATE/ZOBJTIME instance.

Verb	Description
COPY_FIELD	Copies attribute data to a new attribute or to an existing attribute. This verb has a KEEPDATE= option which allows for the field to be updated without updating the ZOBJDATE/ZOBJTIME instance.
DELETE_FIELD	Deletes an attribute from a template. This value does not alter the ZOBJDATE/ZOBJTIME instance.
DELETE_CLASS	Deletes a class from the database.

8 Save and close the file.

Step 9 – Review Database Differences

Review the output from the steps above. When you have reviewed this file and are ready to make changes, you will run ZEDMAMS with the ZFILE keyword.

- ▶ Be sure that you have reviewed the output file thoroughly and commented out any verbs that you do not want to be executed.
- ▶ Be sure no Configuration Servers are running before you proceed with the following steps.

To make the suggested changes included in the output file

- 1 Go to the directory where your BATCH_OUT file is stored (/opt/MyDatabase/DBDiff). Remember, this directory will also contain several files that represent the new classes that will be added to the database.
- 2 Copy `output.sh` to the `UpdateDB` directory.
- 3 Change the current working directory to the `UpdateDB` directory and run the following:

```
./ZEDMAMS ZFILE "output.sh"
```

where `output.sh` is the name of the file that you specified in the BATCH_OUT parameter when you ran the Database Difference Utility. Note that ZFILE must be in all caps.
- 4 Review `ZEDMAMS.LOG` to ensure that there were no errors, and that your import completed with RC 0 or RC 4.

Step 10 – Import Instances and Resources

Finally, you must import the remaining export decks that you created earlier, as well as the new supplied decks (CORE.XPI and CORE.XPR) to finish building the database.

▶ Be sure no Configuration Server is running before you proceed with the following steps.

To import the instance and resource decks

- 1 Copy the .XPI and .XPR files from the ExpDeck directory to the UpdateDB directory.
- 2 Also copy CORE.XPI and CORE.XPR from the HPCA media in the /management_infrastructure/configuration_server/migrate_db folder to the UpdateDB directory
- 3 Open a command prompt.
- 4 Change the directory to UpdateDB and run the following to import the new version 5.10 instances and resources:

```
./ZEDMAMS VERB=IMPORT_INSTANCE,FILE=CORE.XPI, XPR=CORE.XPR,  
TIME=OLD, PREVIEW=NO, DUPLICATES=MANAGE, CONTINUE=YES, REPLACE=YES
```

▶ Each time you run ZEDMAMS, a new log file is created (by default ZEDMAMS.log). If you would like to save the individual log files from each ZEDMAMS session, either rename or move the default log file after you run ZEDMAMS, or use the ZEDMAMS logfile parameter and specify a new log file name.

- 5 Run the following command to import your existing instances and resources:

```
./ZEDMAMS VERB=IMPORT_INSTANCE,FILE=YOUR_DB.XPI,  
XPR=YOUR_DB.XPR, TIME=OLD, PREVIEW=NO, DUPLICATES=MANAGE,  
CONTINUE=YES, REPLACE=NO
```

The filename used in this example represents the name of the export deck that you created earlier.

▶ The new CORE import decks contain the necessary updates needed to run HPCA at the current level. Therefore, in the command line above, REPLACE=NO is required to ensure the updated database obtains the latest functionality. Customizations made to instances that have the same name as instances contained in CORE will appear as differences in the ZEDMAMS log. When the log file is reviewed, be aware of any differences that are not going to be included in the upgrade, and decide if these differences can be added to the existing entry or if an additional entry is required.

After the upgrade process is complete, the HPCA CSDB Editor can be used to edit ZSTOP expressions to include any required custom values.

- 6 Review the ZEDMAMS.LOG to ensure that there were no errors, and that your import completed with RC 0 or RC 4.
- 7 Run the Verify Database utility and make sure no errors are reported in the log file other than Improper Instance Name errors, which can be ignored.
- 8 To confirm that the upgrade completed successfully, perform an Agent Connect (for example, open the Application Self-Service Manager catalog). If you receive the same results as you did prior to the upgrade, then the upgrade was successful.



If you commented out the import class verbs for the NOVADIGM domain, the import instance will result in 504 errors because as of version the 5.xx the CS Database does not contain the NOVADIGM domain.

Your CS Database upgrade process for UNIX is now complete.

A Configuration Server Database Scanner

This scanner program will “pre-process” a CM Configuration Server Database (CM-CSDB) by looking for class-attribute values in which the value of each character of the attribute value exceeds the numerical value of **127 (0x7f)**. Values in the range of **128 (0x80)** to **255 (0xff)** indicate UTF-8 encoded data.

Languages (such as German) that use values in this range could require at least 2 bytes when the value is converted to UTF-8. In the Chinese, Japanese, and Korean languages, the conversion could require 3 bytes. The effect of this is that—after conversion to UTF-8—the data might not fit, depending on the size of the area that has been defined for the class attribute.

For example, assume a class attribute that is defined to be 50 bytes. After conversion to UTF-8, and as a result of “internationalization” considerations, the data in the attribute might have become too large (trailing blanks do not count). When the scanner finds conditions such as this, it reports them as follows.

- In a *log* file that has an extension of `.log`, such as `csdbscanner-<sequence>.log`.
- In a *summary* file, such as `csdbscanner-<sequence>-summary.log` that is a subset of the information that was written to the log file, but which contains warning and error level messages, as well as attributes of all instances that contain extended ASCII values.
- In a *comma-separated values* file, such as `csdbscanner.csv`, that can be imported into a spreadsheet application (such as Microsoft Excel) in order to view the information.

These three files are created in the directory into which the contents of `db-scanner.zip` were extracted (Windows) untared (UNIX). See the section, [Installing](#), on page 37.

The scanner can be run by reading either:

- The CM-CSDB, starting from the PRIMARY File. See [Scanning the Database](#), starting on page 38.



The CM Configuration Server should not running when the scan is being run.

Or

- The *export class* and *export instance* database decks (**XPC** and **XPI**). See [Scanning the Export Decks](#), starting on page 37.

Installing

This section provides instructions for installing the CM-CSDB scanner.

- 1 Create a directory, such as `CSDB_Scanner`.
- 2 Extract/untar the `db-scanner` file into the new directory with the following commands.

Windows: `unzip db-scanner.zip`

UNIX: `gzip -dc db-scanner-unix.tar.gz | tar -xvf -`

Running the Scanner

This section provides information on how to run the CM Configuration Server Database scanner in both modes: *on the database* and *on the export decks*.

► In both of these scan modes, the input data is only read; it is not altered in any way.

- 1 Open a command window and “cd” to the directory (such as `CSDB_Scanner`) into which the scanner was extracted.

- 2 Type

```
csdbscanner | more
```

This will display information about the command-line switches.

► This info is also in the file `csdbscanner.help`.

Specifying the Command Line

Depending on the shell, there might be issues with the arguments when specified in the following format.

```
key=value, key=value
```

Therefore, the arguments can also be specified as

```
key={value} key={value} ....
```

in which there must be at least one space from the closing delimiter to the start of the next key.

- Keys are not case-sensitive.
- The value delimiters can be either `{}` or `()`.

Scanning the Export Decks

To run the scanner on the export decks, type

```
csdbscanner xpc=xpc1 xpc=xpc2 ... xpi=xpi1 xpi=xpi2
```

- ▶ The **xpc** and **xpi** keys can be specified multiple times. The only requirement is that the **xpc** commands precede the **xpi** commands.
Further, multiple instances of one class can be scanned by specifying multiple **xpi** commands after a single **xpc** command.

The default file extension for **xpc**= is `.xpc`; for **xpi**=, it is `.xpi`.

- ▶ If an export deck has a **Byte Order Mark** (BOM, see http://en.wikipedia.org/wiki/Byte_order_mark) at the beginning, it has already been converted to UTF-8.

Scanning the Database

To run the scanner on the database, type

```
csdbscanner db=dbpath
```

where the value of `dbpath` is the location of the CM-CSDB.

- ▶ This value (`dbpath`) should match the value of the `DBPATH` setting in the `MGR_DIRECTORIES` section of the `edmprof` file.
The CM-CSDB can be either Big Endian or Little Endian; both formats will be processed.

Additional Keys

In addition to the keys shown in the previous sections, those detailed in [Table 7](#) below can be specified.

Table 7 Database Scanning Keys

Key	Description
cp	Specify a numerical value that represents the codepage to use. The default is 1252 (the Microsoft Windows codepage). Codepages 1250 through 1258 are built in, although external codepage files can also be specified but must adhere to the formats found at www.unicode.org .
seeutf8	Specify a Boolean value that determines whether the contents of the local codepage-to-UTF8 translation are written to the log. Specify: <ul style="list-style-type: none"> • 1 to have the contents written to the log. • 0 (the default) to skip this translation being logged.
showclass	Specify a Boolean value that determines whether the contents of the class template are written to the log. Specify: <ul style="list-style-type: none"> • 1 to have the contents written to the log. • 0 (the default) to skip this translation being logged.

Key	Description
pagesize	Specify the size (from 6 MB to 2 GB) of the internal page files. Page files are allocated in order to save template and instance data that are parsed from the export decks (.xpc and .xpi). Note: This key is valid only with the export file scan method.
pagedir	Specify the directory in which the page files will be created. The default is the system's <code>temp</code> directory.
lc	Specify a Boolean value that determines whether to check for lowercase ASCII letters in CM Configuration Server <i>method</i> and <i>connection</i> attributes in CM-CSDB class instances. Specify: <ul style="list-style-type: none"> • 1 to perform this check. • 0 (the default) to skip this check.

Database Instance Checking

The database scanner can optionally check the timestamp of instances in the source and target databases in order to determine whether any instances have had timestamp changes as a result of a ZEDMAMS conversion or update. The keys for running this check are: **sourcedb**, **targetdb**, and **base**.

- The values of **sourcedb** and **targetdb** must be specified like the **db** key; that is, they should point to an `edmprof` file DBPATH value.
- The value of **base** (**0** | **1**) specifies whether to check the *base instance only* versus *all the instances*, in each class.
 - **base=1** (the default) checks the base instance only
 - **base=0** checks all instances

Database Poking

The intent of the scanner is to identify all CM-CSDB data values of **128** to **255**.

If the CM-CSDB contains only values in the *low* ASCII range (**0** to **127**), then, by definition, it would already be in the UTF-8 range and not require the ZEDMAMS conversion step. The scanner can mark the CM-CSDB as UTF-8 if it is clear of any *extended* ASCII values.

To have the scanner mark (“poke”) the CM-CSDB, a two-step process is required.

- The first step is the standard scan process (detailed earlier in this document in the section [Scanning the Database](#)) with the addition of the key, **pokelist**, as in:

```
csdbscanner db=c:\Program Files\rsc\db pokelist=poke.list
```

If the scan is clean—the CM-CSDB is free of any extended ASCII values—the “pokelist” file is created.

- The second step is to run the scanner again, with the keys **update={1}** and **pokelist={ ... }**, where the value of **pokelist** is the same as that which was specified in the first step (for example, `poke.list`).

After the scanner completes this second run, without errors, the CM-CSDB is marked as being a UTF-8 database.

B Validating the CS Database

The following errors provide information about structural issues that may be present in your Database.


 Unmated instances are instances that exist with no connection to a resource.

Table 8 Domain Validation

ERROR MESSAGE Impact	Suggested Solution
VERIFY DOMAIN <> CANNOT VALIDATE DMA INSTANCE COUNT. High impact for DMA Customers. Low impact for non-DMA Customers.	Run: ZEDMAMS VERB=REFRESH_DMA,PREVIEW=NO
VERIFY DOMAIN < > DMA INSTANCE COUNT DOES NOT EQUAL ACTUAL INSTANCE COUNT. High impact for DMA Customers. Low impact for non-DMA Customers.	Run: ZEDMAMS VERB=REFRESH_DMA,PREVIEW=NO

Table 9 Class Validation

ERROR MESSAGE Impact	Suggested Solution
MISSING TEMPLATE IN CLASS < >. High impact for resolution process and integrity of the class.	Delete the class. Restore the class from the last known good template for that class.
CLASS < > HAS MISSING _BASE_INSTANCE. High impact for resolution process and integrity of the class.	Delete the class. Restore the class from the last known good template for that class.
CLASS < > HAS INVALID _BASE_INSTANCE. High impact for resolution process and integrity of the class.	Delete the class. Restore the class from the last known good template for that class.
VERIFY CLASS < > CANNOT READ DMA CLASS CONTROL INFORMATION. (INVALID CLASS). High impact for resolution process and integrity of the class.	Delete the class. Restore the class from the last known good template for that class.
CLASS < > PREFIX SIZE LESS THAN EXPECTED. (INVALID CLASS). High impact for resolution process and integrity of the class.	Delete the class. Restore the class from the last known good template for that class.

ERROR MESSAGE Impact	Suggested Solution
CLASS < > PREFIX CONTAINS INVALID DATES. Low impact. For internal use only.	Delete the class. Restore the class from the last known good template for that class.
CLASS < > PREFIX SIZE < > LESS THAN EXPECTED. High impact for resolution process and integrity of the class.	Delete the class. Restore the class from the last known good template for that class.
DATABASE VERSION MISMATCH FOR CLASS < > High impact. Corrupt Class.	Delete the class. Restore the class from the last known good template for that class.
CLASS TEMPLATE FIRST ENTRY NOT FOUND. High impact for resolution process and integrity of the class.	Delete the class. Restore the class from the last known good template for that class.
CLASS TEMPLATE < > TEMPLATE FIRST ENTRY NAME < > DOES NOT MATCH CLASS NAME.	Delete the class. Restore the class from the last known good template for that class.
CLASS < > TEMPLATE SIZE MISTMATCH. High impact for resolution process and integrity of the class.	Delete the class. Restore the class from the last known good template for that class.
CLASS < > HAS HEAP SIZE < > WHICH IS GREATER THAN SUPPORTED MAXIMUM. High impact for resolution process and integrity of the class.	Delete the class. Restore the class from the last known good template for that class.

Table 10 Class Validation

ERROR MESSAGE Impact	Suggested Solutions
CLASS < > HAS MISSING _NULL_INSTANCE.* Low impact.	Policy needs to be reviewed to see if the instance is used. Administrator can create a _NULL_ instance in the class if necessary.
CLASS < > HAS INVALID _NULL_INSTANCE.* High impact.	Delete the class. Restore the class from the last known good template for that class.
VERIFY CLASS < > INSTANCE COUNT IS ZERO. High impact. Affects the System Explorer and resolution process.	Run: ZEDMAMS VERB=REFRESH_DMA,PREVIEW=NO
VERIFY CLASS < > CANNOT VALIDATE DMA INSTANCE COUNT. High impact. Affects the System Explorer and resolution process.	Run: ZEDMAMS VERB=REFRESH_DMA,PREVIEW=NO

ERROR MESSAGE Impact	Suggested Solutions
<p>VERIFY CLASS < > DMA INSTANCE COUNT DOES NOT EQUAL ACTUAL INSTANCE COUNT.</p> <p>High impact. Affects the System Explorer and resolution process.</p>	<p>Run: ZEDMAMS VERB=REFRESH_DMA,PREVIEW=NO</p>
<p>INSTANCE SIZE LESS THAN MINIMUM REQUIRED.</p> <p>High impact. Affects the System Explorer and resolution process.</p>	<p>Delete the class. Restore the class from the last known good template for that class.</p>

Table 11 Instance Validation

ERROR MESSAGE Impact	Suggested Solution
<p>INSTANCE SIZE DOES NOT MATCH CLASS TEMPLATE.</p> <p>High impact. The instance is corrupt.</p>	<p>Delete the class. Restore the class from the last known good template for that class.</p>
<p>ZRSCDATE NOT FOUND BUT RESOURCE FLAG SET IN CONTROL INFO.</p> <p>No impact.</p>	<p>Delete the class. Restore the class from the last known good template for that class.</p>
<p>WARNING: UNMATED INSTANCE < > DOES NOT HAVE CORRESPONDING DATA.</p> <p>Medium impact. Resource is missing for an instance</p>	<p>Determine the impact the resource has on your database. If the resource is non-critical, delete. If the resource is critical, set the ZSERVICE.REMOVAL attribute to A and redeploy. (Setting the REMOVAL attribute to A abandons the resource, relinquishing HPCA control.) Note: Deleting a resource may have adverse affects on other HPCA components. Before deleting a damaged resource, make sure it will not affect any existing components.</p>
<p>RESOURCE < > SIZE < > IS INVALID FOR ASSOCIATED INSTANCE < >.</p> <p>High impact. Damaged Resource.</p>	<p>Determine the impact the resource has on your database. If the resource is non-critical, delete. If the resource is critical, set the ZSERVICE.REMOVAL attribute to A and redeploy. (Setting the REMOVAL attribute to A abandons the resource, relinquishing HPCA control.) Note: Deleting a resource may have adverse affects on other HPCA components. Before deleting a damaged resource, make sure it will not affect any existing components.</p>

ERROR MESSAGE Impact	Suggested Solution
<p>RESOURCE < > ACTUAL SIZE < > NOT EQUAL TO SIZE < > IN ASSOCIATED INSTANCE.</p> <p>High impact. Damaged Resource.</p>	<p>Determine the impact the resource has on your database.</p> <ul style="list-style-type: none"> • If the resource is non-critical, delete. • If the resource is critical, set the ZSERVICE.REMOVAL attribute to A and redeploy. (Setting the REMOVAL attribute to A abandons the resource, relinquishing HPCA control.) <p>Note: Deleting a resource may have adverse affects on other HPCA components. Before deleting a damaged resource, make sure it will not affect any existing components.</p>
<p>ERROR: OPENING RESOURCE < > FOR INSTNACE < >.</p>	<p>Delete the class. Restore the class from the last known good template for that class.</p>
<p>ERROR: UNABLE TO READ PREFIX FOR RESOURCE < > FOR ASSOCIATED INSTANCE < >.</p>	<p>Delete the class. Restore the class from the last known good template for that class.</p>
<p>RESOURCE < > ACTUAL SIZE < > DOES NOT MATCH EXPECTED SIZE < > FOR ASSOCAITED INSTANCE.</p> <p>High impact. Damaged Resource.</p>	<p>Determine the impact the resource has on your database.</p> <ul style="list-style-type: none"> • If the resource is non-critical, delete. • If the resource is critical, set the ZSERVICE.REMOVAL attribute to A and redeploy. (Setting the REMOVAL attribute to A abandons the resource, relinquishing HPCA control.) <p>Note: Deleting a resource may have adverse affects on other HPCA components. Before deleting a damaged resource, make sure it will not affect any existing components.</p>
<p>RESOURCE < > PREFIX CLASS NAME < > DOES NOT MATCH ITS ASSOCIATED INSTANCE < >.</p> <p>High impact. Damaged Resource.</p>	<p>Determine the impact the resource has on your database.</p> <ul style="list-style-type: none"> • If the resource is non-critical, delete. • If the resource is critical, set the ZSERVICE.REMOVAL attribute to A and redeploy. (Setting the REMOVAL attribute to A abandons the resource, relinquishing HPCA control.) <p>Note: Deleting a resource may have adverse affects on other HPCA components. Before deleting a damaged resource, make sure it will not affect any existing components.</p>

ERROR MESSAGE Impact	Suggested Solution
<p>RESOURCE < > PREFIX INSTANCE NAME < > DOES NOT MATCH ITS ASSOCIATED NAME < >.</p> <p>High impact. Damaged Resource.</p>	<p>Determine the impact the resource has on your database.</p> <ul style="list-style-type: none"> • If the resource is non-critical, delete. • If the resource is critical, set the ZSERVICE.REMOVAL attribute to A and redeploy. (Setting the REMOVAL attribute to A abandons the resource, relinquishing HPCA control.) <p>Note: Deleting a resource may have adverse affects on other HPCA components. Before deleting a damaged resource, make sure it will not affect any existing components.</p>
<p>RESOURCE < > COMPRESSED SIZE < > NOT EQUAL TO SPACE < > IN VARIABLE < > OF ASSOCIATED INSTANCE < >.</p> <p>Medium impact. ZCMPSIZE Variable may be compromised.</p>	<p>Delete the class. Restore the class from the last known good template for that class.</p>
<p>RESOURCE < > SIZE < > NOT EQUAL TO SIZE < > IN VARIABLE < > OF ASSOCIATED INSTANCE < >.</p> <p>Medium impact. ZRSCSIZE Variable may be compromised.</p>	<p>Delete the class. Restore the class from the last known good template for that class.</p>
<p>RESOURCE < > CRC < > NOT EQUAL TO CRC < > IN VARIABLE < > OF ASSOCIATED INSTANCE < >.</p> <p>Medium impact. ZRSCCRC Variable may be compromised.</p>	<p>Delete the class. Restore the class from the last known good template for that class.</p>

Checking for Orphaned Resources

Orphaned resources are resources that exist with no parent instance. The following error provides information about orphaned resources.

Table 8 Orphaned Resource Check

ERROR MESSAGE Impact	Suggested Solution
<p>FOUND ORPHANED RESOURCE – DATA DOES NOT HAVE A CORRESPONDING PARENT INSTANCE < >. THIS RESOURCE WAS PREVIOUSLY PARENTED BY < >.</p> <p>Low impact. This resource can be left OR you may choose to remove the unmated resource by using the ZEDMAMS VERB = DELETE_RESOURCE.</p>	<p>Run: ZEDMAMS VERB=DELETE_RESOURCE, PREVIEW=NO</p>

Checking for Duplicate IDs

The following errors provide information about duplicate object IDs that may be present in your Database. Table 9 Object ID Check

ERROR MESSAGE Impact	Suggested Solution
<p>DUPLICATE OBJECT ID < > WITHIN <COMPONENT> CLASS < > BETWEEN INSTANCE < > AND < >.</p> <p>High impact. Possibility of corrupt data.</p>	<p>If either data is corrupted, use: ZEDMAMS VERB = DELETE_INSTANCE, PACKAGE=YES,PREVIEW=NO,DOMAIN=< >, CLASS= < >, INSTANCE =< ></p>
<p>DUPLICATE OBJECT ID < > IN INSTANCES < > AND < >.</p>	<p>If both are from PACKAGE Class: Duplicate Instance object ids in Package Class cannot be fixed. You will need to delete the package.</p> <p>If class is NOT PACKAGE: ZEDMAMS VERB= CHANGE_OBJECTID,FILE=PRIMARY,DOMAIN= <>,CLASS=<>,INSTANCE=<>,PREVIEW =NO</p>
<p>DUPLICATE OBJECT ID < > WITHIN < > CLASS < > BETWEEN INSTANCE < >.</p>	<p>If class is PACKAGE: Duplicate Instance object ids in Package Class cannot be fixed. You will need to delete the package.</p> <p>If class is NOT PACKAGE: ZEDMAMS VERB=CHANGE_OBJECTID,FILE=PRIMARY,DOMAIN= <>,CLASS=<>,INSTANCE=<>,PREVIEW =NO</p>

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