# SAP BusinessObjects BI Pattern Books

## Upgrading from BOE XI 3.1 to SAP BusinessObjects BI 4.2

ABSTRACT

This pattern book covers the workflow required to UPGRADE objects from the source (BOE XI 3.X platform) system to the target (SAP BI 4.2 platform) system deployed on Microsoft Windows platform.

# Disclaimer

- This pattern book is for informational purpose only and may not be copied / reproduced without the permission of SAP
- The information provided in this book are based on the SAP BI Pattern Books project for a specific set of patterns / use cases applied within SAP lab environment. Hence, make sure to review and apply the steps / workflows that are applicable to your use cases / patterns, based on your SAP BusinessObjects BI landscape
- Contents of this, or any related document and SAP's strategy and possible future developments, products and or platforms directions and functionality that are discussed in this book all subject to change and may be changed by SAP at any time for any reason without notice. Therefore, read the latest official product guides, release notes to understand the differences and act accordingly

For further comments and questions, email to SAPEnableBI@sap.com

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## What is SAP BI Pattern Books?

A pattern book is a step by step 'how to' of an actual deployment / upgrade of SAP BusinessObjects BI software documented as precisely as possible, based on a particular pattern/use case (for example: Deploying BusinessObjects on Windows Operating System).

The main goal of the BI Pattern Books project is to produce books that can be used as an instruction manual that provides step by step instructions on how to successfully deploy / test / upgrade SAP BusinessObjects BI software using a live example and how it was technically achieved.

Previous phases of BI Pattern Books:

- BI 4.1 Release – **SAP BI Pattern Books - Pattern Book on BI 4.1 Upgrade** and SAP BI **Pattern Books - Pattern Book on BI 4.1 Update**
- BI 4.0 Release - **BIP on Linux with Tomcat and Sybase ASE Pattern Book** and **BIP on Windows with Mobile and Explorer Pattern Book**
- BOE XI 3.1 Release - on Windows Pattern
- BOE XI R2 Release - on Linux and AIX Patterns

## Abbreviations

| | |
|---|---|
| UMT | Upgrade Management Tool |
| CMC | Central Management Console |
| CMS | Central Management Server |
| IFRS | Input File Repository Server |
| OFRS | Output File Repository Server |

## Overview

Largely, it's a two steps process when it comes to upgrading from earlier BOE XI 3.x release to the latest BI 4.2;

1. Step1: Installing and configuring brand new BI 4.2 system
2. Step2: Moving objects (users and reports etc.) from source to target system

This pattern book has been developed by running the workflow of moving source system (BusinessObjects XI 3.1) objects into the target system (BusinessObjects BI 4.2) using the Upgrade Management Tool (UMT) that is part of the BusinessObjects BI suite.

## Pre-requisites: Upgrading from BOE XI 3.1 to BI 4.2

These are the important pre-requisites required to perform an upgrade project;

- **Connectivity**: Network connectivity and access to BOE XI 3.1 (source) and BI 4.2 (target) machines
- **UMT Access:** This is required to make sure that UMT designated system can connect to the source and target system without any issues
- **Admin Privilege:** Administrator privileges for the designated user who runs UMT on a server, which is on Windows operating system

## System Architecture

Before planning for an upgrade, make a note of necessary details like BI content (number of users, groups, folders, universes, and so on) and deployment of source and target systems, which can be used for post upgrade validation.

### Source System

## Architecture highlights

Here are the main highlights of the SAP BusinessObjects XI3.1 SP07 source system landscape:

- Clustered
- Load Balanced
- Reverse Proxy Supported
- SSL Secured
- Windows AD (with SSO) and SAP Authentication Supported

## Source software components and their versions.

The following table summarizes the software components used, with their version information:

| Software | Type/scope | Version |
|---|---|---|
| Tomcat | Web Application Server | 6.0 |
| SAP BusinessObjects Enterprise platform | BO application server | SAP BusinessObjects XI 3.1 SP07 |
| MS SQL Server | Database server for CMS and Audit databases | MS SQL Server 2008 R2 |
| Microsoft Windows | Operating system | Windows 2008 R2 SP01 (64 bit) |
| Apache | Web server / Reverse Proxy / Load Balancer | Apache 2.2.9 |

## Source system landscape and components

The following diagrams show the technical architecture of the SAP BusinessObjects XI 3.1 SP07 (DMZ) environment used in this pattern. Each server node is identified with the logical name corresponding to the architecture components it hosts:

## Upgrade assessment (infoobjects) summary

Make a note of all the objects in the source repository. In this pattern, there are about 88825 objects in the repository, which are mentioned below:

## Public folder content

| Object Type | Object Count |
|---|---|
| AF Dashboard pages | 124 |
| Agnostic documents | 523 |
| Crystal Report instances | 22023 |
| Crystal Reports | 11790 |
| Desktop Intelligence report Instances | 18 |

| | |
|---|---|
| Desktop Intelligence reports | 580 |
| Events | 42 |
| Flash Objects | 521 |
| Hyperlink Objects | 420 |
| LCM Jobs | 51 |
| Microsoft Excel documents | 117 |
| Microsoft PowerPoint documents | 25 |
| Microsoft Word documents | 14 |
| Object Package Instances | 0 |
| Object Packages | 527 |
| OLAP documents | 10 |
| PDF documents | 5 |
| Program Objects | 240 |
| Publication instances | 1694 |
| Publications | 642 |
| QaaWS Objects | 894 |
| Repository Objects | 1533 |
| Shortcut objects | 2619 |
| Text documents | 2 |
| Web Intelligence report Instances | 3566 |
| Web Intelligence reports | 8270 |
| Xcelsius objects | 304 |

## User and user groups

| Object Type | Object Count |
|---|---|
| Enterprise Groups | 32 |
| Enterprise Users | 674 |
| SAP BW Groups | 2 |
| SAP BW users | 25 |
| Windows AD Groups | 3607 |
| Windows AD Users | 24500 |

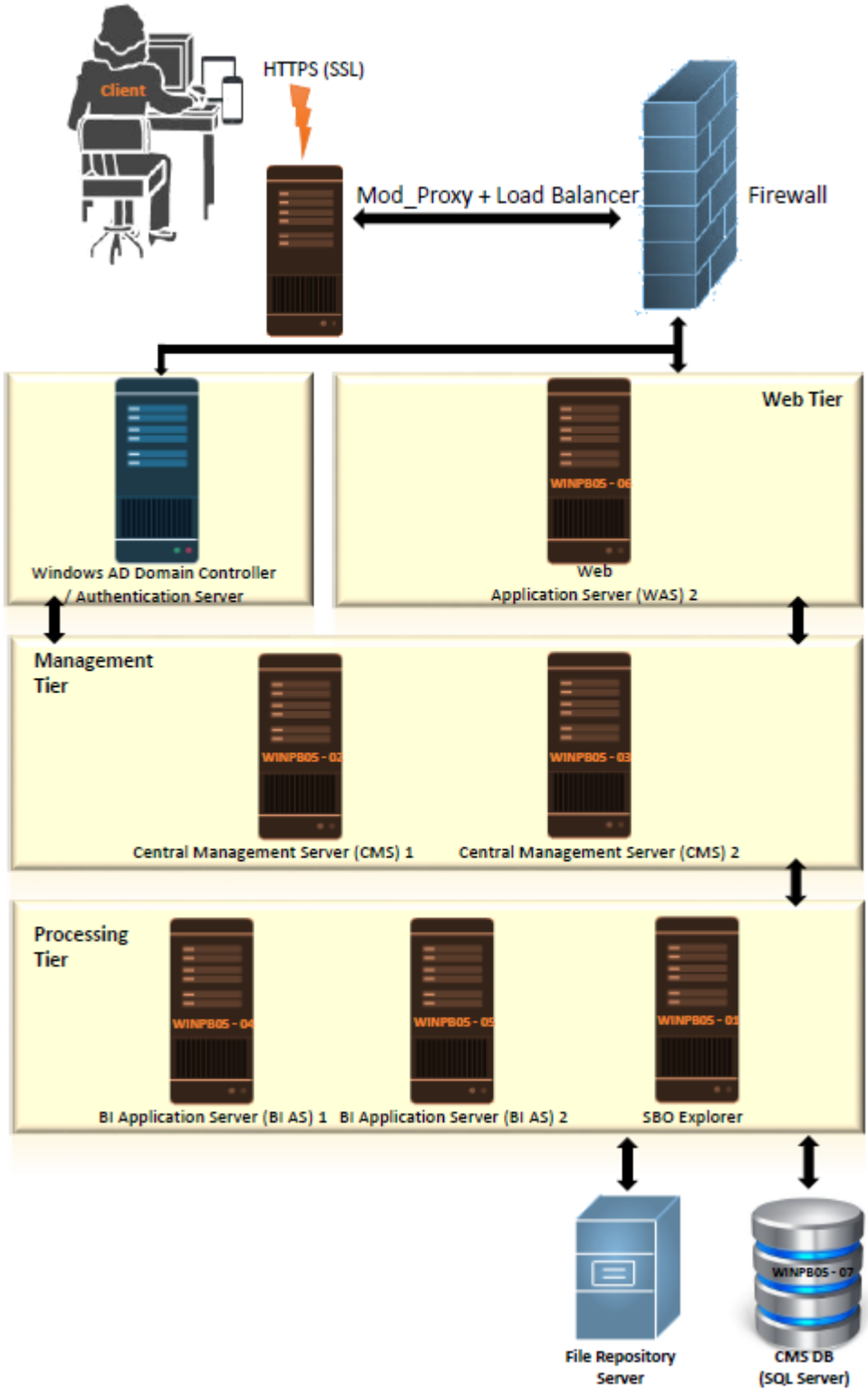
## Other CMC objects

| Object Type | Object Count |
|---|---|
| Replication lists | 2 |
| Public folders | 182 |
| Profiles | 7 |
| Corporate categories | 3 |
| Calendars | 2 |
| Applications | 12 |
| Access controls | 45 |

## Universes and connections

| Object Type | Object Count |
|---|---|
| Universe | 1387 |
| Universe Overloads | 610 |
| Connections | 1175 |
| Voyager connections | 6 |

## Source System Architecture

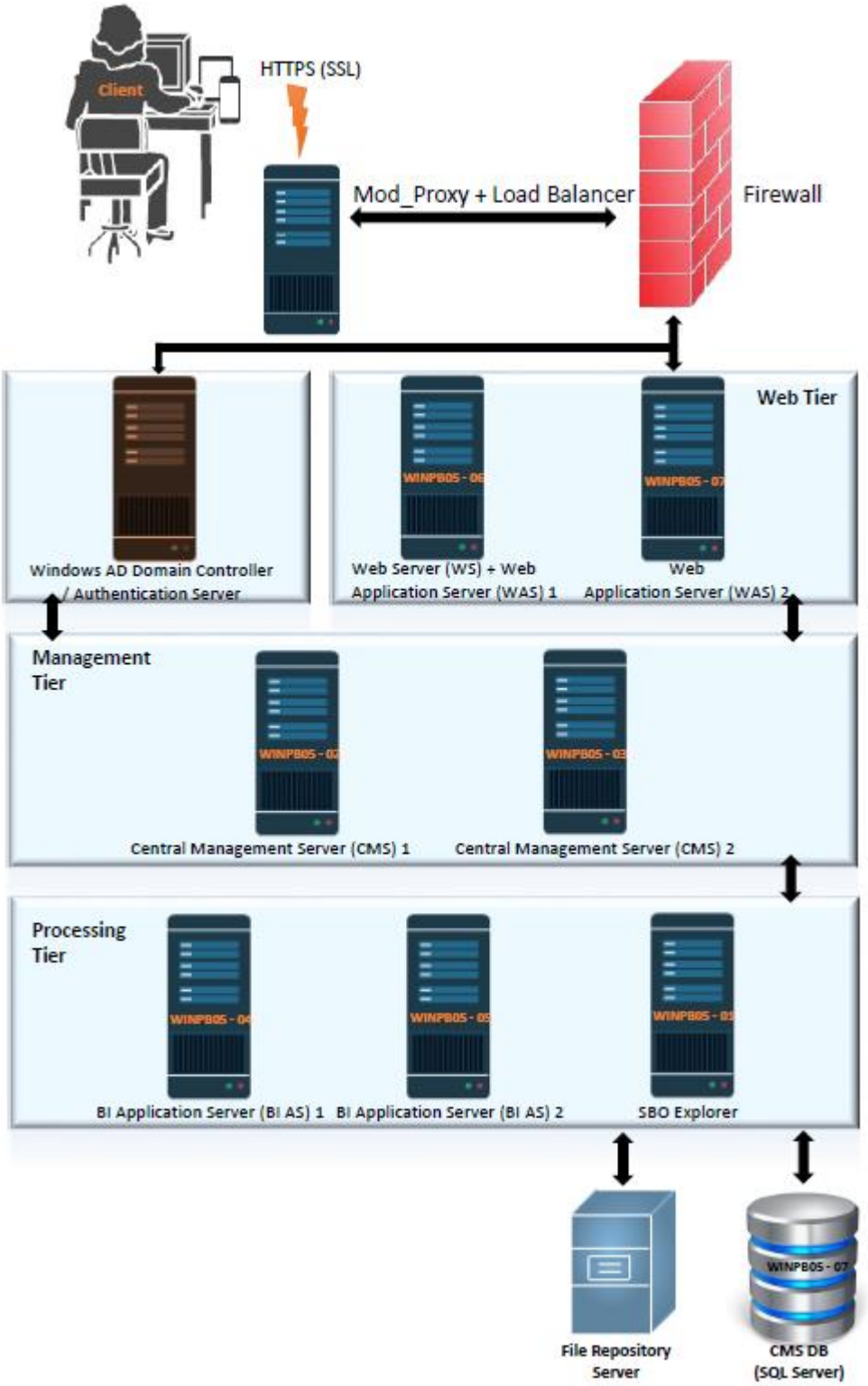


## Target System

Following are the Target System details:

| Machine Type | Machine Name |
|---|---|
| WS + WAS 1 | WINPB05-08 |
| WS + WAS 2 | WINPB05-09 |
| CMS1 | WINPB05-02 |
| CMS2 | WINPB05-03 |
| BI AS1 | WINPB05-04 |
| BI AS2 | WINPB05-05 |
| SBO Explorer | WINPB05-01 |
| CMS DB | WINPB05-07 |

# Target System Architecture




## Planning your Upgrade

These are the recommended steps to apply / follow while planning your upgrade.

## Determining your Upgrade Model

There are two ways (aka options) to upgrade your objects from BOE XI 3.1 system to BI 4.2 systems:

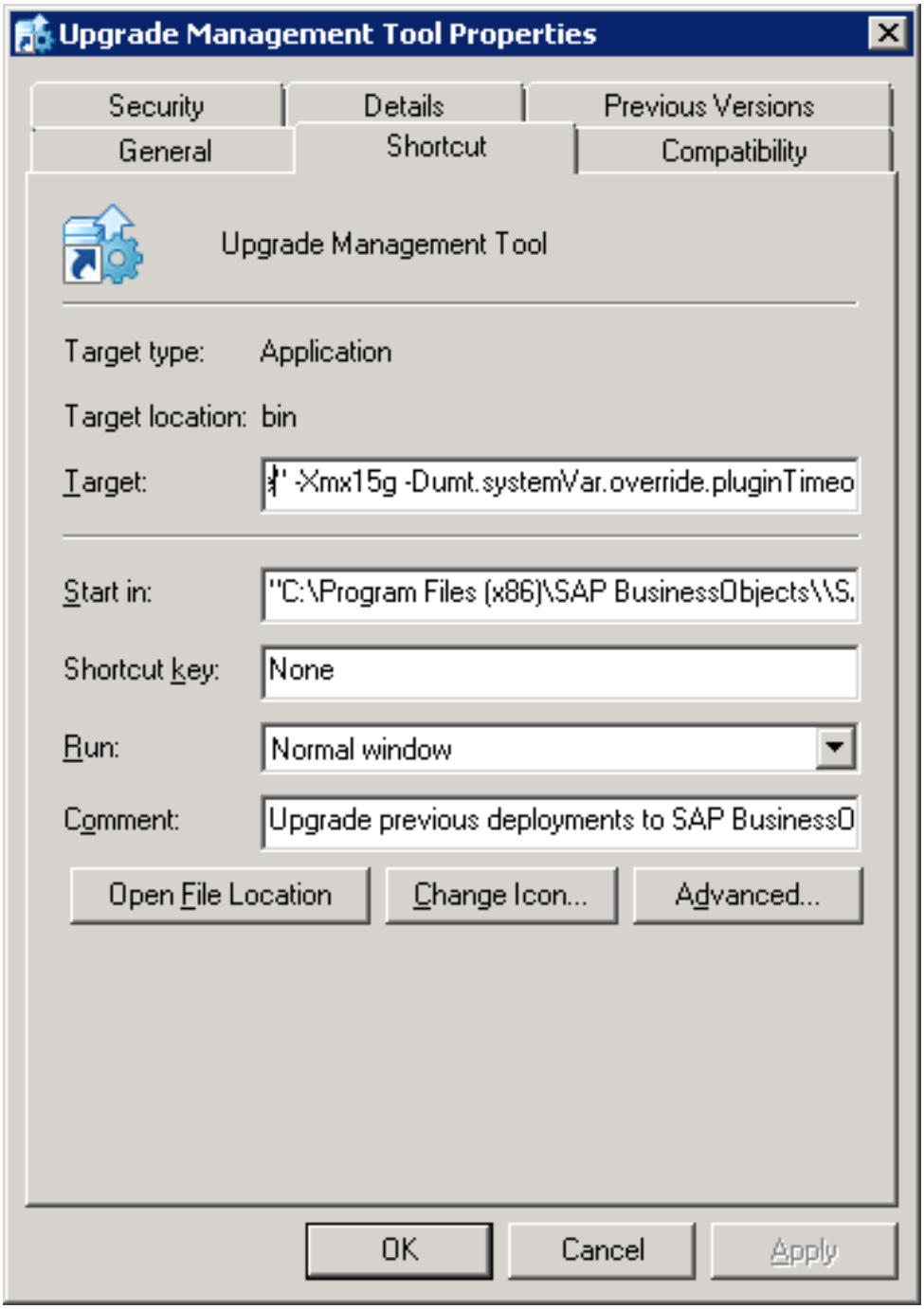
1. Complete / Full Upgrade – moving all objects at one shot from source to target
2. Incremental Upgrade – moving objects in batches as iterations

Generally speaking, complete upgrade is suitable for small scale BusinessObjects deployments, whereas incremental upgrade is recommended for any medium, large scale deployments.

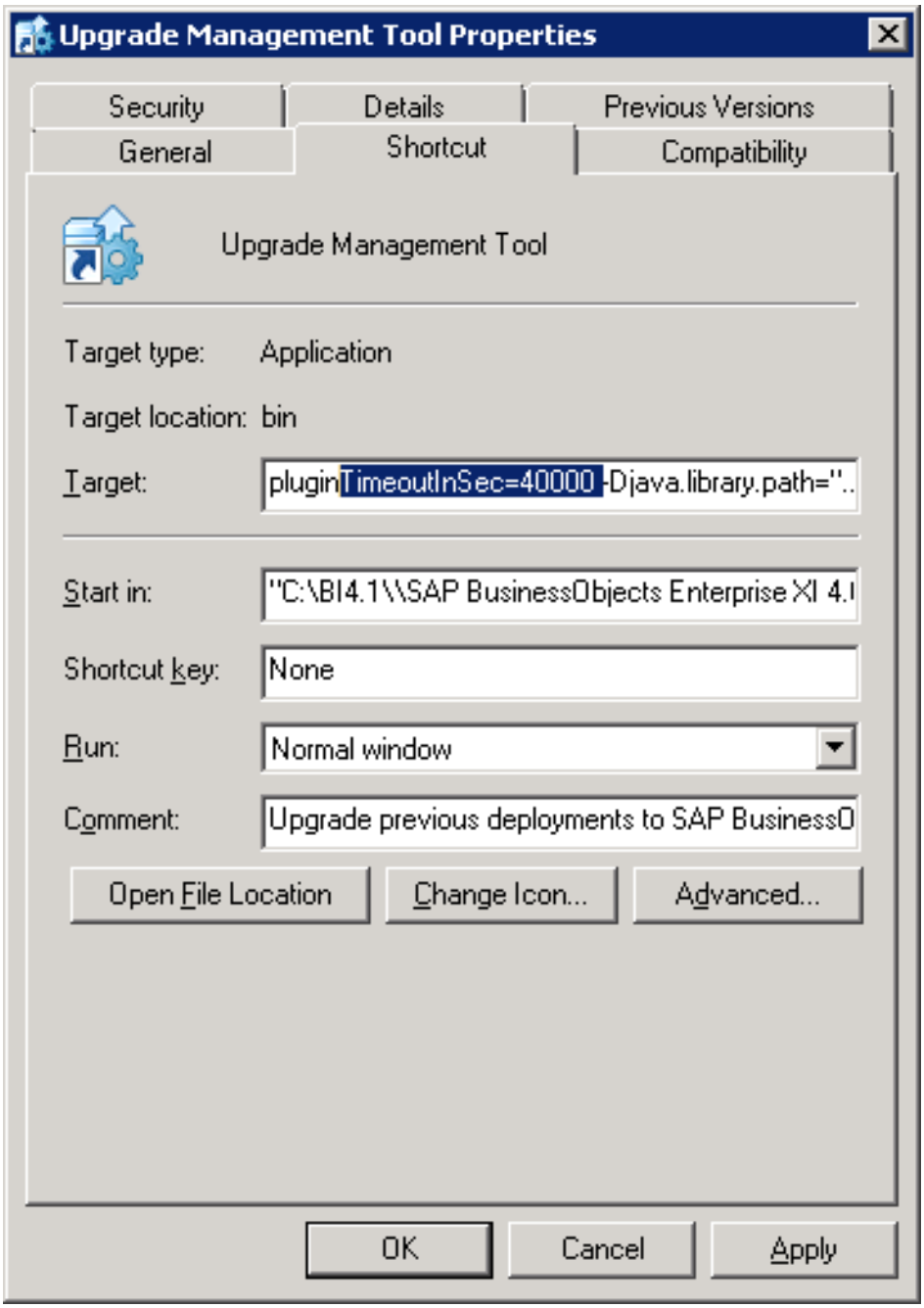
## Configuring Upgrade Management Tool

The upgrade management tool guides you through the process of exporting business intelligence content (user accounts, groups, folders, reports, universes, security, and other objects) and upgrading it to the most recent version. You need to configure it for better performance.

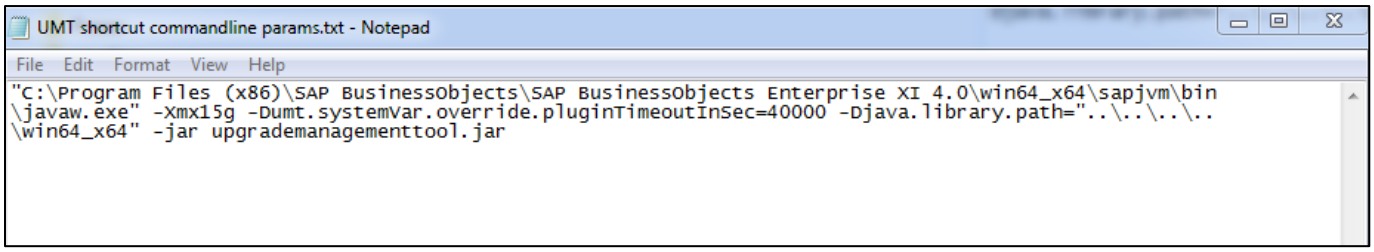
1. To run **UMT** with more Java Heap memory, use the Java **–Xmx** command-line argument (Eg: **-Xmx15g**) when launching UMT.
    a. Right Click on “Upgrade Management Tool” an go to”Properties” under the “Shortcut” tab.
    b. Copy the “Target” path to Notepad.
    c. Replace above “Xmx<>” with amount of Heap configure for your system.




2. Configure the timeout settings for **UMT**.




The target details of the UMT is shown below:



**Note:** The following error might occur during dependency computation;

com.crystaldecisions.thirdparty.org.omg.CORBA.NO_RESPONSE: Timeout

To resolve this issue, you need to increase the CORBA timeout for UMT, increase the timeout for input and output FRS servers, modify CMS server properties, and increase connections to system (CMS) database.

**Note:** for better performance and throughput, it's recommended to install and run the UMT on a dedicated server. This can be a temporary server, which can be dismantled once the Upgrade is completed. And it's important to install the UMT with SIA on this temp server for CMS connectivity.

## Increasing CORBA Timeout for UMT

Modify the upgradeManagementToolSystem.properties file located at C:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\java\apps\upgradeManagementTool\jars by adding the below entry:

**<entry key="umt.systemVar.backendCommunicationTimeoutInMS">630000</entry>**

**Note:** If you increase the value to more than 630000, then the logon to CMS would not occur.

upgradeManagementToolSystem - Notepad

File Edit Format View Help

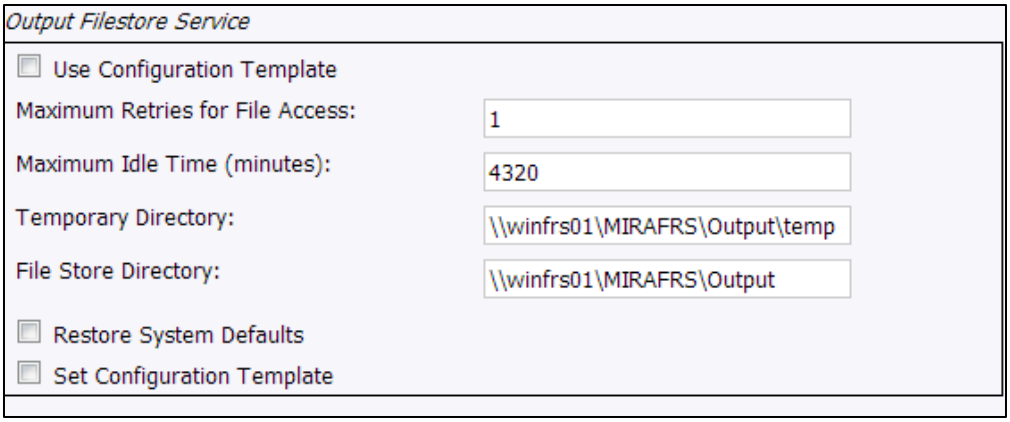
```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE properties SYSTEM "http://java.sun.com/dtd/properties.dtd">
<properties>
    <!-- Convenience properties to set up SSL communication.  If the
         corresponding SSL property is already set on the JVM, that takes
         precedence over the property defined here. Please refer to the Upgrade
         Guide for details. -->
    <!-- Set this to "ssl" to use SSL communication. -->
    <entry key="umt.systemvar.ssl.businessobjects.orb.oci.protocol"></entry>
    <!-- The directory to store all the certificates and keys. -->
    <entry key="umt.systemvar.ssl.certDir"></entry>
    <!-- Certificate used by the SDK. -->
    <entry key="umt.systemvar.ssl.sslCert"></entry>
    <!-- Trusted certificate file. If specifying more than one, separate with semicolons. -->
    <entry key="umt.systemvar.ssl.trustedCert"></entry>
    <!-- Private key of the SDK certificate. -->
    <entry key="umt.systemvar.ssl.sslKey"></entry>
    <!-- The file that stores the passphrase for the private key. -->
    <entry key="umt.systemvar.ssl.passphrase"></entry>
    <!-- boe common dirs -->
    <entry key="umt.systemvar.shared.commonDir">C:\BI4.1\\SAP BusinessObjects Enterprise XI 4.0\java\lib
    <entry key="umt.systemvar.shared.externalDir">C:\BI4.1\\SAP BusinessObjects Enterprise XI 4.0\java\l
    <!-- osgi framework props -->
    <entry key="osgi.clean">true</entry>
    <!-- upgrade manager props -->
    <entry key="umt.systemvar.bundles">C:\BI4.1\\SAP BusinessObjects Enterprise XI 4.0\java\apps\upgrade
    <entry key="umt.systemvar.bundlesDirs">C:\BI4.1\\SAP BusinessObjects Enterprise XI 4.0\java\apps\upg
    <entry key="umt.systemvar.jarDir">C:\BI4.1\\SAP BusinessObjects Enterprise XI 4.0\java\apps\upgradeM
    <!-- logging -->
    <entry key="umt.systemvar.trace.logDir">C:\BI4.1\SAP BusinessObjects Enterprise XI 4.0\Logging\</ent
    <entry key="umt.systemvar.trace.iniDir">C:\BI4.1\SAP BusinessObjects Enterprise XI 4.0\conf\</entry>
    <entry key="umt.systemvar.trace.iniFile">BO_trace.ini</entry>
    <!-- Enterprise Home -->
    <entry key="umt.systemvar.enterprise.home.dir">C:\BI4.1\SAP BusinessObjects Enterprise XI 4.0\</entr
    <entry key="umt.systemvar.enterprise.bin.dir">C:\BI4.1\SAP BusinessObjects Enterprise XI 4.0\win64_x
    <!-- FRS service pinger -->
    <entry key="umt.systemvar.frs.ping">true</entry>
    <!-- Enable commit retry if batch commit times out-->
    <entry key="umt.systemvar.commitRetry.enabled">true</entry>
    <!-- The specified batch size during retry commit. Default batch size is 250, must be <= 250. -->
    <entry key="umt.systemvar.commitRetryBatchSize">10</entry>
    <!-- Whether to migrate failed instances -->
    <entry key="umt.systemvar.migrateFailedInstances">true</entry>
    <!-- to Increase Corba Timeout for UMT -->
    <entry key="umt.systemvar.backendCommunicationTimeoutInMS">630000</entry>
</properties>
```

## Modifying System (CMC) Properties

### Increasing input and output FRS servers timeout in source and target systems

1. **Logon** to **CMC**, go to the properties of Input & Output File Repository Servers. And change the '**Maximum Idle Time**' value as shown below:

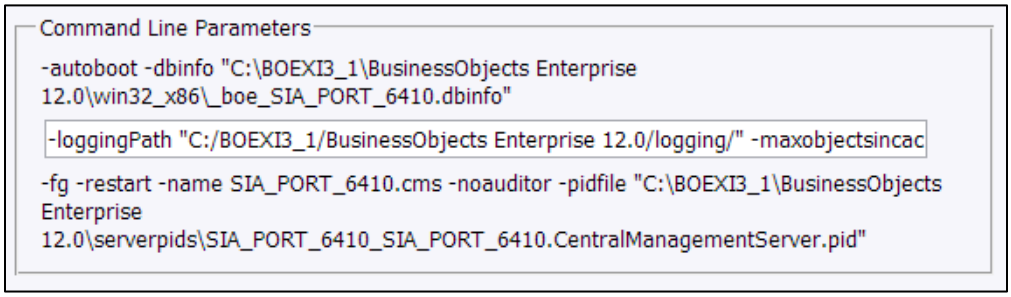
2. Go to Properties of Input & Output File Repository Servers.
3. 3. Change the **Maximum Idle** Time value as shown below:




## Modifying CMS server properties in source and target systems

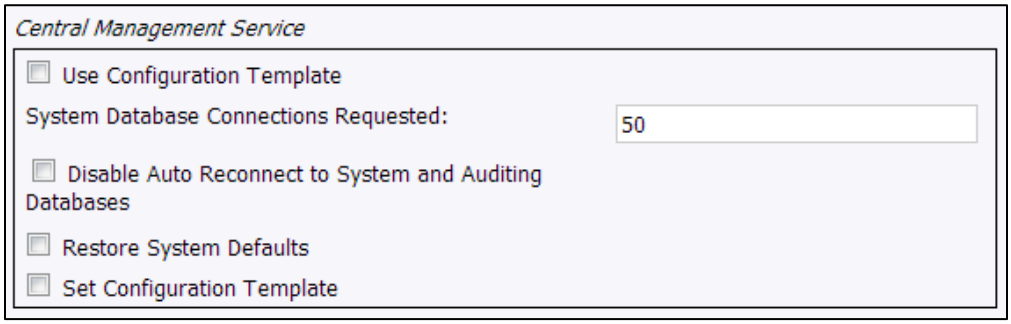
Similarly, modify the **CMS** server '**Command Line Parameters**' as shown below;

-loggingPath "C:/BOEXI3_1/BusinessObjects Enterprise 12.0/logging/" -maxobjectsincache 100000 -threads 150 -nbqthreads 10 -startedBySIA




## Increasing the connections to system database in source and target systems

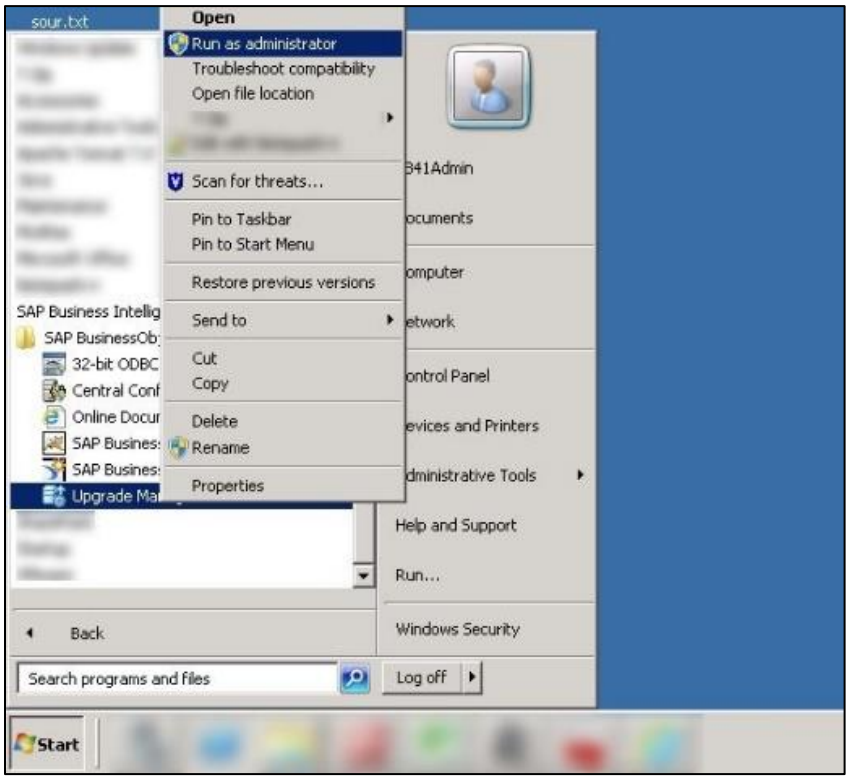
Similarly, go to CMS server properties and change the **"System Database Connections Requested"** as shown below:



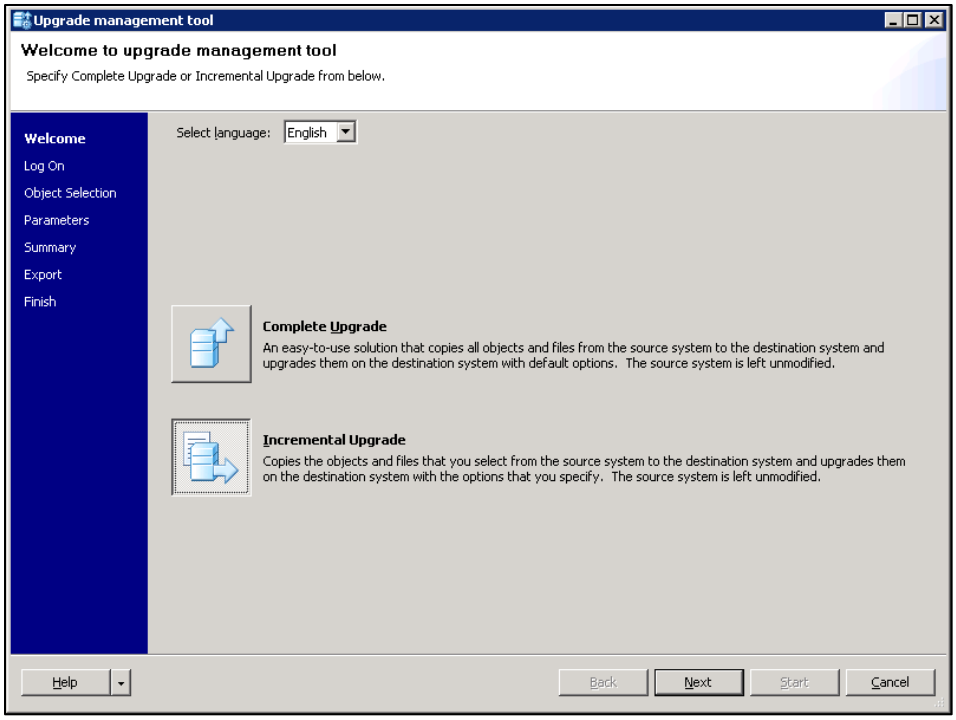

**Note:** For the changes to effect properly, it's recommended to restart the SIA.

## Launching UMT and logging on to the source and destination systems:

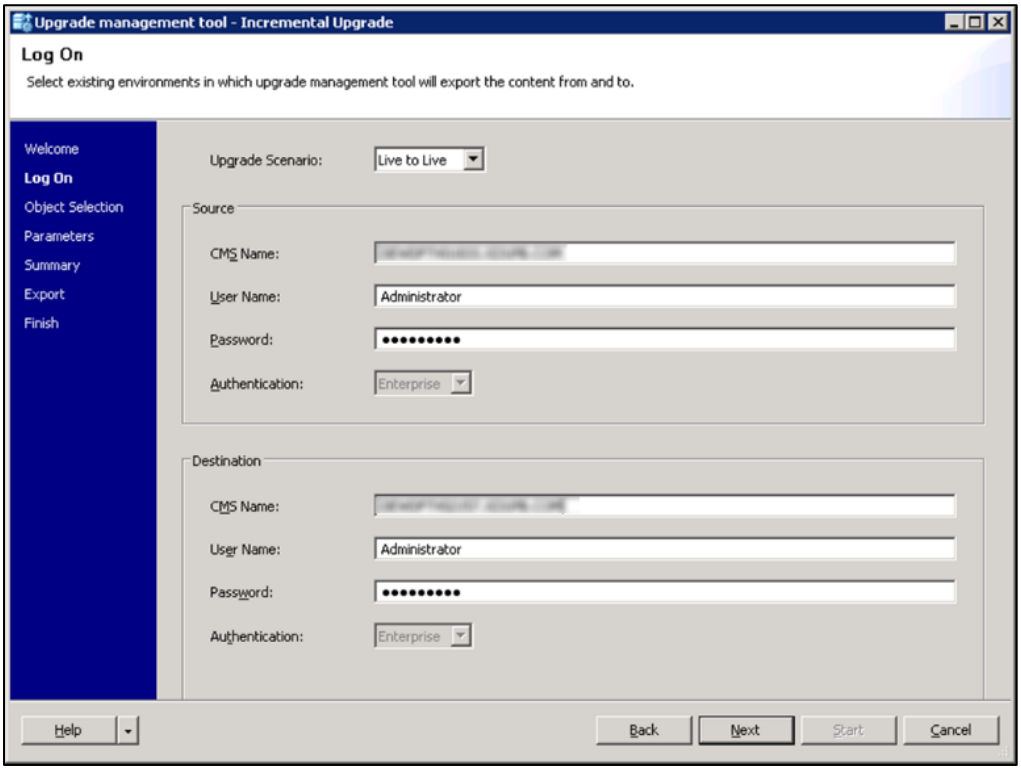
1. Go to **Start > All Programs > SAP Business Intelligence > SAP BusinessObjects BI Platform4 > Upgrade Management Tool.**
2. Right-click **Upgrade Management Tool** and select **Run as administrator**.




3. Select **Incremental Upgrade** and click **Next**.




4. From the **Upgrade Scenario** drop-down list, select **Live to Live**. Give CMS Name for source and target system, enter credentials.
5. Enter CMS Name for source and target system.
6. Enter credentials.



7. Click Next.

# Preparing your Upgrade

Now that you planned out your upgrade by checking the pre-requisites and other important aspects of your BusinessObjects environments, this section tell you what you need to do before executing or running your upgrade.

## Disabling Default System Updates

We recommend you to disable the default Windows update and stop anti-virus process in all machines (in both source and target systems).

Following are the steps to disable 'Automatic updates' for Windows and JAVA auto-update to avoid any ad-hoc updates that may force restart the machine, affecting the upgrade process.

1. Go to **Start > Run**.
2. Type **services.msc**.
3. Right-click **Windows Update** and select **Properties**.
4. Click **Stop**.
5. From the **Start up**, Type drop down list, select **Disabled**.

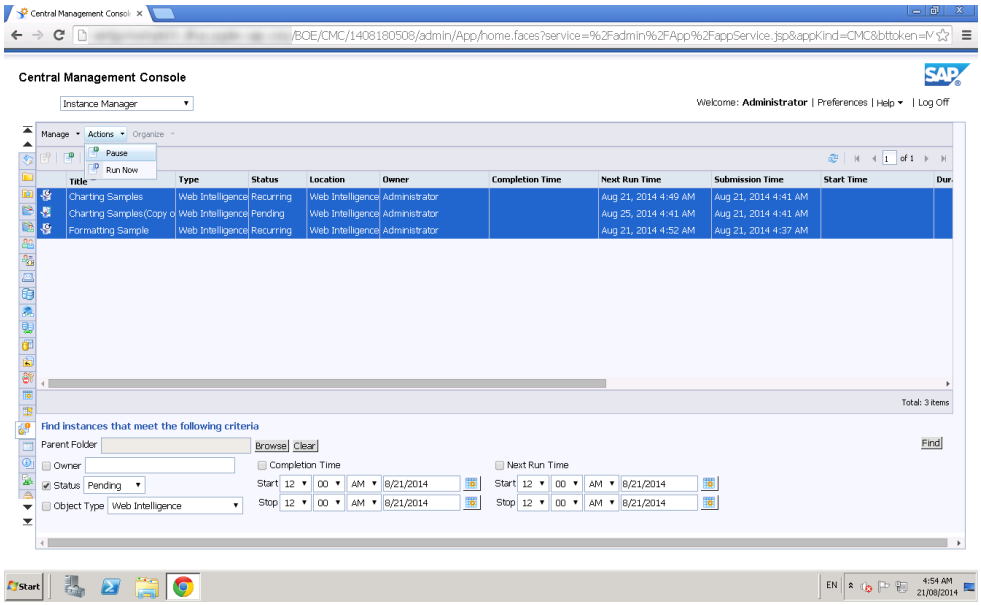
Similarly, do this for any automatic or scheduled updates for software installed on your Windows machine.

## Pausing Scheduled Instances

Before performing the upgrade workflow, we recommend you to pause all the scheduled objects and delete unwanted and failed object instances in source system. Because, recurring schedule instances can interfere with the system tasks and can increase overhead on the CMS.

Following are the steps to pause scheduled instances: Log on to Central Management Console (CMC) as administrator.

1. Log on to Central Management Console (CMC) as Administrator.
2. On the CMC Home, select **Instance Manager** from the drop-down list.
3. Select the **Status** option and select **Pending** to filter all the instances that are either in 'Pending' or 'Recurring' status.
4. Select all the instances and choose **Pause** from the menu bar.



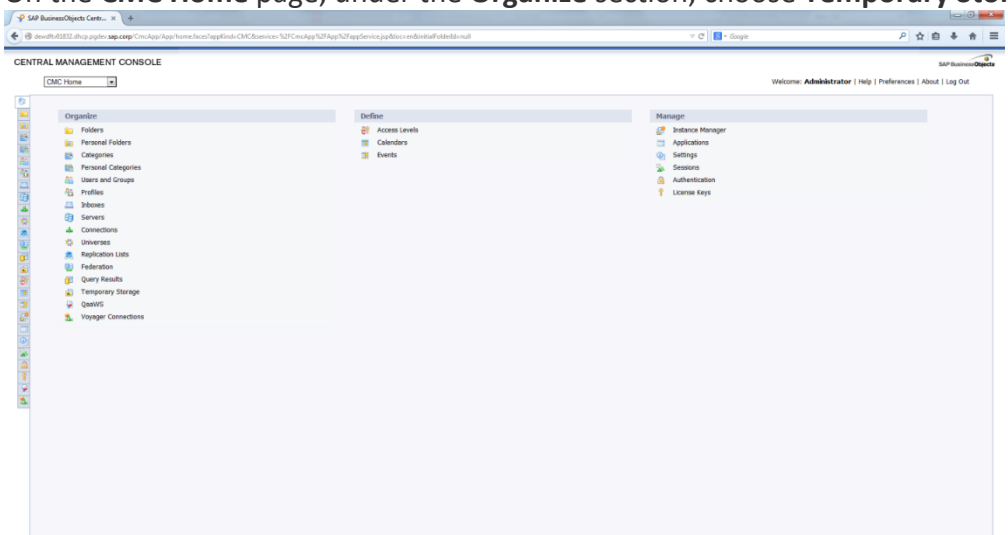

All document schedules will be paused.

5. Similarly, delete all unwanted failed instances.

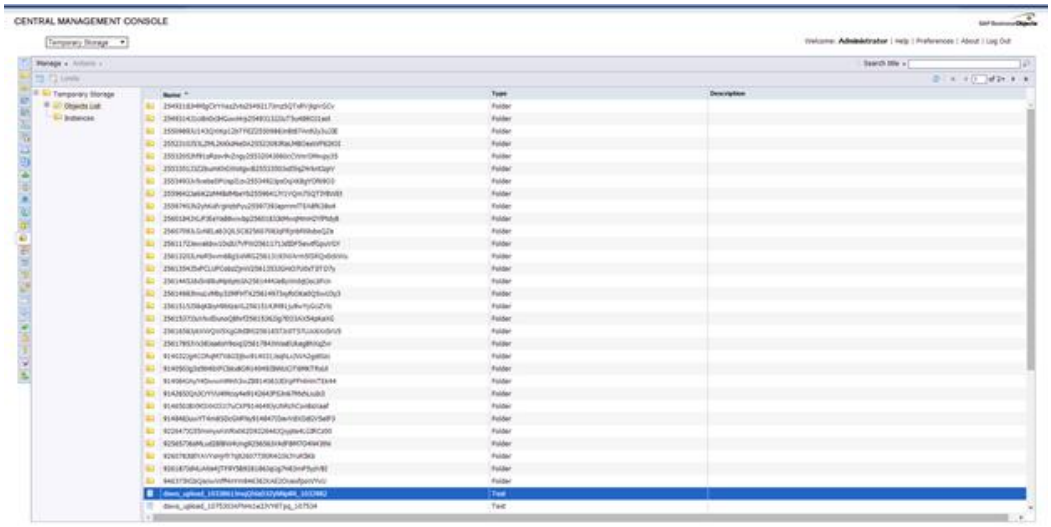
## Clearing CMS Temp Storage

You need to clear the CMC temporary storage in the source system to avoid issues as mentioned in the knowledge base article - [1889161 - UMT fails with a timeout during receive and Corba connect errors while retrieving users and objects.]

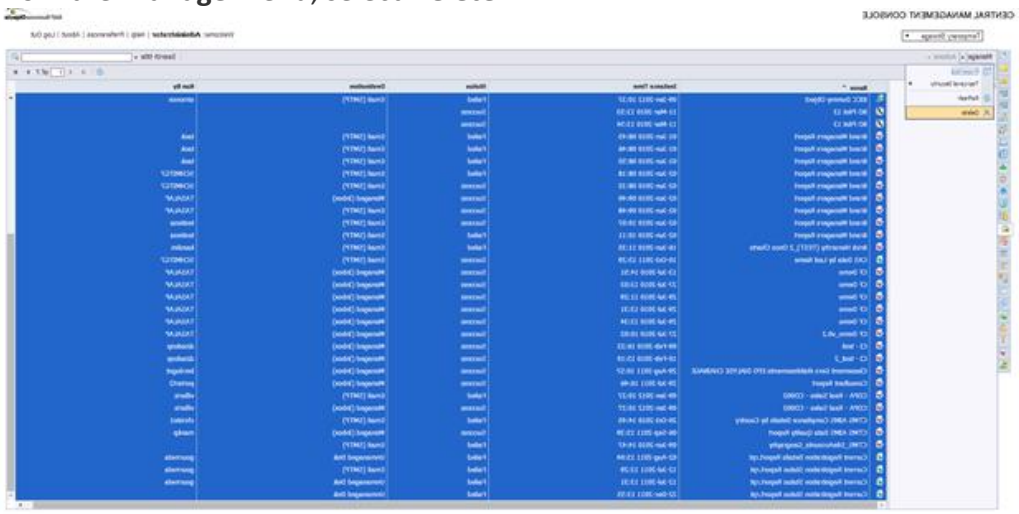
1. Log on to CMC as Administrator.
2. On the **CMC Home** page, under the **Organize** section, choose **Temporary Storage**.




3. Select all the content.




4. From the **Manage** menu, select **Delete**.



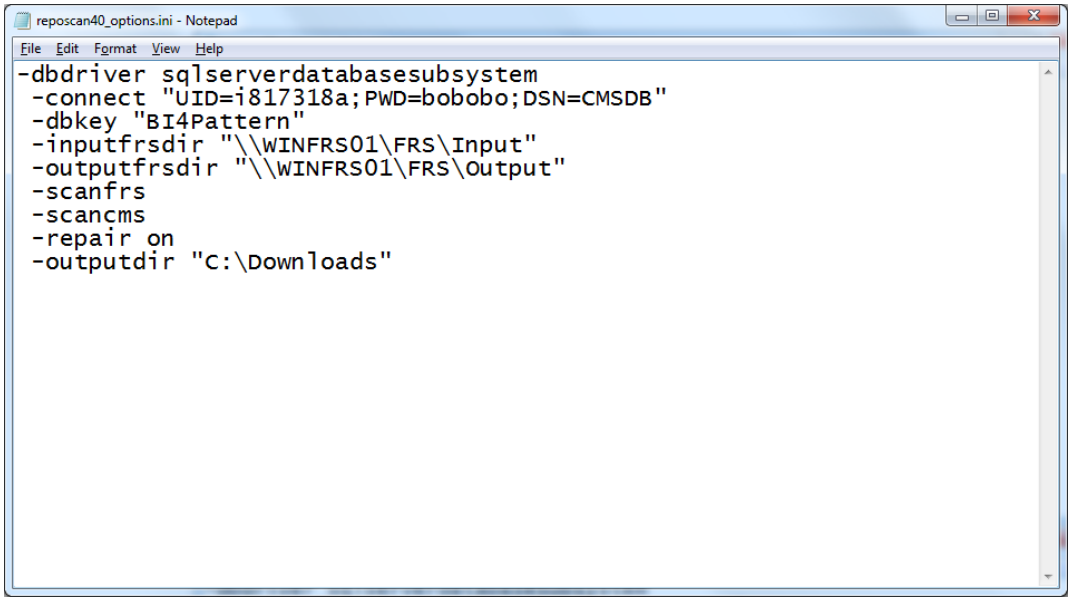
## Running RepoScan

We strongly recommend that you run RepoScan tool in order to identify object inconsistency and make sure the repositories (CMS and FRS) are in complete sync.

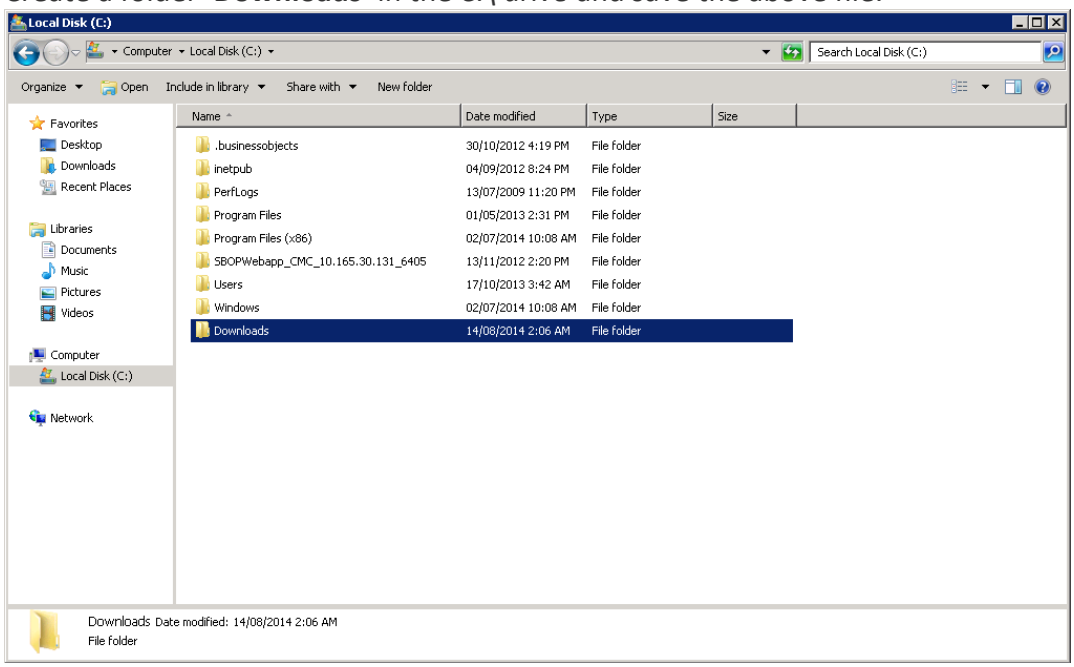
Run RepoScan with -repair option. For more information on how to use RDT, see the [Repository Diagnostic Tool guide](#).

We recommend that you read the following reference KBA article for information on how to run RDT: [1689163 - How to use the Repository Diagnostic Tool (aka reposcan) in BI 4.0 - for WINDOWS](#)

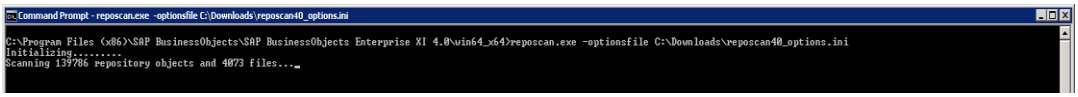
1. Go to the target CMS system and create a .ini file as mentioned in the above KBA. For example, reposcan40_options.ini.

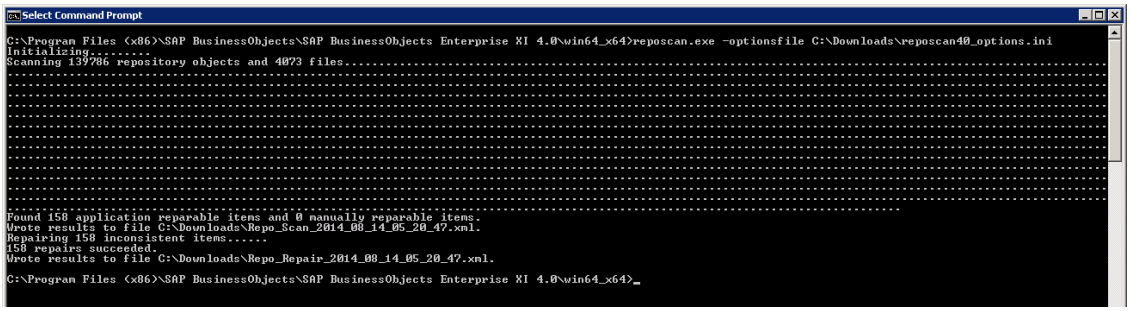



2. Create a folder '**Downloads**' in the *C:\ drive* and save the above file.




3. Open the command prompt and navigate to *C:\Program Files <x86>\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64_x64*.
4. Run *reposcan.exe* by using the configuration file as shown below:






The following xml files are generated at *C:\Downloads*:

- *Repo_Repair_YYYY_MM_DD_hh_mm_ss.xml*
- *Repo_Scan_YYYY_MM_DD_hh_mm_ss.xml*

5. Refer the xml files for the details of the scan and repair operation (if any).
6. Repeat this on the source CMS system.

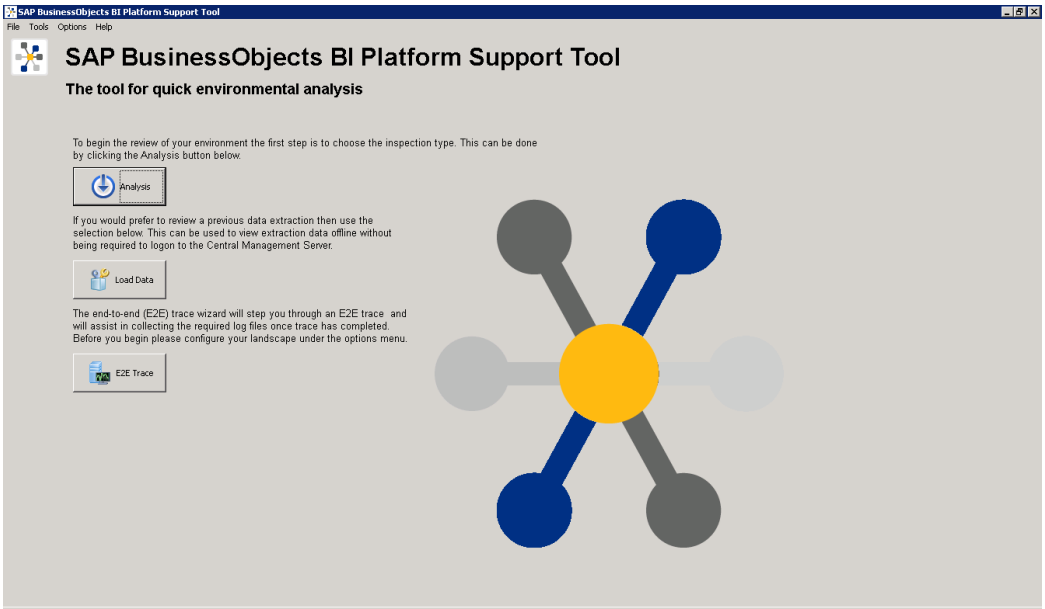
For more information on RepoScan, refer to wiki How to use Repository Diagnostic Tool (reposcan)

## Running Platform Support Tool

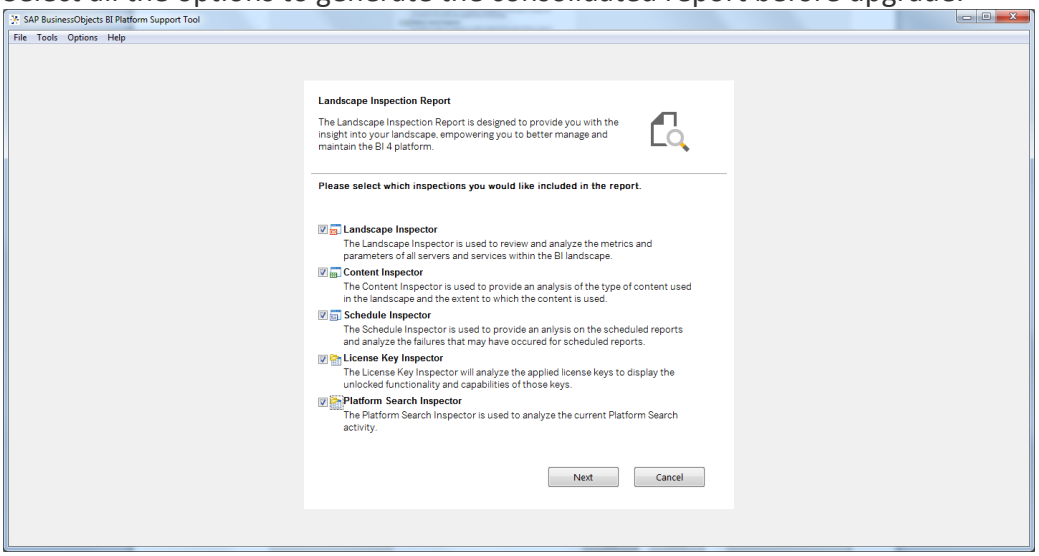
We recommend to run the SAP BusinessObjects BI Platform Support tool on the target system. The BI Platform Support Tool is a new Java based utility. This tool is used by support engineers, consultants, and BI administrators to inspect the BI Enterprise system configurations, perform root cause analysis, and deliver performance optimization and go-live services. .

You need to run the platform support tool to get the report of the existing system landscape of BI 4.2 system before upgrade.

1. Launch the SAP BI platform support tool.
2. Select **Analysis**.

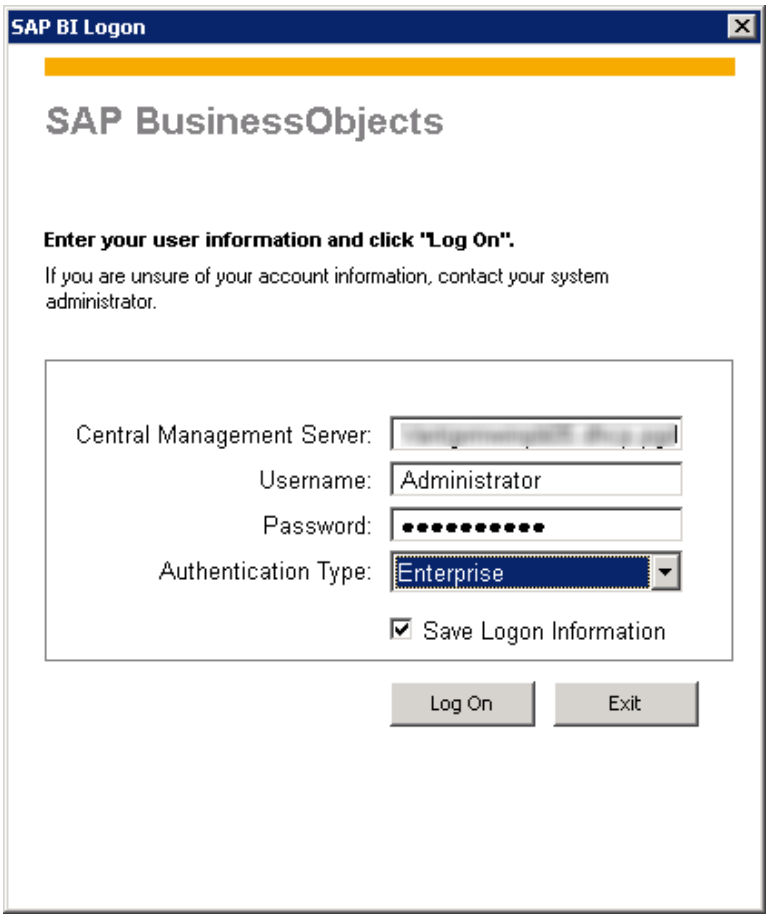



3. Select all the options to generate the consolidated report before upgrade.

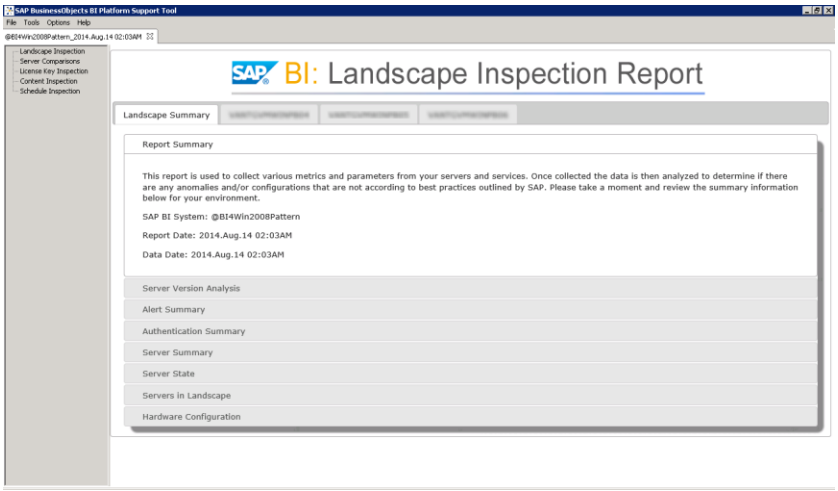



4. Click **Next**.
5. Enter the CMS machine name (for which you want to generate the landscape report), user name, password, and authentication type.

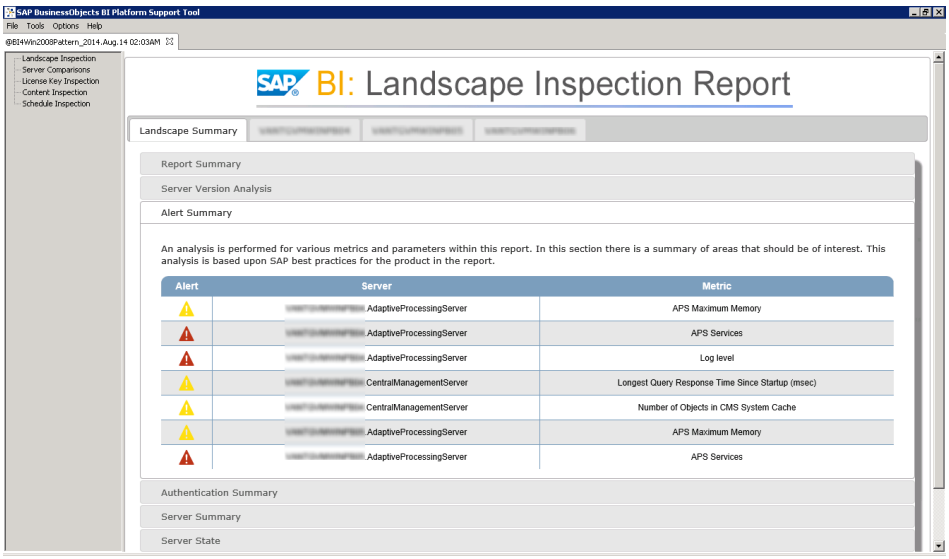
   Cluster name is not accepted here. But, the tool will capture the details for the entire clustered landscape.




6. Click **Log On**.




After authentication, BI landscape inspection report is generated. This report contains landscape, server comparison, license key, content, and schedule inspection details.

7. 

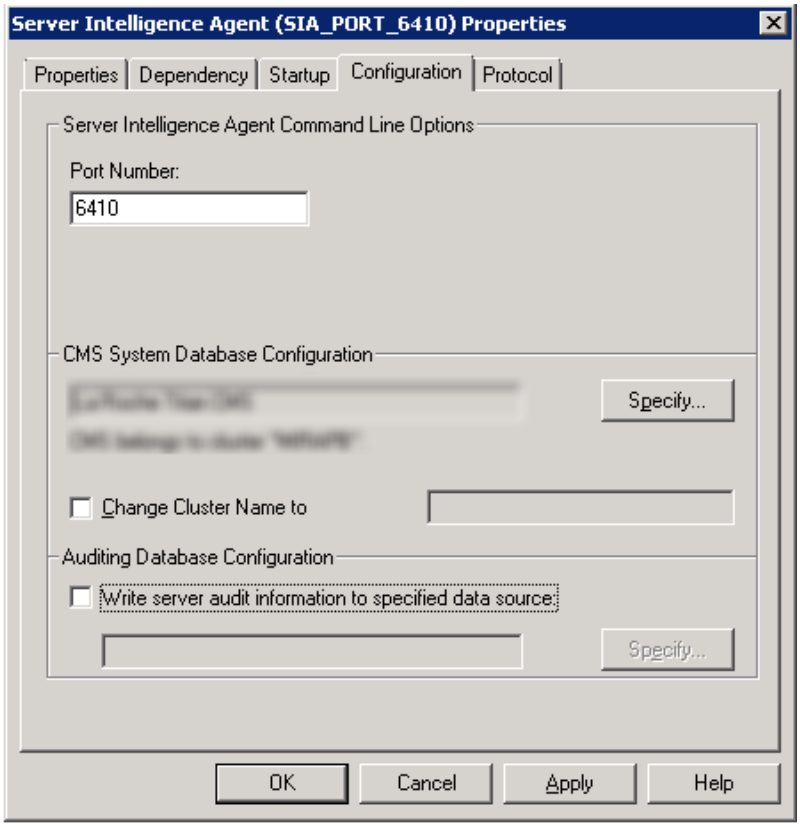

   In this pattern, we have hosted all the APS services on a single SIA, therefore, the metric APS service is showing an alert. For information on how to split APS server using System Configuration Wizard under the section "Restart all SIAs".
8. Check if there are any anomalies in the other areas.
9. From the **File** menu, select **Save Landscape Analysis** to save the inspection report in a folder. For example,*landscape_report_4.0_before_update.zip.*

## Disable auditing on source and target systems

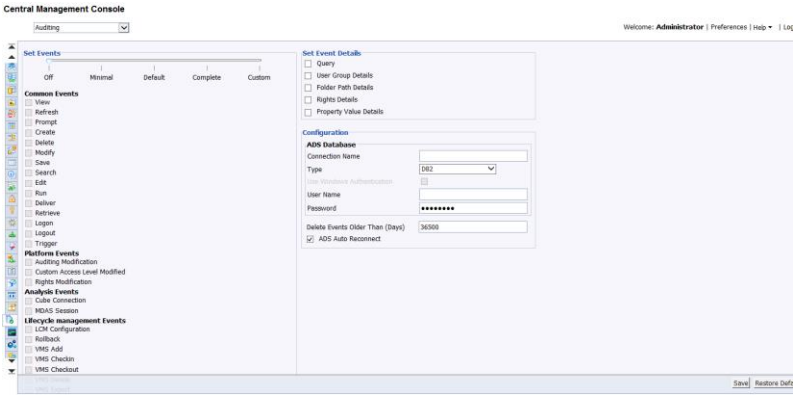
Disable auditing on the source and target systems to prevent logging of events and avoid performance issues.

1. Launch Central Configuration Manager (CCM) on the source system.
2. Stop **SIA**.
3. Right-click **SIA** and choose **Properties**.

4. Under the **Configuration** tab, uncheck **Write server audit information to specified data source**.




5. Log on to target CMC as administrator.
6. On the **CMC Home** page, select **Auditing** from the drop-down list.
7. On the **Auditing** page, turn off auditing by moving the slider.




## Enabling Authentication Types

Following are the steps to Enable Windows AD and SAP authentication types on the source system:

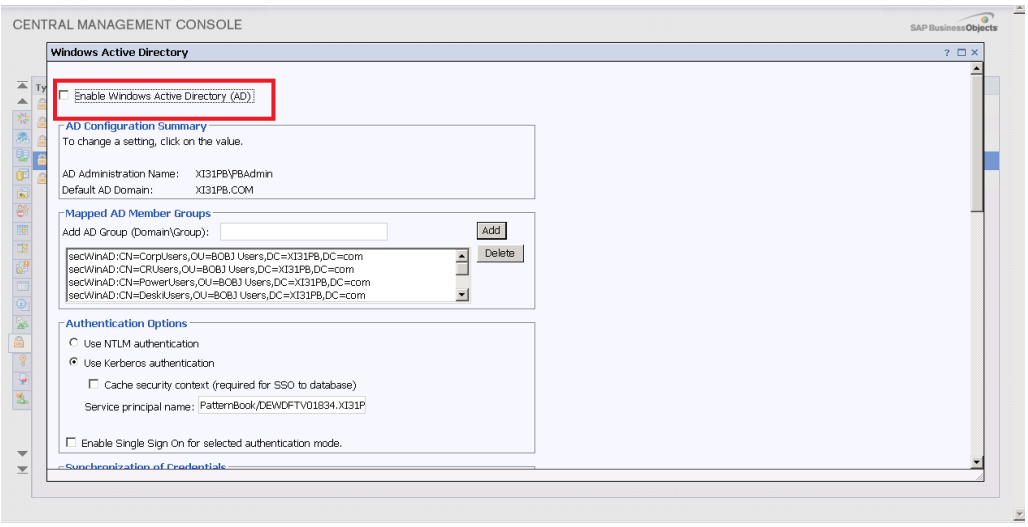
**Note:** Do not Disable Windows AD and SAP authentication types on the source system

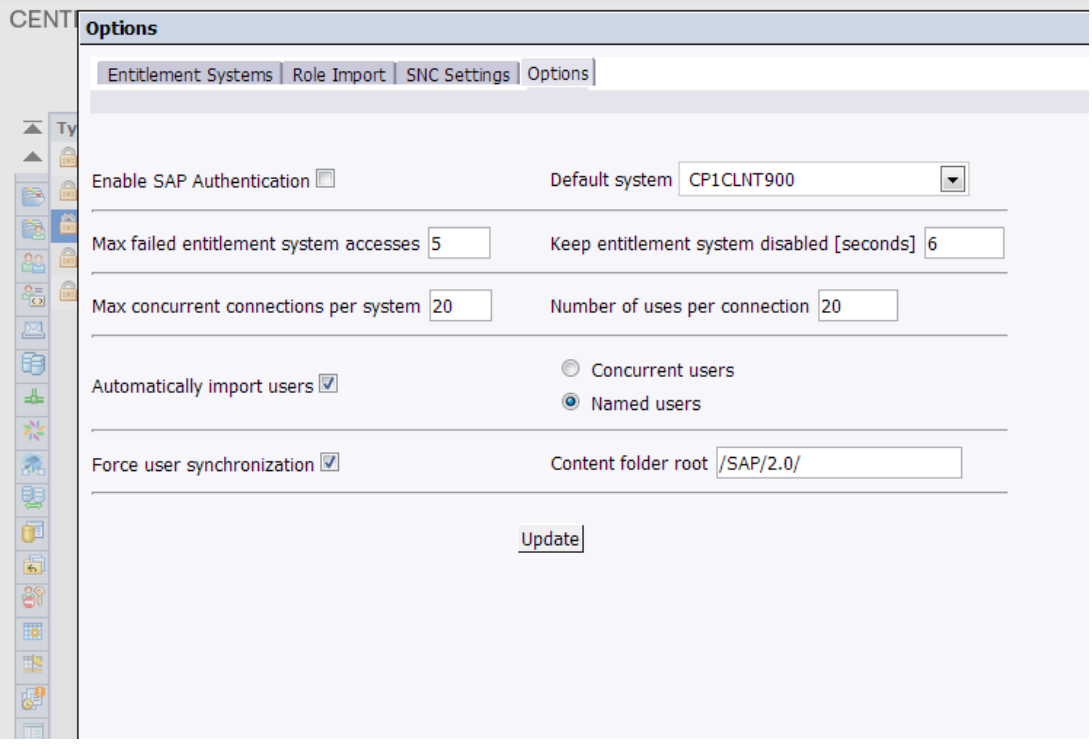
If the target system has access to the SAP system and the Domain controller, then keep the Windows AD option and SAP authentication enabled in the source systemLog on to CMC as administrator.

1. Log on to CMC as administrator.
2. On the **CMC Home** page, select **Authentication** from the drop-down list.
3. Double-click **Windows AD**
4. Check **Enable Windows Active Directory (AD)** option and click **Update.**

**Note:** If you map the AD groups in the Destination system in Mapped AD member Groups and then click on update before running Upgrade Management Tool, this maps all your AD users in Domain controller to target system. Destination system reflects the AD user groups and users in destination. However, the inboxes, personal folders, and dependencies for the respective users will not be reflected. Also, the CUID of the groups and users will be different compared to source and destination systems.  This should be used as a last resort when we know that the AD controller cannot be connected to destination system prior to upgrade.

**Note**: If you enable Windows AD configuration in the source and forget to enable Windows AD configuration in destination, then during the upgrade process, the user groups and the users will be selected. And, Upgrade management Tool will not give any error during the upgrade. However, on completion, in Mapped User Groups under 'AD authentication' tab in destination system, you will be able to see the user groups. But, the users will not be listed in the users list.



5. 

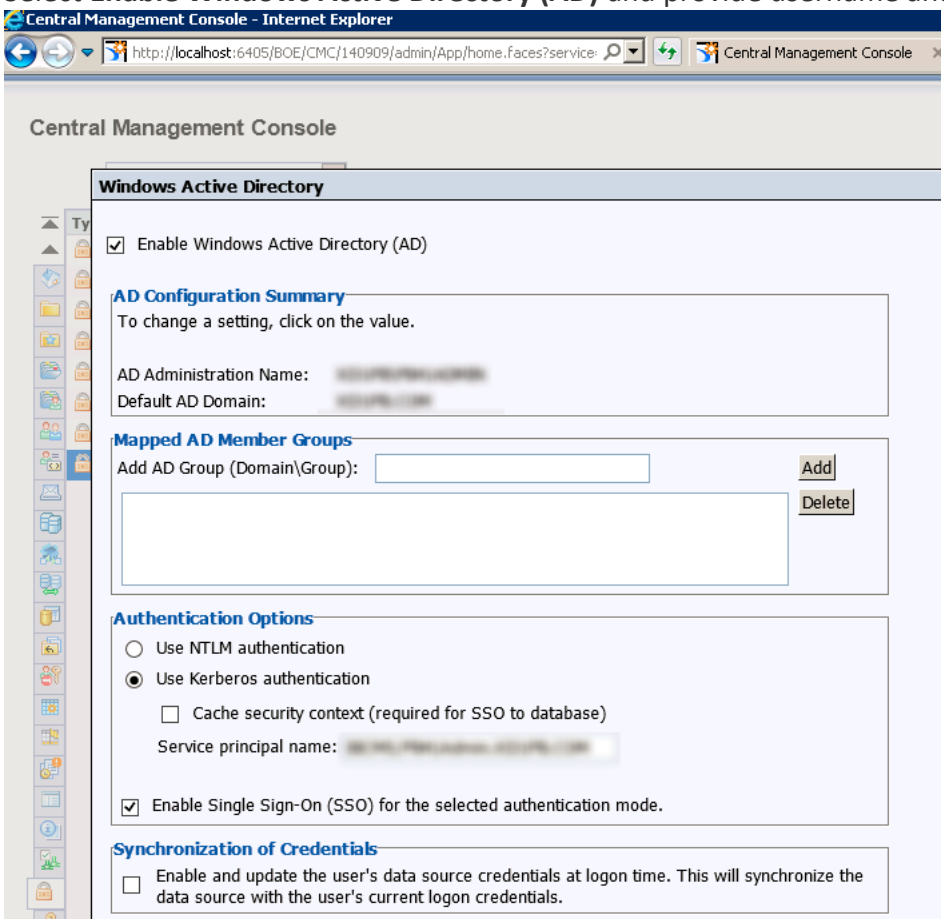

6. Check **Enable SAP Authentication** option and click **Update.**

## EnablingWindows AD and SAP authentication types on the target system

Enabling Windows AD and SAP authentication types on the target system is a mandatory step prior to the upgrade process, if the users want to bring in third party users from the source system. This should be performed in the destination system.

1. Log on to CMC as administrator.
2. On the **CMC Home** page, select **Authentication** from the drop-down list.
3. Double-click **Windows AD.**

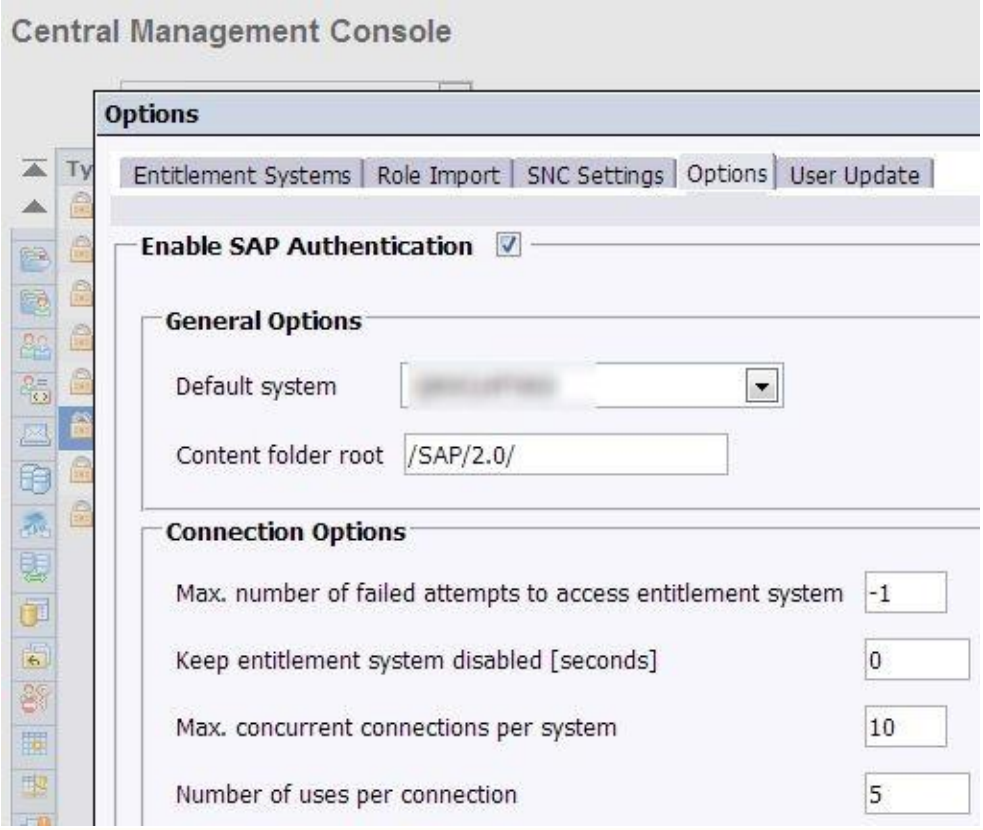
4. Select **Enable Windows Active Directory (AD)** and provide username and password.




5. Click **Update.**

   **Note**: Do not add any Windows AD domain groups as they will be added during upgrade.

6. Double-click **SAP** and choose the **Options** tab**.**
7. Select **Enable SAP Authentication.**




**Note**: Do not import any roles at this point in time. The roles will be added during the upgrade.

## Stopping BI Platform Servers

### Source system:

Only servers such as the CMS, Input & Output file repository servers (FRS) are required to be up & running. Preferably, stop all other servers to avoid any system overhead and unwanted server activity during upgrade.

In a clustered or Distributed environment, run only one CMS server, one Input FRS & one Output FRS servers of the same SIA; with the rest of the servers and SIA nodes stopped..

### Target system:

Servers to be up and running:

- Central Management Server
- Input & Output File Repository Servers

- Connection server (for dashboards)
- Adaptive Processing Server hosting the Multi-Dimensional analysis service (MDAS) and
- Crystal Report Application Server (for Crystal Reports) with rest of the servers stopped.

In a Clustered or Distributed environment, run only one set of the above said servers of the same SIA and rest of the servers, SIA nodes stopped.

## Creating Data Source Connections

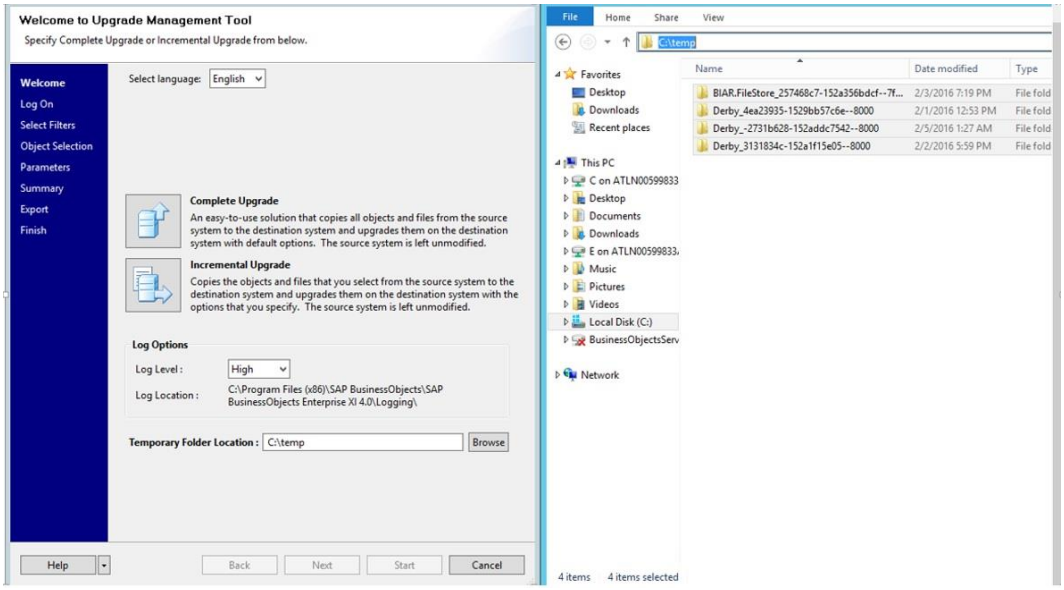
### Creating OLAP connections on the target system

Voyager workspaces are upgraded by the Upgrade Management Tool. However, you need to perform certain tasks before and after running the Upgrade Management Tool to upgrade workspaces.

- You can only upgrade Voyager workspaces from SAP Business Objects Enterprise XI 3.1 or later to SAP Business Objects BI 4.2
- Connection prompts are not supported during conversion. You need to change the connection to either SSO or pre-defined in the source system. After the upgrade, you can change the connection to prompt in the target system.
- OLAP connections must be recreated in BI 4.2 before running the Upgrade Management Tool. The new connection name must be identical to the SAP Business Objects Enterprise XI 3.1 OLAP connection. Otherwise, the Voyager workspace will not be upgraded.
- For Voyager of SAP BW, mandatory variables without default values will fail. To avoid this, modify the query in the Query Designer to specify a default value prior to upgrade. After the upgrade, you can set it back to the original value.

## New features in UMT SAP BusinessObjects BI 4.2:

- In BI 4.2 we have a couple of new features that can be preset before the migration.
- We can select the log level to low, medium and high from the drop down menu.
- High will capture all the errors, warning and failures during the process.
- We also have the feature to set the temp space to our desired directory. Here it is set to C:\temp.
- Once the temp is set, you will receive a prompt to re-launch the UMT tool. This is by design.
- The temp space will contain all the entries of Derby Database as shown in the screenshot. On successful completion of migration to BI 4.2 they can be removed.




# Upgrade Workflow: Upgrading from BOE XI 3.1 to SAP BusinessObjects BI 4.2

The following is the quick summary of the number of iterations and their scope (what's actually included in that iteration to migrate from source BOE XI 3.1 to target BI 4.2);

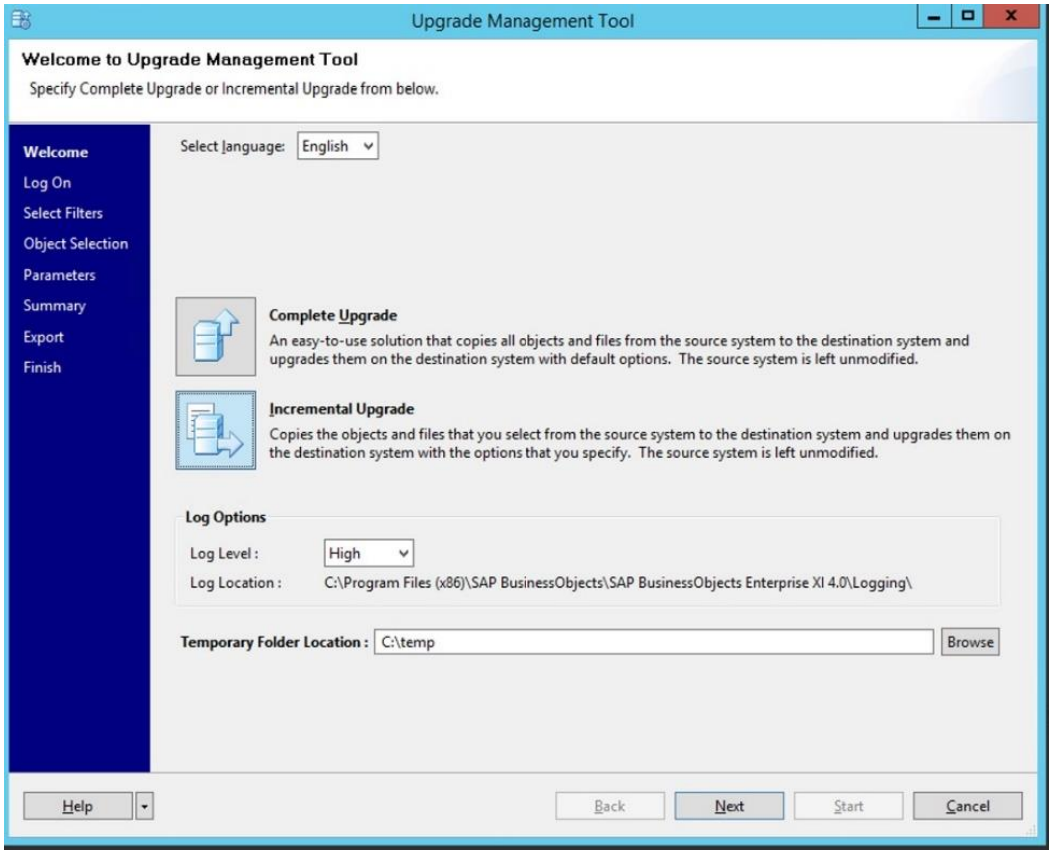
| Iteration | Scope |
|---|---|
| Iteration #1 | In this iteration, the following objects were migrated with their dependencies;<br>• User groups<br>• Access Levels<br>• Applications<br>The same approach can be used for all user groups, all access levels in a single iteration however this can be time consuming based on the number of objects etc. Therefore it's recommended to decide on the number of iterations based on your repository objects. |
| Iteration #2 | The following objects were considered for upgrade with dependencies. You can select these objects for migration in the Object selection screen:<br>• Folders and Objects<br>• Repository Objects |

| | |
|---|---|
| | • Universes<br>For this pattern book, we have done the migration in a single iteration. However, depending upon the number of objects, this iteration can be time consuming. Therefore it's recommended to decide on the number of iterations based on your repository objects. |
| Iteration #3 | In the initial "Select Filter" screen, the time filter was set according to the requirement. In our pattern book, we are selecting the start date as 02/01/2016 and the end date as 02/05/2016. So only the following objects will be listed and migrated;<br>• Universe – Universe modified between the start date and end date mentioned in the select filter<br>• Web Intelligence Reports – Reports modified between the start date and end date mentioned in the select filter |
| Iteration #4 | The following objects were considered for upgrade with dependencies. These are the objects selected for migration in the Object selection screen:<br>• Applications<br>• Calendars<br>• Corporate Categories<br>• Profiles<br>• Remote Connections and Replication Jobs<br>• Repository Objects<br>• Universes<br>In this iteration, all the content dependencies (related to all the documents) were set to be upgraded first. However, this can also be done in increments.<br>Note that any objects that have already been migrated will not be listed in the object selection screen again in this iteration as we are using the feature "Hide objects which are already upgraded" from the selection filter screen. |
| Iteration #5 | The following objects were selected for upgrade with dependencies;<br>• Public folders and their objects, except those objects that were upgraded in iteration 2<br>• QaaWS objects<br>• Events<br>• Mobile Subscriptions<br>• Object dependencies will be listed in UMT but will be unselected later<br>For this pattern book, we have done the migration in a single iteration. However, depending upon the number of objects, this iteration can be time consuming. Therefore it's recommended to decide on the number of iterations based on your repository size and number of objects. |

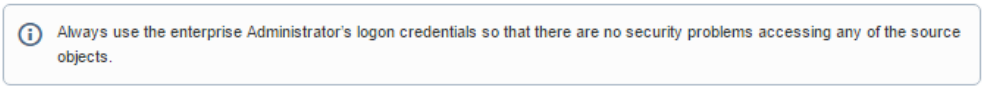
## Iteration 1

In Iteration 1, we are performing an incremental upgrade and bringing in a subset of AD and enterprise and SAP users along with their custom access level aligned for the applications.

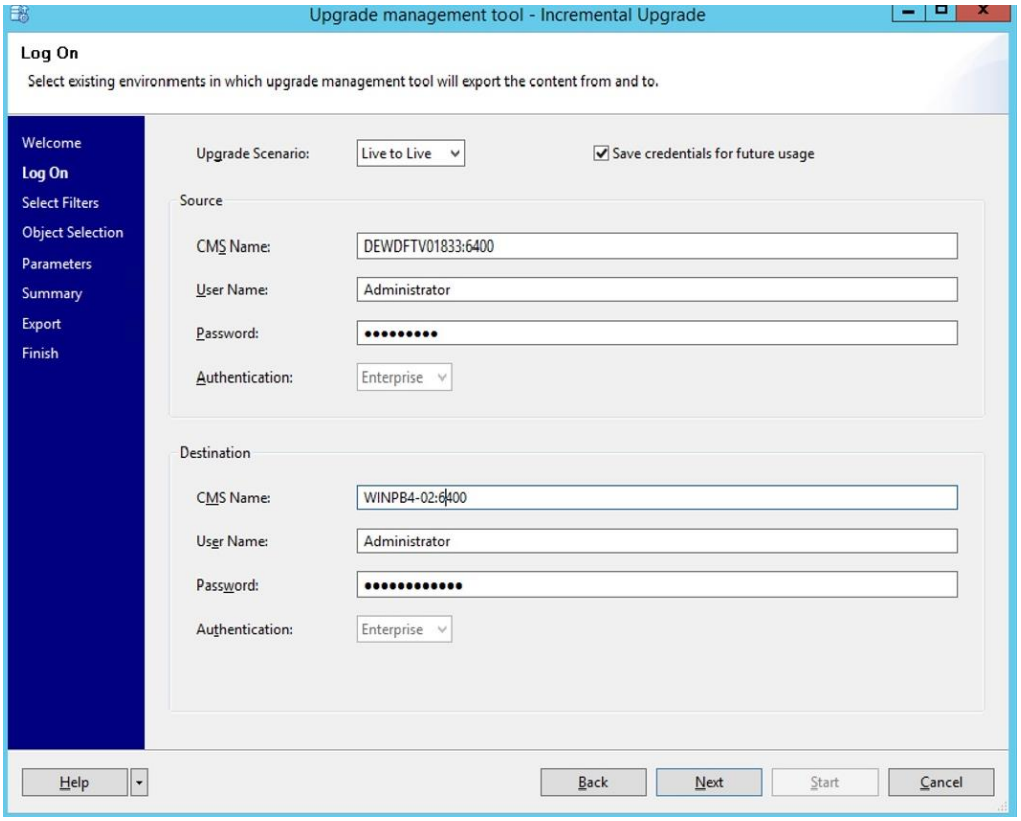
1. Select the desired language. For our scenario, we have selected “English”.
2. Select “Incremental Upgrade”.
3. Select the Log Level “High”.
   The log would be located at <INSTALl_DIR>\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\Logging. You can have a look at the log files if you face any issues or to check the completeness of the migration.
4. Set the temporary folder location according to the user preference. For this scenario, we have selected the destination as “C:\Temp”.
5. Choose **Next**.



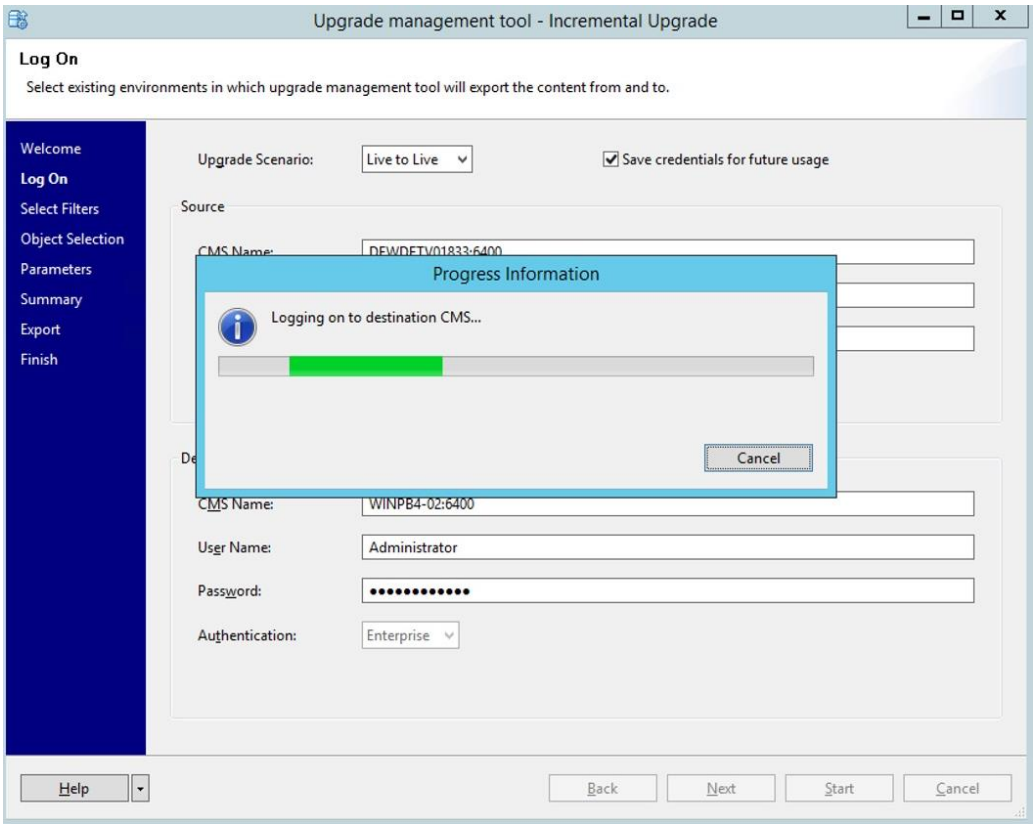

6. From the **Upgrade Scenario** drop-down list, select **Live to Live**



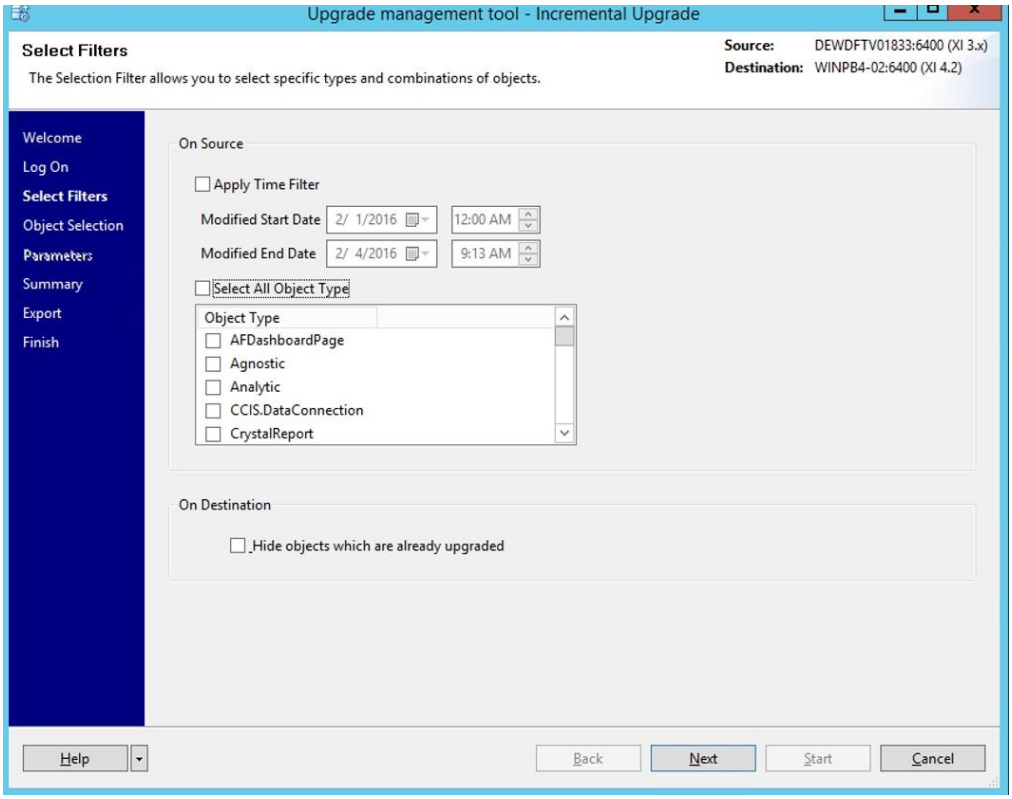
7. Choose the “Save Credentials for future usage” check box to store your CMS and User Name details.
   **Note**: The password will not be stored for next usage as it is a breach of security.
8. Choose “Next**”.**



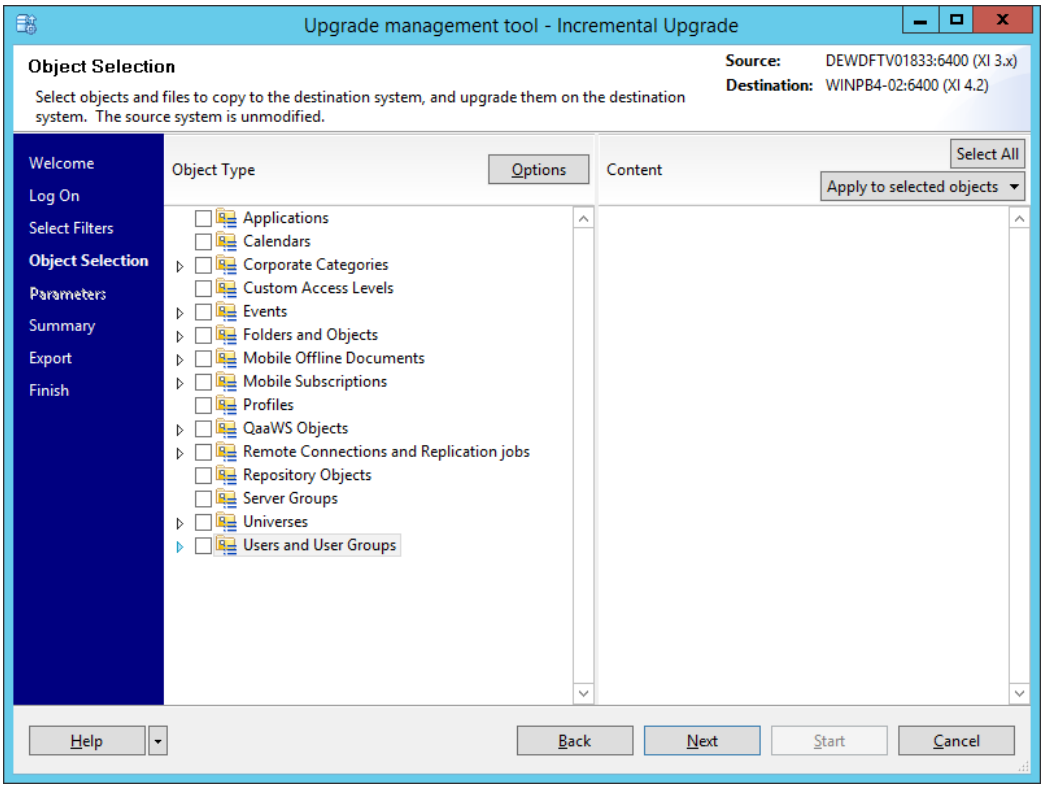

9. If the credentials are correct, user will be logged in to the Source and Destination CMS. If the credentials/system information is not correct, an error message would pop asking the user to provide appropriate details.




10. DO NOT check any options while migrating the user groups. Ensure that everything is left as it is and choose 'Next'.



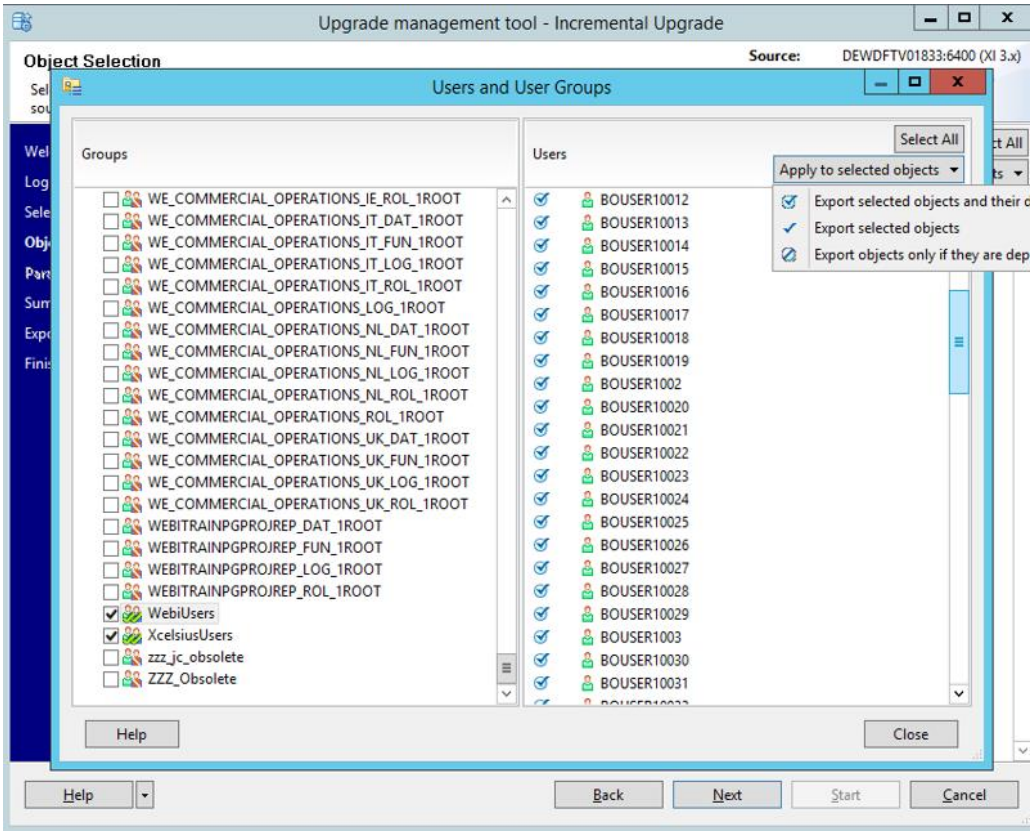

11. Choose ‘Users and User Groups’ and choose Collapse or expand icon.



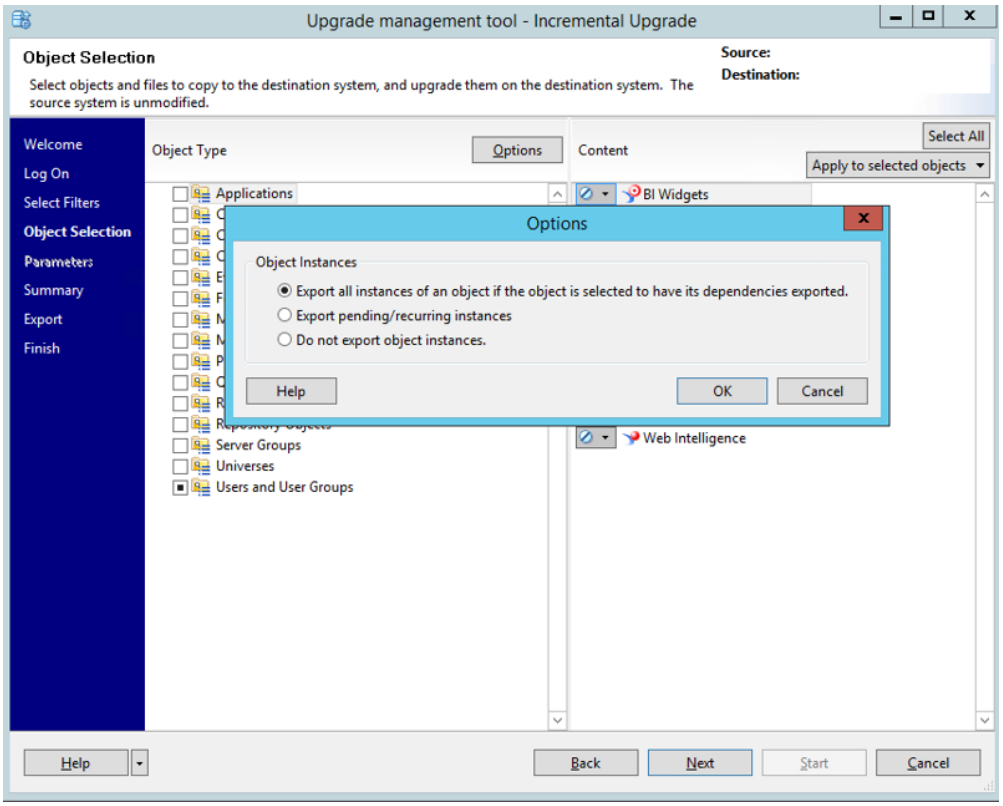

12. Select the “WebiUsers” group that contain the AD users.

    **Note:** When you select AD user group on the left hand side of the panel, the corresponding users would get displayed on the right hand pane only if Windows AD Authentication is enabled in the source system. SAP recommends to have Windows AD enabled in the source and target system while migrating from 3.x to 4.x.

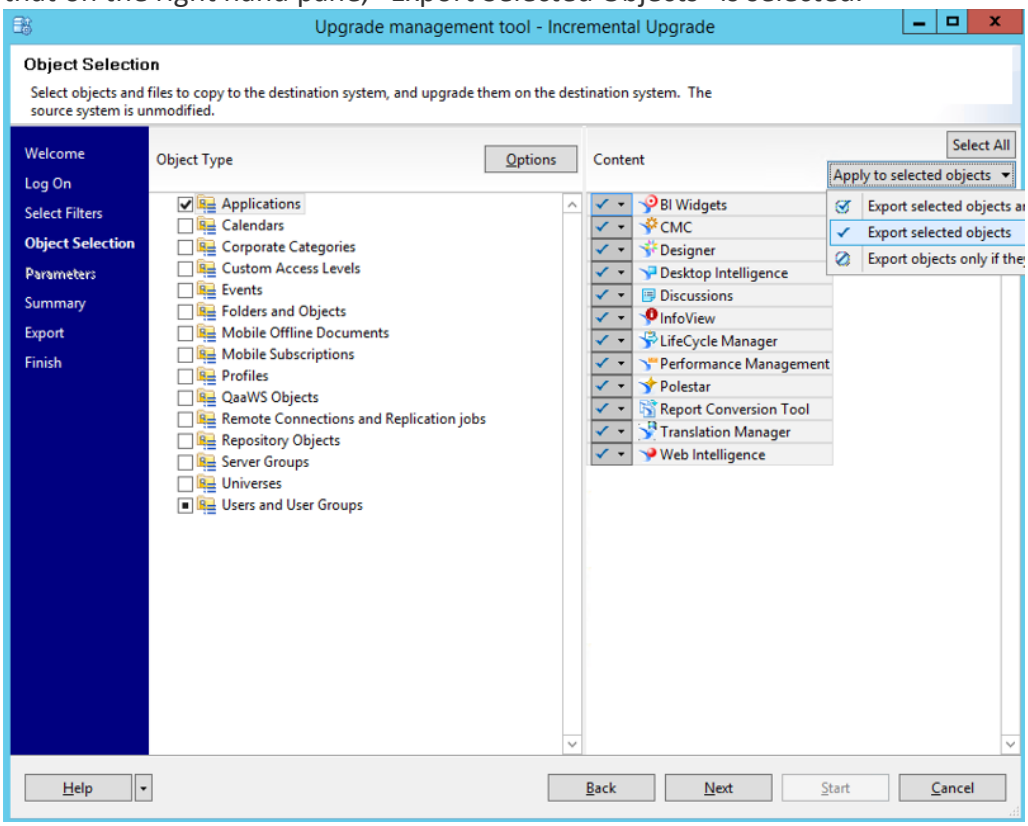
    If AD user group is selected on the left hand side by default, the AD users on the right hand pane will be selected with “Export objects and its dependencies”. User will not be able to change this, as this is by design and can only be changed if the corresponding AD user has an Enterprise user alias.



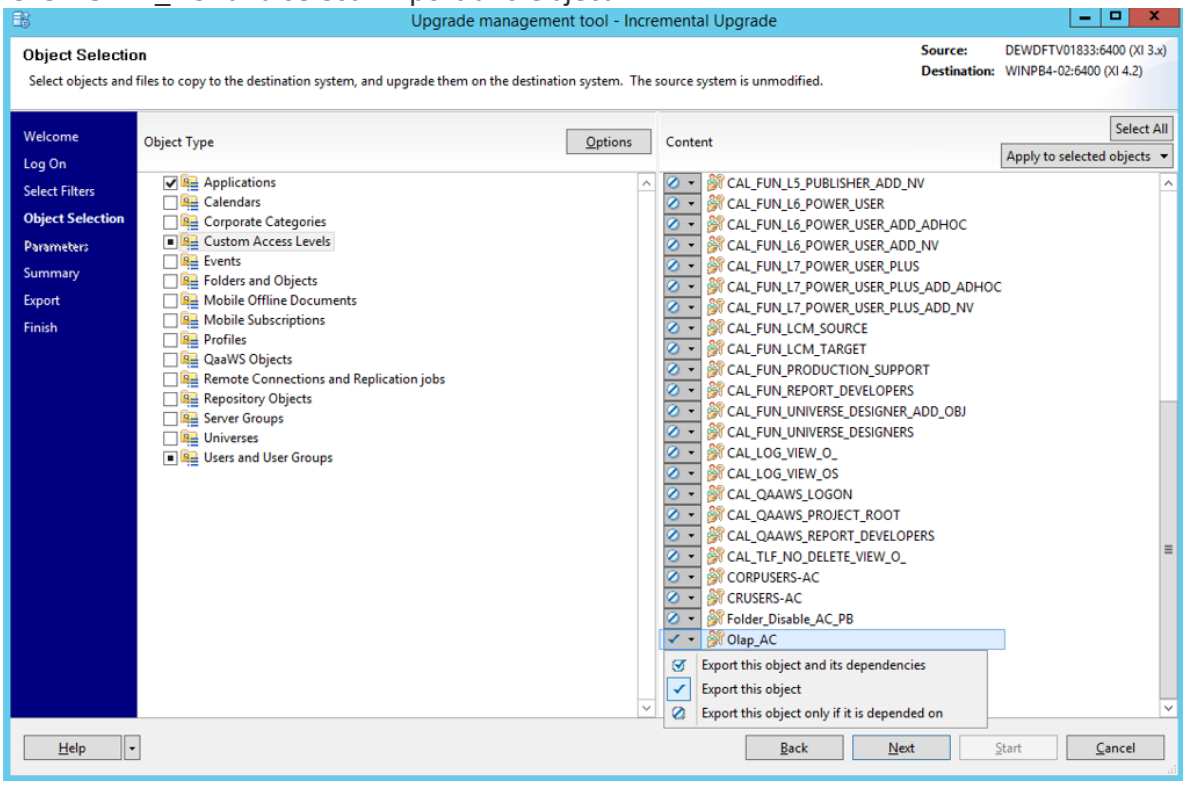

13. Here we are selecting 2 more groups. OlapUsers and Xcelsius. Users which contain both AD and Enterprise Users and SAP users.
14. Choose Options.
15. Retain the default options shown, as you are migrating for the first time.



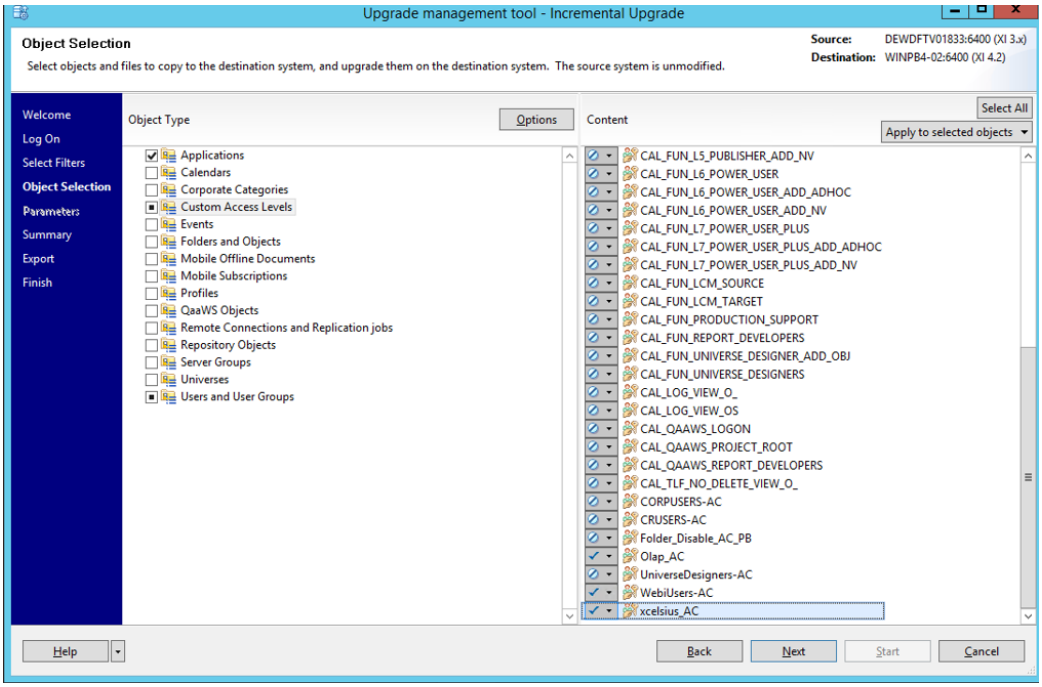

16. Here we have selected “Applications”. On the right hand side, choose ’Select All’. Ensure that on the right hand pane, “Export Selected Objects” is selected.



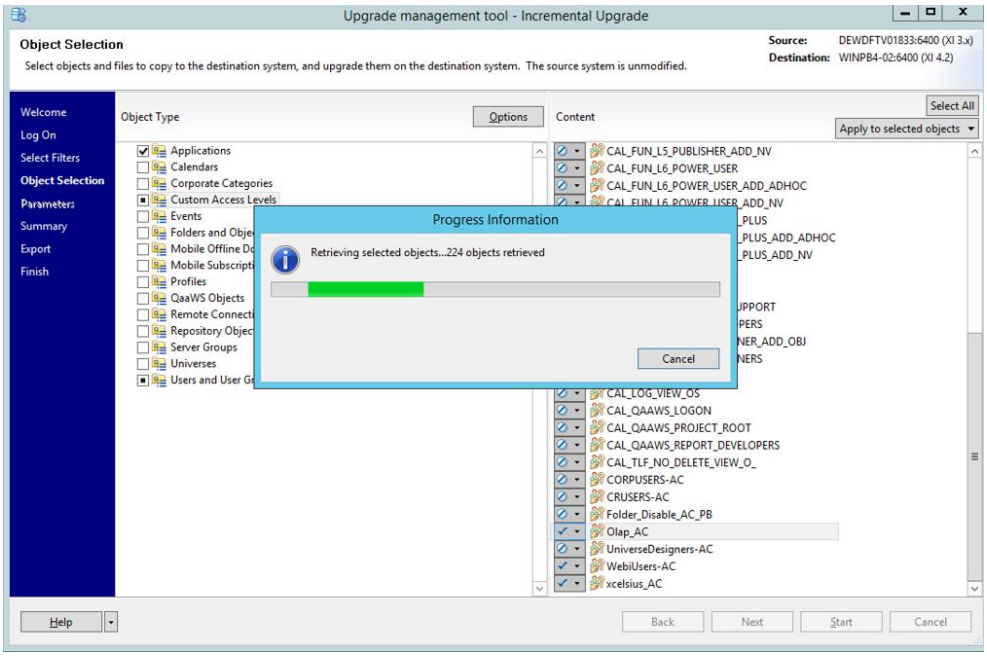
17. Select “Custom Access Level”. Here, we have selected the Custom Access Level that has been assigned to the user group.
18. The custom access level for “Olap” User Group is “Olap_AC”. Select the custom access level “OLAP_AC” and select “Export this Object”.




19. In a similar pattern to the above, the Custom Access level for “Xcelsius” User Group is “Xcelsius_AC” and for “WebI“  User group is “WebIUsers-AC”.Ensure that “Xcelsius_AC” and “WebIUsers-ACi” are selected and click on “Export this Object”.



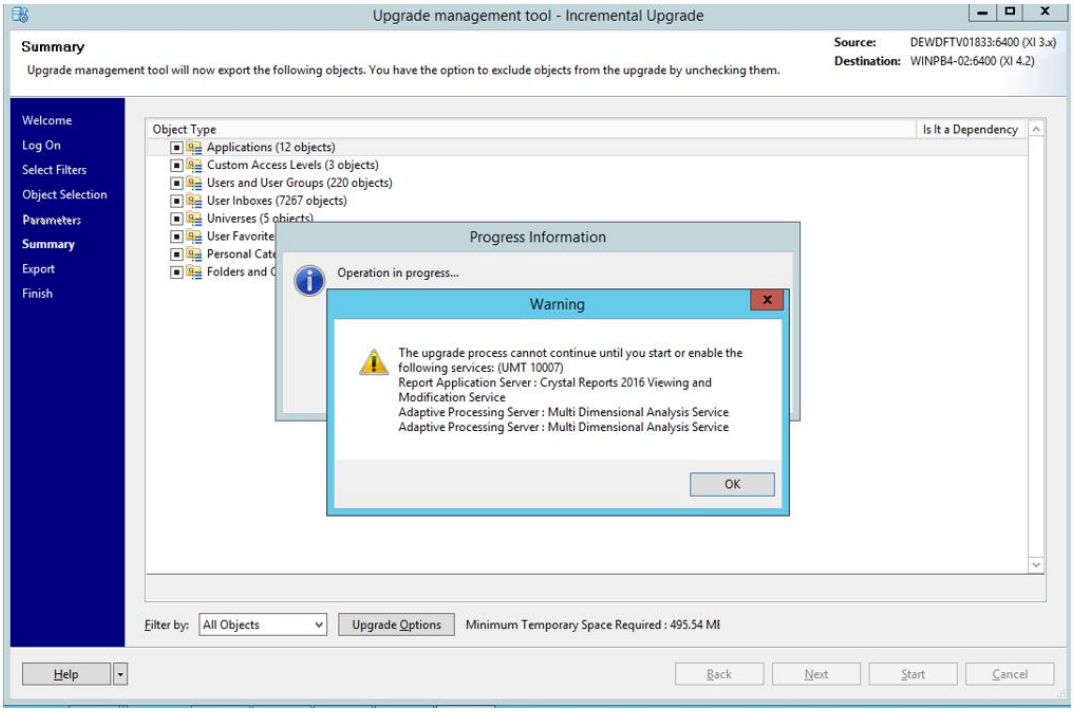

20. Once the respective User Group, Applications, and the Custom Access levels are selected, choose Next. The object retrieval screen pops up successfully, indicating how many objects are being retrieved.




In the below screen, since Crystal reports and OLAP intelligence reports are being upgraded, a warning message will be presented asking you to confirm if the Adaptive

Processing server (APS) hosting the multi-dimensional analysis service (MDAS); and Crystal Reports 2016 Report Application server hosting 'Crystal Reports 2016 Viewing and modification service' are running and enabled on the target system.

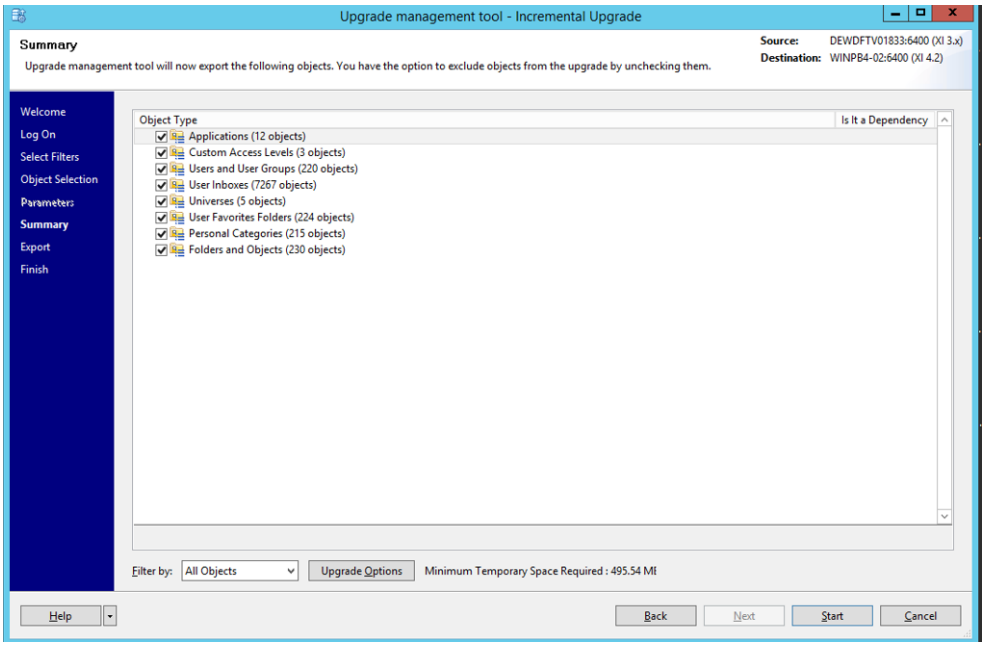
Ignore this if the servers are already enabled in the target system. Otherwise, the servers need to be started (before proceeding with UMT next step) for successful migration of the above mentioned reports..

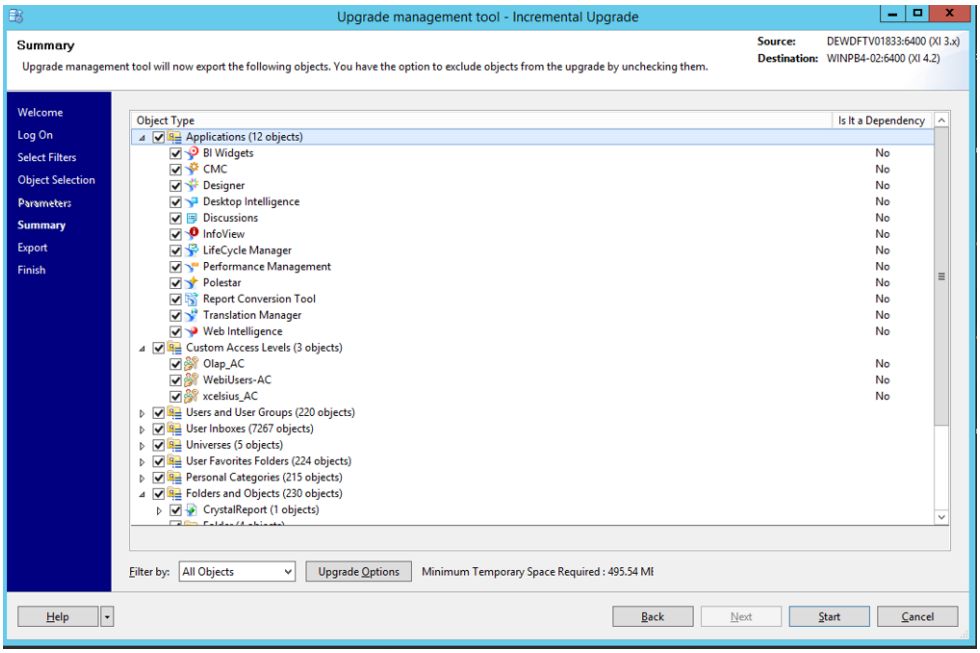



21. Choose OK. Refer to the Known Issues and Challenges section on how to rectify this issue.

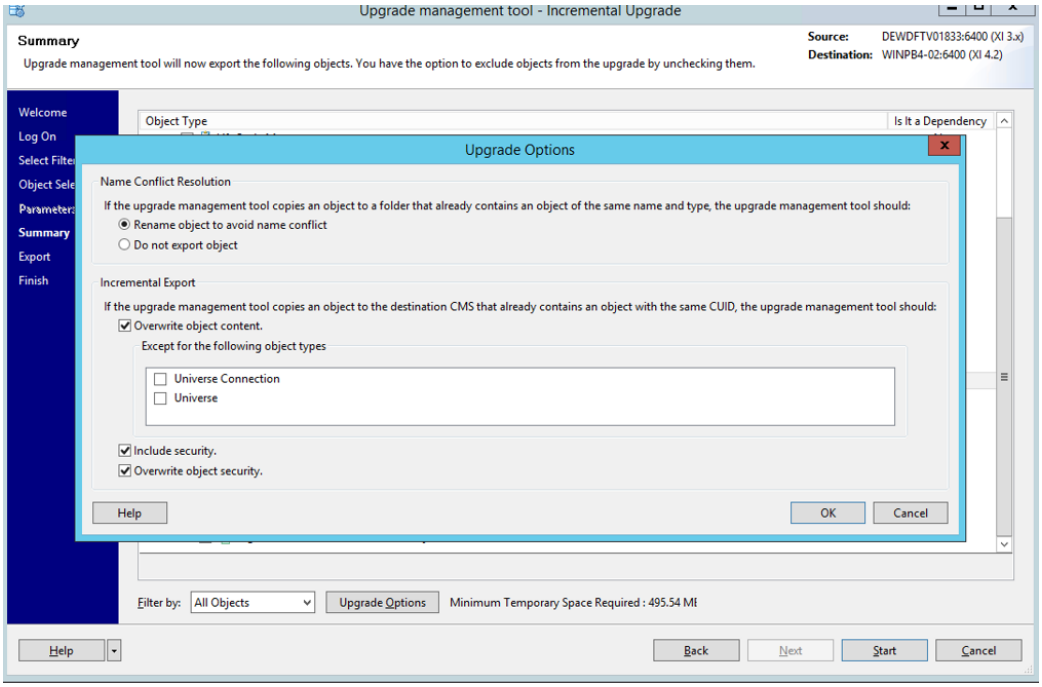
    The reason why we see User Inboxes, Universes, User Favorites, Personal Categories and Folders and Objects even though we have not selected them for migration because they are a part of dependency of the users and groups. All the dependency of the Users and Groups whom we had selected would appear here.

    Users can also manually de-select the objects based on the criteria or requirement. However, it is recommended to bring in all the dependencies.



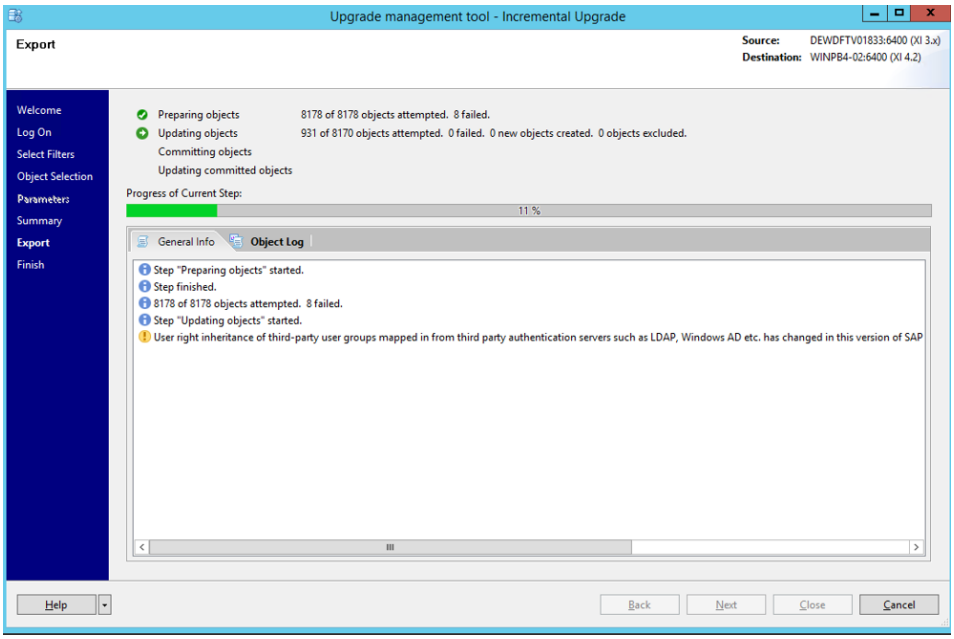




22. Choose **Upgrade Options**.
23. We will go with the default values as we are migrating for the first tim
24. Choose **OK**.
25. Choose **Start**.



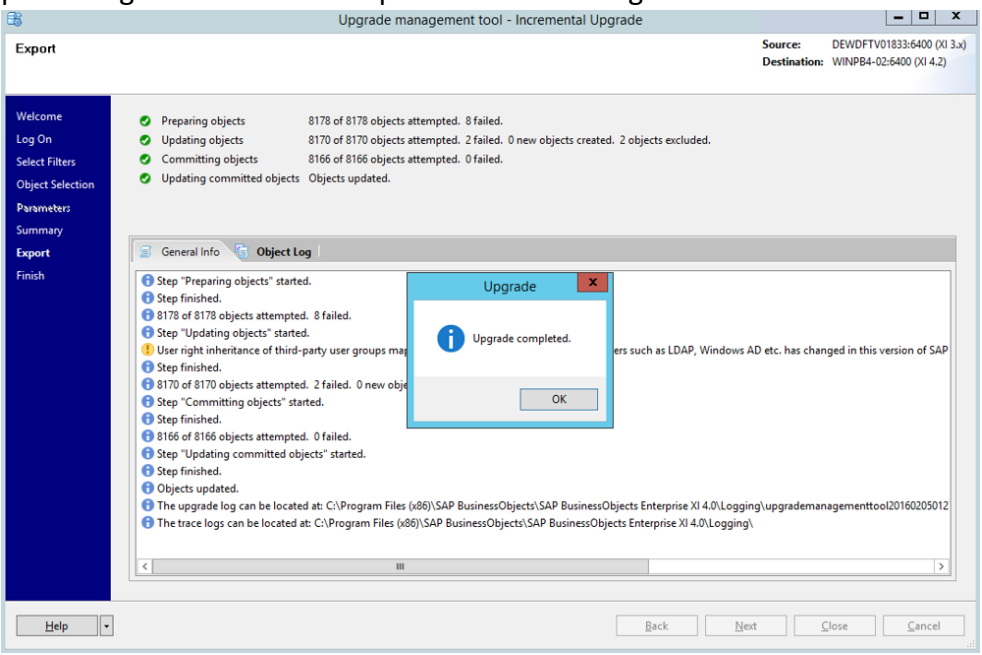

You will see a progress bar after choosing “Start”.

The performance or time taken for the migration would depend on the memory and the UMT Tuning. Refer to Upgrade pre-requisite section to know more about the tuning of Upgrade Management Tool for better performance.



Once the upgrade is successful, you see the “Upgrade Completed” pop-up message along with the number of objects that have failed (if any) and the reason behind failure of those objects.

You can also find the logging file, as mentioned before, to check for any information pertaining to an issue or completeness of the migration.




The errors and warnings have been discussed in the known issues and challenges section. Refer he known issues and challenges section for more details on the error and how to resolve the same.

The same workflow can be followed if you want to bring in all the user groups along with all the custom access levels along with all applications and dependencies. However, it is recommended to bring in incremental basis with a smaller subset and also to run RepoScan in the source system and check for any inconsistency between the source CMS and FRS. If there are any inconsistencies, it can be repaired using RepoScan repair command line arguments.

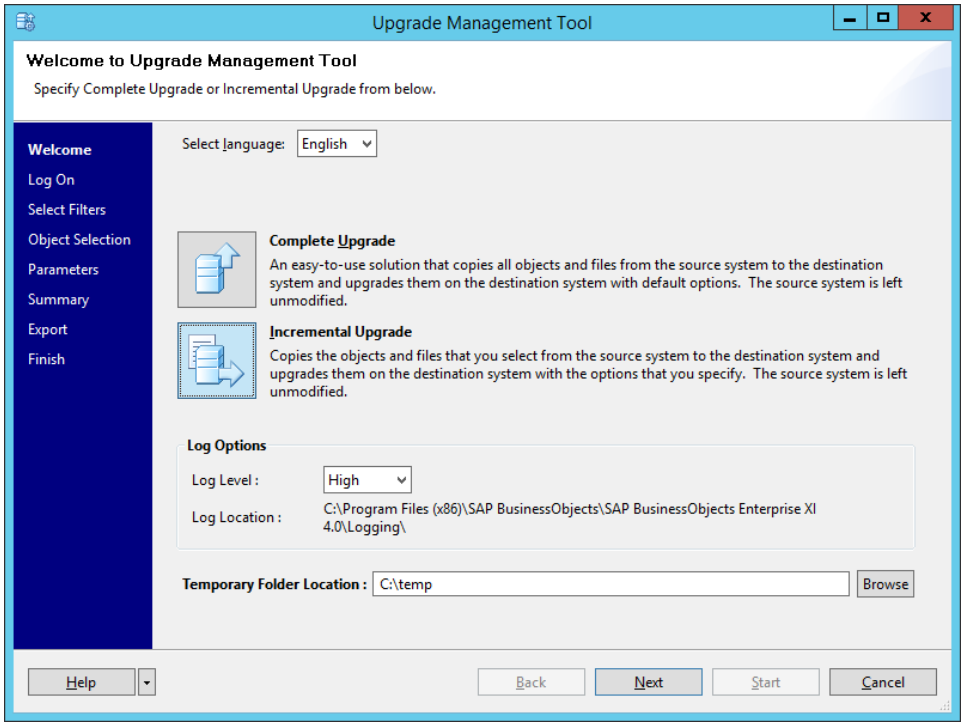
Refer the ‘Upgrade pre-requisite’ section for more details on RepoScan. Also, check the pre-requisite for AD and other third-party authentication.

## Iteration 2

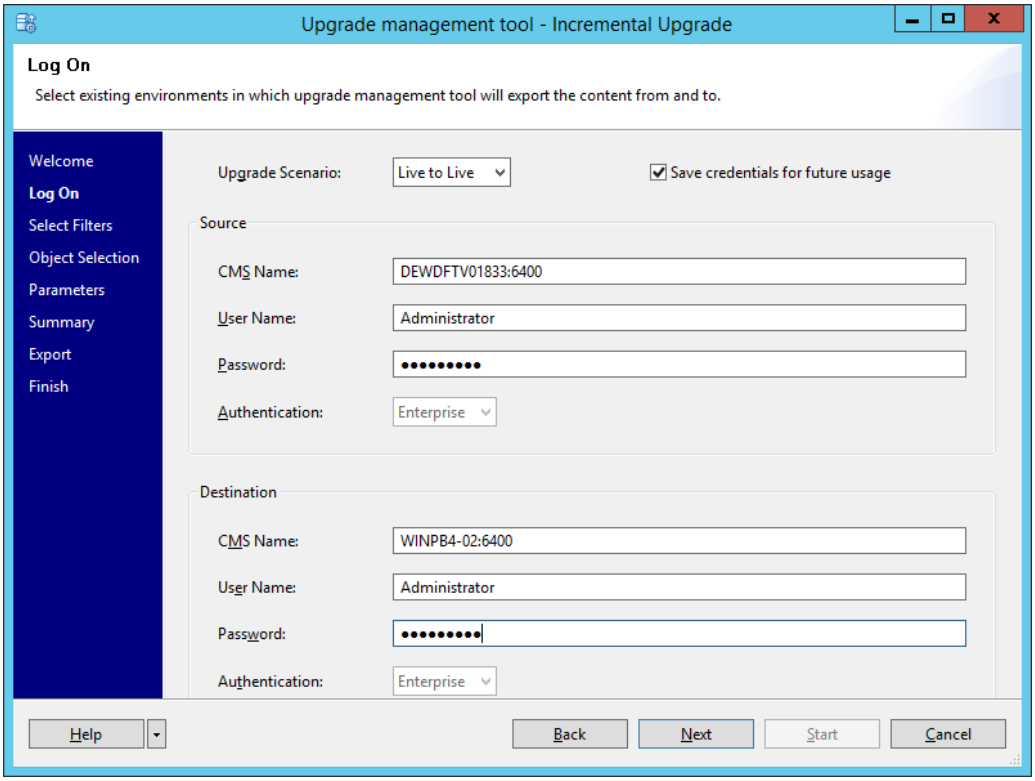
This iteration illustrates you to move all the object of different types and their dependencies to the target system.

You need to scan the RepoScan on the source and if there are any inconsistencies between the CMS and FRS, the RepoScan repair should fix the issues. For more information on repo scan, see the XI 3.1 to 4.1 upgrade pattern book (how to Upgrade from BOE XI 3.1 to BI 4.1)

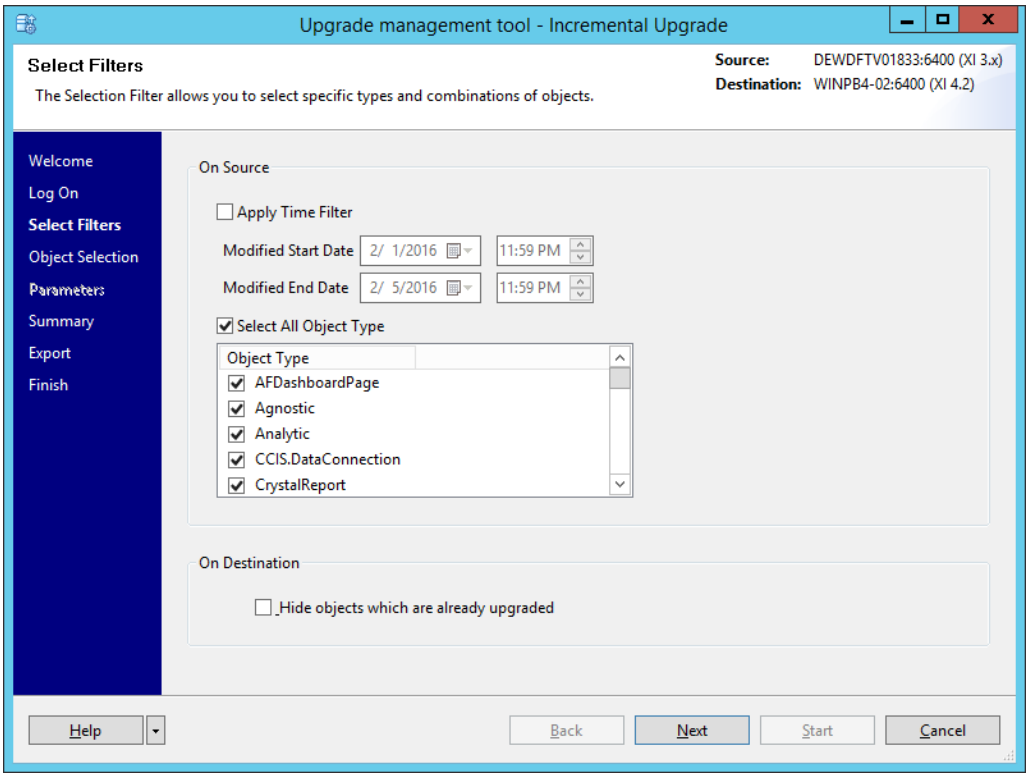
1. Launch the Upgrade Management Tool.
2. Select **Incremental Upgrade**.
3. Choose **Next**.



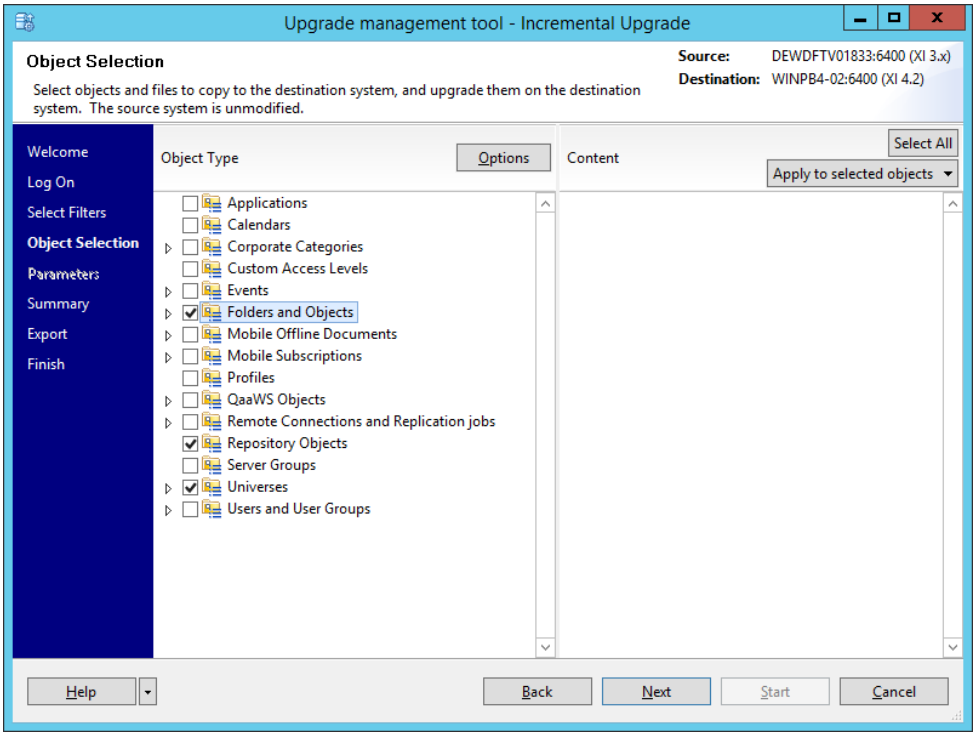

4. Enter the **Destination** and target system details.
5. Choose **Next**.



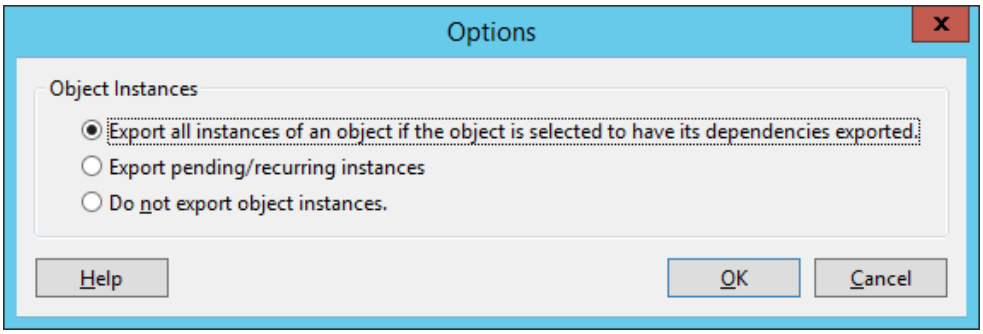

6. Choose the **Select All Object Type** option.
7. Choose **Next**.



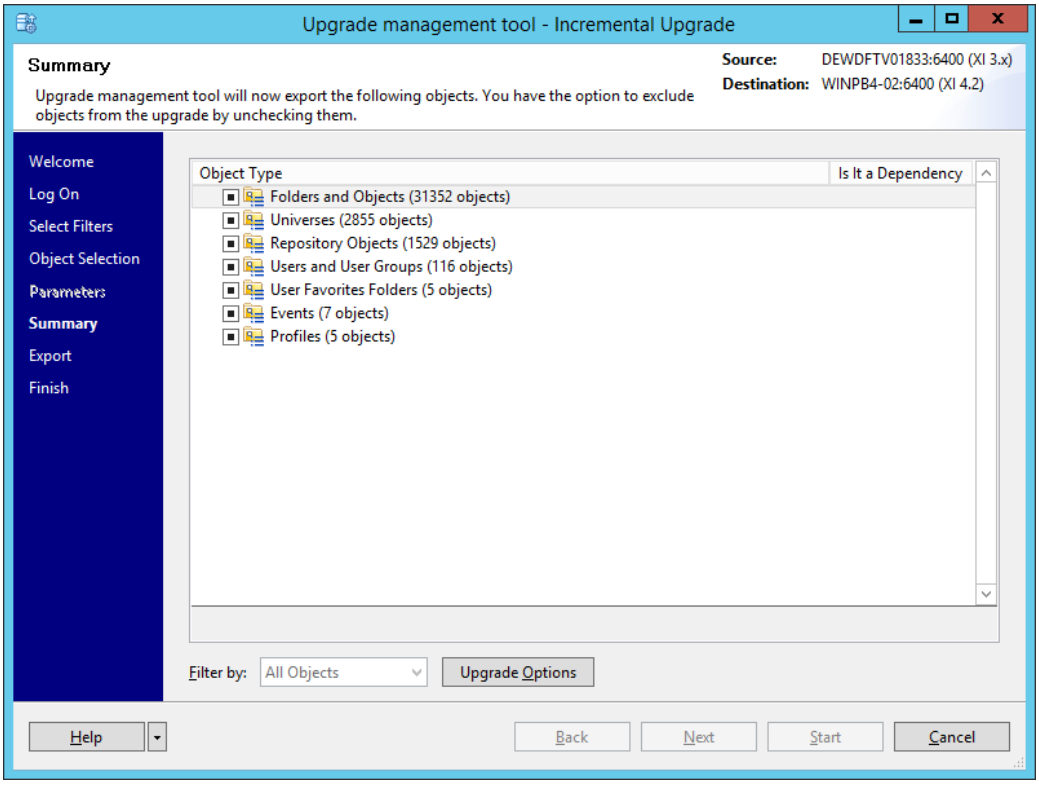
8. Select the following options:
    - **Folders and Objects**
    - **Repository Objects**
    - **Universes**
9. Choose **Next**.



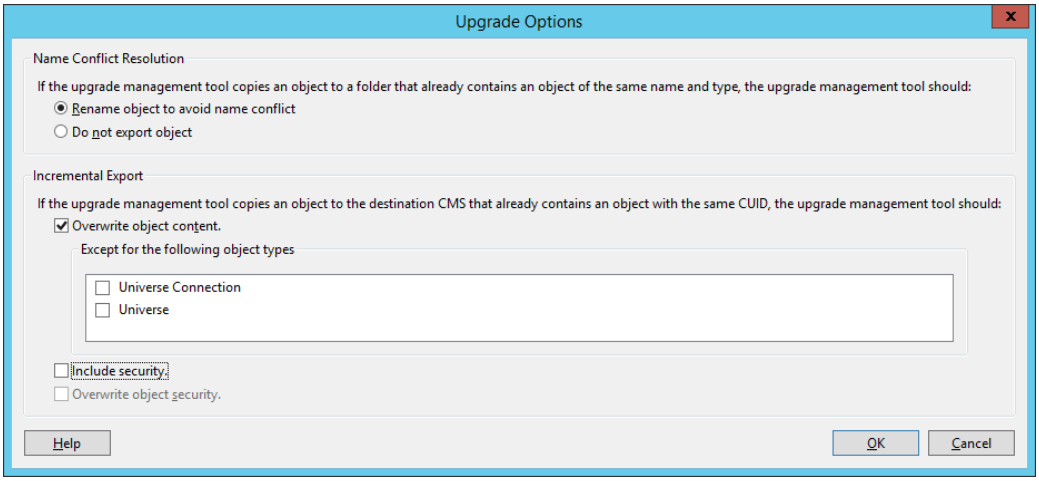

10. You can choose to select any of the three options. However, in the below screenshot, we have retained the default option, as this gets all the instances of objects that was selected from Web Intelligence or Crystal reports into the filter.




11. The Upgrade Management tool exports all the objects. However, you can choose to de-select the objects that you don't want to migrate.

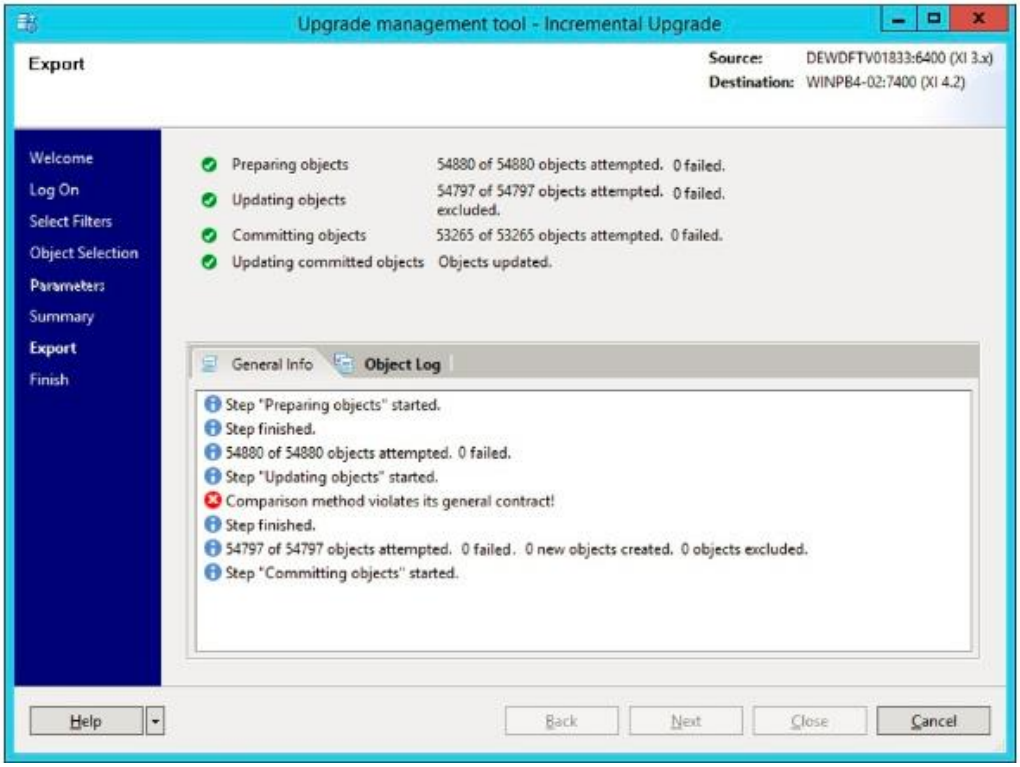



12. If you retain the default options in **Upgrade Options** tab, then objects with the same CUID in the destination would be overwritten. However, if you are migrating the objects for the first time, then you can retain the default options, as it would not make much difference.




13. Choose **OK** to close the screen.
14. Choose **Start**.

    After the upgrade is complete. The system displays following details:


Upgrade management tool - Incremental Upgrade
Export
Source: DEWDFTV01833:6400 (XI 3.x)
Destination: WINPB4-02:7400 (XI 4.2)
Welcome
Log On
Select Filters
Object Selection
Parameters
Summary
Export
Finish
Preparing objects 54880 of 54880 objects attempted. 0 failed.
Updating objects 54797 of 54797 objects attempted. 0 failed. excluded.
Committing objects 53265 of 53265 objects attempted. 0 failed.
Updating committed objects Objects updated.
General Info
Object Log
Step "Preparing objects" started.
Step finished.
54880 of 54880 objects attempted. 0 failed.
Step "Updating objects" started.
Comparison method violates its general contract!
Step finished.
54797 of 54797 objects attempted. 0 failed. 0 new objects created. 0 objects excluded.
Step "Committing objects" started.
Help
Back
Next
Close
Cancel

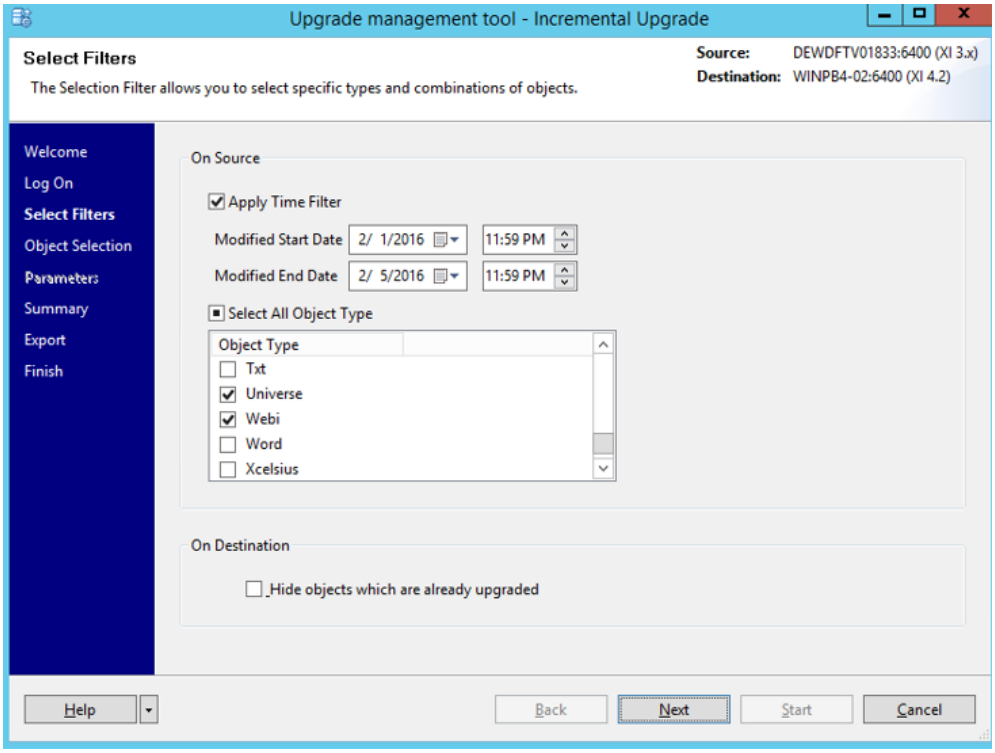
## Iteration 3

This iteration illustrates the delta copy. In UMT, you can compare the source and the destination FRS. You can use this feature to select objects, which are modified and new in the source system within the provided time filter. You can also use this feature to perform time based comparison of the modified object.

For example, let us assume that today is 5th January and the 1st migration was performed on 1st January .The users continued using the old machine. During this time span between (5th and 1st Jan) old machine consisted of few modified documents and also few new documents were included. Now, if you run the UMT and select any folder to see the difference, then the difference displays the objects that are modified and new.

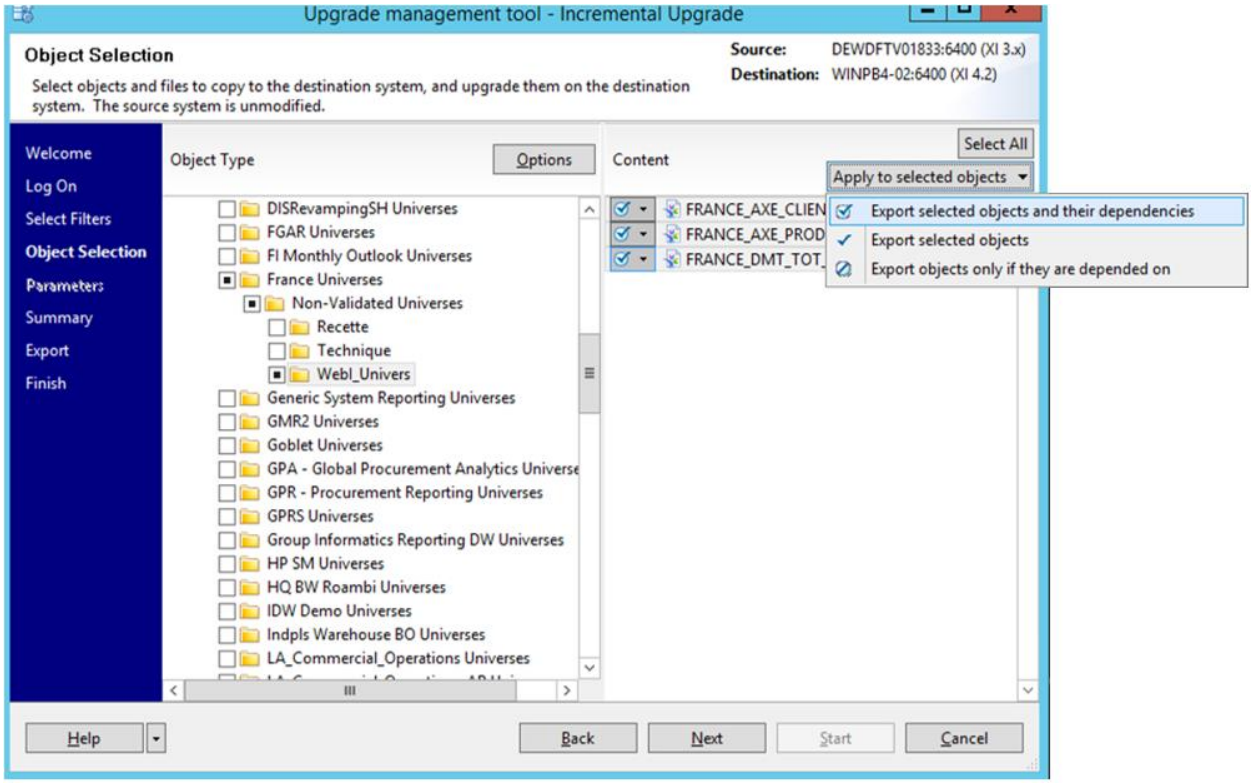
However, in this iteration we are not going to check the modified and new universes, rather we are going to observe the objects that were migrated in the previous iteration will not be listed. But, the objects that were not migrated will be listed.

1. Select the time filter for **Universe** and **Webi**.
2. Choose **Next.**



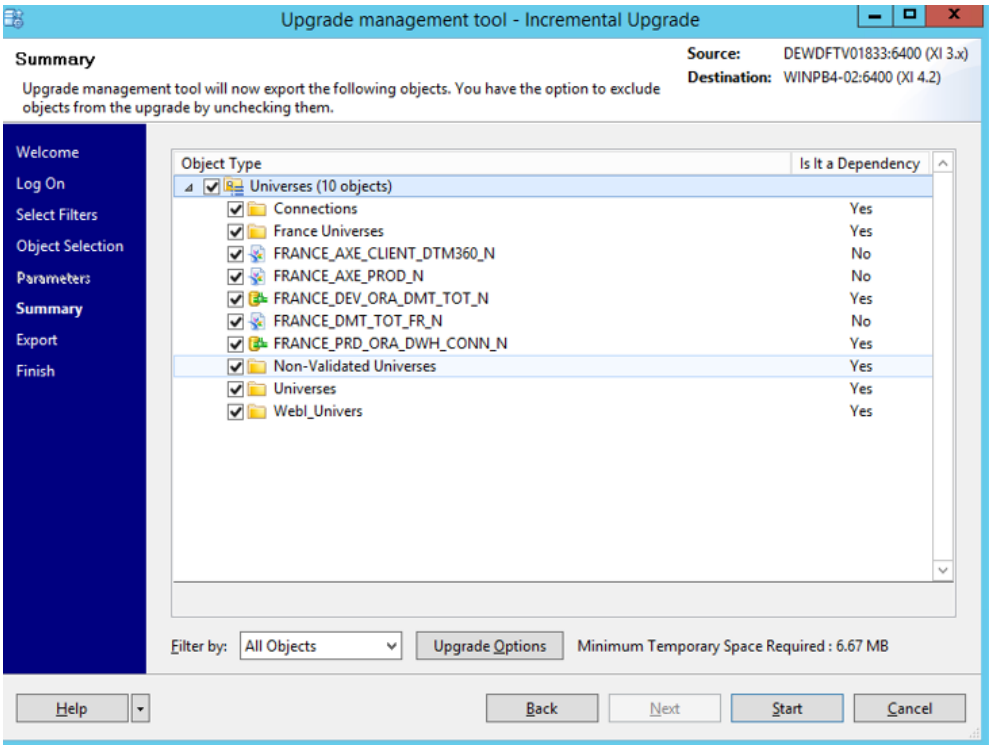

**Note**: You know the path of recently modified objects in the source system. Alternatively, when you manually traverse through all the folders and sub folders, you can only see the content that has been modified within a specified date.

3. The universes that are displayed in the below screenshot were modified in the source system between 1st and 5th January.
4. Choose **Export selected objects and their dependencies**.
5. Choose **Next.**

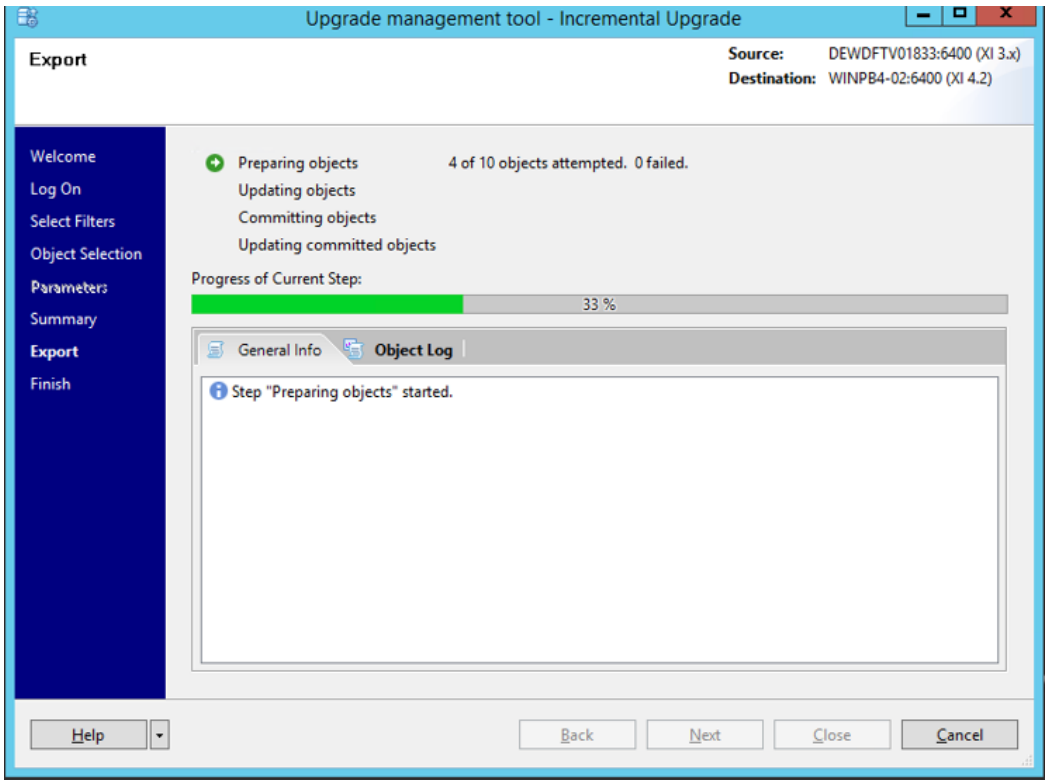



All the dependencies with respect to the universes are displayed and automatically selected.

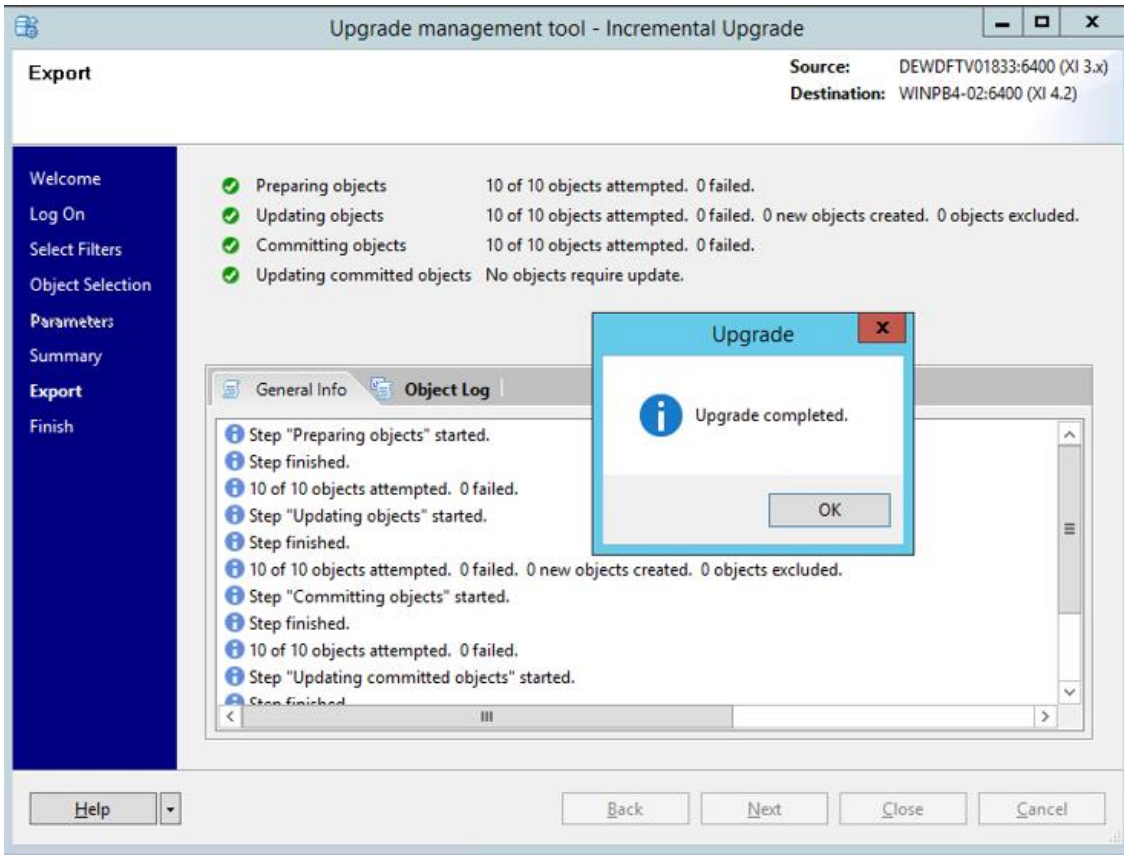
6. De-select the dependencies manually as per your requirement.
7. Choose **Next**.




You can see the progress bar indicating the progress of the migration.



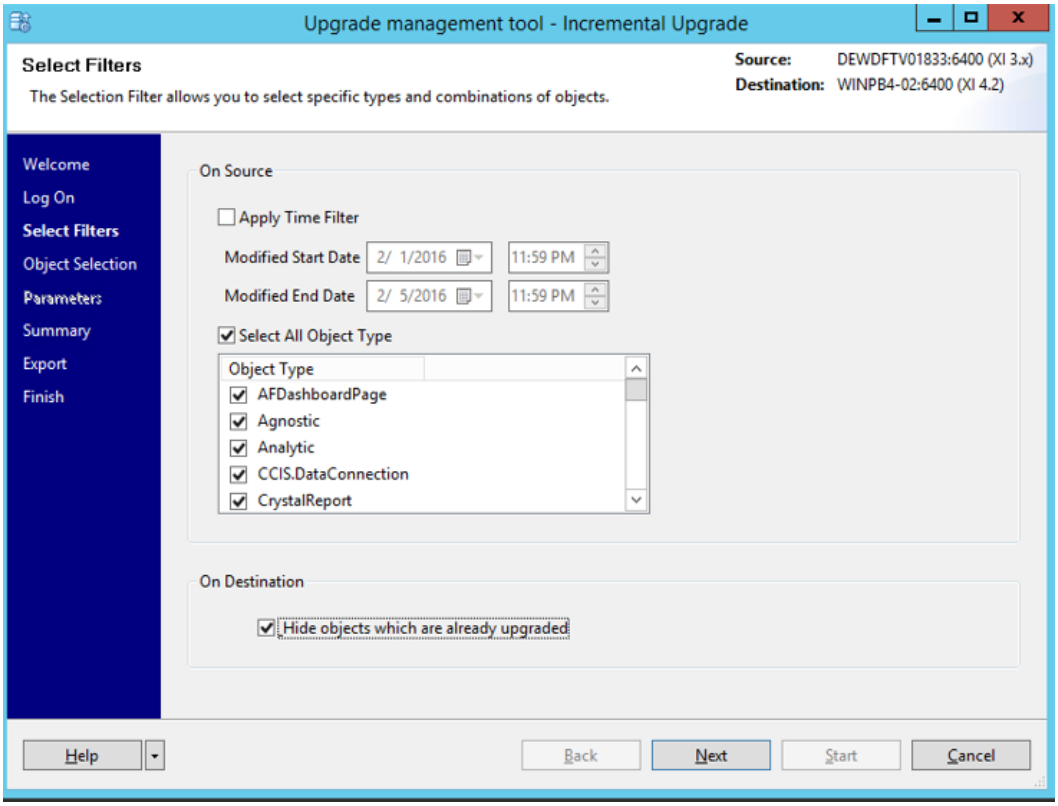

If the upgrade is complete, you get a pop-up message notifying **Upgrade Completed**.



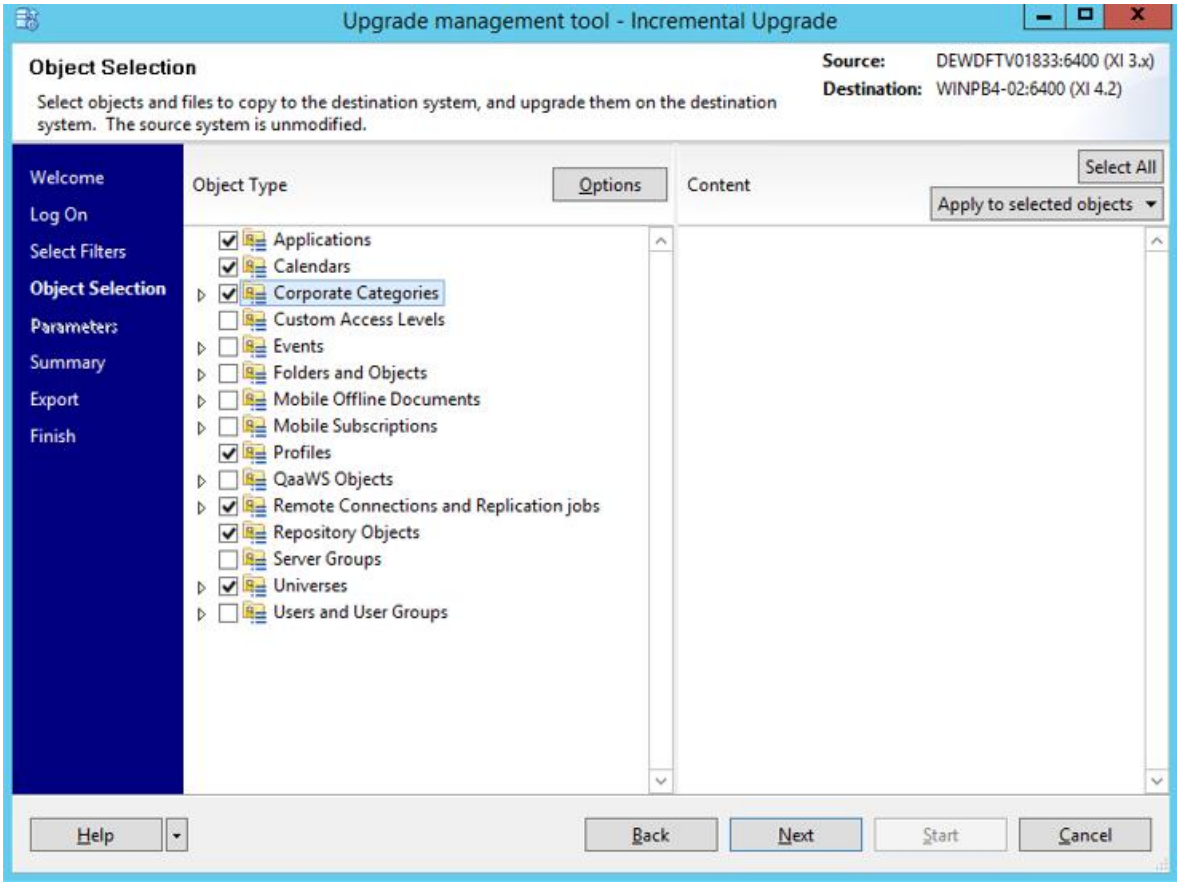

## Iteration 4

This iteration illustrates the migration of applications, calendars, corporate categories, profiles, remote connections, repository objects and universes.

1. Choose the **Select All Object Type** option.
2. Select the **Hide Objects which are already upgraded** option. This will ensure that objects that are migrated and present in the target system will not get reflected or selected during the migration process.

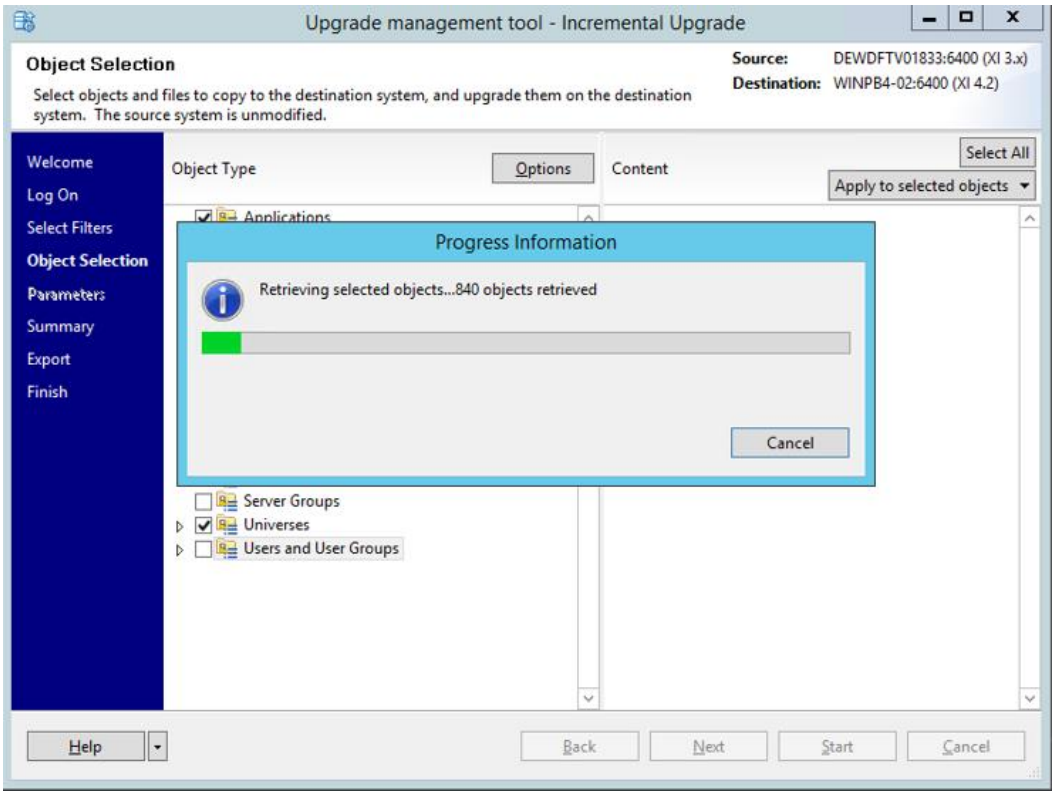



3. Choose **Next.**
4. Select the following object type:
    - Applications
    - Calendars
    - Corporate Categories
    - Profiles
    - Remote Connections and Replication Jobs
    - Repository Objects
    - Universes
5. Choose **Next**.



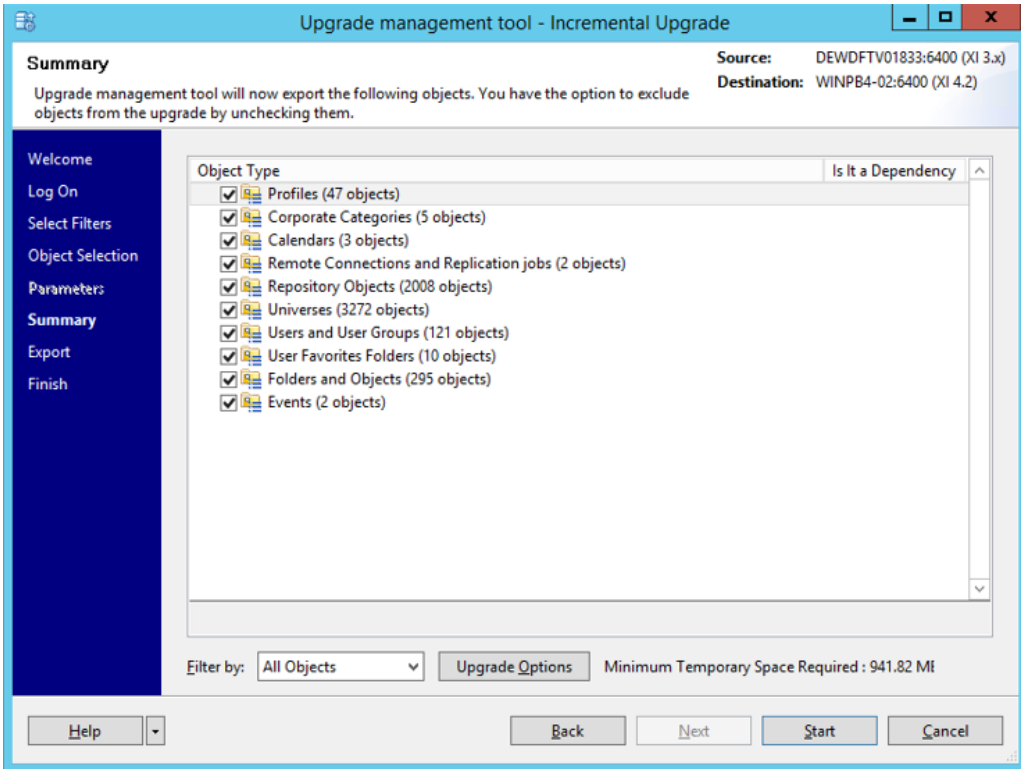

**Note:** If you have any of the other dependent objects, those objects are selected automatically and is reflected in the next step.

6. You can manually select or de-select any object from the selected folders. To do so, you must choose the object, so that the selected object appears on the right panel. Here, you can select or de-select the appropriate objects by choosing the **Apply to selected objects** option.
7. Choose **Next**.
   You see a progress bar indicating the number of objects that are being retrieved.

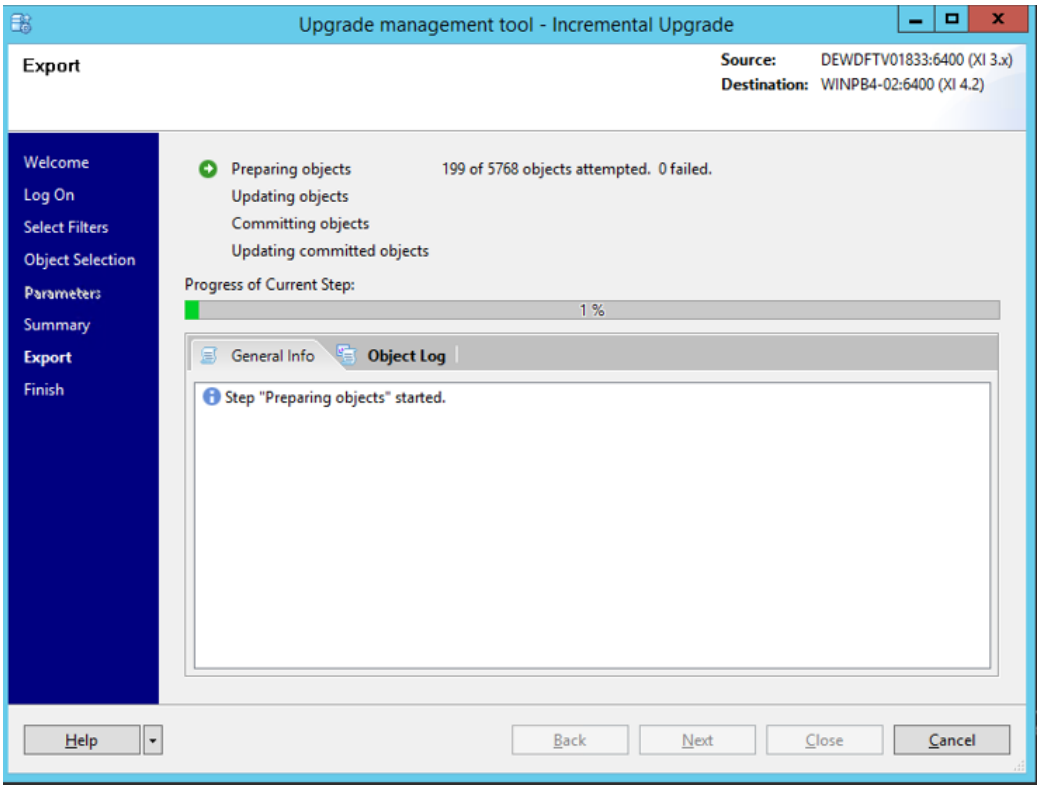


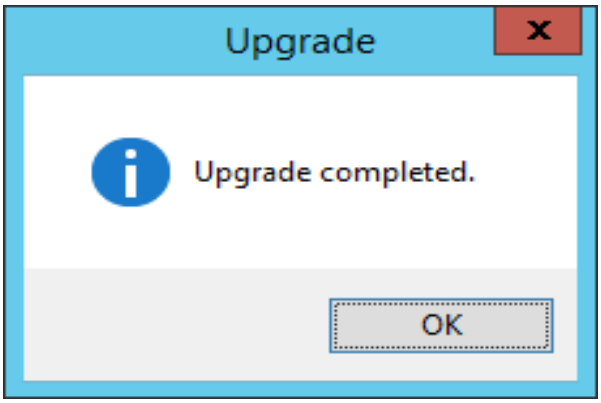

**Minimum Temporary Space Required (941.82 MB)** - The tool display the **Minimum Temporary Space** required. This is temporary storage required in the target system. You must have the minimum required space in the target system before you can proceed with the migration.

8. Choose **Start** to proceed with the migration.




Once the upgrade process is complete you get a pop-up notifying **Upgrade Completed**.

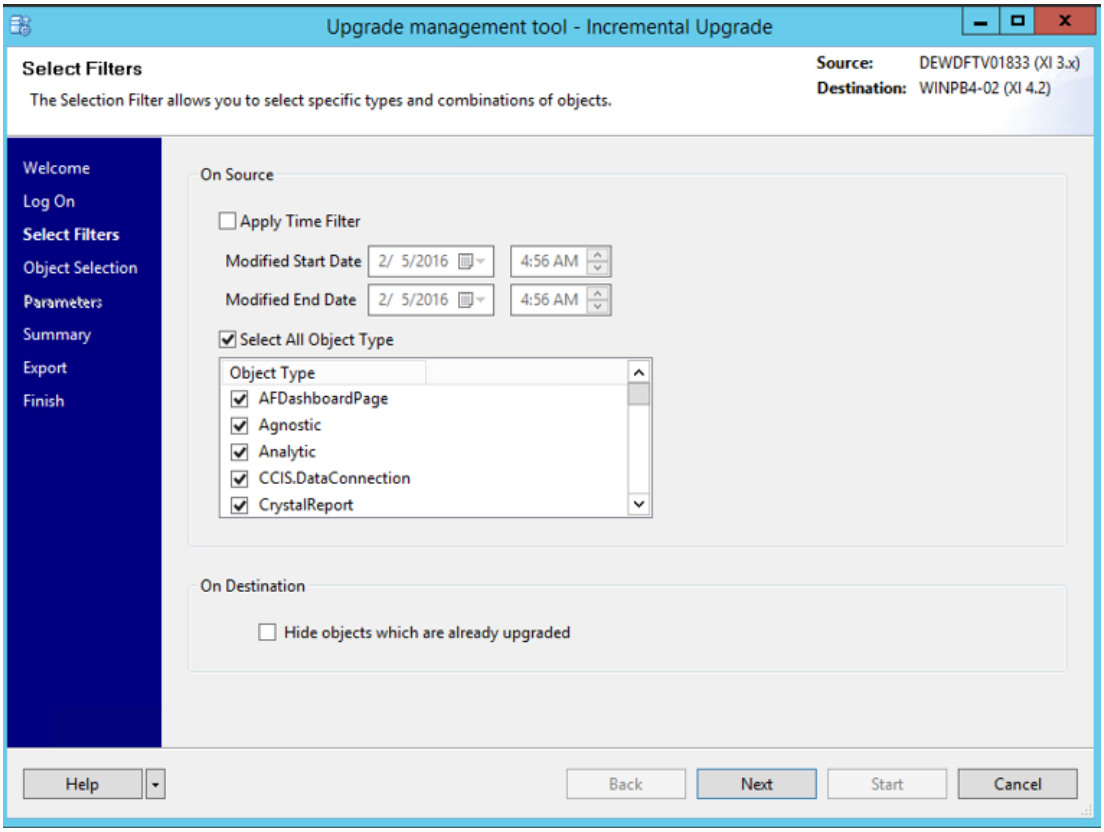




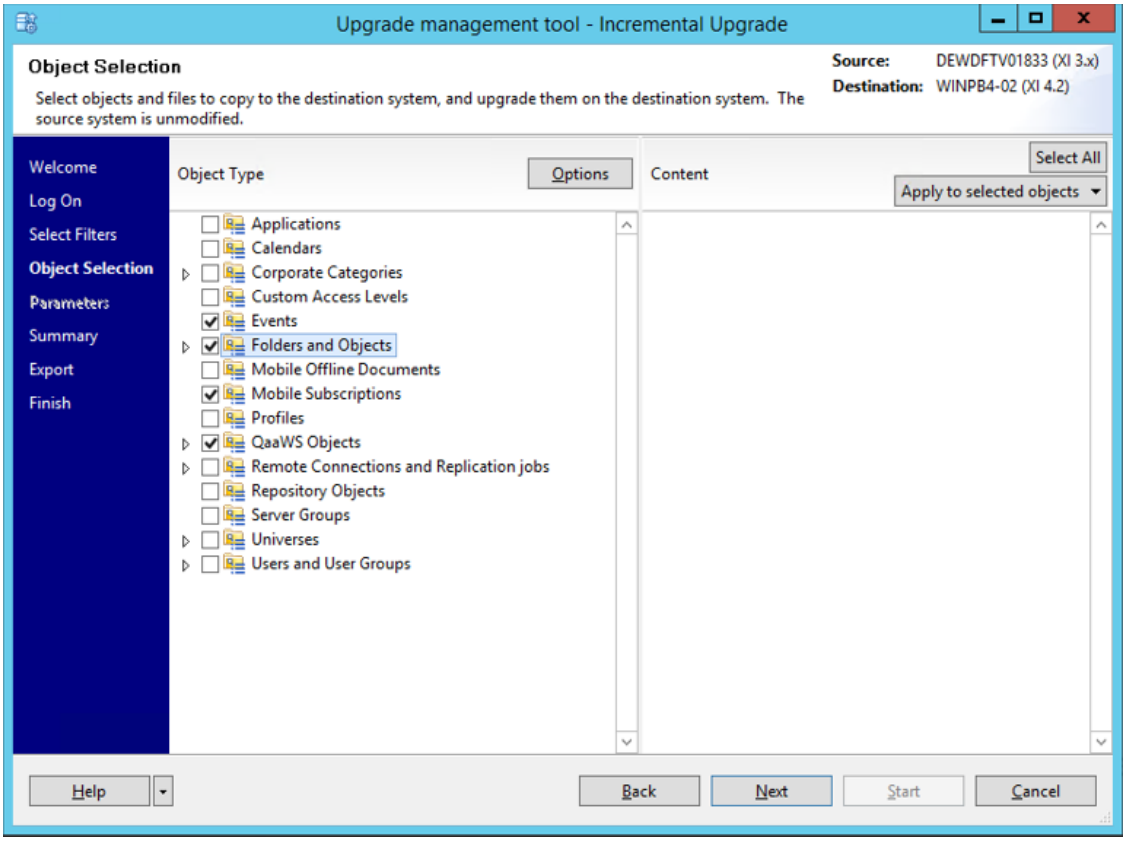

## Iteration 5

This iteration illustrates the migration of events, folders and objects, mobile subscriptions, and QAAWS Objects.

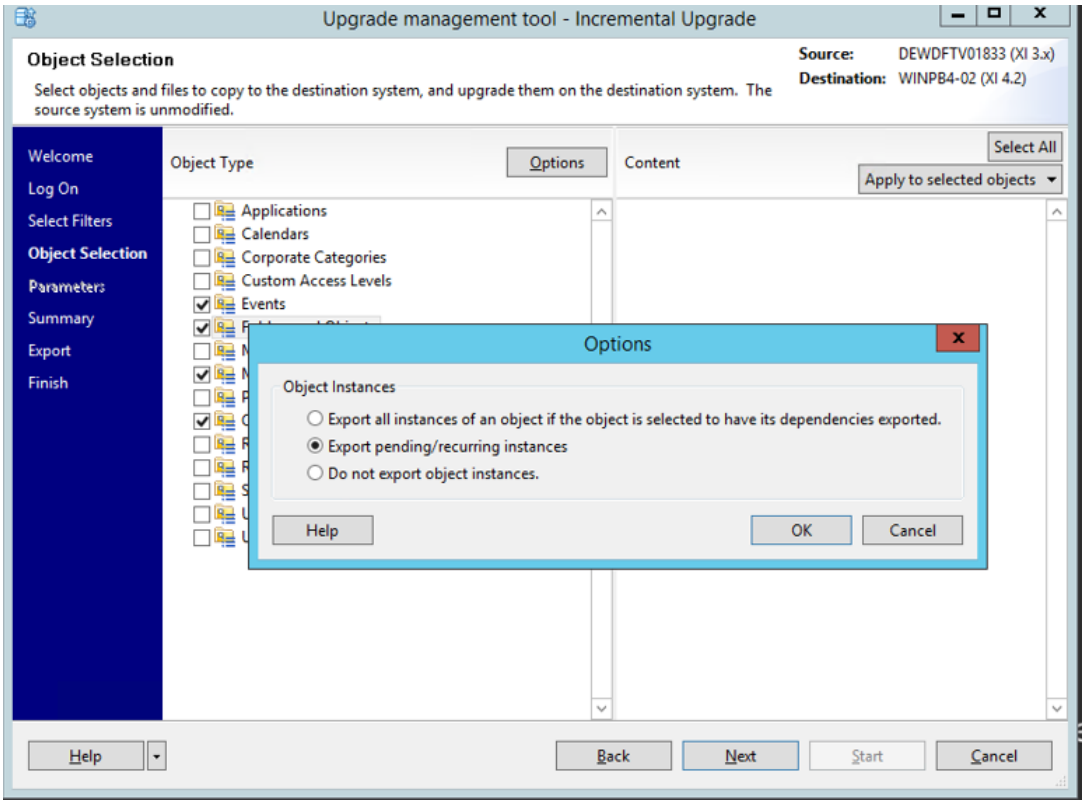
1. Choose the **Select All Object Type** option.
2. Choose **Next**.



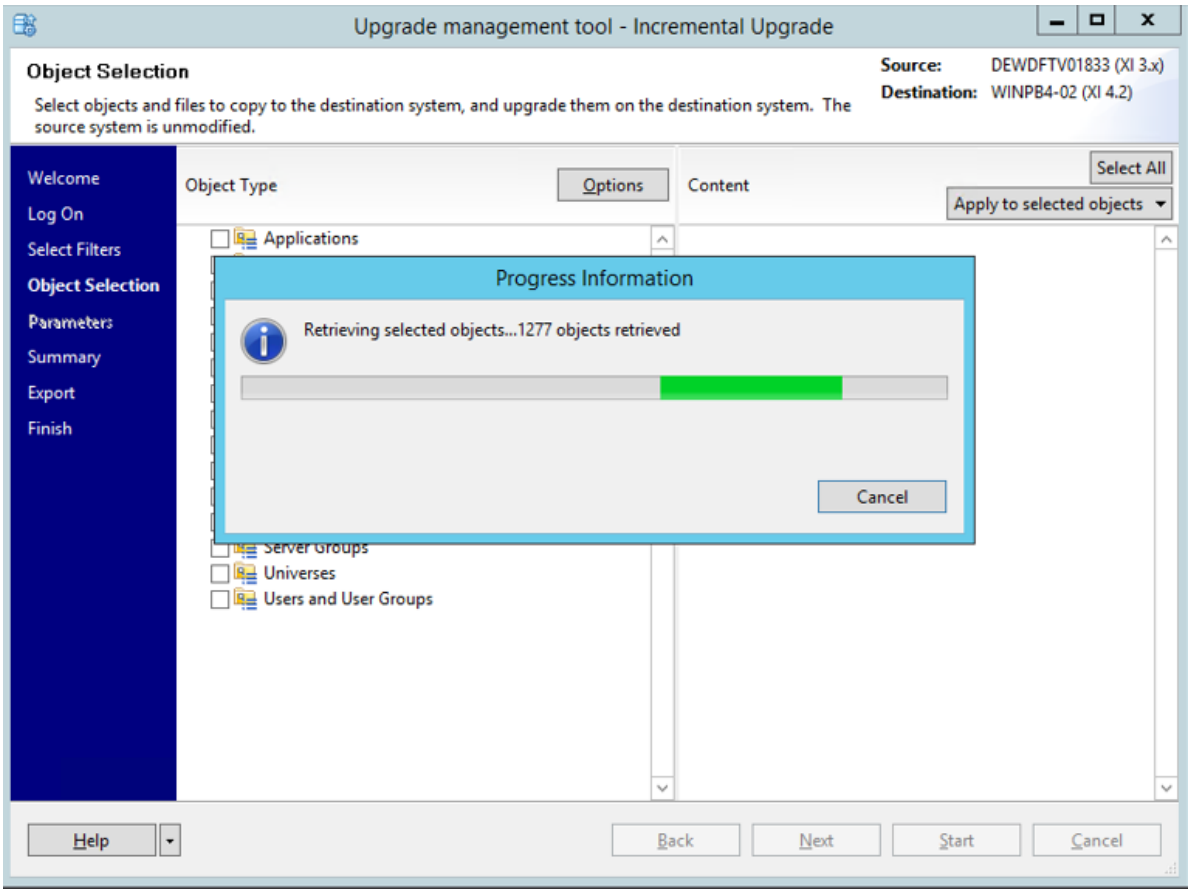
3. You can migrate the following objects in this iteration:
   - **All public folders' content**:
   All the documents in public folders are chosen to upgrade in this stage. The documents are available in **Folders and Object** listing in UMT. Upgrading documents in public folder involves significant network, Disk I/O operations, as each file is read from the source system, stored in a derby database by the UMT, computation of dependencies are done, and then copied to the target systems' FRS location.
   As, all the documents used by the enterprise is present here, the size of these folders would be large. So, this consumes a significant amount of time for UMT to complete the upgrading of documents to target system. Therefore, you can choose to upgrade the documents in different increments. Following this pattern, you can choose to upgrade the entire **Folders and Objects** in a single increment.
   - **QaaWS objects**
   All QaaWS objects are listed in the **QaaWS Objects** folder of UMT. When you select **QaaWS Objects** folder automatically all the dependents are selected. All QaaWS objects are chosen to upgrade with dependencies.
   - **Events**
   - Mobile Subscriptions
4. Choose **Next**



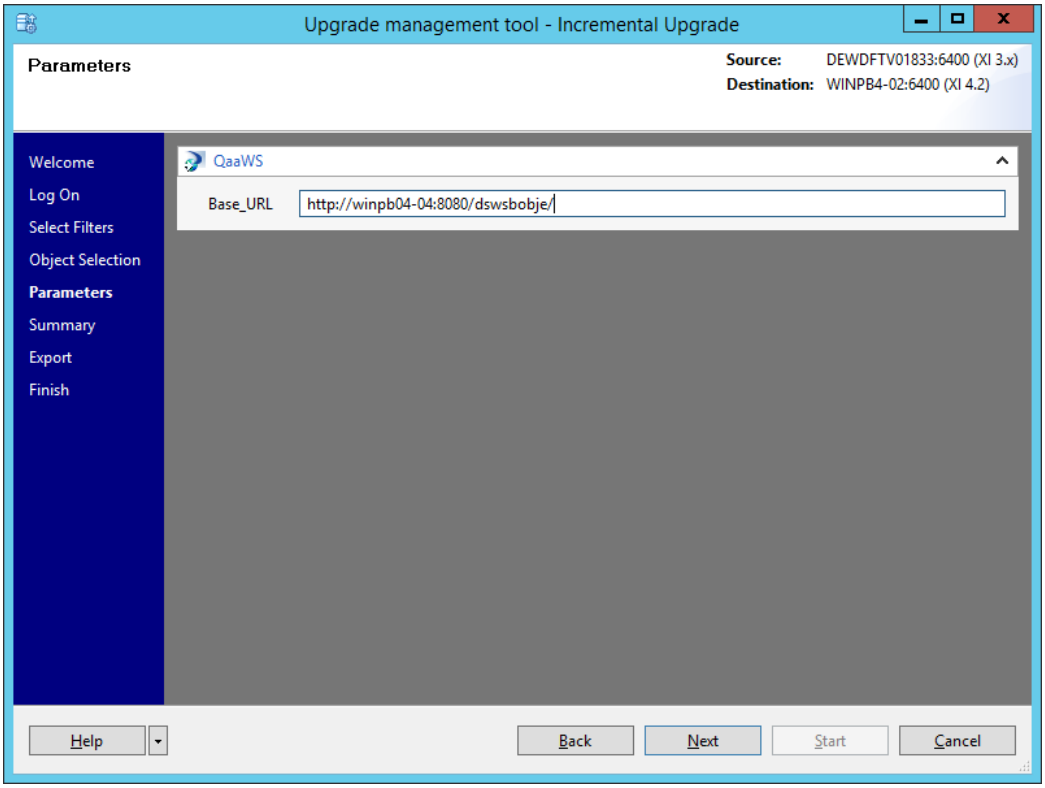
5. Select **Exporting pending/recurring instances** of the content, which is present in **the Folders and Objects**. This is a new feature in 4.2.However, you can select any of the options according to your requirement.
6. Choose **OK**.
7. Choose **Next**.




You see a progress bar indicating the number of objects that are being retrieved.

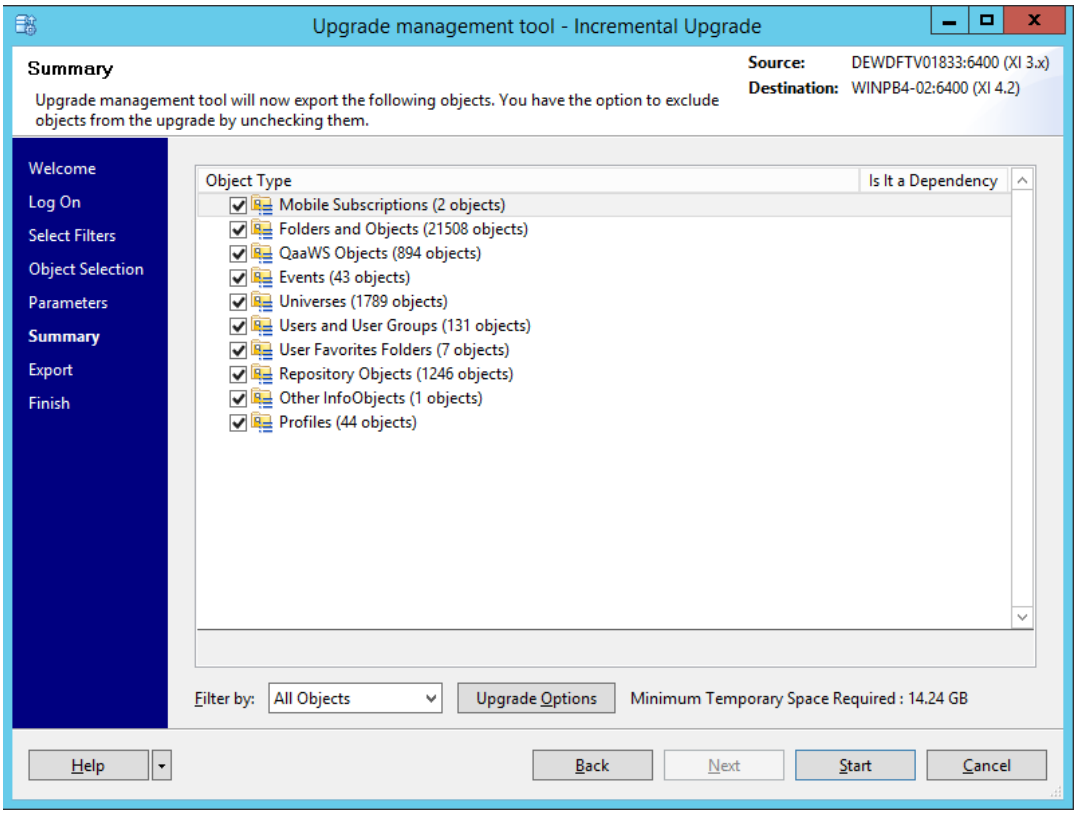


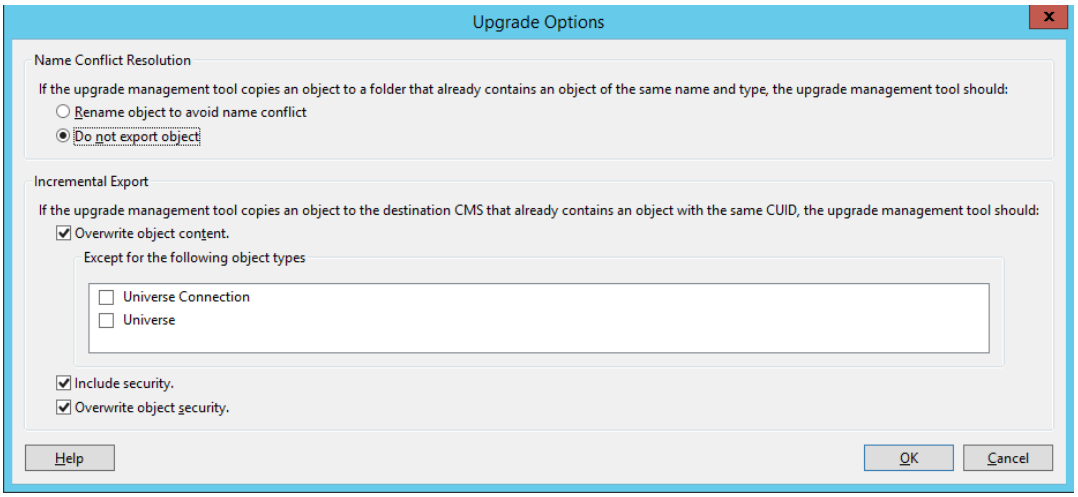

8. Choose **Next**.
9. Enter the Base_URL (**http://<target system>:8080/dswsbobje/),** of the target system for QaaWS objects.
10. Choose **Next**.



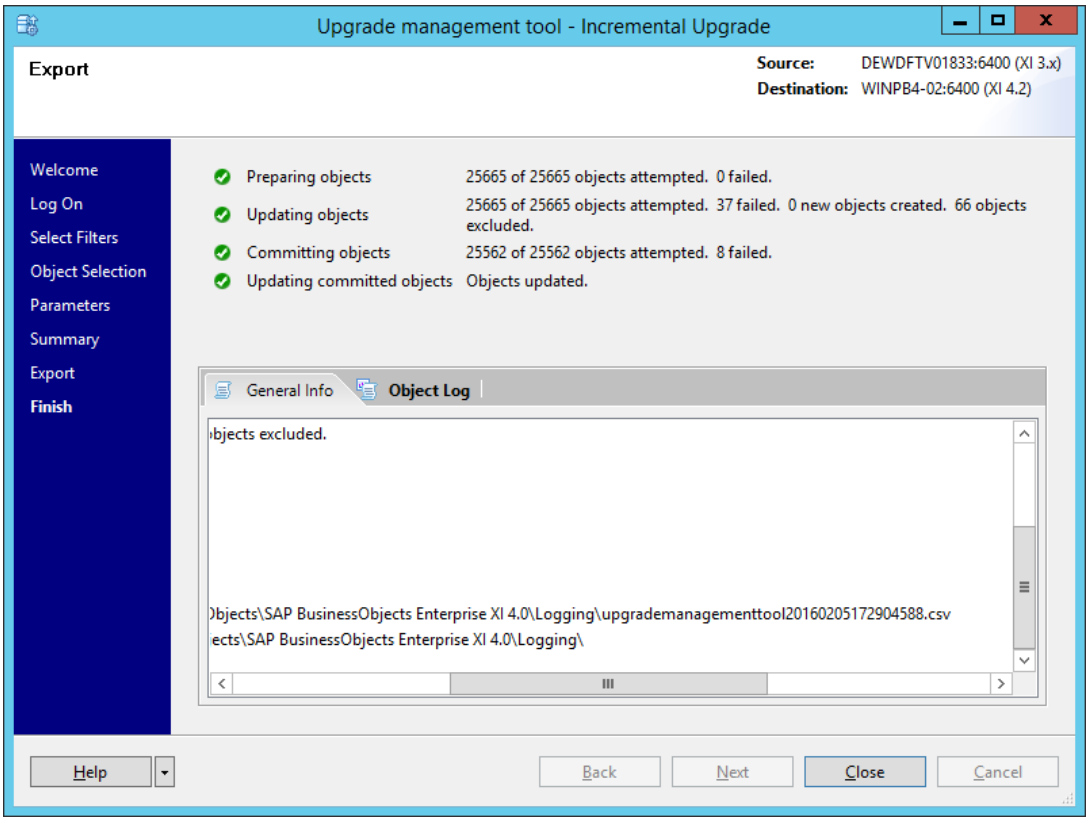

The **Summary** page appears, where all the selections that you have made is listed. However, ensure that all the selections are made as per your requirement.
**Note**: As you have chosen to upgrade with dependencies, by default, all the User Favorites folders, Universes and Repository objects are selected automatically. If any of the objects are upgraded in the previous iteration, then users can de-select them. However, retain the **Users and User Groups** as you need to retain the ownership/rights assignment of the objects with the users.

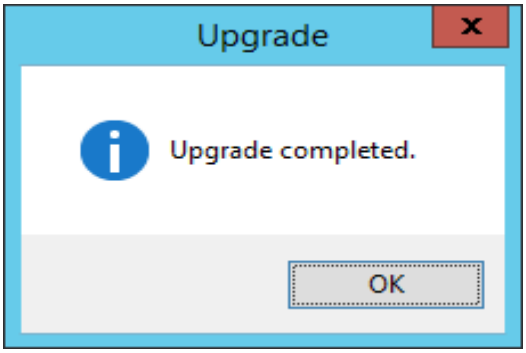
11. Choose **Start**.




12. Choose **Ok.**
13. Once the upgrade process is complete you get a pop-up notifying **Upgrade Completed**.


Upgrade management tool - Incremental Upgrade
Export
Source: DEWDFTV01833:6400 (XI 3.x)
Destination: WINPB4-02:6400 (XI 4.2)
Welcome
Log On
Select Filters
Object Selection
Parameters
Summary
Export
Finish
Preparing objects 25665 of 25665 objects attempted. 0 failed.
Updating objects 25665 of 25665 objects attempted. 37 failed. 0 new objects created. 66 objects excluded.
Committing objects 25562 of 25562 objects attempted. 8 failed.
Updating committed objects Objects updated.
General Info
Object Log
objects excluded.
Objects\SAP BusinessObjects Enterprise XI 4.0\Logging\upgrademanagementtool20160205172904588.csv
ects\SAP BusinessObjects Enterprise XI 4.0\Logging\
Help
Back
Next
Close
Cancel


Upgrade
Upgrade completed.
OK

# Post Upgrade Steps

This chapter details the Post Upgrade steps.

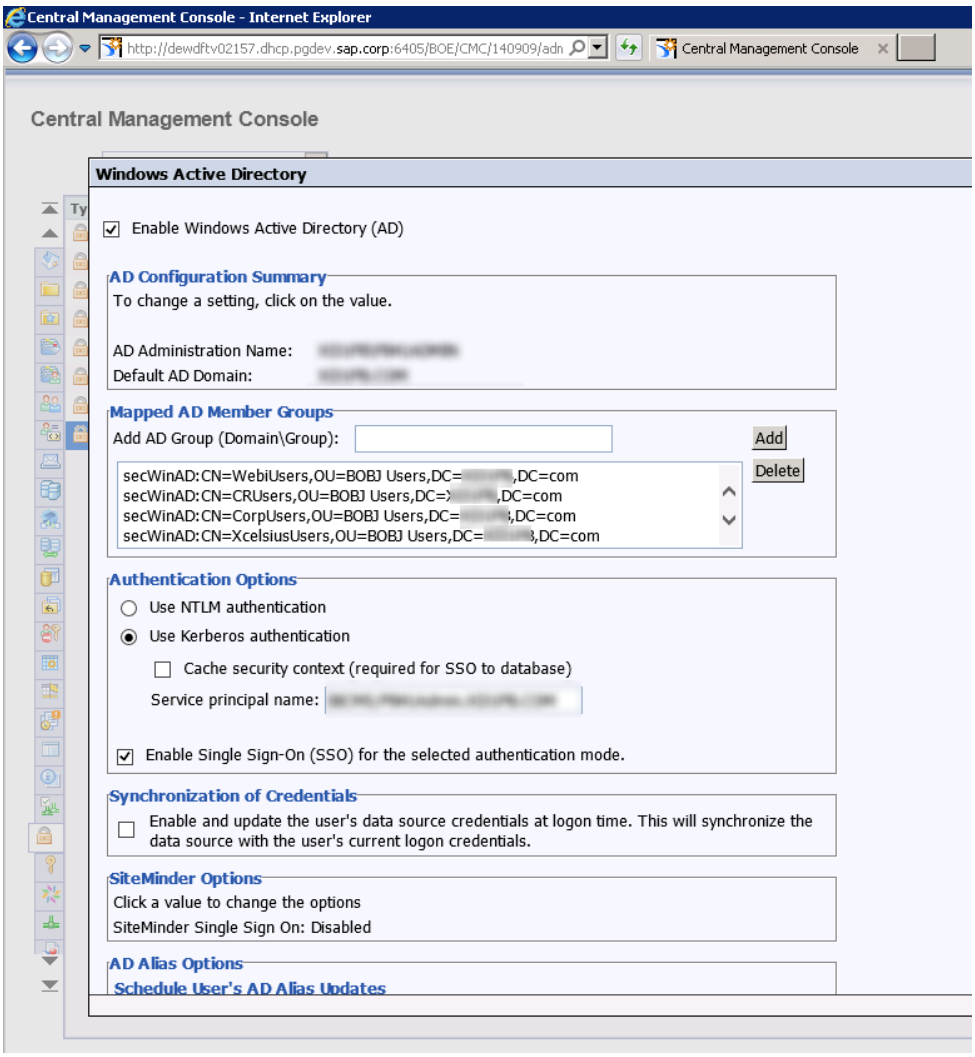
## Verifying Authentication Types

### Verifying Third Party Authentication

Ensure Windows AD and SAP authentication types on the target machine.

### Verifying Windows AD Authentication

1. Log on to CMC as an administrator.
2. On the CMC home page, select **Authentication**.
3. Double-click Windows AD.
4. Update authentication based on the user license.
   **Note**: All the AD groups are updated during migration.



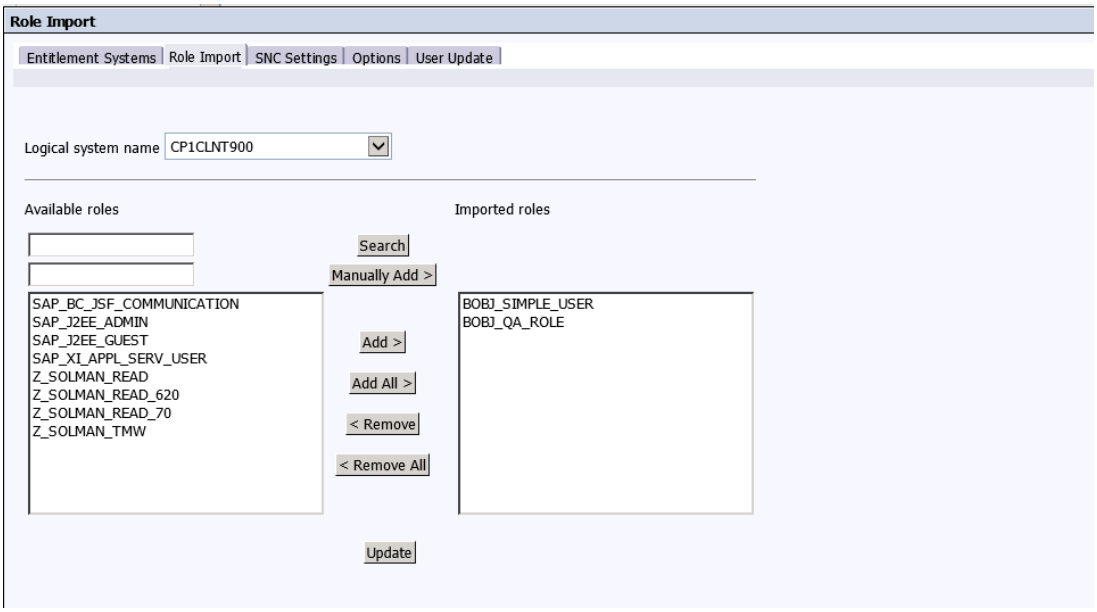

5. To update concurrent license for Windows AD, you need to select following options:

| Option | Description |
|---|---|
| Assign each new AD alias to an existing User account with the same name | This option updates Windows AD alias if the user already exists with the same name. |
| Create new alias when the alias update occurs | This option creates Windows AD users in the destination machine when the update is clicked. |
| New users are created as concurrent users | This option converts all Windows AD users as concurrent users. |

## Verifying SAP Authentication

During upgrade, SAP roles are upgraded from the source machine. These roles are upgraded as User Groups in the target system.

1. Log on to CMC as an administrator.
2. On the CMC home page, select **Authentication**.
3. Double-click **SAP**.
4. Navigate to the **Roles Import** tab to synchronize the users with SAP roles into the destination machine.




## Re-Starting all BI Servers

Restart all the servers that were stopped prior to upgrade. Ensure that all servers in all nodes are up and running.

## Creating Data Source Connections

You need to create all 64-bit Data Source Names (DSNs) and DB client configurations on target machine. Because, UMT does not upgrade all the DSNs of the source machine to the destination machine. These DSNs are required for the documents to refresh. You need to manually create these DSNs in the target system similar to that of source system, to re-establish connectivity to the data-sources of the documents.

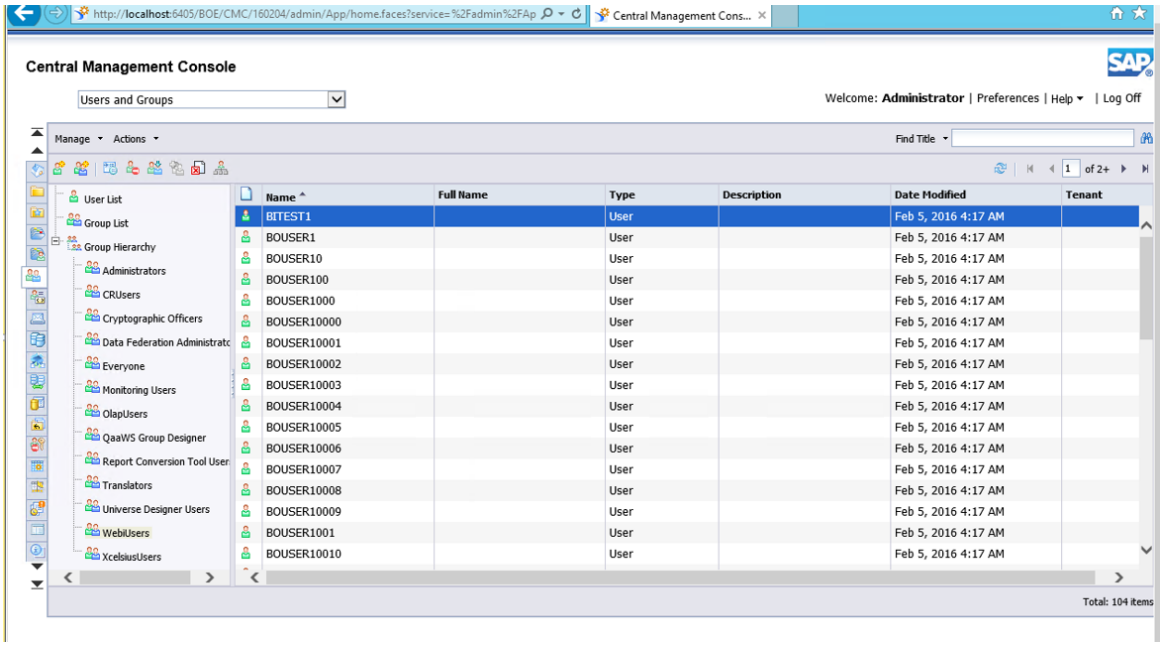
## Verifying Security Model

It's recommended to verify the security model, including folder security against users and groups, once the upgrade process is completed and before releasing the system to end users.

# Testing & Validation

## Testing in CMC

After successful execution of Iteration 1, When launch CMC, you must see the user and user list.

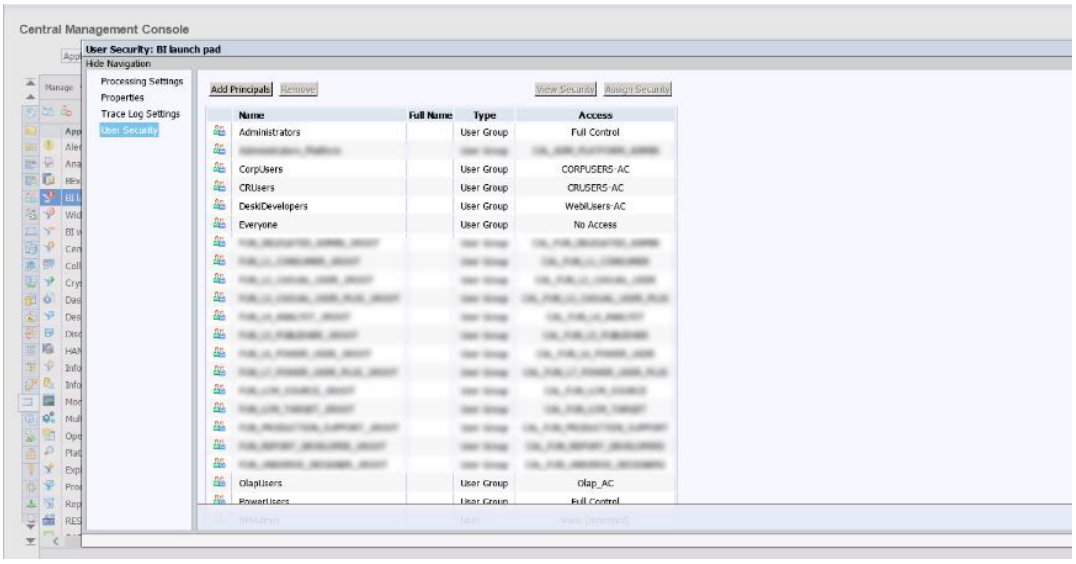



## Testing BI Launch Pad

Once the DSNs are properly created, and all the servers are up and running without any errors, you can perform the following tests on the target machine:

- Compare security restrictions applied in the source and destination machines.

For example, in BI Launch pad application, security settings is properly migrated when compared to the source as shown below:

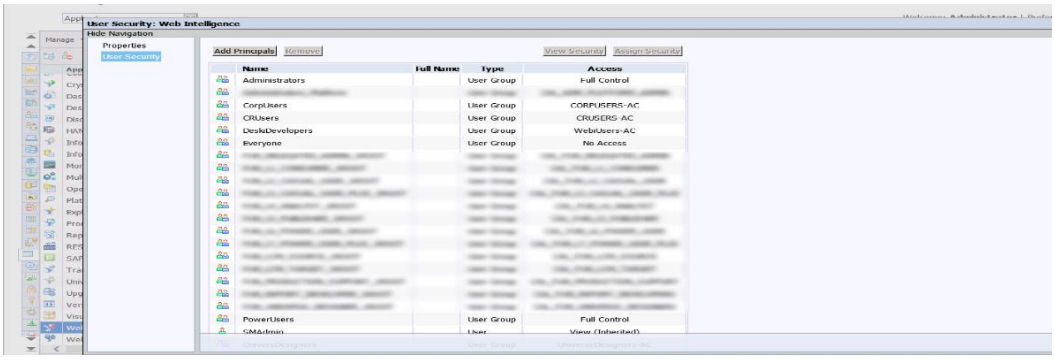


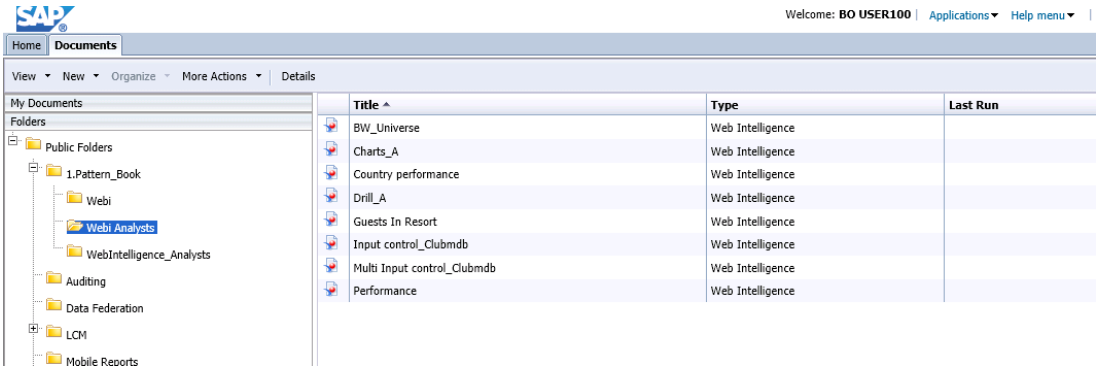

## Testing Web Intelligence

For Web Intelligence application, security settings are properly migrated when verified with the source as shown below:

To confirm if the security settings are migrated, perform the following:

1. log on to BI Launch pad as a user who is part of WebiUsers group
2. Check if the user is allowed to see only the content for which the user has view permissions.






There are many folders in the *1.Pattern_Book* folder, but Webi users are only allowed to see the Webi, Webi Analysts, and WebIntelligence_Analysts folders, which contains Web Intelligence documents.

Check if webi users are allowed to perform the following actions on the documents:

- Open BI documents such as, Web Intelligence, Crystal reports, and so on.
- Refreshing BI documents.
- Scheduling BI documents.

## Enabling Services

Before upgrade, you need to enable the CMS DB auditing, which was previously disabled.

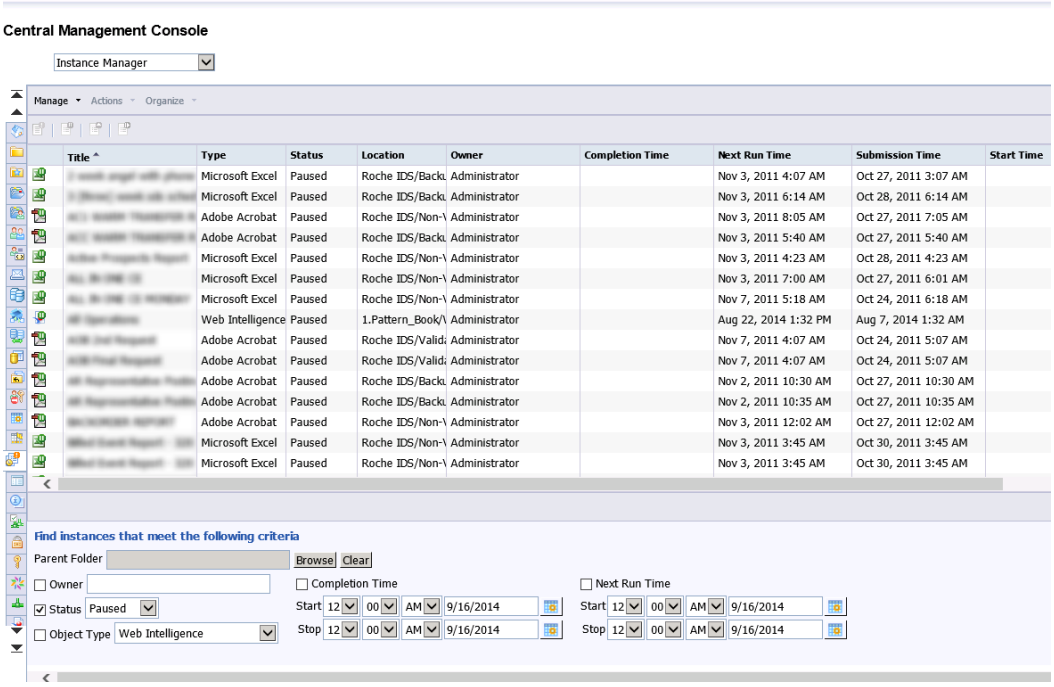
## Running Platform Support Tool

Run the platform support tool to compare content of the target machine after upgrade.

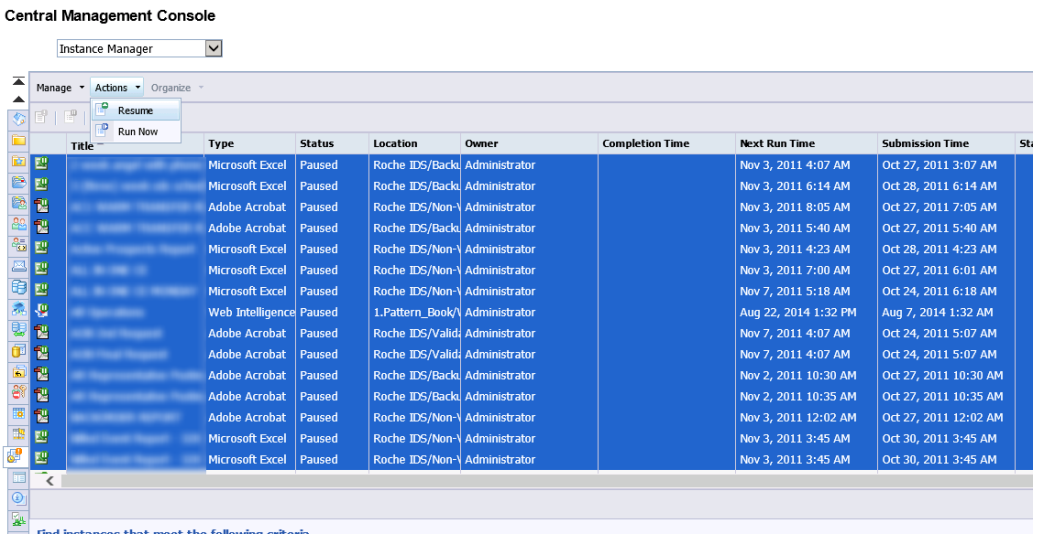
## Resume Scheduled Jobs

Before upgrade, all document schedules were paused in the source system. After the upgrade all the document schedules are upgraded with the paused status. Therefore, you need to resume all the paused document schedules.

1. Log on to CMC as an administrator.
2. In the CMC home page, select **Instance Manager** from the drop-down list.
3. Select the **Status** option and select **Paused** to filter all the schedules, which are in paused status.




4. Select all the instances and choose **Resume** from the menu bar.



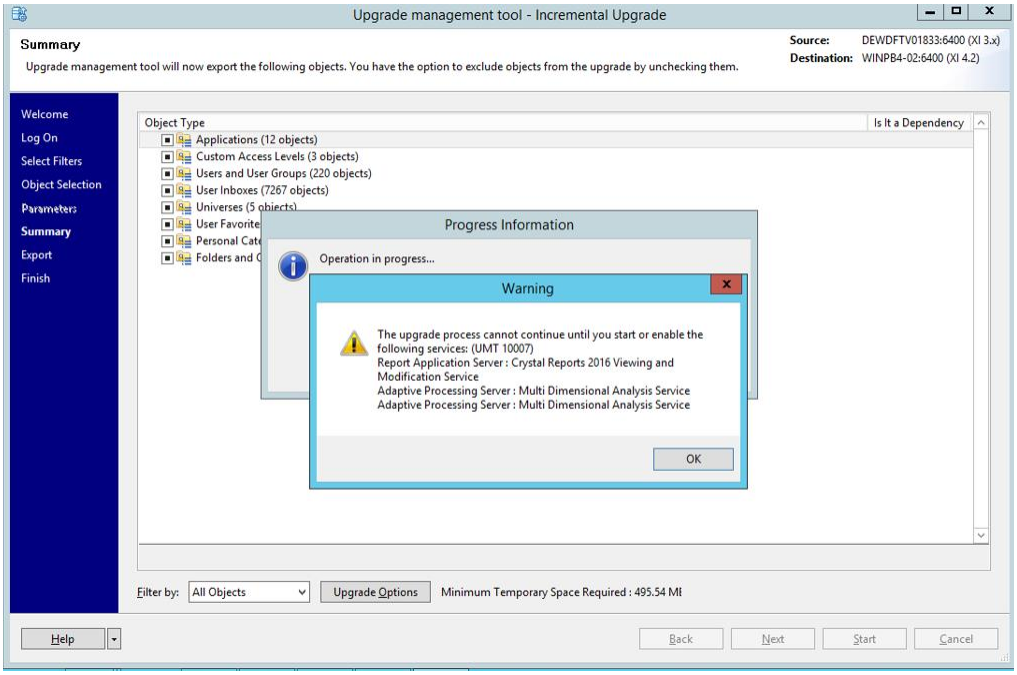

## Enabling Windows updates/anti-virus updates on all the machines

After the upgrade, you can enable Windows and anti-virus updates on the machines, which were disabled earlier.

# Known Issues & Challenges

This section details the Known Issues and Challenges experienced during Iteration 1 and Iteration 5.

## Issues Experienced During Iteration 1

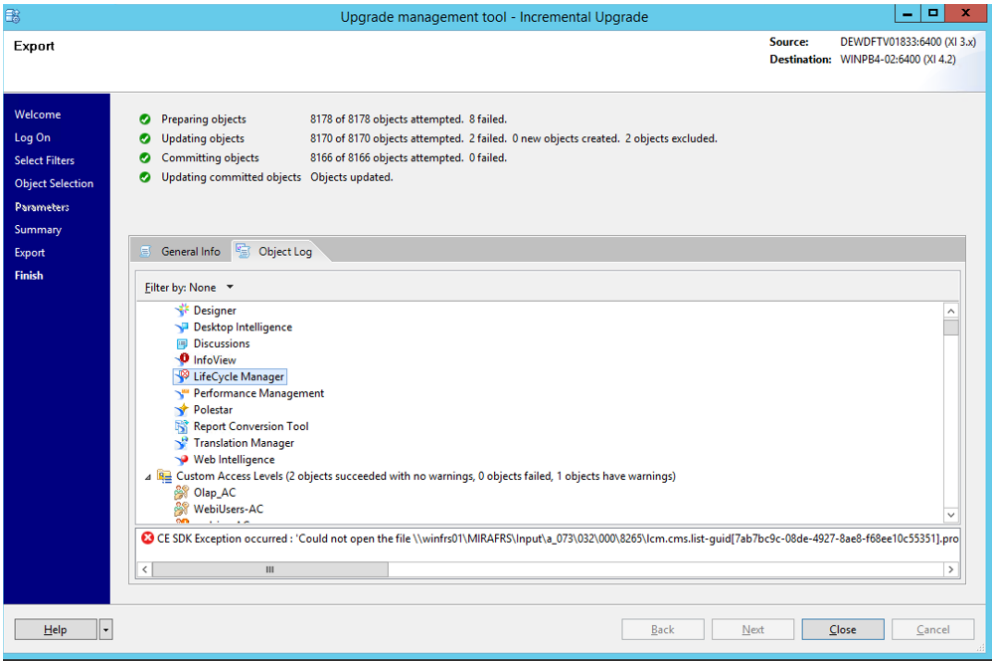



In this screen, since Crystal reports and OLAP intelligence reports are being upgraded, a warning message is displayed asking users to confirm, if the Adaptive Processing server (APS) hosting the multi-dimensional analysis service (MDAS), Crystal Reports 2016 Report Application server hosting "Crystal Reports 2016 Viewing and modification service" are running and enabled on the target system.

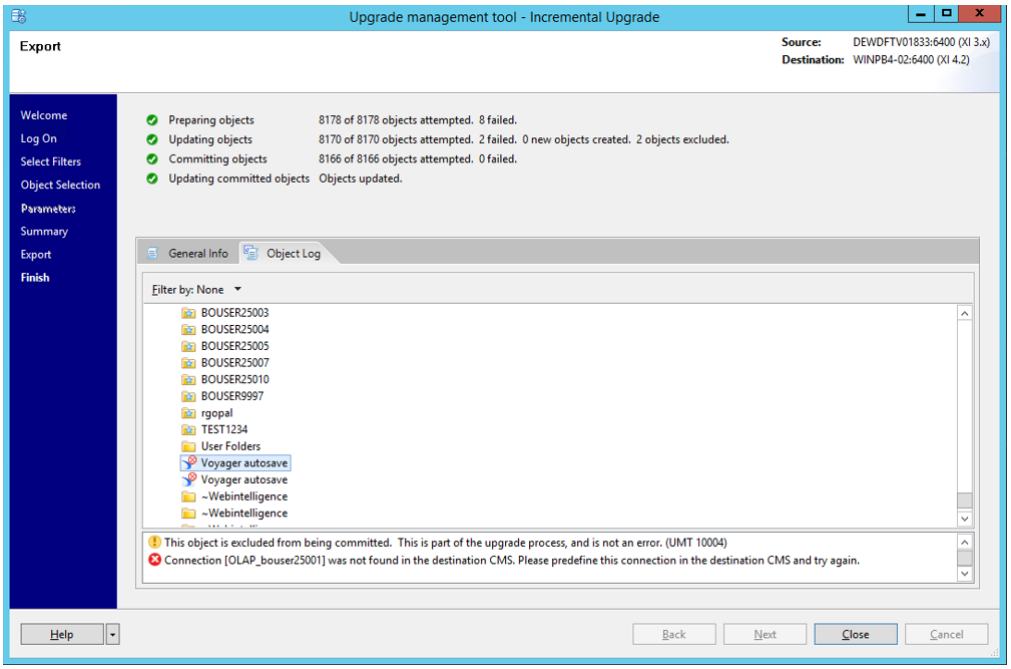
You can ignore the warning message, if the servers are already enabled in the target system. Otherwise the servers need to be started (before proceeding with UMT next step) for migration of Crystal reports and OLAP intelligence reports.

- Here we need RAS processes on all nodes that are down, and all APS with MDAS services. In our PB, we split the APS and created MDAS service on only 1 APS called APS_MDAS which we started.

  This is an exception that users experience while Promoting Lifecycle Manager as an application from XI 3.1 to BI 4.2. However, Lifecycle Manager has been changed to Promotion Management and Version Management as two distinct applications in BI 4.2. Therefore, you can ignore this.

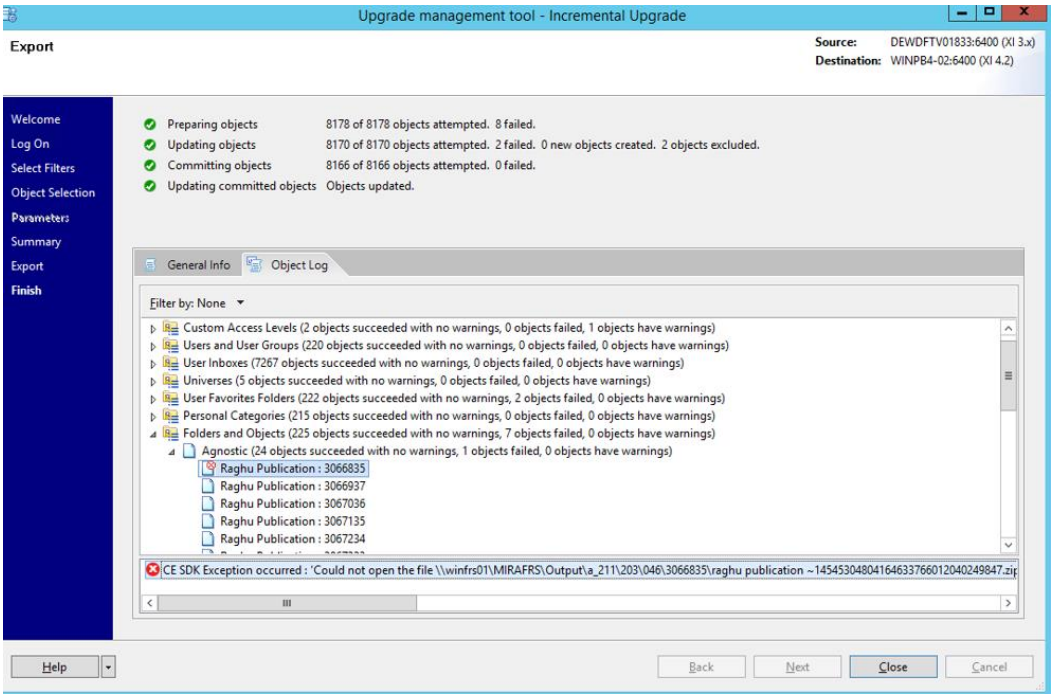


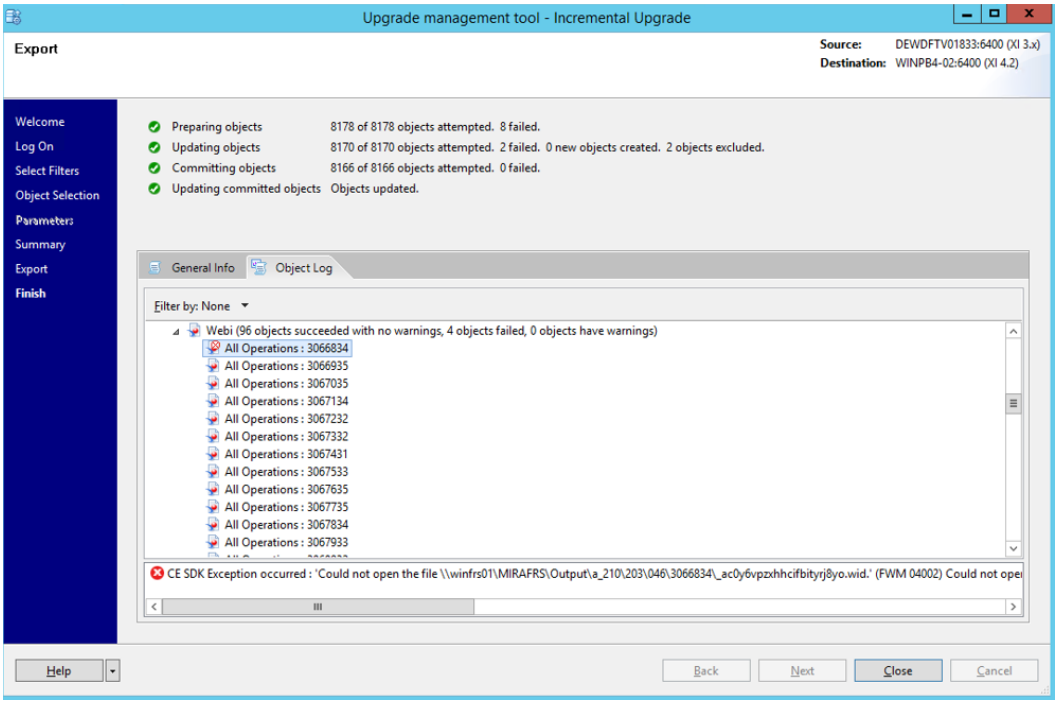

- OLAP connections must be recreated in BI 4.2 before running the Upgrade Management Tool. The new connection name must be identical to the SAP Business Objects Enterprise XI 3.1 OLAP connection. Otherwise the voyager workspace won't get upgraded.



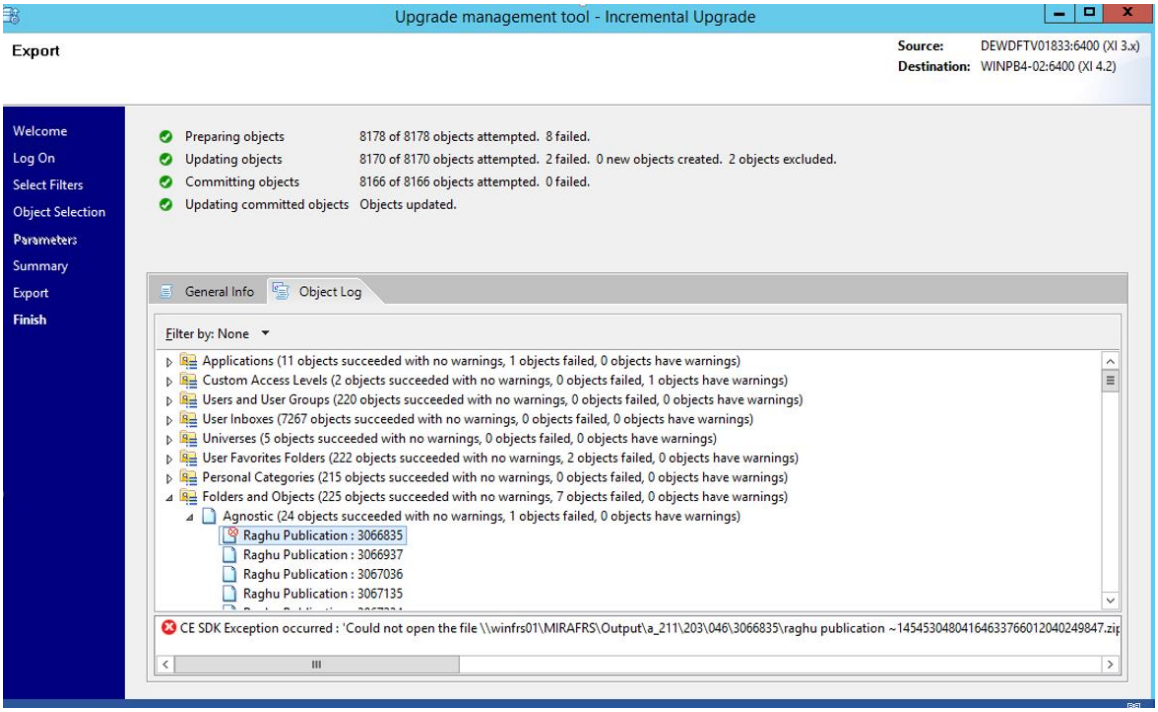

## Object Failures

You get the below error if the source file is corrupted. Therefore, check the source system for functional or corrupted or deleted object. Alternatively, run RepoScan to rectify these errors. For more information, see upgrade prerequisite section on how to run RepoScan.

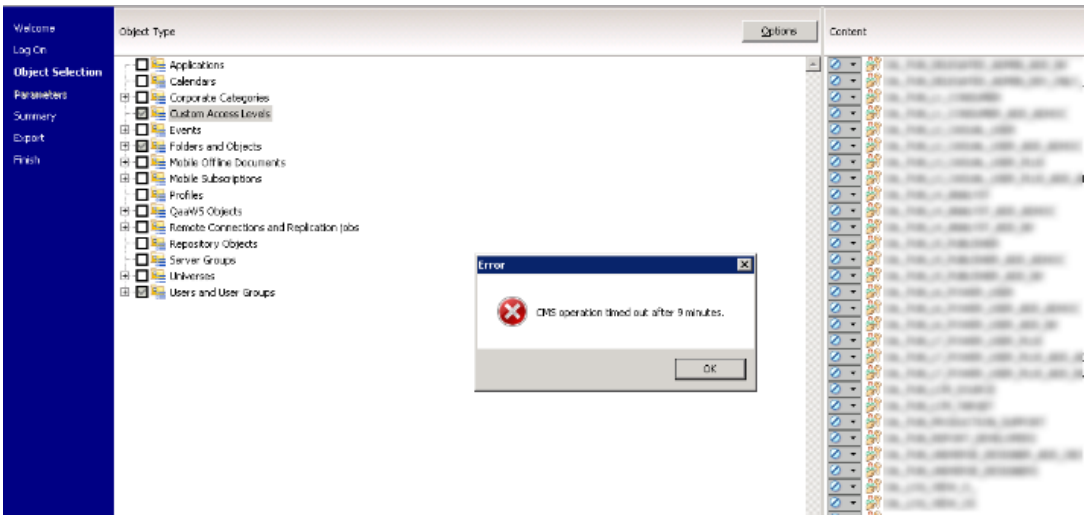


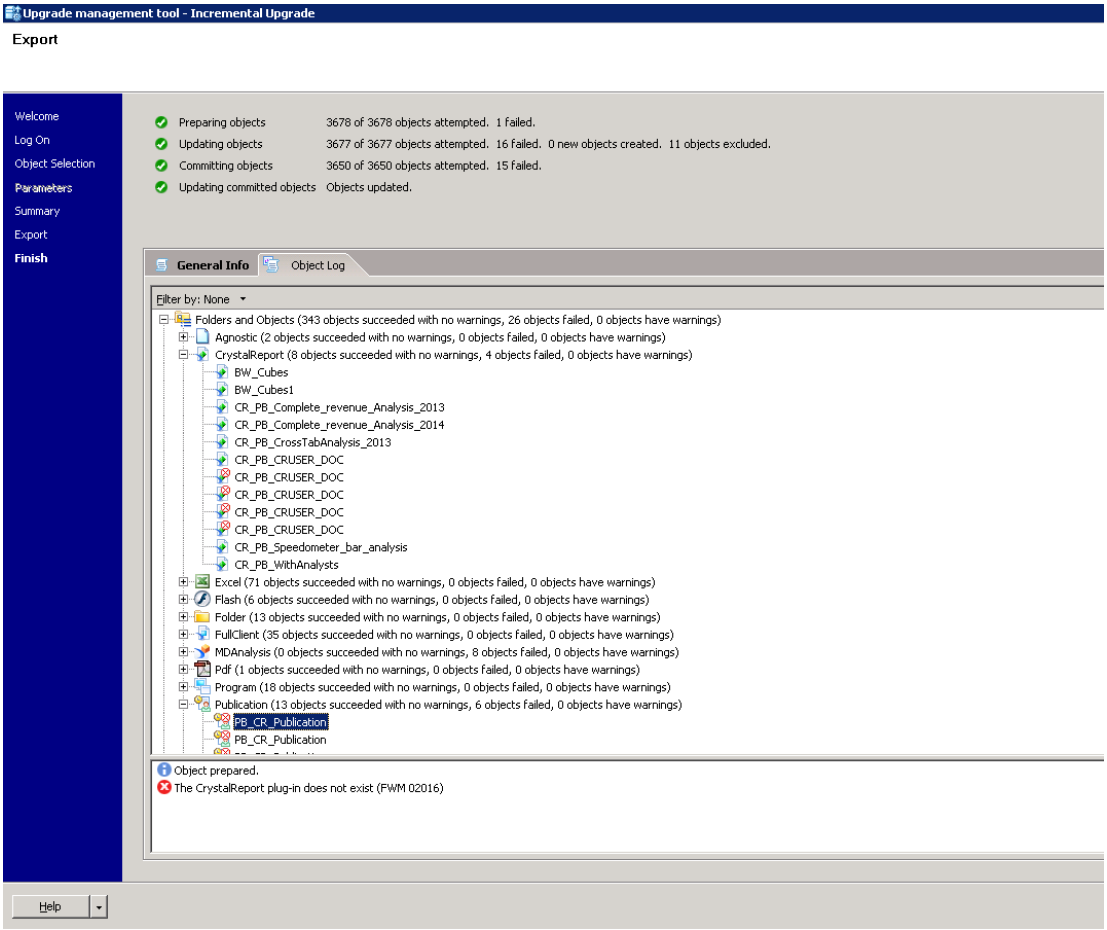
All output FRS errors are due to missing file / folder in the FRS. You get this error if the source file is corrupted.  Check the source system to know if the object is functional or corrupted or deleted. Alternatively, run reposcan to rectify the error. For more information, see the upgrade prerequisite section on how to run reposcan.




While upgrading users incrementally, UMT fails with timeout and CORBA connect errors as shown below. To resolve this issue, see [UMT time out resolution](#).



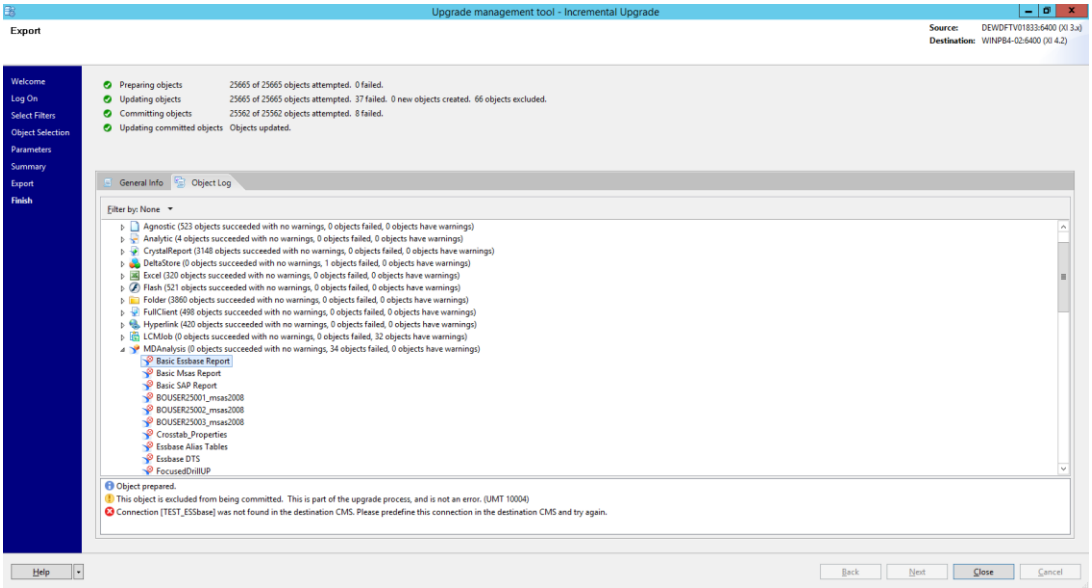
If UMT is installed on a separate machine, ensure that the full build of BI4.2 SP01 is installed on the same machine. Otherwise the following error occurs while upgrading reports: "**The CrystalReport plug-in does not exists (FWM 02016) ".** To resolve this issue, uninstall UMT and reinstall full BI 4.2 SP01 Platform server on the machine and stop the SIA. These installed binaries help UMT to run with the required behavior.



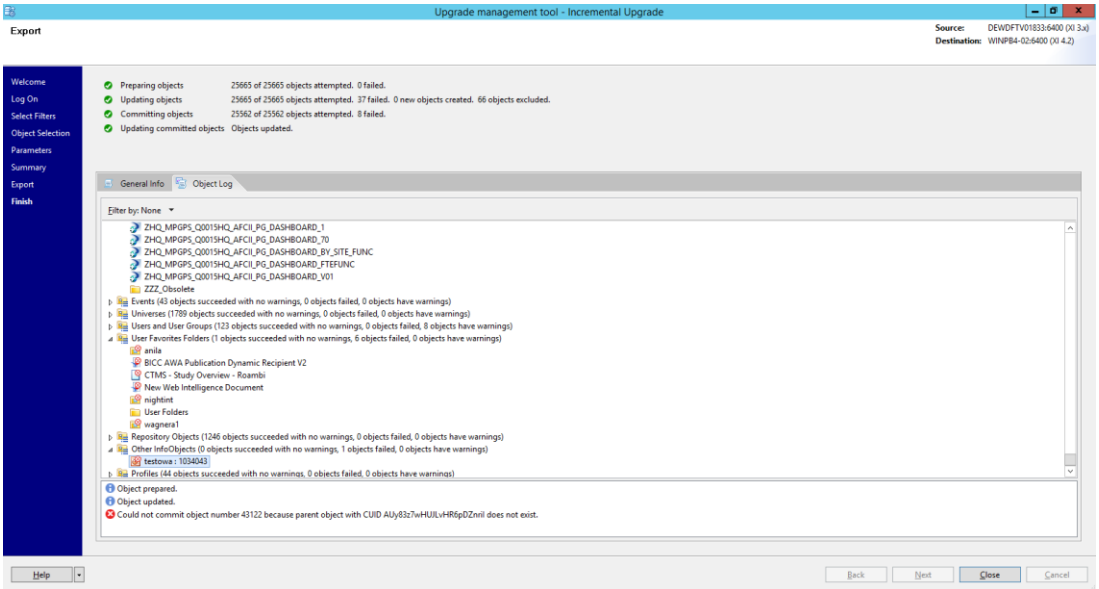

**Note**: Running UMT with incremental upgrade in the 2nd scenario took very long time (more than a week), but finally upgrade was successful. Usually such scenario is not recommended and unrealistic.

## Issues Experienced During Iteration 5

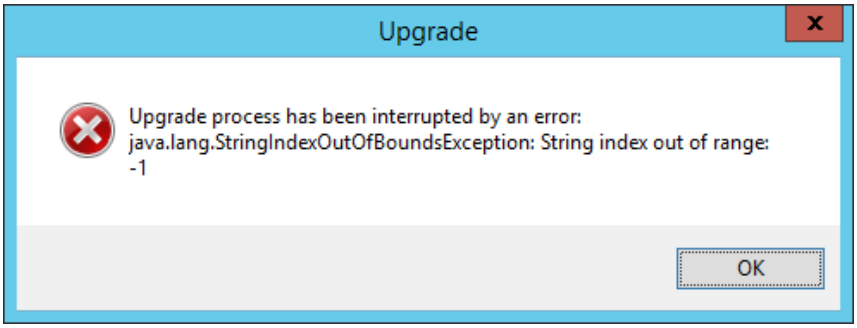
As a pre-requisite, Analysis connections have to be created prior to migration. If the analysis connections are not created then the reports or connections pertaining to the analysis object fails.




You get the below error if the entries are corrupt in the source system. Ensure that they exist in the source system. Alternatively, you can run RepoScan and check the report.




The issue shown in below screenshot is a known issue in BI 4.2 SP1 and has been fixed in SP2.The error occurs when you are trying to migrate AD user groups only from source keeping the Windows AD authentication disabled in the source system.


Upgrade
Upgrade process has been interrupted by an error:
java.lang.StringIndexOutOfBoundsException: String index out of range:
-1
OK