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# AVEVA™ System Platform migration and upgrading best practices

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# Why follow Best Practices ?

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# Agenda

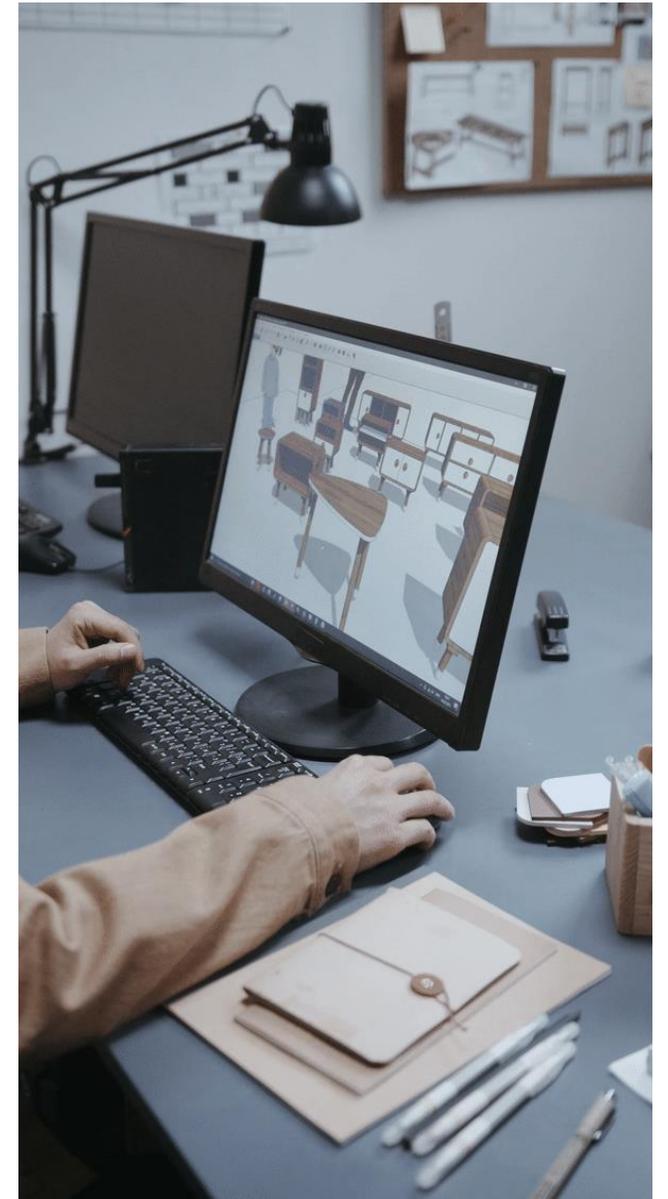
- Why follow Best Practices ?
- Things to take note within the Galaxy
- Actions to take before the Upgrade / Migration process
- Best practices for Upgrade and Migration

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# Best Practices

## Why adhere to best practices ?

- Ensure smooth and successful upgrade and migration.
- Preempt and prevent as many unknown issues as possible.
- Validation that the procedures work correctly before making changes to the actual production system.
- Planning helps to prevent failures and also provides contingency plans.

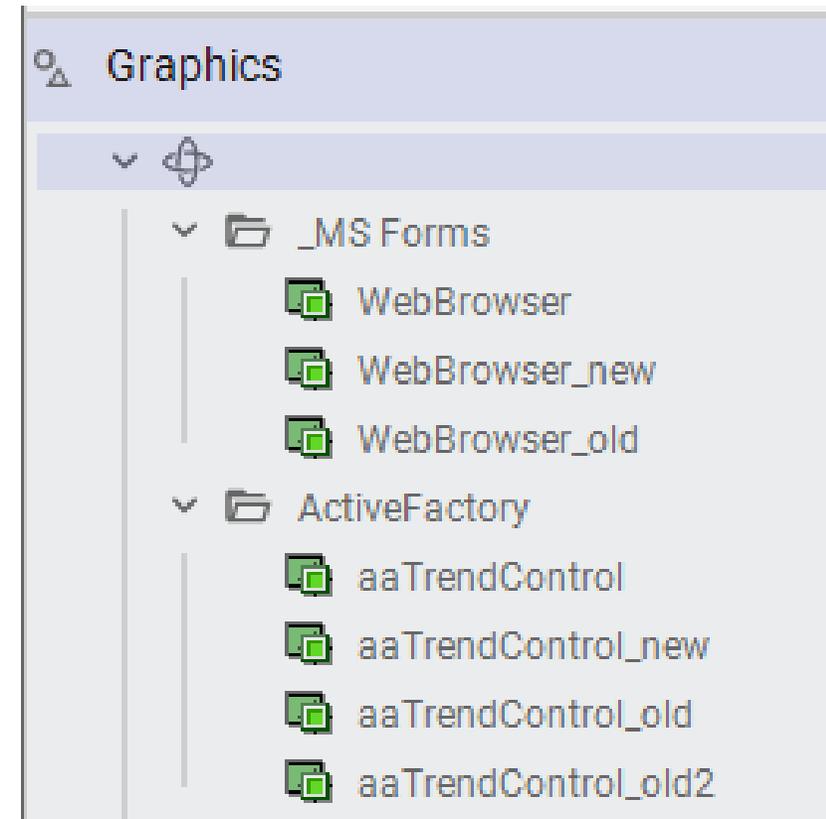


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# Things to take note within the Galaxy

# .NET Controls

- Look out for old and incompatible .NET Controls used within the Galaxy
- Look for the dates of the .NET Controls
- Delete duplicated .NET Controls
- If there are graphics associated with the duplicated .NET Control, update them to use the one to keep
- Check in the following folder for the .NET Controls associated files :
  - C:\Program Files (x86)\ArchestrA\Framework\FileRepository\[GalaxyName]\Vendors



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# ActiveX

- Look out for old and incompatible ActiveX used within the ManagedApp
- Look for the dates of the ActiveX

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# 3<sup>rd</sup> Party Components

- Look out for old and incompatible 3<sup>rd</sup> party component used within the Galaxy, example 32-bit / 64-bit
- Look for the dates of the 3<sup>rd</sup> party component (e.g. partners' or other 3<sup>rd</sup> party)
- Either remove the incompatible 3<sup>rd</sup> party component or replace it with one that is compatible
  - DreamReports -> AVEVA Reports for Operations

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# Actions to take before the upgrade / migration

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# Description of what needs to be upgraded

- Galaxy
- Historian
- Application Object Servers (AOS)
- View Clients



# Actions to consider before the process

- Following actions to take / consider before the upgrade / migration
- It will speed up the whole process

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# Upgrade and Migration

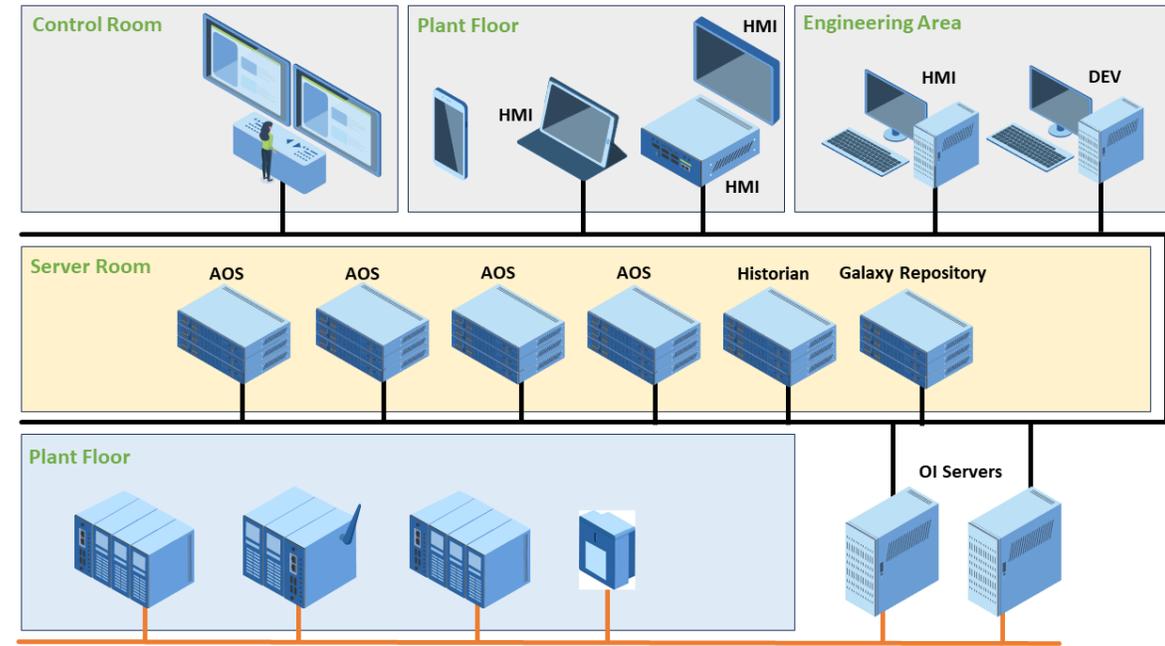
## Workflow for Upgrade and Migration of a running system

- Preparation
  - Review\Document current architecture including current software version information
  - Understand software upgrade requirements
  - Test migration on a shadow test system
  - Backup applications
- Execution
  - Install proper licensing
  - Migration Order: Historian, GR, AOS, Visualization
- Validation
  - Verify data and system functionality including redundancy, data collection\storage, visualization and that it is consistent when compared to pre-migration
  - Review Wonderware Logger Errors Warnings

# Upgrade and Migration

## Preparation for Upgrade and Migration

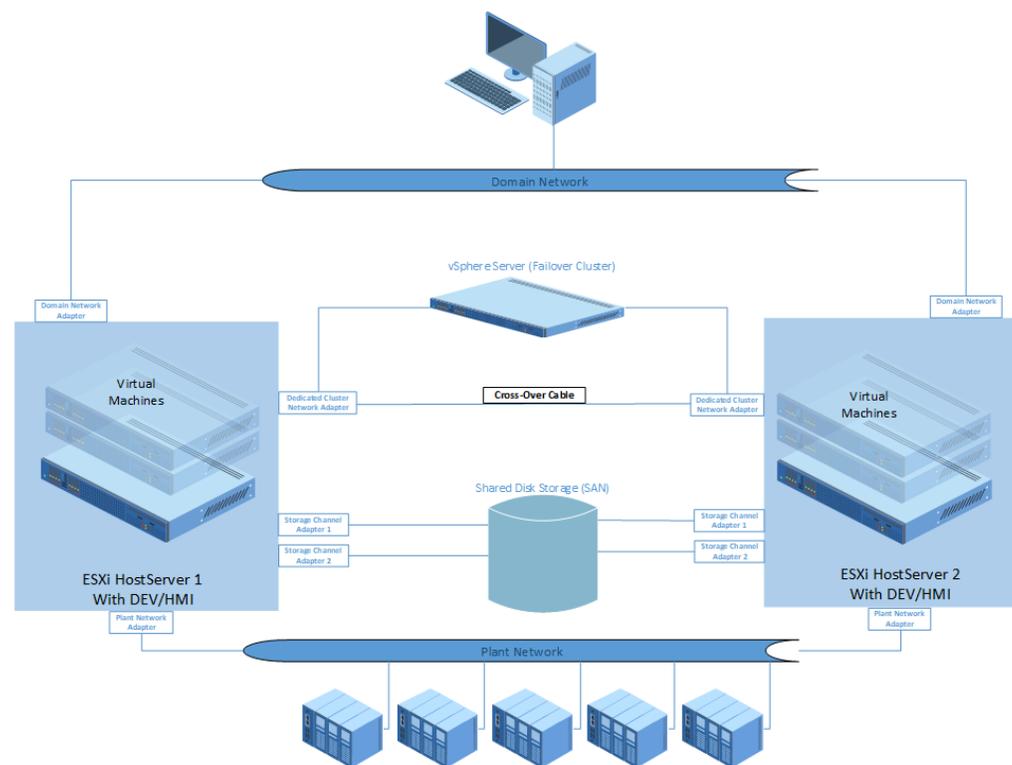
- Update system topology to include all computers involved



# Upgrade and Migration

## Preparation for Upgrade and Migration

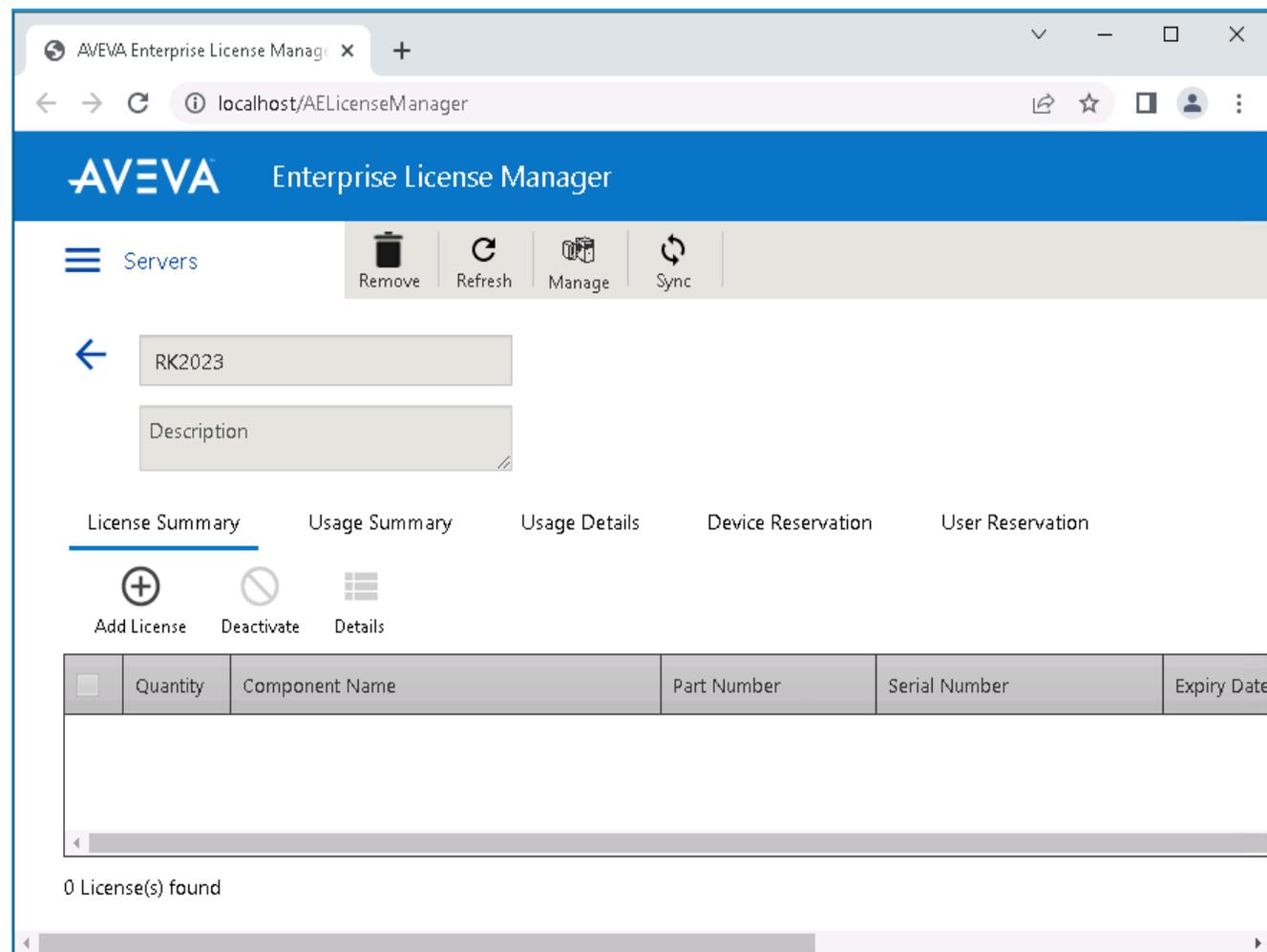
- Update system topology to include all computers involved
- Determine if a hardware platform change or a virtual environment is part of the plan



# Upgrade and Migration

## Preparation for Upgrade and Migration

- Update system topology to include all computers involved
- Determine if a hardware platform change or a virtual environment is part of the plan
- SQL Server or Operating System updates
- OI Server updates



The screenshot displays the AVEVA Enterprise License Manager web application. The browser address bar shows the URL `localhost/AELicenseManager`. The application header includes the AVEVA logo and the title "Enterprise License Manager". Below the header, there is a navigation menu with "Servers" selected. To the right of the menu are action buttons: "Remove", "Refresh", "Manage", and "Sync". A search bar contains the text "RK2023", and a "Description" field is visible below it. The main content area features several tabs: "License Summary" (selected), "Usage Summary", "Usage Details", "Device Reservation", and "User Reservation". Below the tabs are three icons: "Add License" (plus sign), "Deactivate" (minus sign), and "Details" (grid icon). A table with the following columns is shown: "Quantity", "Component Name", "Part Number", "Serial Number", and "Expiry Date". The table is currently empty, and the text "0 License(s) found" is displayed below it.

# Upgrade and Migration

## Preparation for Upgrade and Migration

- Update system topology to include all computers involved
- Determine if a hardware platform change or a virtual environment is part of the plan
- SQL Server or Operating System updates
- OI Server updates
- Download any necessary AVEVA patch updates

The screenshot shows the 'Filters' panel in the AVEVA software interface. At the top, there is a 'Filters' header with an 'Apply Preferences' button. Below this, the 'Products (1)' section is active, displaying a search bar with 'Application Server' entered. A list of product categories is shown with checkboxes: Ampla, APC, Application Server (checked), Archedra Workflow, ARPM, and Asset Strategy Optimization. Below the product list is a 'Date Range' section with 'Start Date' and 'End Date' input fields, each accompanied by a calendar icon.

The screenshot shows the 'Downloads' page in the AVEVA software interface. At the top, there are navigation tabs for 'Downloads', 'Documents', and 'Videos'. On the right, there are links for 'Related Tech Notes, FAQs...' and 'Favorites'. Below the navigation, it indicates 'Page 1 of 3. [Total: 26 items]' and a 'Sort By' dropdown menu set to 'Relevance', along with an 'Export' button. The main content area displays a list of available updates, each with a title, date, version, and product information, and a bookmark icon on the right.

Product Name	Date	Version	Product
AVEVA System Platform	11 Nov 2022	Version: 2020 R2 SP1 P01	Product: Multiple
Archedra Logger Security Update	14 Aug 2018	Version: 2017.426.2307.1	Product: Application Server
Application Server	31 Jul 2017	Version: 2014 R2 SP1 P02 (ZIP)	Product: Application Server
Wonderware Application Server 2012 R2 P02	06 Jul 2014	Version: 2012 R2 P02	Product: Application Server
Wonderware® Galaxy Database Scrubber 2012 R2 Utility	06 Jan 2014	Version: 2012 R2	Product: Application Server

# Upgrade and Migration

## Preparation for Upgrade and Migration

- Update system topology to include all computers involved
- Determine if a hardware platform change or a virtual environment is part of the plan
- SQL Server or Operating System updates
- OI Server updates
- Download any necessary AVEVA patch updates
- Obtain license upgrades

The screenshot shows a web interface for searching AVEVA products. On the left, a 'Filters' panel is open, showing 'Products (1)' with 'Application Server' selected. The main area displays search results for 'Application Server'. The first result is 'AVEVA System Platform', dated 11 Nov 2022, with version 2020 R2 SP1 P01. The second result is 'ArchestrA Logger Security Update'.

## Communication Drivers

This page lists all OI, DA and other connectivity applications, including product documentation and videos. You can sort the columns and refine the list using the options in the left panel. Click the **Related Tech Notes, FAQs** button to view the Tech Notes and FAQs related to the selected products.

**Important:** Since Windows regards downloaded files as potentially unsafe, it will block the file from executing after it has been downloaded. Before unzipping the \*.zip mounting the \*.iso file, unblock the file by right-clicking to access Properties, then click **Unblock**.

Looking for product downloads? Click [HERE](#).

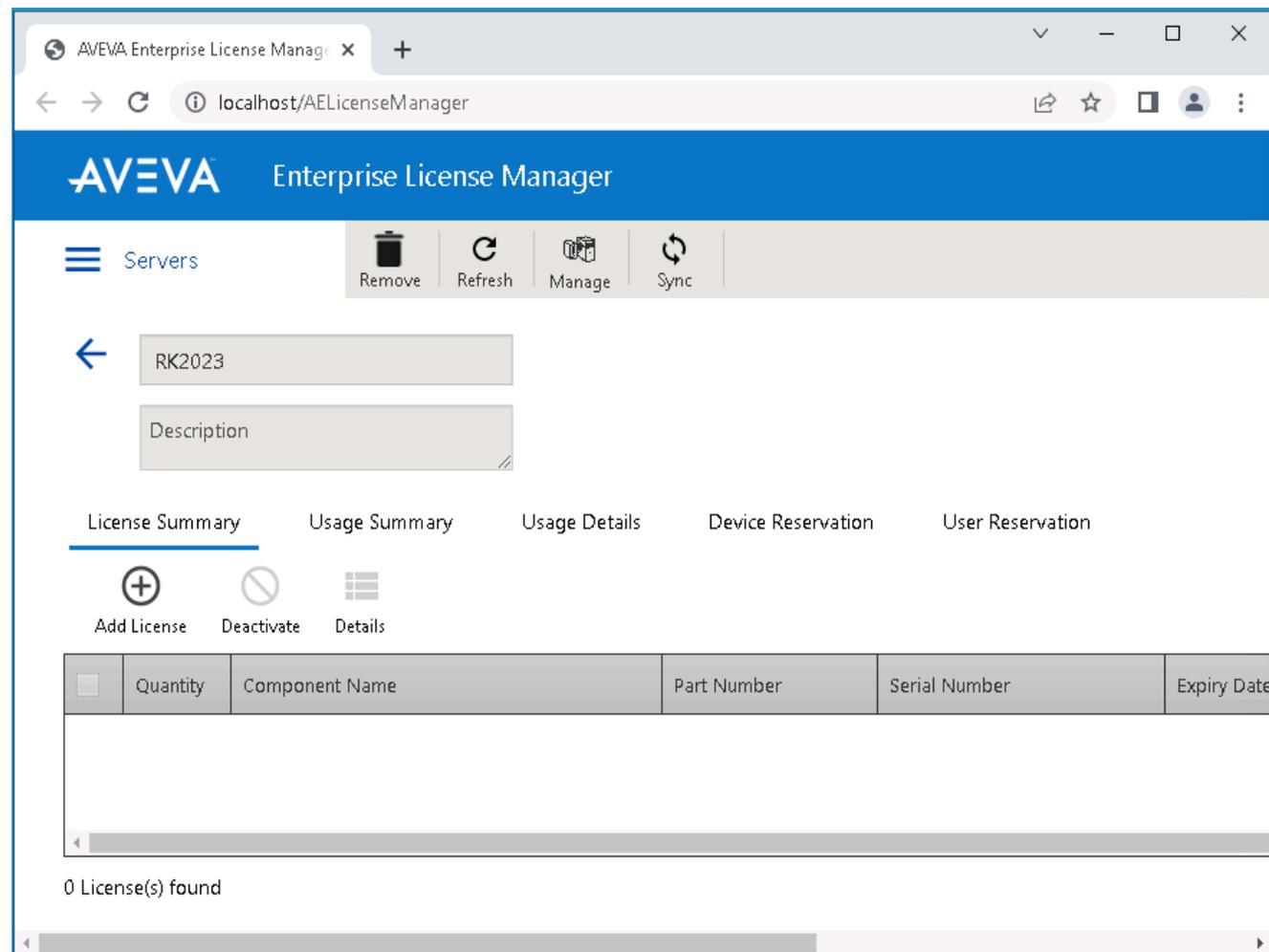
Looking for product bundles, Industry Applications and Aquis/Termis downloads? Click [HERE](#).

The screenshot shows the same AVEVA product search interface, but with 'Products (3)' selected in the filters. The search results are filtered to show 'AVEVA Communication Drivers Pack' items. The first result is 'AVEVA Communication Drivers Pack: ABCIP', dated 13 Jan 2021, with version 2020 R2. The second result is 'AVEVA Communication Drivers Pack: MBTCP', also dated 13 Jan 2021, with version 2020 R2. The third result is 'AVEVA Communication Drivers Pack: ABTCP', dated 13 Jan 2021, with version 2020 R2.

# Upgrade and Migration

## Preparation for Upgrade and Migration

- Update system topology to include all computers involved
- Determine if a hardware platform change or a virtual environment is part of the plan
- SQL Server or Operating System updates
- OI Server updates
- Download any necessary AVEVA patch updates
- Obtain license upgrades



# Upgrade and Migration

## Preparation for Upgrade and Migration...cont'd

- Coordination with IT\Network Team:
  - Microsoft Windows Updates are in place, Check Security Central for support

## Security Central

Posted	Report	Status	MS Security	Description	Microsoft KB/OS
Jan 10, 2023	WW23-009	In Testing	Release Notes	Microsoft Office (KB5002332, KB5002336, KB5002335, KB50...	<a href="#">View</a>
Jan 10, 2023	WW23-008	In Testing	Release Notes	Monthly Rollup for Windows (KB5022352, KB5022348)	<a href="#">View</a>
Jan 10, 2023	WW23-007	In Testing	Release Notes	Security-Only update for Windows (KB5022346, KB5022343)	<a href="#">View</a>
Jan 10, 2023	WW23-006	In Testing	Release Notes	Windows 11 Version 22H2 (KB5022303)	<a href="#">View</a>
Jan 10, 2023	WW23-005	In Testing	Release Notes	Windows 11 Version 21H2 (KB5022287)	<a href="#">View</a>
Jan 10, 2023	WW23-	In Testing	Release Notes	Windows Server 2022 (KB5022291)	<a href="#">View</a>

# Upgrade and Migration

## Preparation for Upgrade and Migration...cont'd

- **Coordination with IT\Network Team:**
  - Microsoft Windows Updates are in place, Check Security Central for support
  - Necessary ports are updated in any external Firewall

### Application Server & System Platform

DCOM	135/tcp
File and printer sharing	445/tcp
SQL TCP	1433/tcp
SQL Server Browser	1434/udp
Ports	1024 to 65535 TCP

### Application Server & System Platform Multi-Galaxy

ASBGRBrowsing Service	7500	(default, configurable)
ASBMxDataProvider Service	3572	(default, configurable)
ASBAuthentication Service	7779	(default, configurable)
Local Discovery Server	9111	
Primary Local Galaxy	9110	
Secondary Local Galaxy Server	9210	
Primary Cross Galaxy Server	9310	
Secondary Cross Galaxy Server	9410	
Galaxy Pairing	7085	
Configuration Service	6332	
Content Provider Service	6011	
Deploy Agent Service	6533, 6633	
Service Manager Service	6111, 6113	
System Authentication Service	9876	

# Upgrade and Migration

## Preparation for Upgrade and Migration...cont'd

- Coordination with IT\Network Team:
  - Microsoft Windows Updates are in place, Check Security Central for support
  - Necessary ports are updated in any external Firewall
  - AVEVA Files and Folders excluded from Anti Virus Scan
  - Any additionally needed hard disk space added
    - For Checkpoint files
    - For Store forward blocks
    - For Galaxy Database file

Exclude these ArcestrA folders in a 64-bit system:

- C:\ProgramData\ArcestrA\ and all subfolders
- C:\Program Files\Common Files\ArcestrA\
- C:\Program Files (x86)\ArcestrA\
- C:\Program Files (x86)\Common Files\ArcestrA\
- C:\Program Files (x86)\FactorySuite\ (The FactorySuite directory may not exist in newer installations)
- C:\Program Files (x86)\Wonderware\
- C:\Users\All Users\Wonderware\
- C:\Users\Public\Wonderware\
- C:\InSQL\Data\ (The InSQL folder may not exist in newer installations)
- C:\Historian\Data\

Exclude these folders:

- History Store Forward directory in 32- and 64-bit systems:
- C:\Users\All Users\ArcestrA\ (default location) Checkpoint directory location default location in a 32-bit system:
  - C:\Program Files\ArcestrA\Framework\bin\ Checkpoint directory location default location in a 64-bit system:
- C:\Program Files (x86)\ArcestrA\Framework\bin\ InTouch HMI Application folder path:
- C:\Users\Public\Wonderware\IntouchApplications (default folder path) You can select an application folder path when an InTouch HMI application is created SMC Logger Storage file path:
- C:\ProgramData\ArcestrA\LogFiles\
- C:\Documents and Settings\All Users\Application data\ArcestrA\LogFiles\ Exclude these files from the
- C:\Windows\Temp folder: \*.aFDX Location of SQL Server database files to be excluded: 32-bit systems:
- C:\Program Files\Microsoft SQL Server\MSSQL.MSSQLSERVER\MSSQL\DATA\ (will vary by SQL Server version) 64-bit systems:
- C:\Program Files (x86)\Microsoft SQL Server\MSSQL.MSSQLSERVER\MSSQL\DATA\ (will vary by SQL Server version)

Exclude SQL Server database files within this directory of the following types:

- .mdf
- .ldf

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# Upgrade and Migration

## Preparation for Upgrade and Migration...cont'd

- Coordination with IT\Network Team:
  - Microsoft Windows Updates are in place, Check Security Central for support
  - Necessary ports are updated in any external Firewall
  - AVEVA Files and Folders excluded from Anti Virus Scan
  - Any additionally needed hard disk space added
    - For Checkpoint files
    - For Store forward blocks
    - For Galaxy Database file

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# Upgrade and Migration

## Preparation for Upgrade and Migration...cont'd

- Backups
  - Create a snapshot of VMs of all nodes of the production system, if running in a Virtual Environment
  - Create a ghost image/backup of all nodes of the production system, if running on physical machines
  - Upload runtime changes, if any runtime data needs to be persisted
  - Create a backup of galaxy using the Galaxy Database Manager in SMC
  - Export the custom client controls
  - Export all automation objects into an aaPKG as a secondary backup
  - Export DAS\OI Server Configurations

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# Check on Galaxy Integrity

- Check on Galaxy DB integrity to make sure it is ready for upgrade / migration
- Fix whatever known issues there are within the existing Galaxy
- Should not take upgrading/migration as a method to fix existing issues. If the issue/bug has not been addressed in the newer version, the upgrade/migration will not address the problem.
- Some issues, if they are already addressed in the newer version, will be fixed after the upgrade/migration.

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# Shrink the Galaxy DB

- Shrink the Galaxy DB before the upgrade/migration
- Not only will it take longer if this step is not taken, the Galaxy BAK will be very bulky



# Clean up of ManagedApp

- Delete non necessary files
- Clean up extra additional folders – Duplicated folders etc etc

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# Export / Import of Galaxy DB

- If there are pre-existent issues in the older Galaxy, it would be best to perform an export and import of objects at that version before the upgrade/migration
- Do not export the aaPKG in an old version and then import that aaPKG into the new version. Fix the problem using the same version.
- Some customers have existing issue within their Galaxy DB.
- Take note of Galaxies using the Base Template Library (BTL).

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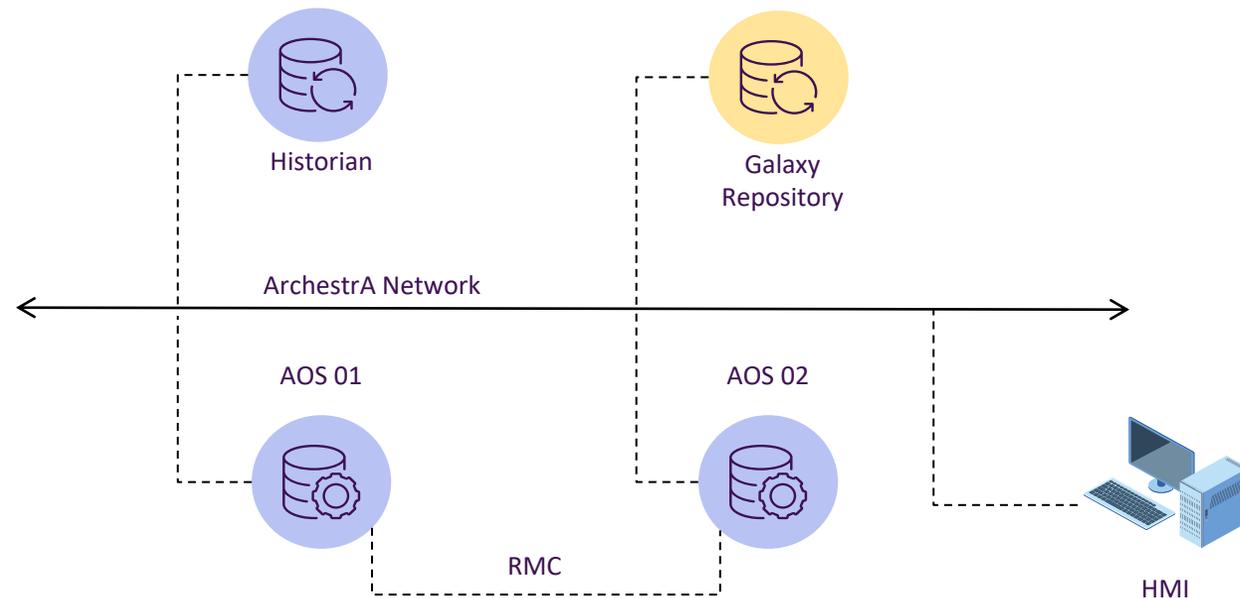
# Best practices for Upgrade and Migration

# Upgrade and Migration

## Upgrade and Migration Case Study

- **Scenario**

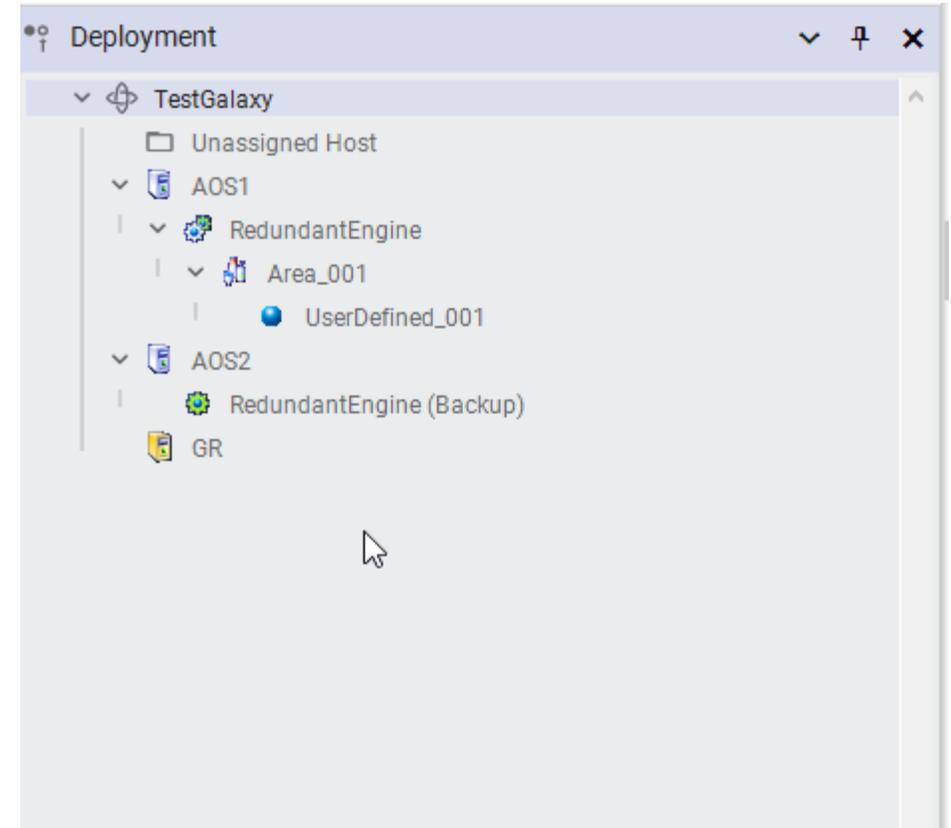
- A simple Galaxy having 3 platforms Galaxy Repository (GR), Application Object Servers (AOS1 and AOS2).
- AOS1 and AOS2 platforms configured for redundancy hosting a redundant engine.
- AOS1 runs the primary engine as the active engine and AOS2 runs the backup engine as the standby engine.



# Upgrade and Migration

Different approaches to upgrade and migration

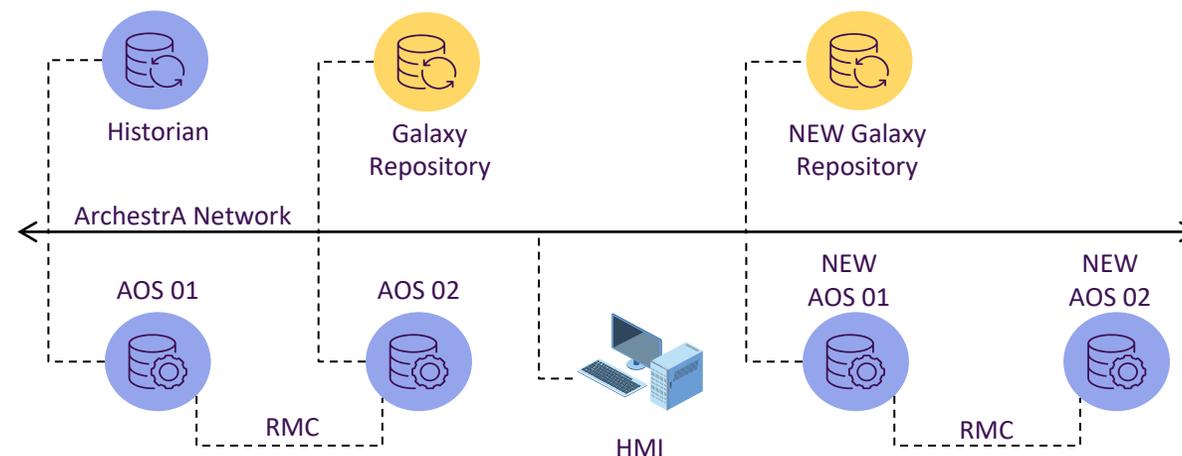
- Parallel Galaxy
- In-place Rolling Upgrade
- Node Replacement Upgrade



# Upgrade and Migration

## Parallel Galaxy Steps

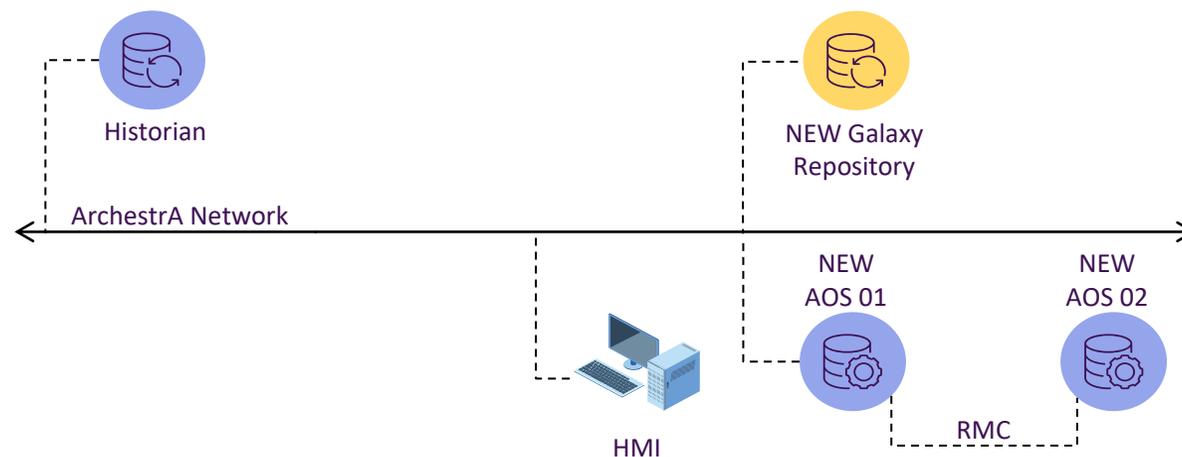
- Setup new nodes for GR, AOS1 and AOS2
- Node names and IP addresses should be different to avoid conflict with existing platforms
- Restore the Galaxy cab file on the new GR Node and migrate the Galaxy
- Change the network address of the GR, AOS1 and AOS2 platform objects to match the new node names
- Deploy the GR Platform
- Deploy AOS1 Platform without selecting the cascade Deploy option
- Deploy AOS2 Platform without selecting the cascade Deploy option
- Deploy redundant engine including the partner engine
- Ensure that new Galaxy is operational very similar to the current Galaxy
- 



# Upgrade and Migration

## Parallel Galaxy Steps

- Setup new nodes for GR, AOS1 and AOS2
- Node names and IP addresses should be different to avoid conflict with existing platforms
- Restore the Galaxy cab file on the new GR Node and migrate the Galaxy
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- Deploy the GR Platform
- Deploy AOS1 Platform without selecting the cascade Deploy option
- Deploy AOS2 Platform without selecting the cascade Deploy option
- Deploy redundant engine including the partner engine
- Ensure that new Galaxy is operational very similar to the current Galaxy
- Decommission the old Galaxy platform nodes



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# Upgrade and Migration

## Parallel Galaxy...cont'd

- **Pros**

- Simplest way of upgrading the Galaxy.
- Ideal for situations where hardware and operating system as well need an upgrade.
- Gives an opportunity to compare the old and new Galaxy operations side by side.
- No downtime, old Galaxy can be decommissioned only after ensuring that new Galaxy is completely operational.

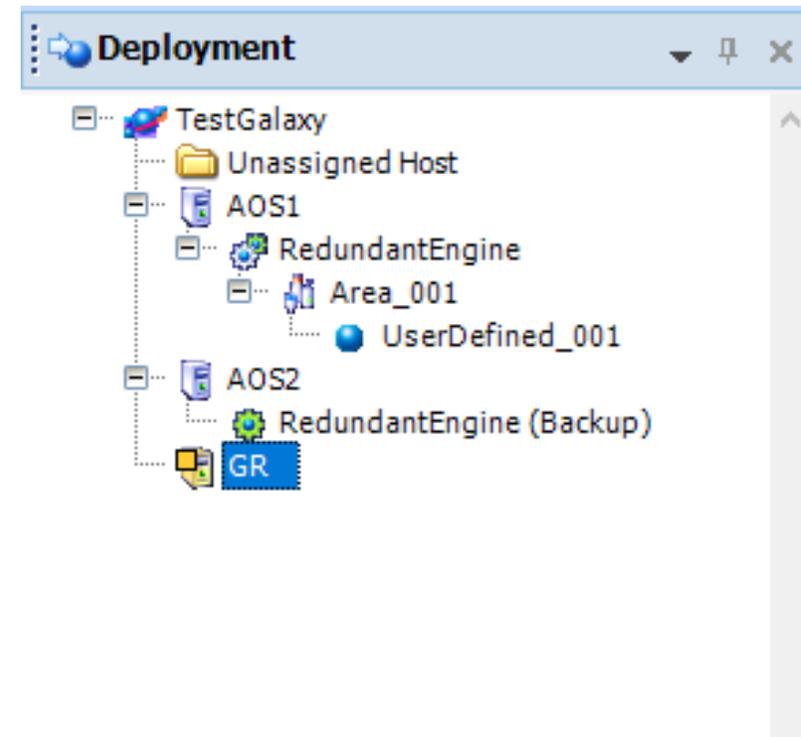
- **Cons**

- As the node names get changed for the platform nodes, scripts ( that reference the nodes by name), need to be updated as well.
- If a same PLC is referenced by both the Galaxies, objects in both Galaxies may write to the PLC items.

# Upgrade and Migration

## In-place Rolling Upgrade Steps

- Undeploy the GR Platform
- Upgrade the GR Node by installing higher version of the Application Server software
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# Upgrade and Migration

## In-place Rolling Upgrade Steps

- Undeploy the GR Platform
- Upgrade the GR Node by installing higher version of the Application Server software
- Launch IDE and migrate the Galaxy
- 
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### Connect To Galaxy

Galaxy TestGalaxy is an older version (6150.0474.2064.4). This galaxy database, including all its objects, will be compacted then migrated to the installed version (6430.0474.2146.1). Please launch ArcestrA Log Viewer to monitor the migration progress.

Do you want to migrate now?

No

Yes

# Upgrade and Migration

## In-place Rolling Upgrade Steps

- Undeploy the GR Platform
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- Launch IDE and migrate the Galaxy
- 
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### Migrate Galaxy

Successfully migrated galaxy TestGalaxy on TESTGR. Please review the details below.

#### Details

```
8/28/2023 8:32:44 AM Default ASB Service instance has been created and started.
8/28/2023 8:32:44 AM Default Alarm Priority has been loaded successfully.
8/28/2023 8:32:44 AM Default Credential types are successfully loaded.
8/28/2023 8:32:45 AM Migrating ArchestrA App - 'MapApp.aaPKG'
8/28/2023 8:32:49 AM Migrating ArchestrA App - 'InSightApp.aaPKG'
8/28/2023 8:32:52 AM Migrating ArchestrA App - 'NavigationApp.aaPKG'
8/28/2023 8:32:55 AM Importing ArchestrA App - 'WWWWebAppControls.aaPKG'
8/28/2023 8:32:59 AM Migrating ArchestrA App - 'AlarmApp.aaPKG'
8/28/2023 8:33:02 AM Migrating ArchestrA App - 'ContentPresenterApp.aaPKG'
8/28/2023 8:33:04 AM Migrating ArchestrA App - 'HamburgerApp.aaPKG'
8/28/2023 8:33:07 AM Migrating ArchestrA App - 'HistoricalTrendApp.aaPKG'
8/28/2023 8:33:10 AM Migrating ArchestrA App - 'TitleBarApp.aaPKG'
8/28/2023 8:33:13 AM Migrating ArchestrA App - 'DocViewerApp.aaPKG'
8/28/2023 8:33:16 AM Migrating ArchestrA App - 'PDFViewerApp.aaPKG'
8/28/2023 8:33:18 AM Migrating ArchestrA App - 'SpreadsheetViewerApp.aaPKG'
8/28/2023 8:33:21 AM Migrating ArchestrA App - 'ImageViewerApp.aaPKG'
8/28/2023 8:33:24 AM Migrating ArchestrA App - 'GraphicRepeaterApp.aaPKG'
```

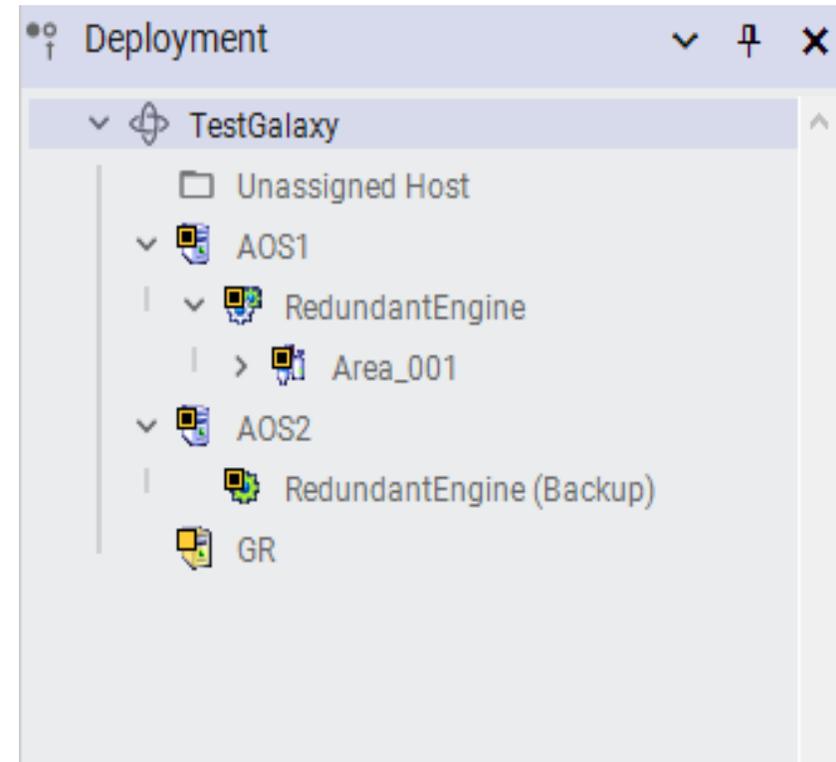
00:10:56.360

Close

# Upgrade and Migration

## In-place Rolling Upgrade Steps

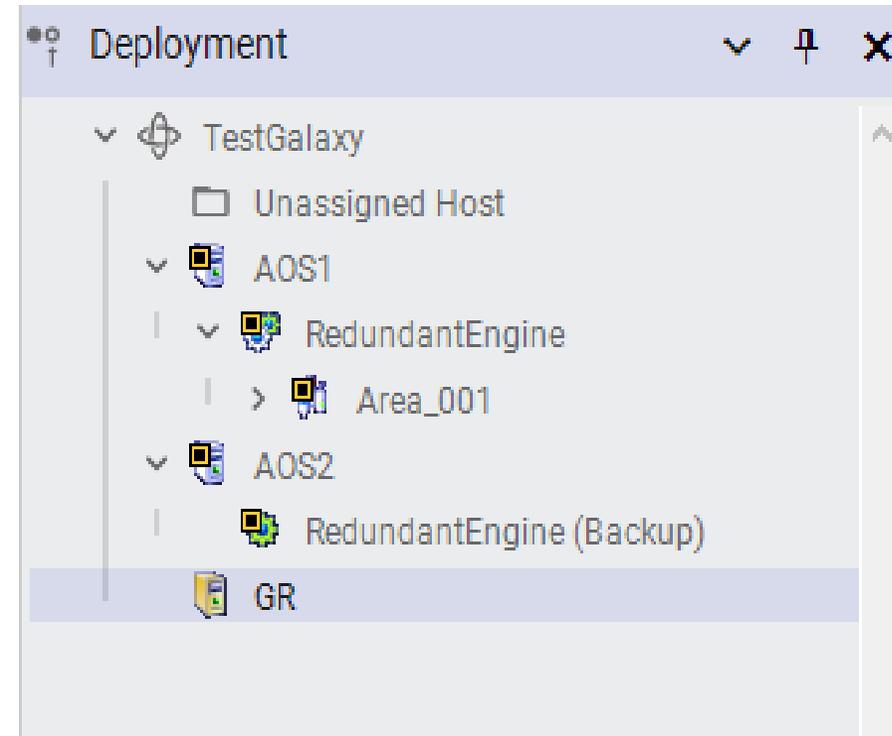
- Undeploy the GR Platform
- Upgrade the GR Node by installing higher version of the Application Server software
- Launch IDE and migrate the Galaxy
- Ensure that all the other deployed instances on AOS1 and AOS2 are flagged as Software Update Pending (SUP)
- 
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# Upgrade and Migration

## In-place Rolling Upgrade Steps

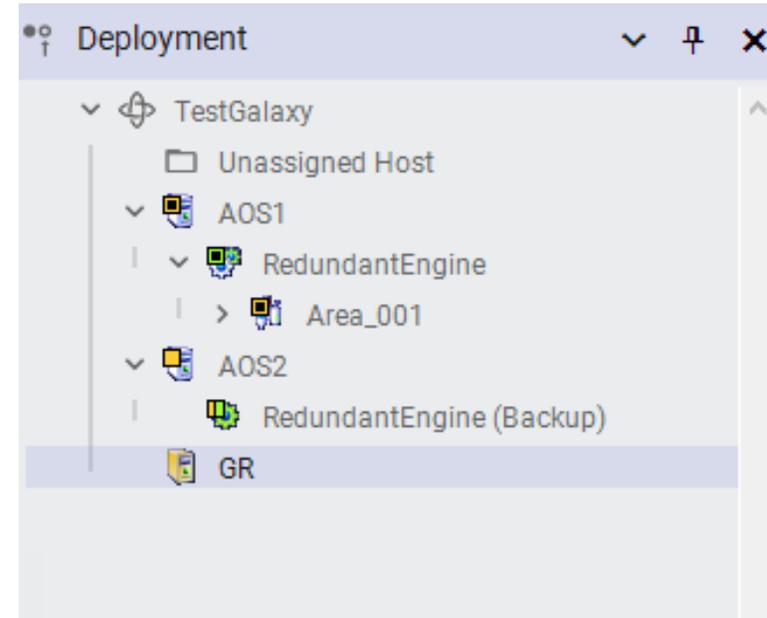
- Undeploy the GR Platform
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- Ensure that all the other deployed instances on AOS1 and AOS2 are flagged as Software Update Pending (SUP)
- Deploy the GR Platform
- 
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# Upgrade and Migration

## In-place Rolling Upgrade Steps

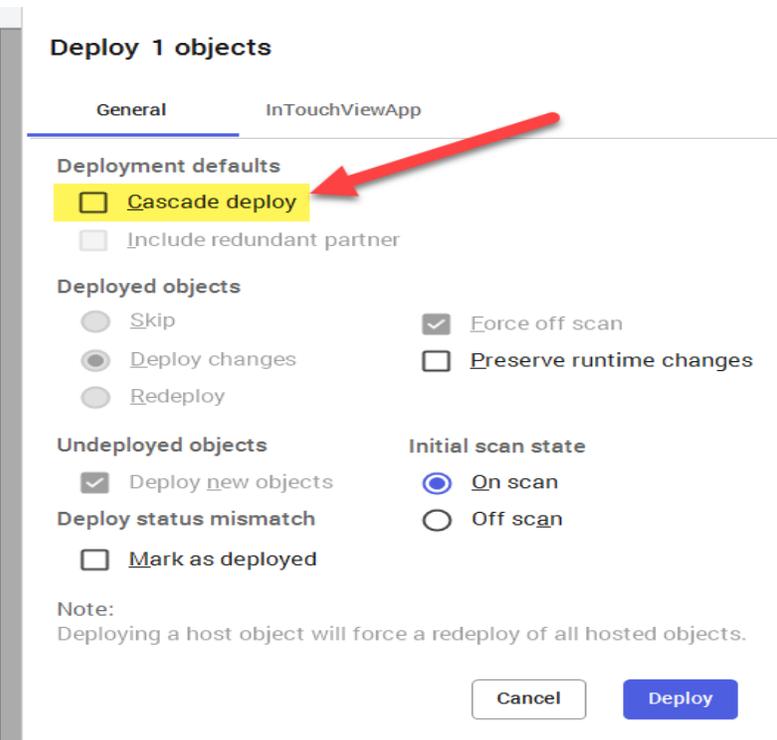
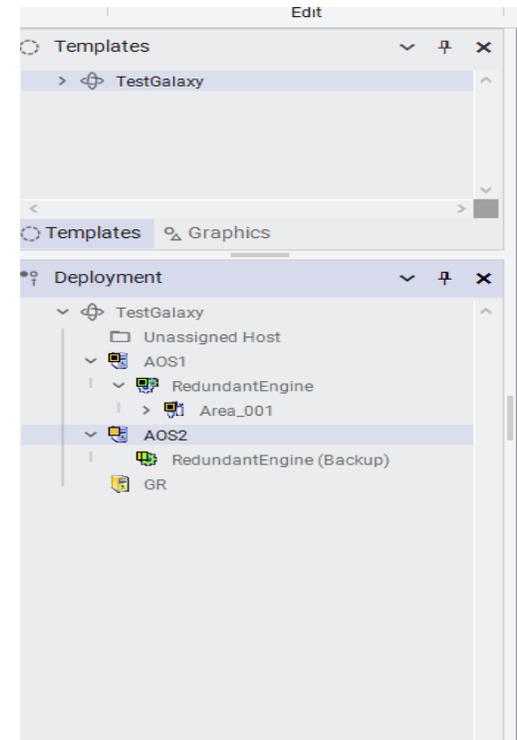
- Undeploy the GR Platform
- Upgrade the GR Node by installing higher version of the Application Server software
- Launch IDE and migrate the Galaxy
- Ensure that all the other deployed instances on AOS1 and AOS2 are flagged as Software Update Pending (SUP)
- Deploy the GR Platform
- Upgrade the AOS2 platform which is running the stand by engine with higher version of the Application Server software
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# Upgrade and Migration

## In-place Rolling Upgrade Steps

- Undeploy the GR Platform
- Upgrade the GR Node by installing higher version of the Application Server software
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- Upgrade the AOS2 platform which is running the stand by engine with higher version of the Application Server software
- Verify that platform object of AOS2 is in the undeployed state in the deployment tab
- Deploy the AOS2 platform by not selecting the “Cascade Deploy” option
- 



# Upgrade and Migration

## In-place Rolling Upgrade Steps

- Undeploy the GR Platform
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- Deploy the AOS2 platform by not selecting the “Cascade Deploy” option
- 

### Deploying Objects

Deploy complete. Please review the details below.

#### Details

```
8/28/2023 10:38:00 AM Validating connected galaxy...
8/28/2023 10:38:01 AM Validating GRNodeInfo...
8/28/2023 10:38:01 AM Checking whether objects being deployed require software upgrade...
8/28/2023 10:38:01 AM Sorting and Validating 1 object(s) starting from AOS2 hosted by platform AOS2 for de
8/28/2023 10:38:01 AM Deploying 1 Platform(s) starting with AOS2 hosted by TestGalaxy
8/28/2023 10:39:28 AM [SUCCESS] Deploy Completed: Deployed 1 object(s) out of a total 1 selected object(s)
8/28/2023 10:39:28 AM Optimizing the galaxy database...
```

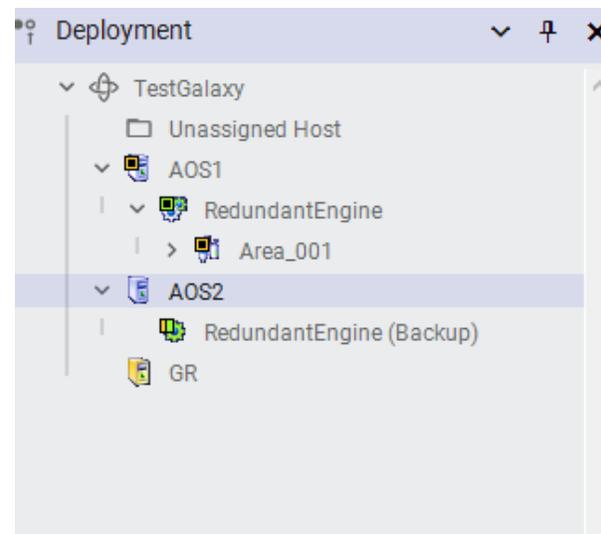
00:01:27.782

Close

# Upgrade and Migration

## In-place Rolling Upgrade Steps

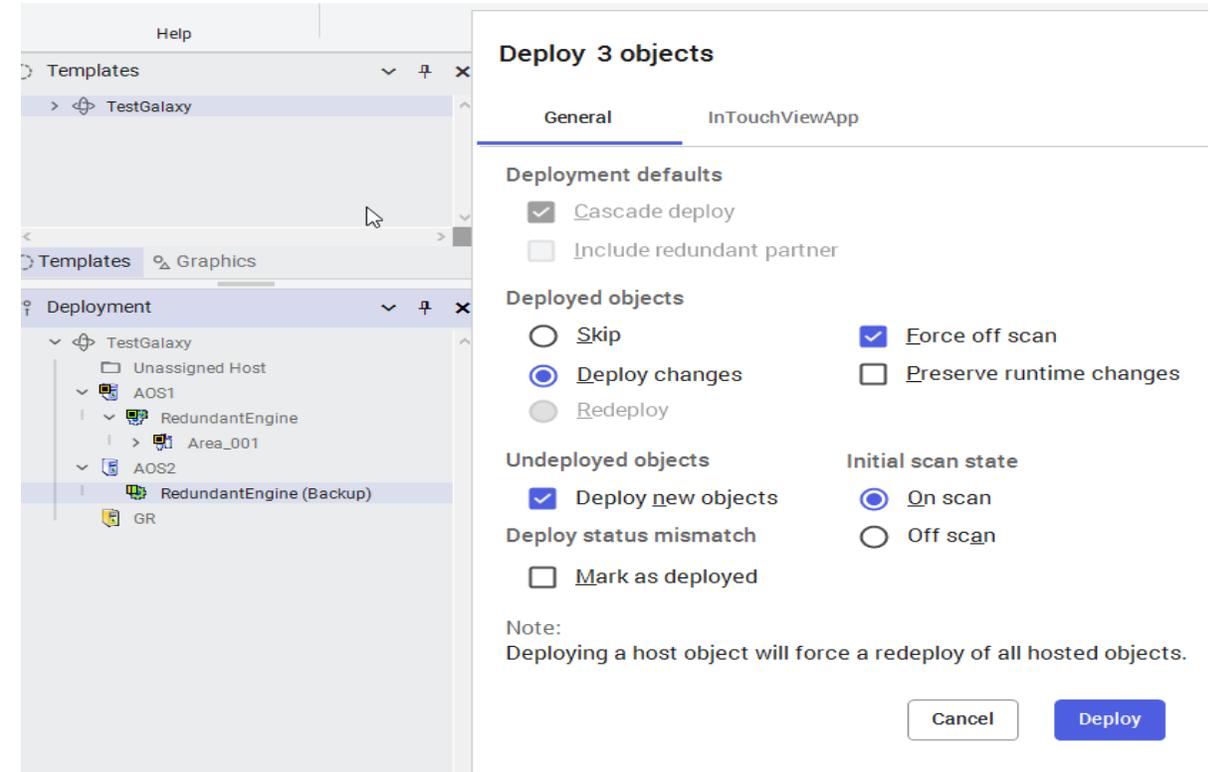
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- Undeploy the GR Platform
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- Launch IDE and migrate the Galaxy
- Ensure that all the other deployed instances on AOS1 and AOS2 are flagged as Software Update Pending (SUP)
- Deploy the GR Platform
- Upgrade the AOS2 platform which is running the stand by engine with higher version of the Application Server software
- Verify that platform object of AOS2 is in the undeployed state in the deployment tab
- Deploy the AOS2 platform by not selecting the “Cascade Deploy” option
- Deploy the backup engine with “Cascade Deploy” option pre-selected



# Upgrade and Migration

## In-place Rolling Upgrade Steps

- Undeploy the GR Platform
- Upgrade the GR Node by installing higher version of the Application Server software
- Launch IDE and migrate the Galaxy
- Ensure that all the other deployed instances on AOS1 and AOS2 are flagged as Software Update Pending (SUP)
- Deploy the GR Platform
- Upgrade the AOS2 platform which is running the stand by engine with higher version of the Application Server software
- Verify that platform object of AOS2 is in the undeployed state in the deployment tab
- Deploy the AOS2 platform by not selecting the “Cascade Deploy” option
- Deploy the backup engine with “Cascade Deploy” option pre-selected

### Archestra

The hosted objects under the partner engine are in Software Upgrade Required (SUR) state. The hosted objects will be forced to deploy during deployment of redundant application engine(s).

Do you wish to continue deployment?

Cancel

OK

# Upgrade and Migration

## In-place Rolling Upgrade Steps

- Undeploy the GR Platform
- Upgrade the GR Node by installing higher version of the Application Server software
- Launch IDE and migrate the Galaxy
- Ensure that all the other deployed instances on AOS1 and AOS2 are flagged as Software Update Pending (SUP)
- Deploy the GR Platform
- Upgrade the AOS2 platform which is running the stand by engine with higher version of the Application Server software
- Verify that platform object of AOS2 is in the undeployed state in the deployment tab
- Deploy the AOS2 platform by not selecting the “Cascade Deploy” option
- Deploy the backup engine with “Cascade Deploy” option pre-selected

### Deploying Objects

Deploy complete. Please review the details below.

#### Details

```
8/28/2023 10:42:13 AM Validating connected galaxy...
8/28/2023 10:42:14 AM Validating GRNodeInfo...
8/28/2023 10:42:14 AM Checking whether objects being deployed require software upgrade...
8/28/2023 10:42:19 AM Sorting and Validating 3 object(s) starting from RedundantEngine hosted by platform
8/28/2023 10:42:19 AM Deploying 1 Engine(s) starting with RedundantEngine hosted by AOS2
8/28/2023 10:42:45 AM Deploying 1 Area(s) starting with Area_001 hosted by RedundantEngine
8/28/2023 10:42:55 AM Deploying 1 Automation Object(s) starting with UserDefined_001 to the RedundantEn
8/28/2023 10:42:58 AM Placing 2 automation Objects OnScan starting with Area_001 hosted by RedundantEr
8/28/2023 10:42:59 AM [SUCCESS] Deploy Completed: Deployed 3 object(s) out of a total 3 selected object(s)
8/28/2023 10:42:59 AM Optimizing the galaxy database...
```

00:00:45.453

Close

# Upgrade and Migration

## In-place Rolling Upgrade ...cont'd

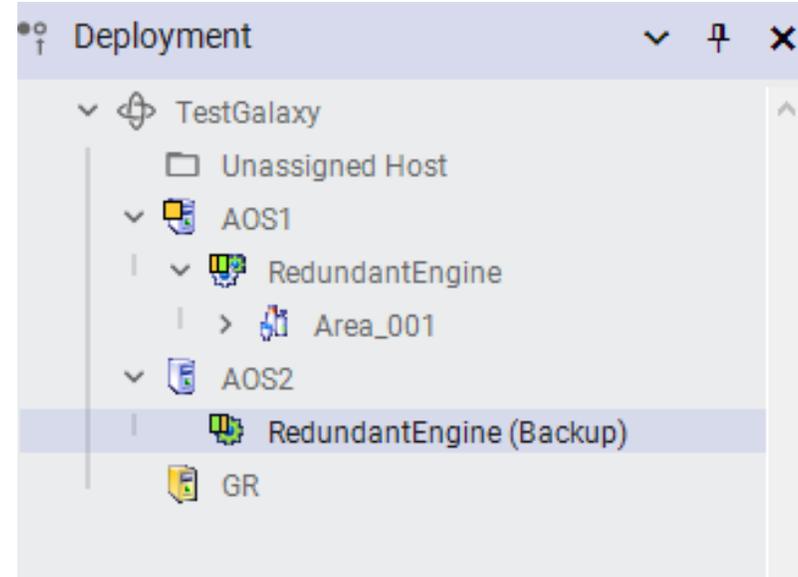
- Ensure that the engine is listed as “Running On Scan” under AOS2 in SMC Platform Manager
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Engine Name	Engine Status	Engine Identity	Partner Status
RedundantEngine	Running On Scan		

# Upgrade and Migration

## In-place Rolling Upgrade ...cont'd

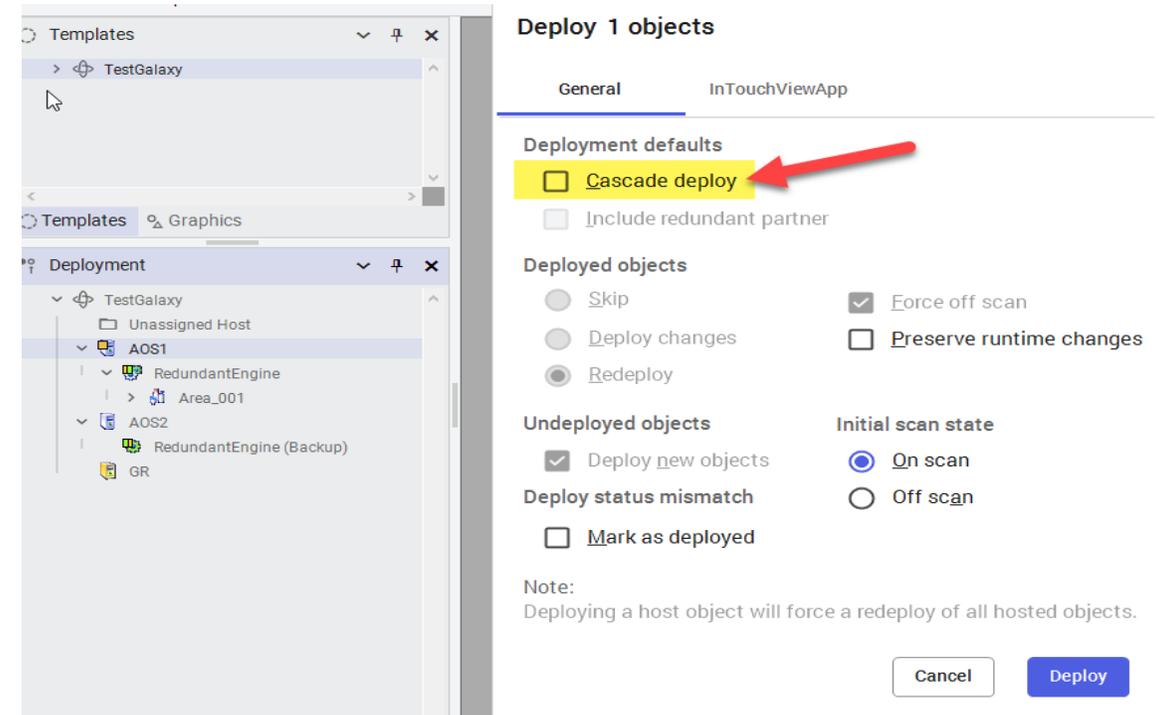
- Ensure that the engine is listed as “Running On Scan” under AOS2 in SMC Platform Manager
- Upgrade the AOS1 Platform Node with higher version of the Application Server software
- Ensure that platform object of AOS1 is in the undeployed state in the Deployment tab in IDE
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# Upgrade and Migration

## In-place Rolling Upgrade ...cont'd

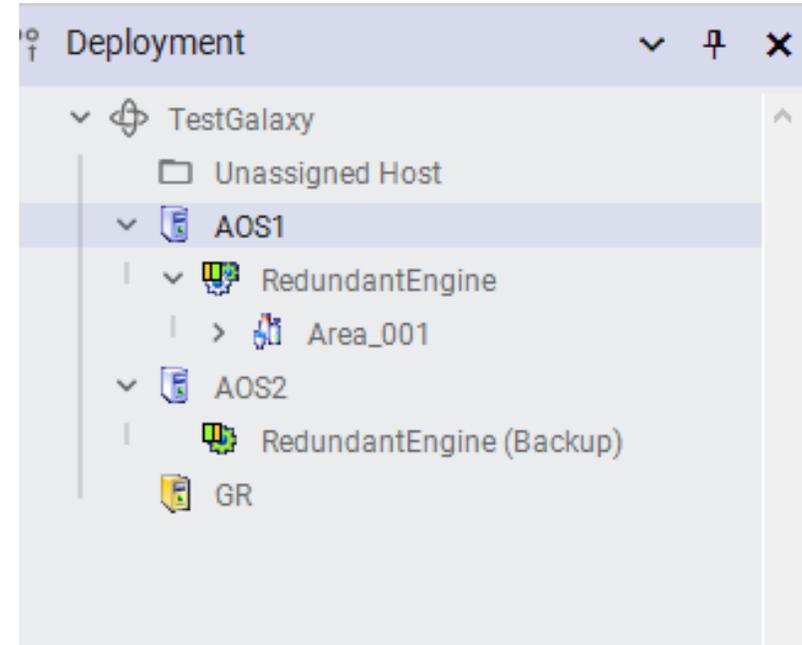
- Ensure that the engine is listed as “Running On Scan” under AOS2 in SMC Platform Manager
- Upgrade the AOS1 Platform Node with higher version of the Application Server software
- Ensure that platform object of AOS1 is in the undeployed state in the Deployment tab in IDE
- Deploy the AOS1 platform with no cascade deploy option
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# Upgrade and Migration

## In-place Rolling Upgrade ...cont'd

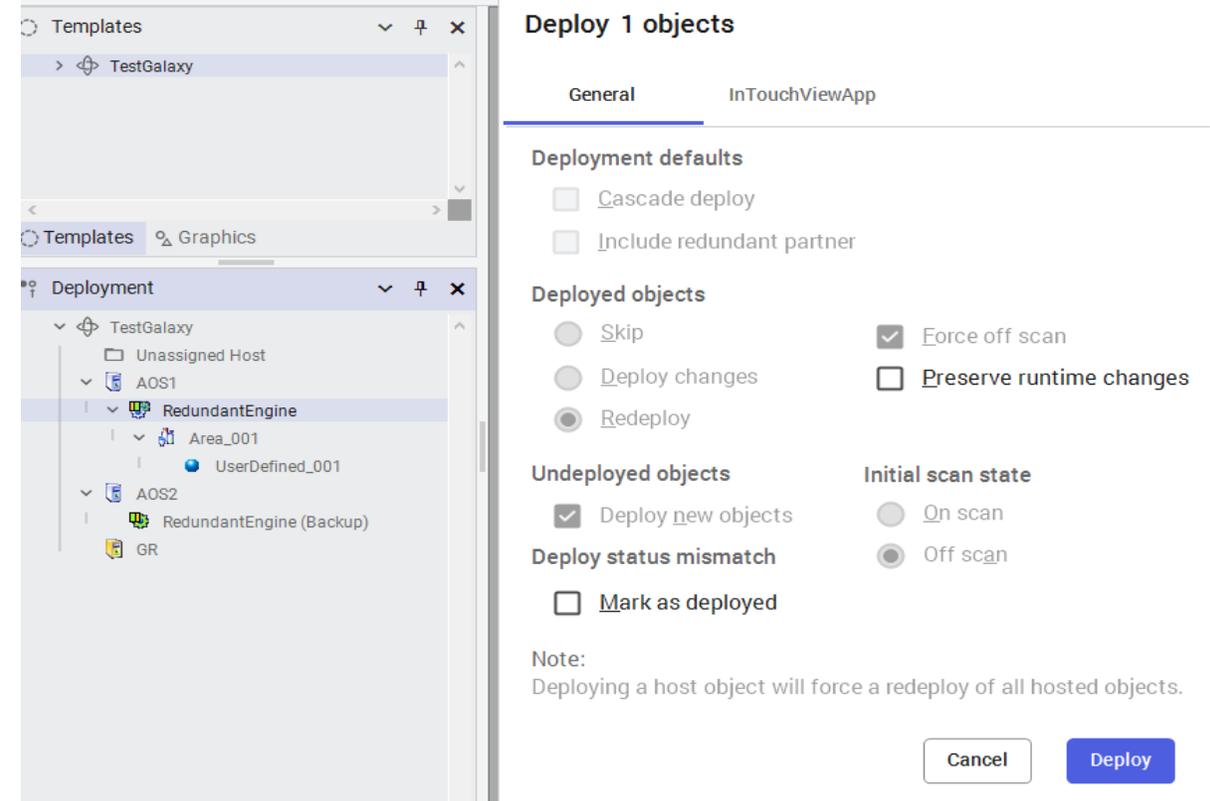
- Ensure that the engine is listed as “Running On Scan” under AOS2 in SMC Platform Manager
- Upgrade the AOS1 Platform Node with higher version of the Application Server software
- Ensure that platform object of AOS1 is in the undeployed state in the Deployment tab in IDE
- Deploy the AOS1 platform with no cascade deploy option
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# Upgrade and Migration

## In-place Rolling Upgrade ...cont'd

- Ensure that the engine is listed as “Running On Scan” under AOS2 in SMC Platform Manager
- Upgrade the AOS1 Platform Node with higher version of the Application Server software
- Ensure that platform object of AOS1 is in the undeployed state in the Deployment tab in IDE
- Deploy the AOS1 platform with no cascade deploy option
- Deploy the primary engine under AOS1 with cascade deploy option
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The screenshot displays the SMC Platform Manager IDE interface. On the left, the 'Deployment' tab is active, showing a tree view of the project structure. The 'TestGalaxy' project is expanded, revealing 'AOS1' and 'AOS2'. Under 'AOS1', there is a 'RedundantEngine' object, which is further expanded to show 'Area\_001' containing a 'UserDefined\_001' object. Under 'AOS2', there is a 'RedundantEngine (Backup)' object and a 'GR' object. On the right, the 'Deploy 1 objects' dialog is open, showing the 'General' tab. The 'Deployment defaults' section includes 'Cascade deploy' and 'Include redundant partner', both of which are unchecked. The 'Deployed objects' section has three radio buttons: 'Skip', 'Deploy changes', and 'Redeploy'. 'Force off scan' is checked, and 'Preserve runtime changes' is unchecked. The 'Undeployed objects' section has 'Deploy new objects' checked. The 'Initial scan state' section has 'On scan' selected. The 'Deploy status mismatch' section has 'Mark as deployed' unchecked. A note at the bottom states: 'Note: Deploying a host object will force a redeploy of all hosted objects.' At the bottom right, there are 'Cancel' and 'Deploy' buttons.

# Upgrade and Migration

## In-place Rolling Upgrade ...cont'd

- Ensure that the engine is listed as “Running On Scan” under AOS2 in SMC Platform Manager
- Upgrade the AOS1 Platform Node with higher version of the Application Server software
- Ensure that platform object of AOS1 is in the undeployed state in the Deployment tab in IDE
- Deploy the AOS1 platform with no cascade deploy option
- Deploy the primary engine under AOS1 with cascade deploy option
- 
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### Deploying Objects

Deploy complete. Please review the details below.

#### Details

8/28/2023 12:27:04 PM Validating connected galaxy...  
8/28/2023 12:27:04 PM Validating GRNodeInfo...  
8/28/2023 12:27:04 PM Checking whether objects being deployed require software upgrade...  
8/28/2023 12:27:04 PM Sorting and Validating 1 object(s) starting from RedundantEngine hosted by platform  
8/28/2023 12:27:05 PM Deploying 1 Engine(s) starting with RedundantEngine hosted by AOS1  
8/28/2023 12:27:24 PM [SUCCESS] Deploy Completed: Deployed 1 object(s) out of a total 1 selected object(s)  
8/28/2023 12:27:24 PM Optimizing the galaxy database...

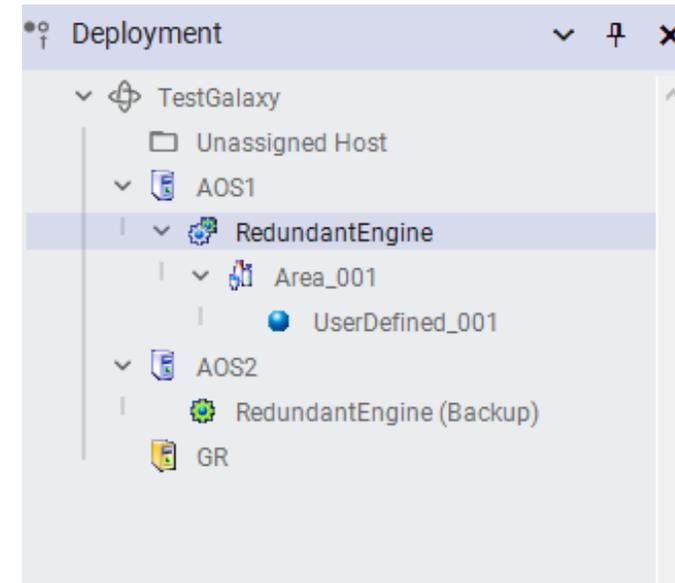
00:00:20.094

Close

# Upgrade and Migration

## In-place Rolling Upgrade ...cont'd

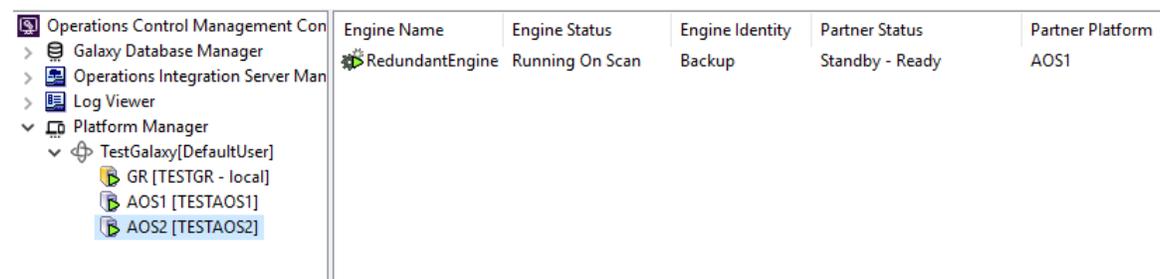
- Ensure that the engine is listed as “Running On Scan” under AOS2 in SMC Platform Manager
- Upgrade the AOS1 Platform Node with higher version of the Application Server software
- Ensure that platform object of AOS1 is in the undeployed state in the Deployment tab in IDE
- Deploy the AOS1 platform with no cascade deploy option
- Deploy the primary engine under AOS1 with cascade deploy option
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# Upgrade and Migration

## In-place Rolling Upgrade ...cont'd

- Ensure that the engine is listed as “Running On Scan” under AOS2 in SMC Platform Manager
- Upgrade the AOS1 Platform Node with higher version of the Application Server software
- Ensure that platform object of AOS1 is in the undeployed state in the Deployment tab in IDE
- Deploy the AOS1 platform with no cascade deploy option
- Deploy the primary engine under AOS1 with cascade deploy option
- Ensure that the partner engine already running on AOS2 recognized the just deployed engine on AOS1 with its partner status as “Standby-Ready”
- 



The screenshot shows the Operations Control Management Console interface. On the left is a tree view of the system hierarchy, and on the right is a table displaying engine status.

Engine Name	Engine Status	Engine Identity	Partner Status	Partner Platform
RedundantEngine	Running On Scan	Backup	Standby - Ready	AOS1

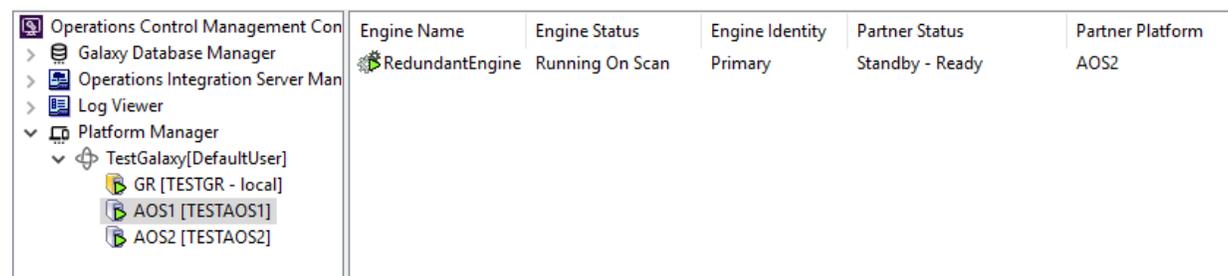
The tree view on the left shows the following structure:

- Operations Control Management Console
  - Galaxy Database Manager
  - Operations Integration Server Manager
  - Log Viewer
  - Platform Manager
    - TestGalaxy[DefaultUser]
      - GR [TESTGR - local]
      - AOS1 [TESTAOS1]
      - AOS2 [TESTAOS2]

# Upgrade and Migration

## In-place Rolling Upgrade ...cont'd

- Ensure that the engine is listed as “Running On Scan” under AOS2 in SMC Platform Manager
- Upgrade the AOS1 Platform Node with higher version of the Application Server software
- Ensure that platform object of AOS1 is in the undeployed state in the Deployment tab in IDE
- Deploy the AOS1 platform with no cascade deploy option
- Deploy the primary engine under AOS1 with cascade deploy option
- Ensure that the partner engine already running on AOS2 recognized the just deployed engine on AOS1 with its partner status as “Standby-Ready”
- Force failover the engine from AOS2 to AOS1 so that it moves back to the original state



The screenshot shows the SMC Platform Manager interface. On the left, a tree view displays the hierarchy: Operations Control Management Console > Galaxy Database Manager > Operations Integration Server Manager > Log Viewer > Platform Manager > TestGalaxy[DefaultUser] > GR [TESTGR - local] > AOS1 [TESTAOS1] > AOS2 [TESTAOS2]. On the right, a table displays the engine details for the selected engine (AOS2 [TESTAOS2]).

Engine Name	Engine Status	Engine Identity	Partner Status	Partner Platform
RedundantEngine	Running On Scan	Primary	Standby - Ready	AOS2

---

# Upgrade and Migration

## In-place Rolling Upgrade...cont'd

- **Pros**

- Seamless upgrade of the Galaxy.
- Operators at HMI stations continue to visualize the plant data while the upgrade is in progress in the background.

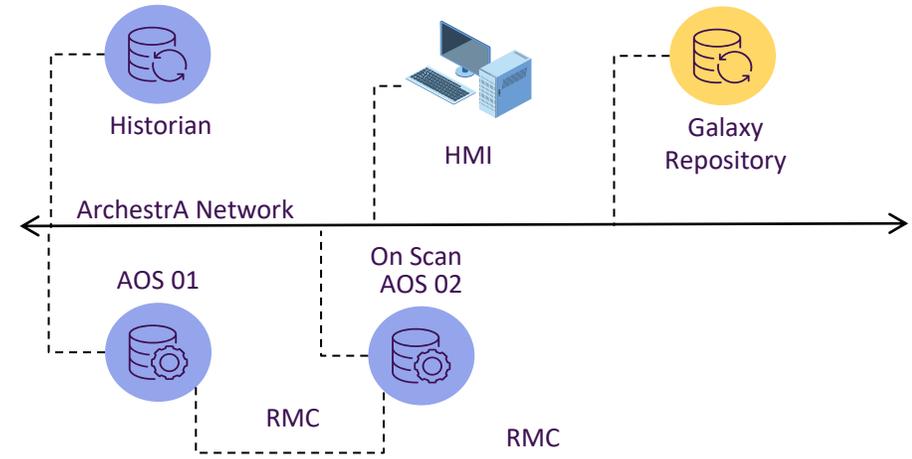
- **Cons**

- In case the systems need hardware and operating system upgrade as well, it is risky to perform an in place upgrade of hardware and operating system.

# Upgrade and Migration

## Node Replacement Upgrade Steps

- Failover the active engine running on AOS1 to AOS2
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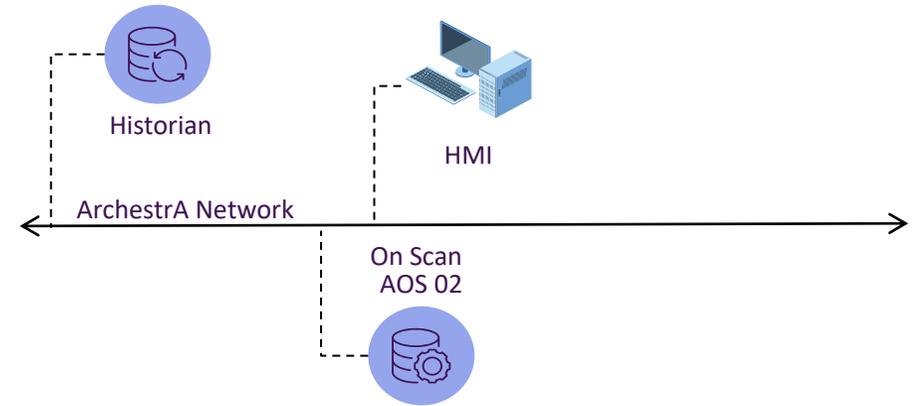


Arcestra System Management Console	Engine Name	Engine Status	Engine Identity	Partner Status	Partner Platform
> Operations Integration Server Man	RedundantEngine	Running On Scan	Backup	Standby - Ready	AOS1
> Log Viewer					
> Platform Manager					
v TestGalaxy[DefaultUser]					
GR [TESTGR]					
AOS1 [TESTAOS1 - local]					
AOS2 [TESTAOS2]					

# Upgrade and Migration

## Node Replacement Upgrade Steps

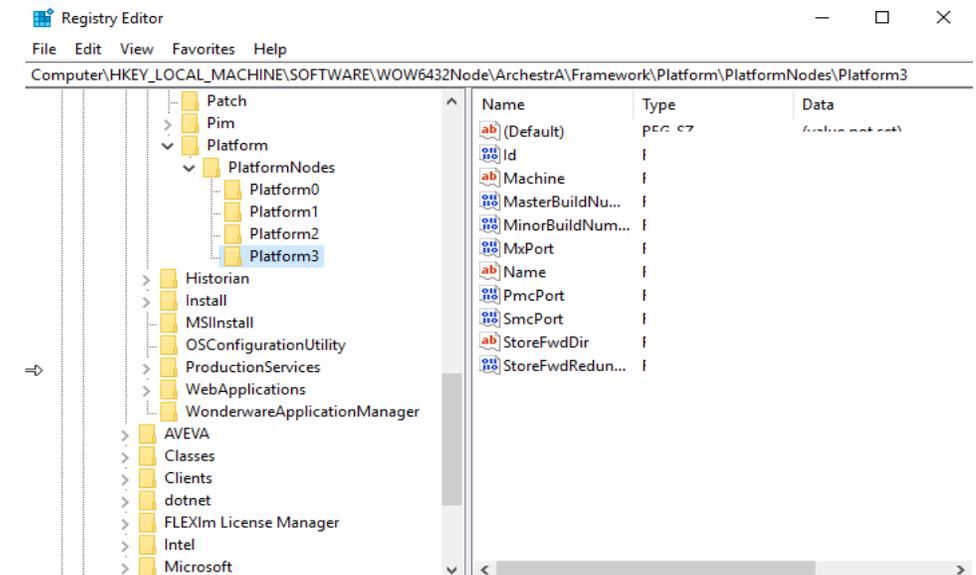
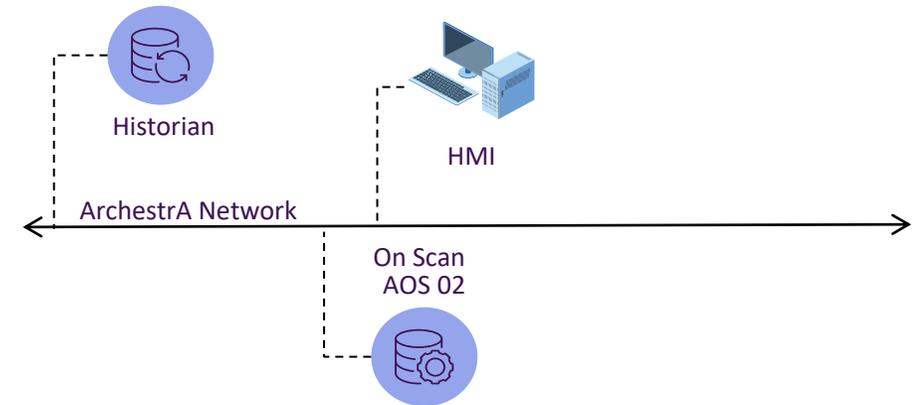
- Failover the active engine running on AOS1 to AOS2
- Decommission the GR and AOS1 node, then remove them from the network to avoid the conflict
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# Upgrade and Migration

## Node Replacement Upgrade Steps

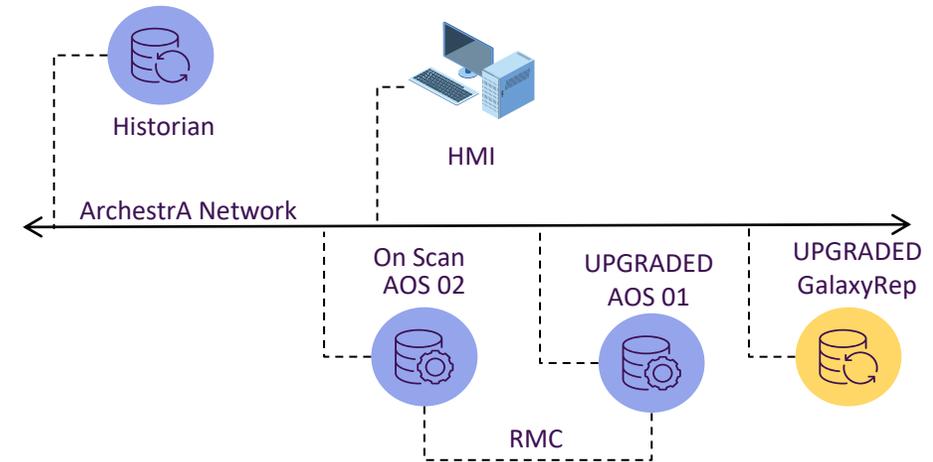
- Failover the active engine running on AOS1 to AOS2
- Decommission the GR and AOS1 node, then remove them from the network to avoid the conflict
- Ensure that the engine is “Running On Scan” on AOS2
- On AOS2 node export the registry key “HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\Archestra\Framework\Platform\PlatformNodes\Platform3” into .reg file.
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# Upgrade and Migration

## Node Replacement Upgrade Steps

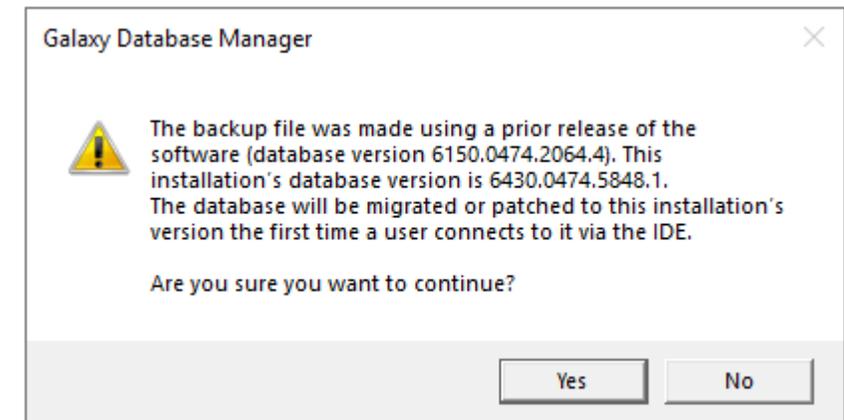
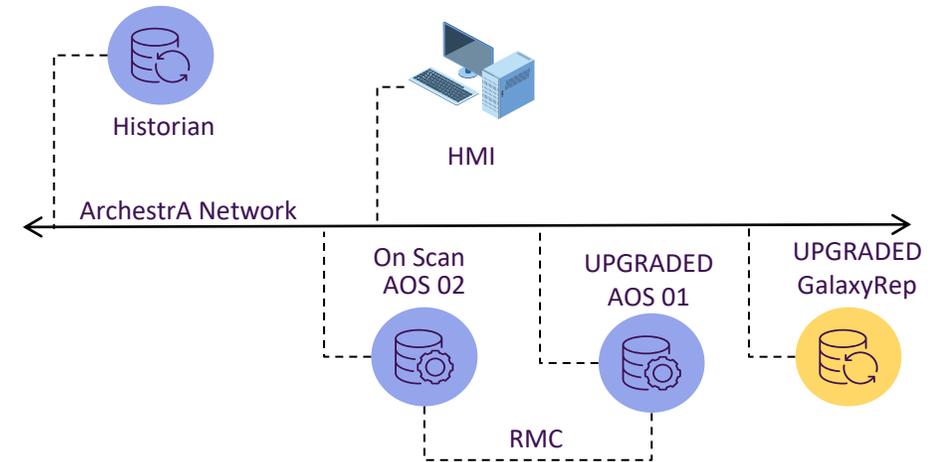
- Failover the active engine running on AOS1 to AOS2
- Decommission the GR and AOS1 node, then remove them from the network to avoid the conflict
- Ensure that the engine is “Running On Scan” on AOS2
- On AOS2 node export the registry key “HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\Archestra\Framework\Platform\PlatformNodes\Platform3” into .reg file.
- Setup the new computers for GR and AOS1 nodes with exactly the same names and IP addresses as the old systems. Install the higher version of Application Server
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# Upgrade and Migration

## Node Replacement Upgrade Steps

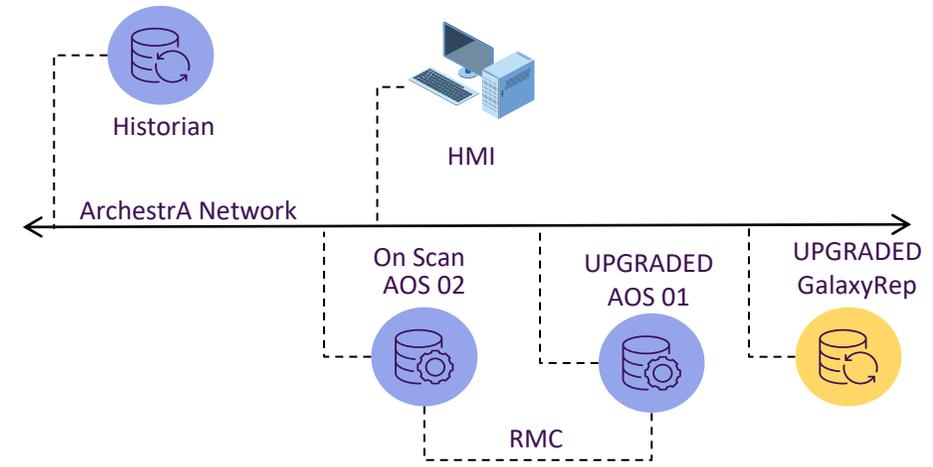
- Failover the active engine running on AOS1 to AOS2
- Decommission the GR and AOS1 node, then remove them from the network to avoid the conflict
- Ensure that the engine is “Running On Scan” on AOS2
- On AOS2 node export the registry key “HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\Archestra\Framework\Platform\PlatformNodes\Platform3” into .reg file.
- Setup the new computers for GR and AOS1 nodes with exactly the same names and IP addresses as the old systems. Install the higher version of Application Server
- 
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# Upgrade and Migration

## Node Replacement Upgrade Steps

- Failover the active engine running on AOS1 to AOS2
- Decommission the GR and AOS1 node, then remove them from the network to avoid the conflict
- Ensure that the engine is “Running On Scan” on AOS2
- On AOS2 node export the registry key “HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\Archestra\Framework\Platform\PlatformNodes\Platform3” into .reg file.
- Setup the new computers for GR and AOS1 nodes with exactly the same names and IP addresses as the old systems. Install the higher version of Application Server
- Restore the Galaxy CAB file on the new GR Node & migrate the Galaxy
- 
- 



### Connect To Galaxy

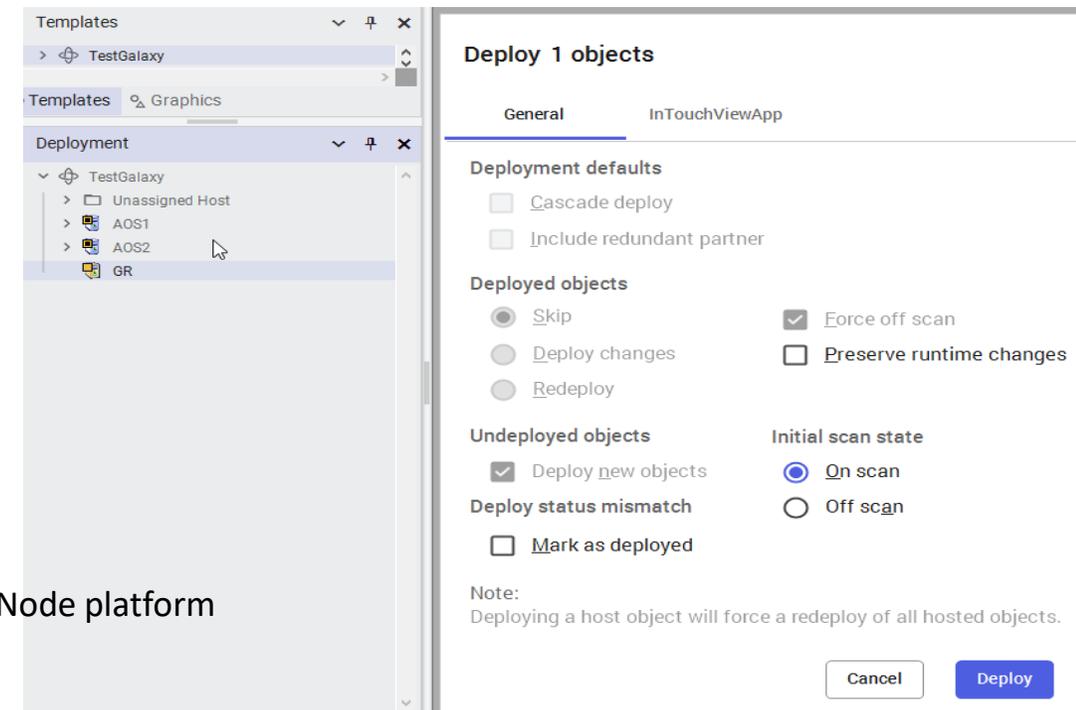
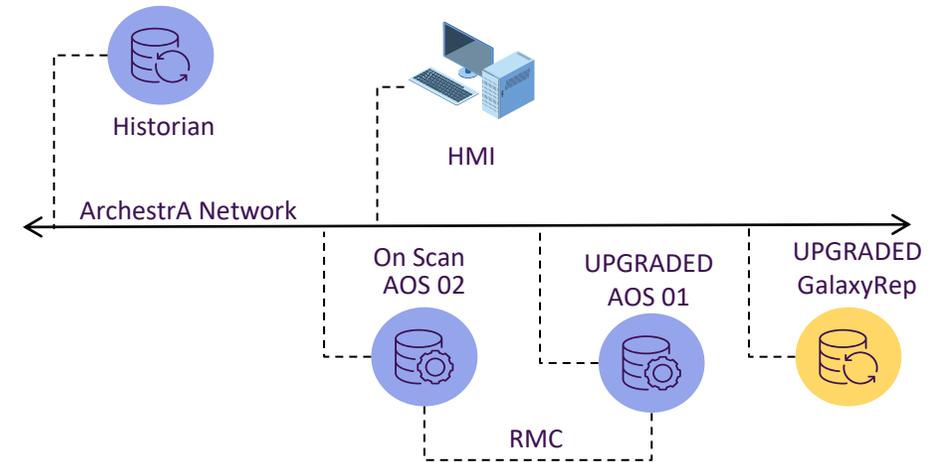
Galaxy TestGalaxy is an older version (6150.0474.2064.4). This galaxy database, including all its objects, will be compacted then migrated to the installed version (6430.0474.5848.1). Please launch Archestra Log Viewer to monitor the migration progress.

Do you want to migrate now?

# Upgrade and Migration

## Node Replacement Upgrade Steps

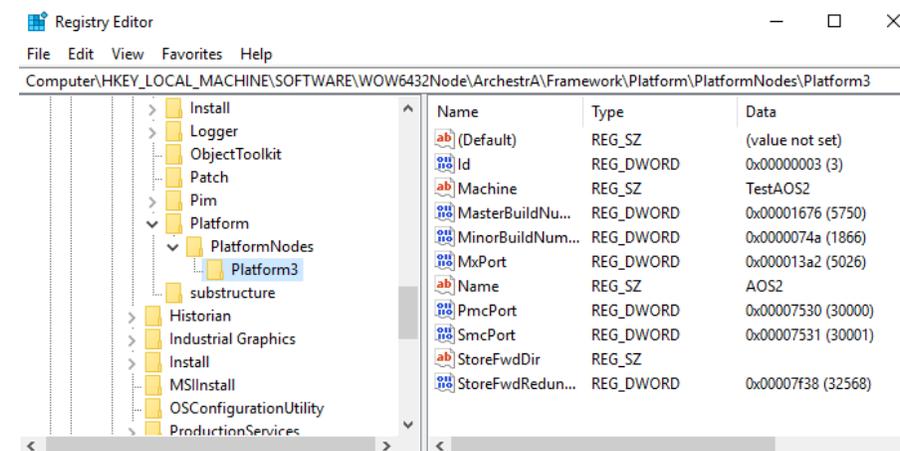
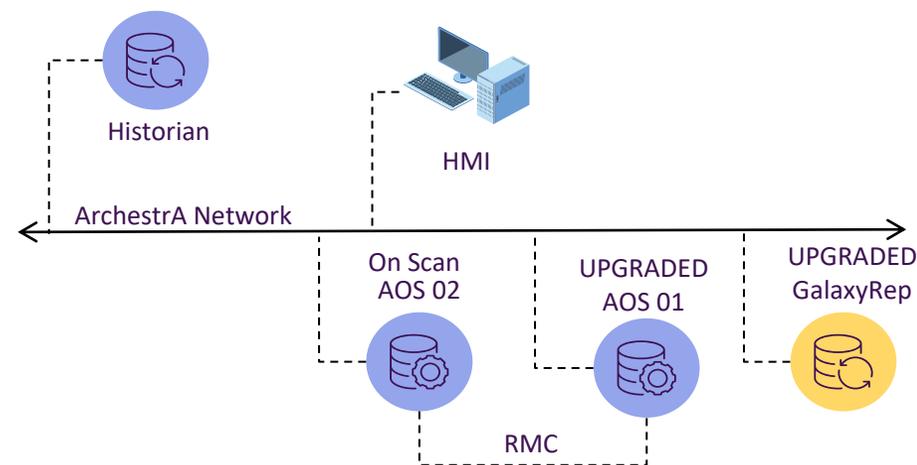
- Failover the active engine running on AOS1 to AOS2
- Decommission the GR and AOS1 node, then remove them from the network to avoid the conflict
- Ensure that the engine is “Running On Scan” on AOS2
- On AOS2 node export the registry key “HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\Archestra\Framework\Platform\PlatformNodes\Platform3” into .reg file.
- Setup the new computers for GR and AOS1 nodes with exactly the same names and IP addresses as the old systems. Install the higher version of Application Server
- Restore the Galaxy CAB file on the new GR Node & migrate the Galaxy
- Notice the presence of Software Update Pending (SUP) state on the objects under AOS1 and AOS2 platforms
- On the GR Node import the .reg file that was created earlier and deploy the GR Node platform



# Upgrade and Migration

## Node Replacement Upgrade Steps

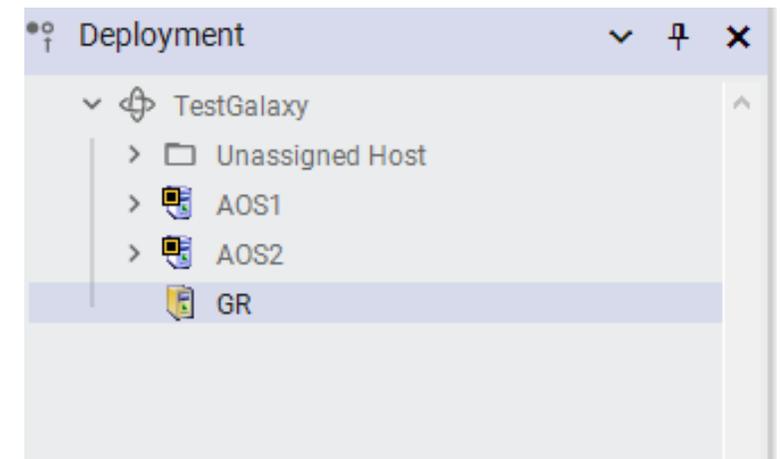
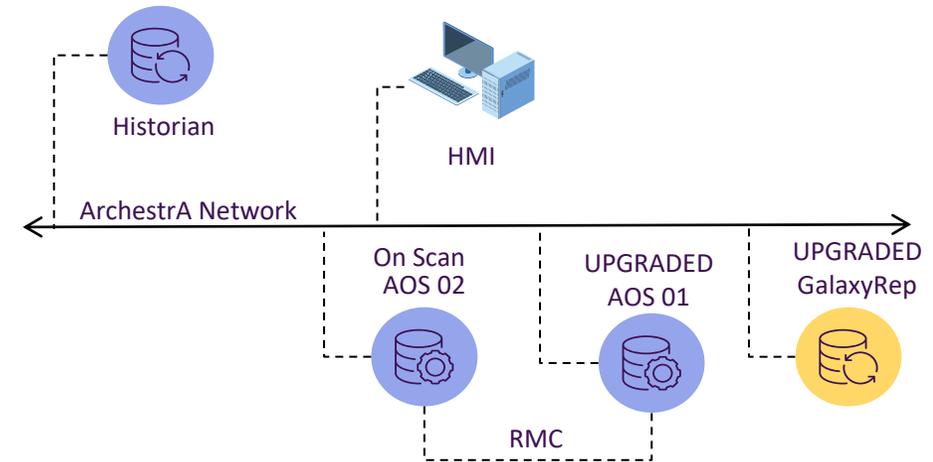
- Failover the active engine running on AOS1 to AOS2
- Decommission the GR and AOS1 node, then remove them from the network to avoid the conflict
- Ensure that the engine is “Running On Scan” on AOS2
- On AOS2 node export the registry key “HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\ArchestraA\Framework\Platform\PlatformNodes\Platform3” into .reg file.
- Setup the new computers for GR and AOS1 nodes with exactly the same names and IP addresses as the old systems. Install the higher version of Application Server
- Restore the Galaxy CAB file on the new GR Node & migrate the Galaxy
- Notice the presence of Software Update Pending (SUP) state on the objects under AOS1 and AOS2 platforms
- On the GR Node import the .reg file that was created earlier and deploy the GR Node platform



# Upgrade and Migration

## Node Replacement Upgrade Steps

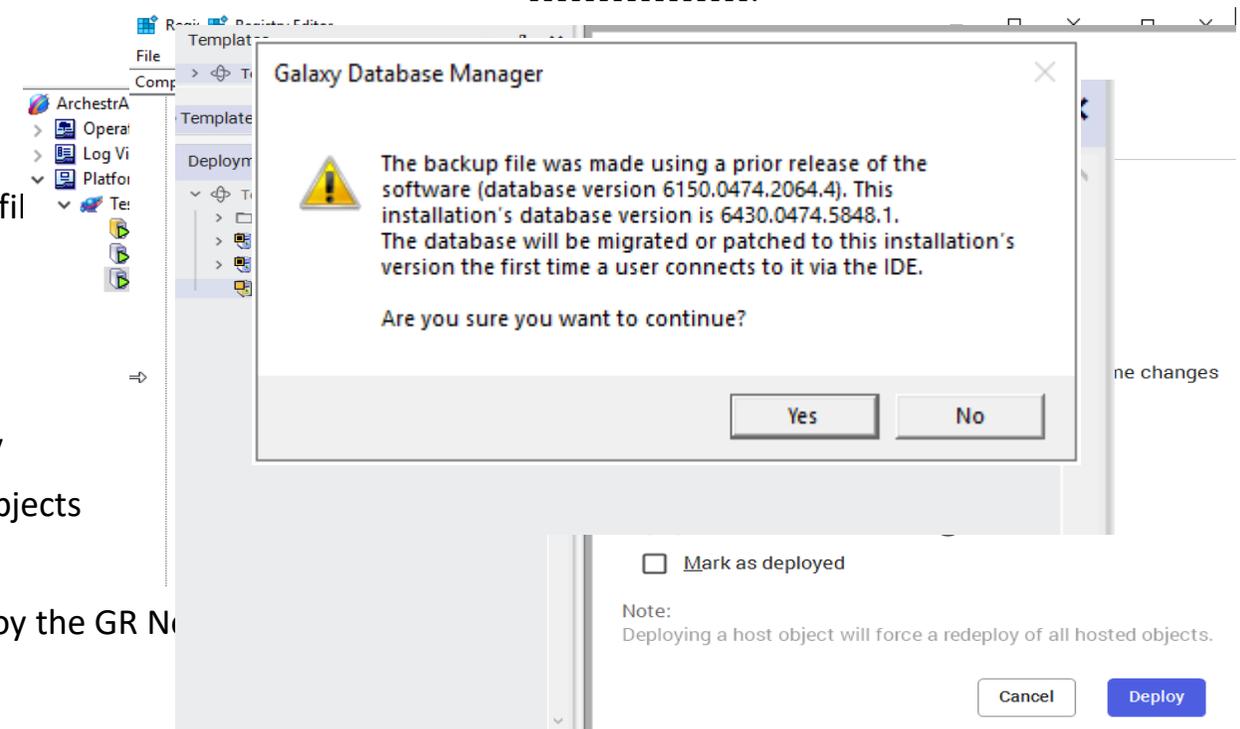
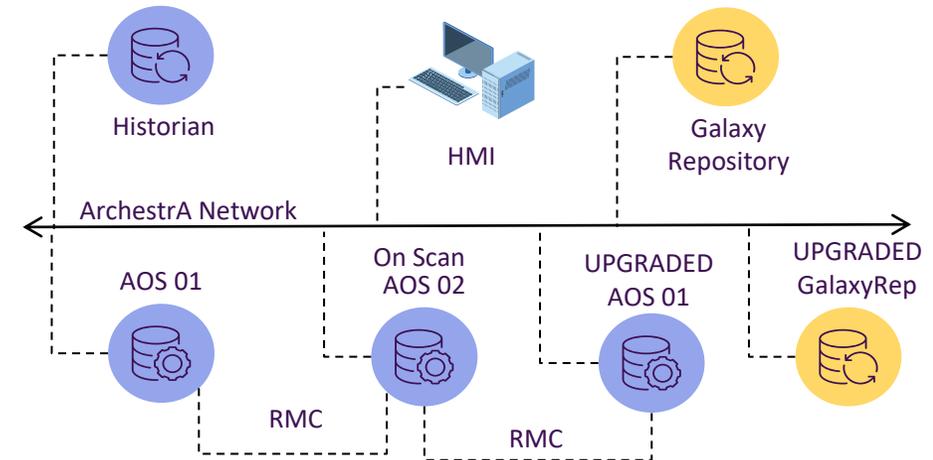
- Failover the active engine running on AOS1 to AOS2
- Decommission the GR and AOS1 node, then remove them from the network to avoid the conflict
- Ensure that the engine is “Running On Scan” on AOS2
- On AOS2 node export the registry key “HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\Archestra\Framework\Platform\PlatformNodes\Platform3” into .reg file.
- Setup the new computers for GR and AOS1 nodes with exactly the same names and IP addresses as the old systems. Install the higher version of Application Server
- Restore the Galaxy CAB file on the new GR Node & migrate the Galaxy
- Notice the presence of Software Update Pending (SUP) state on the objects under AOS1 and AOS2 platforms
- On the GR Node import the .reg file that was created earlier and deploy the GR Node platform



# Upgrade and Migration

## Node Replacement Upgrade Steps

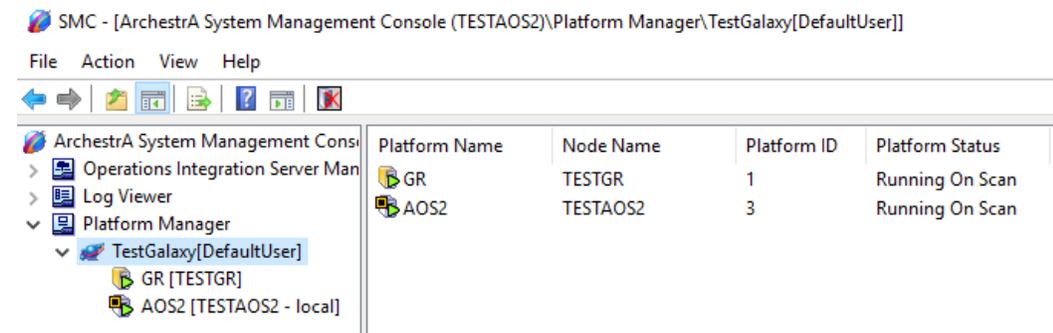
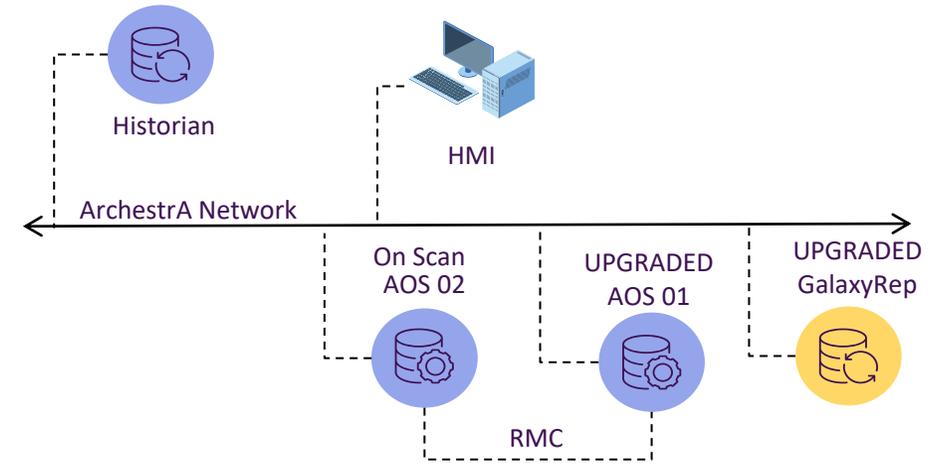
- Failover the active engine running on AOS1 to AOS2
- Decommission the GR and AOS1 node, then remove them from the network to avoid the conflict
- Ensure that the engine is “Running On Scan” on AOS2
- On AOS2 node export the registry key “HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\Archestra\Framework\Platform\PlatformNodes\Platform3” into .reg file
- Setup the new computers for GR and AOS1 nodes with exactly the same names and IP addresses as the old systems. Install the higher version of Application Server
- Restore the Galaxy CAB file on the new GR Node & migrate the Galaxy
- Notice the presence of Software Update Pending (SUP) state on the objects under AOS1 and AOS2 platforms
- On the GR Node import the .reg file that was created earlier and deploy the GR Node



# Upgrade and Migration

## Node Replacement Upgrade...cont'd

- On AOS2 node ensure that the new GR is listed as On Scan



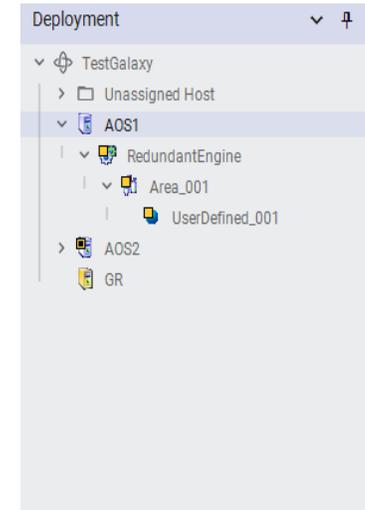
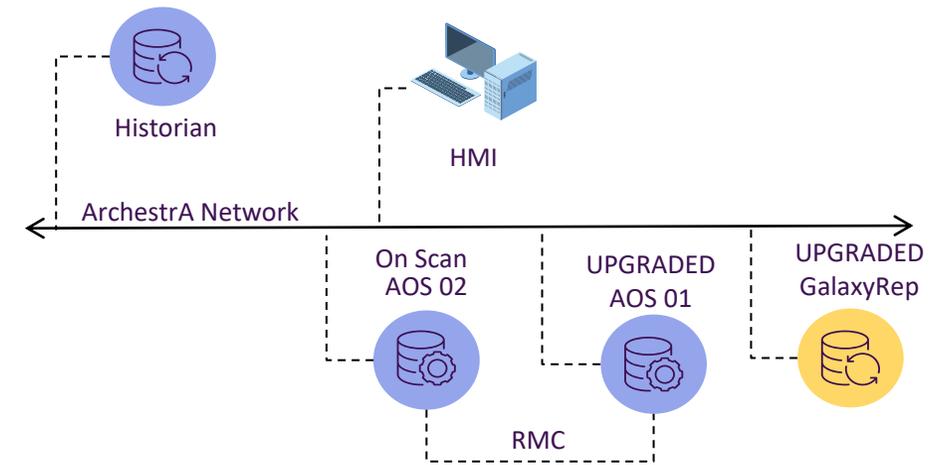




# Upgrade and Migration

## Node Replacement Upgrade...cont'd

- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”



### Deploying Objects

Deploy complete. Please review the details below.

#### Details

9/21/2023 7:37:15 PM Validating GRNodeInfo...  
9/21/2023 7:37:15 PM Checking whether objects being deployed require software upgrade...  
9/21/2023 7:37:15 PM Sorting and Validating 1 object(s) starting from AOS1 hosted by platform AOS1 for...  
9/21/2023 7:37:15 PM Deploying 1 Platform(s) starting with AOS1 hosted by TestGalaxy  
9/21/2023 7:38:29 PM [SUCCESS] Deploy Completed: Deployed 1 object(s) out of a total 1 selected object

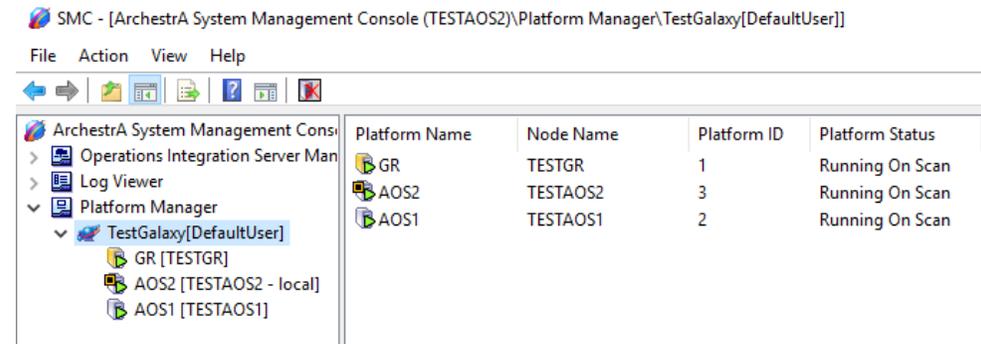
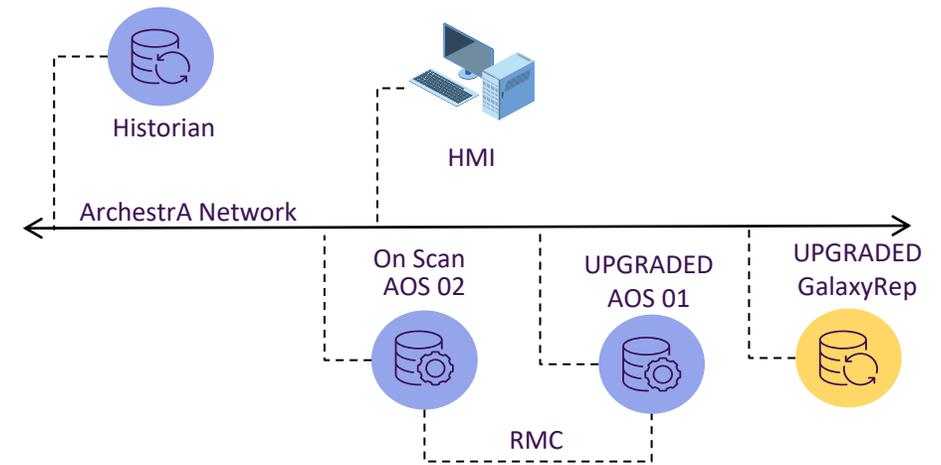
00:01:15.094

Close

# Upgrade and Migration

## Node Replacement Upgrade...cont'd

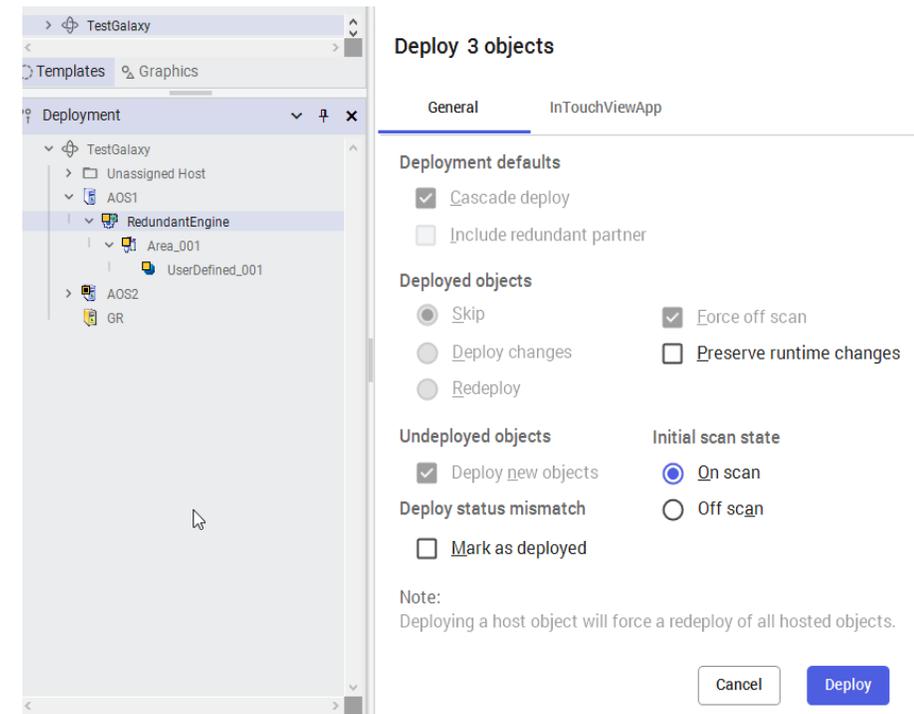
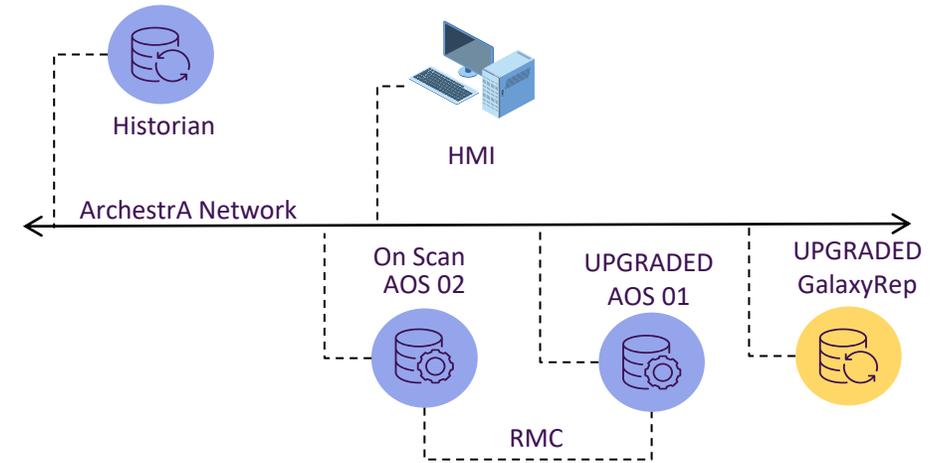
- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
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# Upgrade and Migration

## Node Replacement Upgrade...cont'd

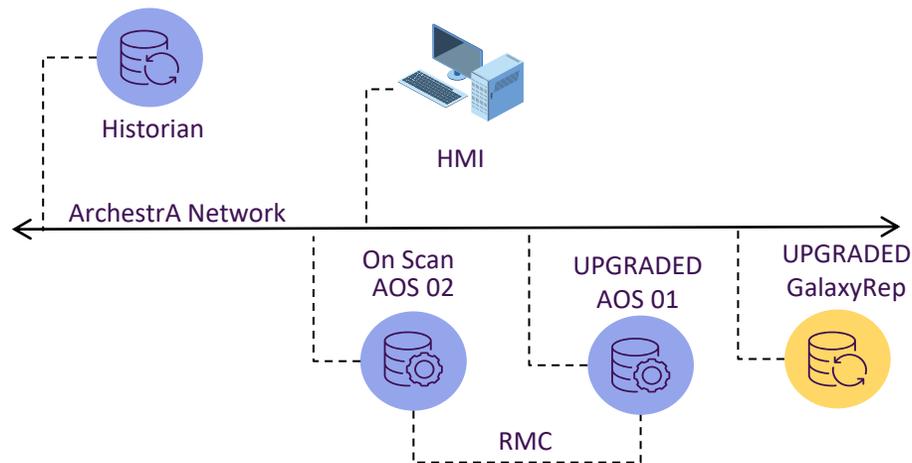
- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
- Deploy the primary engine under AOS1 with “Cascade Deploy” option
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# Upgrade and Migration

## Node Replacement Upgrade...cont'd

- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
- Deploy the primary engine under AOS1 with “Cascade Deploy” option
- 
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The screenshot shows a deployment console window. On the left, a tree view shows the deployment structure: 'TestGalaxy' > 'Unassigned Host' > 'AOS1' > 'RedundantEngine' > 'Area\_001' > 'UserDefined\_001'. Below this, 'AOS2' and 'GR' are also listed. The main panel is titled 'Deploying Objects' and displays the message: 'Deploy complete. Please review the details below.' Below this, a 'Details' section shows a log of deployment events:

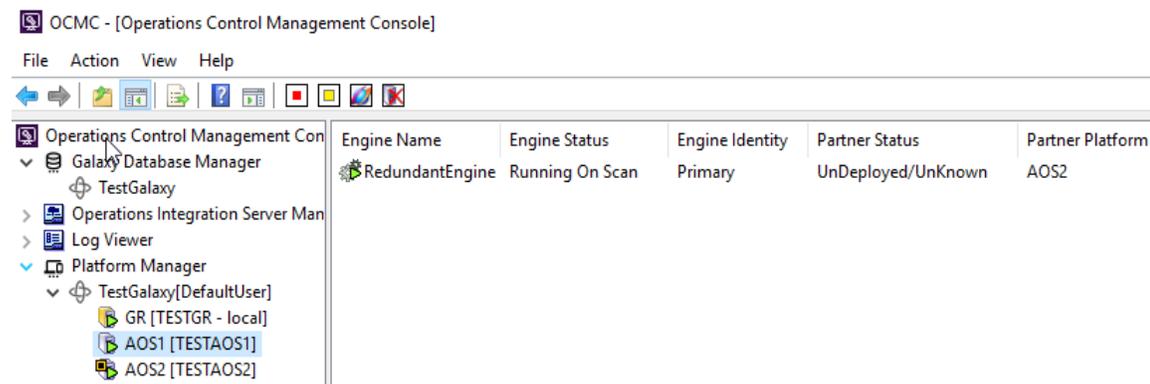
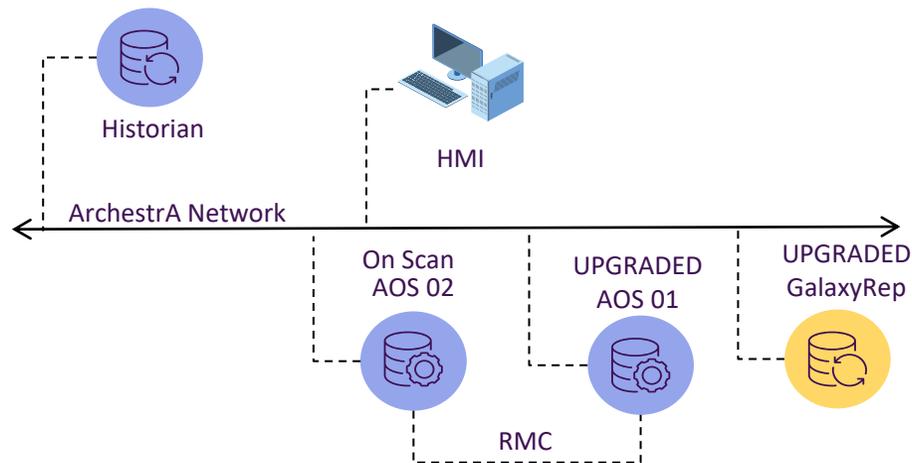
- 9/21/2023 7:40:41 PM Deploying 1 Engine(s) starting with RedundantEngine hosted by AOS1
- 9/21/2023 7:41:07 PM Deploying 1 Area(s) starting with Area\_001 hosted by RedundantEngine
- 9/21/2023 7:41:16 PM Deploying 1 Automation Object(s) starting with UserDefined\_001 to the RedundantEngine
- 9/21/2023 7:41:18 PM Placing 2 automation Objects OnScan starting with Area\_001 hosted by RedundantEngine
- 9/21/2023 7:41:19 PM [SUCCESS] Deploy Completed: Deployed 3 object(s) out of a total 3 selected object(s)

At the bottom of the console, a timer shows '00:00:43.421' and a 'Close' button is visible.

# Upgrade and Migration

## Node Replacement Upgrade...cont'd

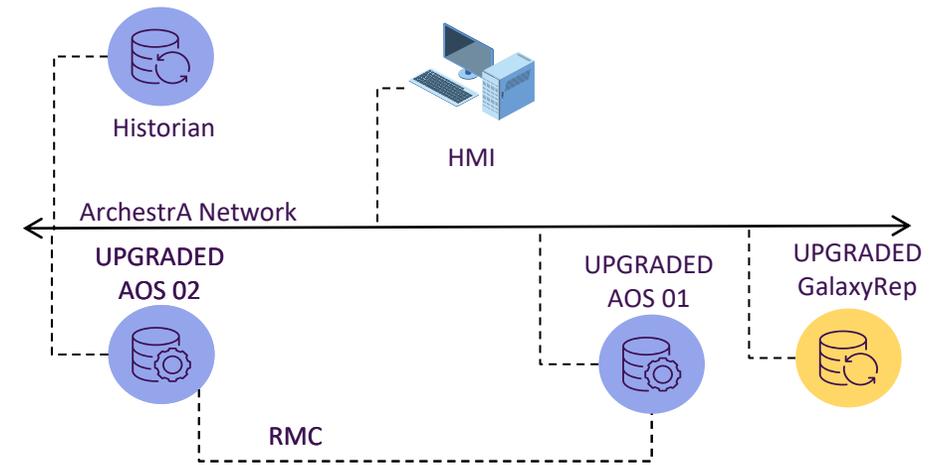
- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
- Deploy the primary engine under AOS1 with “Cascade Deploy” option
- On the GR Node, in the SMC Platform Manager ensure that the engine is listed as On Scan under AOS1
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# Upgrade and Migration

## Node Replacement Upgrade...cont'd

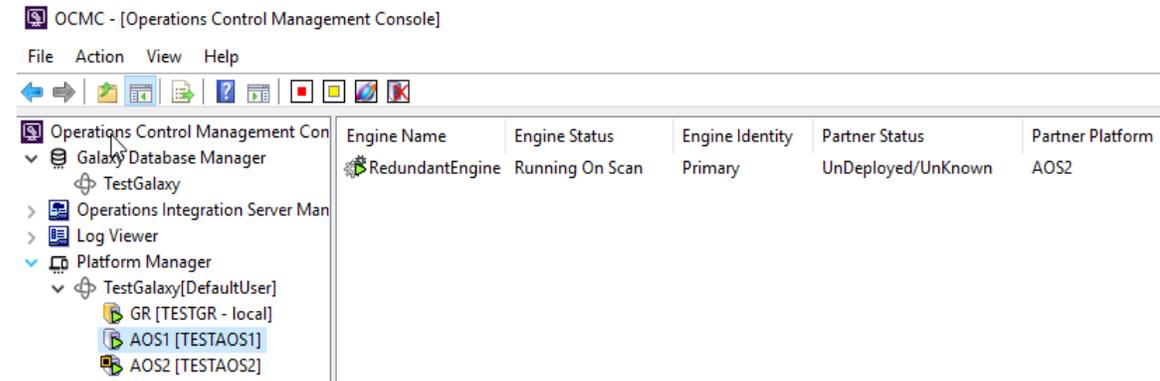
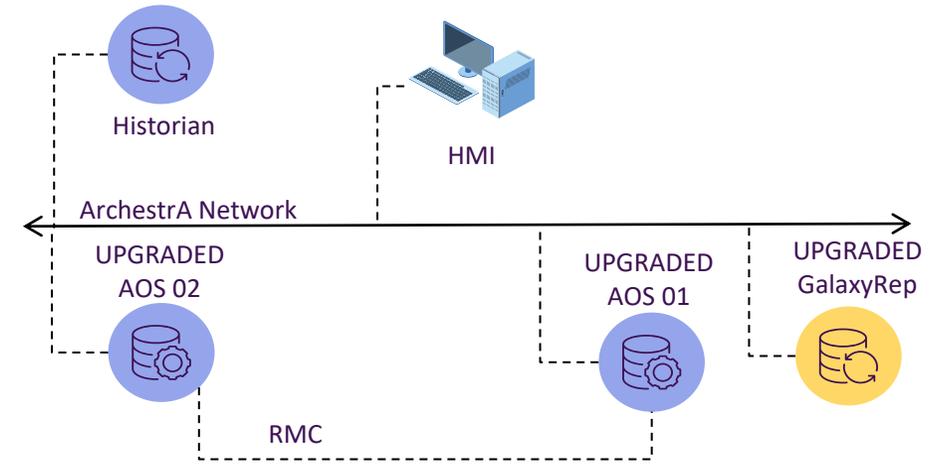
- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
- Deploy the primary engine under AOS1 with “Cascade Deploy” option
- On the GR Node, in the SMC Platform Manager ensure that the engine is listed as On Scan under AOS1
- Decommission AOS2 node and setup a new node with the same name and IP address. Install higher version of Application Server software
- 
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# Upgrade and Migration

## Node Replacement Upgrade...cont'd

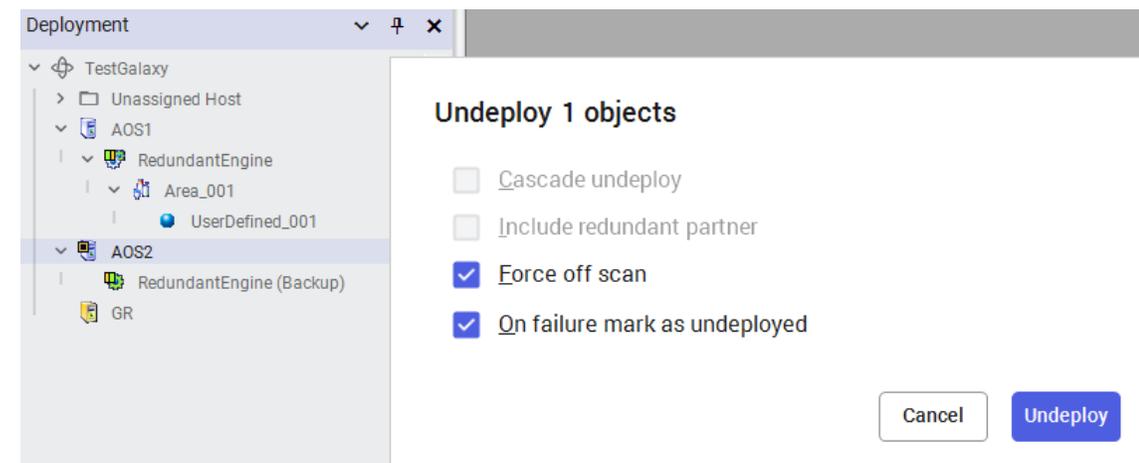
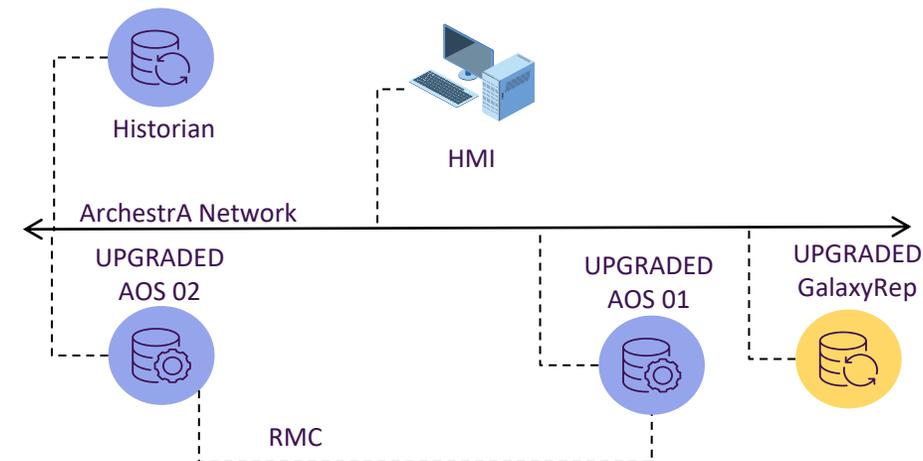
- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
- Deploy the primary engine under AOS1 with “Cascade Deploy” option
- On the GR Node, in the SMC Platform Manager ensure that the engine is listed as On Scan under AOS1
- Decommission AOS2 node and setup a new node with the same name and IP address. Install higher version of Application Server software
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# Upgrade and Migration

## Node Replacement Upgrade...cont'd

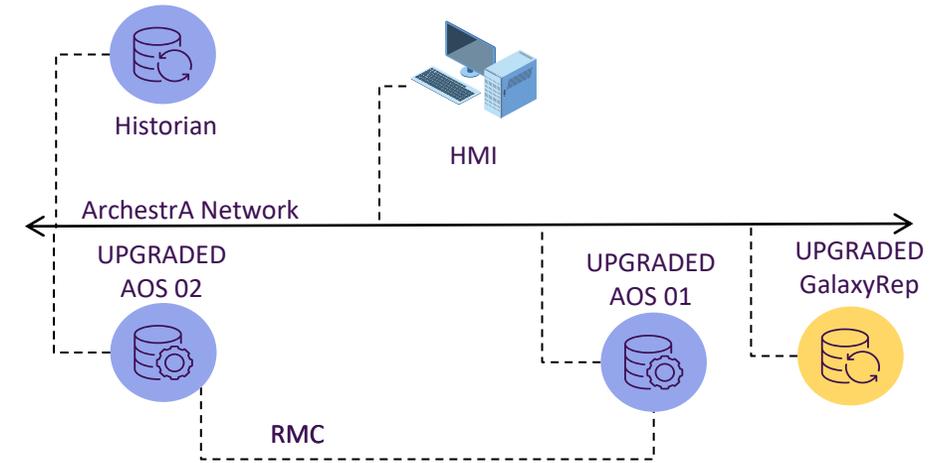
- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
- Deploy the primary engine under AOS1 with “Cascade Deploy” option
- On the GR Node, in the SMC Platform Manager ensure that the engine is listed as On Scan under AOS1
- Decommission AOS2 node and setup a new node with the same name and IP address. Install higher version of Application Server software
- Undeploy AOS2 platform with “On Failure Mark as Undeployed” option
- 
- 



# Upgrade and Migration

## Node Replacement Upgrade...cont'd

- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
- Deploy the primary engine under AOS1 with “Cascade Deploy” option
- On the GR Node, in the SMC Platform Manager ensure that the engine is listed as On Scan under AOS1
- Decommission AOS2 node and setup a new node with the same name and IP address. Install higher version of Application Server software
- Undeploy AOS2 platform with “On Failure Mark as Undeployed” option
- 
- 

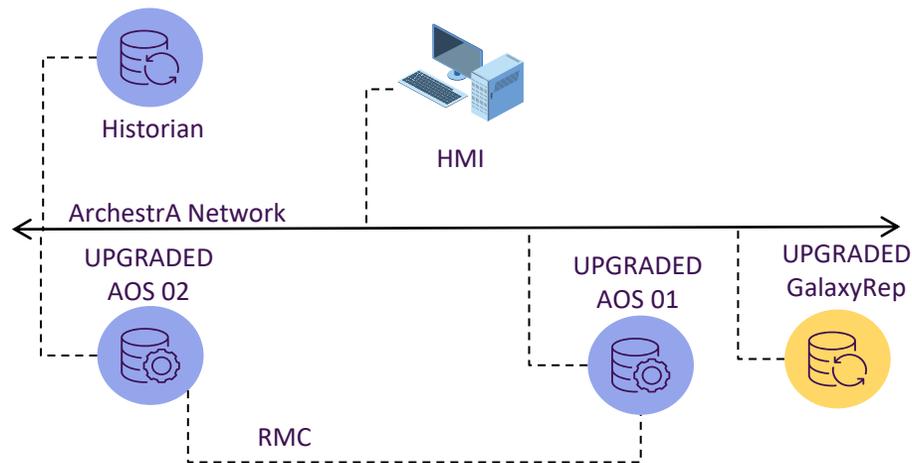


The screenshot shows a deployment console window. On the left, a tree view under 'Deployment' shows the following structure: TestGalaxy > Unassigned Host > AOS1 > RedundantEngine > Area\_001 > UserDefined\_001. Below this, AOS2 is expanded, showing RedundantEngine (Backup) and GR. On the right, a dialog box titled 'Undeploying Objects' is open. It contains the text: 'Undeploy complete. Please review the details below.' Below this, a 'Details' section shows a log of events: '9/21/2023 7:49:02 PM Validating GRNodeInfo...', '9/21/2023 7:49:02 PM Sorting and Validating 1 object(s) starting from AOS2 hosted by platform AOS2 for', '9/21/2023 7:49:02 PM Undeploying 1 Platform(s) starting with AOS2 hosted by TestGalaxy', '9/21/2023 7:49:06 PM Error: Failed to undeploy AOS2 : Platform not registered on target node.', and '9/21/2023 7:49:06 PM [WARNING] UnDeploy Completed: UnDeployed 0 object(s) out of a total 1 selected'. At the bottom of the dialog, there is a timer showing '00:00:05.484' and a 'Close' button.

# Upgrade and Migration

## Node Replacement Upgrade...cont'd

- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
- Deploy the primary engine under AOS1 with “Cascade Deploy” option
- On the GR Node, in the SMC Platform Manager ensure that the engine is listed as On Scan under AOS1
- Decommission AOS2 node and setup a new node with the same name and IP address. Install higher version of Application Server software
- Undeploy AOS2 platform with “On Failure Mark as Undeployed” option
- Deploy the new AOS2 node without the “Cascade Deploy” option
- 



The screenshot shows the deployment interface for 'TestGalaxy'. The left pane displays the 'Deployment' tree with the following structure:

- TestGalaxy
  - Unassigned Host
  - AOS1
    - RedundantEngine
      - Area\_001
        - UserDefined\_001
  - AOS2
    - RedundantEngine (Backup)
    - GR

The right pane shows the 'Deploy 1 objects' dialog for 'InTouchViewApp'. The 'General' tab is active, and the 'InTouchViewApp' object is selected. The 'Deployment defaults' section includes:

- Cascade deploy
- Include redundant partner

The 'Deployed objects' section includes:

- Skip
- Deploy changes
- Redeploy
- Force off scan
- Preserve runtime changes

The 'Undeployed objects' section includes:

- Deploy new objects

The 'Deploy status mismatch' section includes:

- Mark as deployed

The 'Initial scan state' section includes:

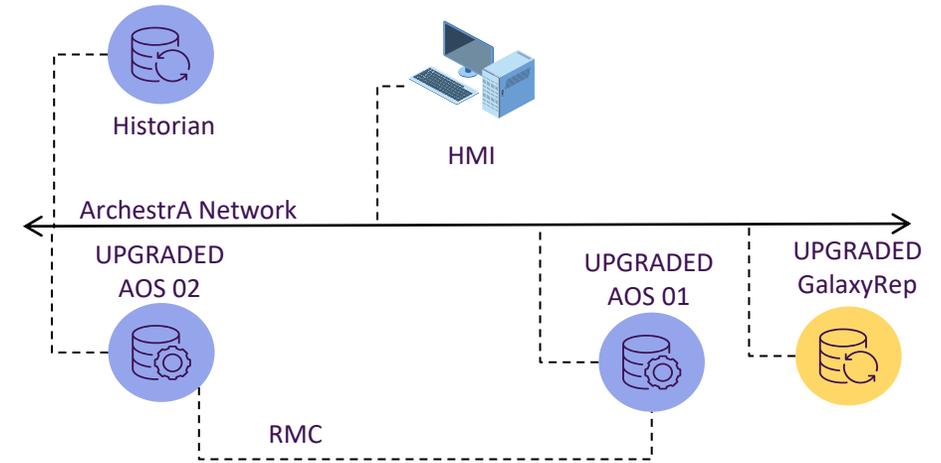
- On scan
- Off scan

A 'Note' at the bottom states: 'Deploying a host object will force a redeploy of all hosted objects.' At the bottom right, there are 'Cancel' and 'Deploy' buttons.

# Upgrade and Migration

## Node Replacement Upgrade...cont'd

- On AOS2 node ensure that the new GR is listed as On Scan
- Undeploy the AOS1 with “On Failure Mark as Undeployed” option
- Ensure that AOS1 platform/all objects under it are undeployed
- Deploy the AOS1 platform without selecting the “Cascade Deploy”
- On AOS2 ensure the new AOS1 is On Scan in Platform Manager
- Deploy the primary engine under AOS1 with “Cascade Deploy” option
- On the GR Node, in the SMC Platform Manager ensure that the engine is listed as On Scan under AOS1
- Decommission AOS2 node and setup a new node with the same name and IP address. Install higher version of Application Server software
- Undeploy AOS2 platform with “On Failure Mark as Undeployed” option
- Deploy the new AOS2 node without the “Cascade Deploy” option
- Ensure that AOS2 is listed as On Scan in the SMC Platform Manager



OCMC - [Operations Control Management Console]  
 SMC - [ArcestrA System Management Console (TESTAOS2)\Platform Manager\TestGalaxy[DefaultUser]]

File Action View Help

Platform Name	Node Name	Platform ID	Platform Status
GR	TESTGR	1	Running On Scan
AOS2	TESTAOS2	3	Running On Scan

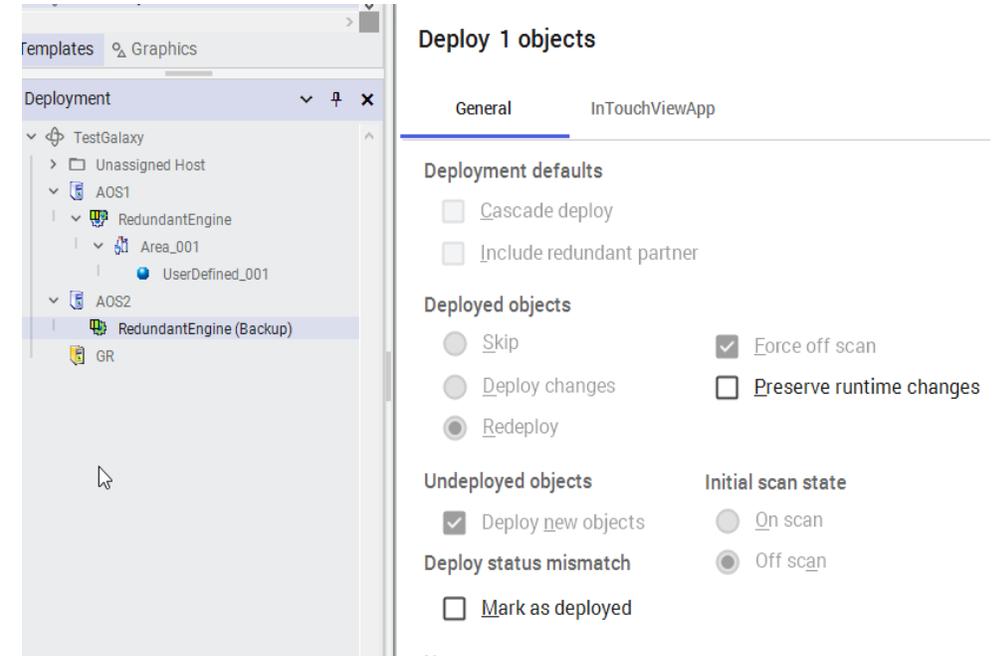
ArcestrA System Management Console

- Operations Integration Server Man
- Log Viewer
- Platform Manager
  - TestGalaxy[DefaultUser]
    - GR [TESTGR]
    - AOS2 [TESTAOS2 - local]
  - TestGalaxy[DefaultUser]
    - GR [TESTGR - local]
    - AOS1 [TESTAOS1]
    - AOS2 [TESTAOS2]

# Upgrade and Migration

## Node Replacement Upgrade...cont'd

- Deploy backup engine assigned under AOS2
- 
- 



# Upgrade and Migration

## Node Replacement Upgrade...cont'd

- Deploy backup engine assigned under AOS2

Deployment

- TestGalaxy
  - Unassigned Host
  - AOS1
    - RedundantEngine
      - Area\_001
        - UserDefined\_001
    - AOS2
      - RedundantEngine (Backup)
      - GR

### Deploying Objects

Deploy complete. Please review the details below.

#### Details

9/21/2023 7:58:07 PM Validating GRNodeInfo...  
9/21/2023 7:58:07 PM Checking whether objects being deployed require software upgrade...  
9/21/2023 7:58:07 PM Sorting and Validating 1 object(s) starting from RedundantEngine hosted by platfor  
9/21/2023 7:58:07 PM Deploying 1 Engine(s) starting with RedundantEngine hosted by AOS2  
9/21/2023 7:58:28 PM [SUCCESS] Deploy Completed: Deployed 1 object(s) out of a total 1 selected object

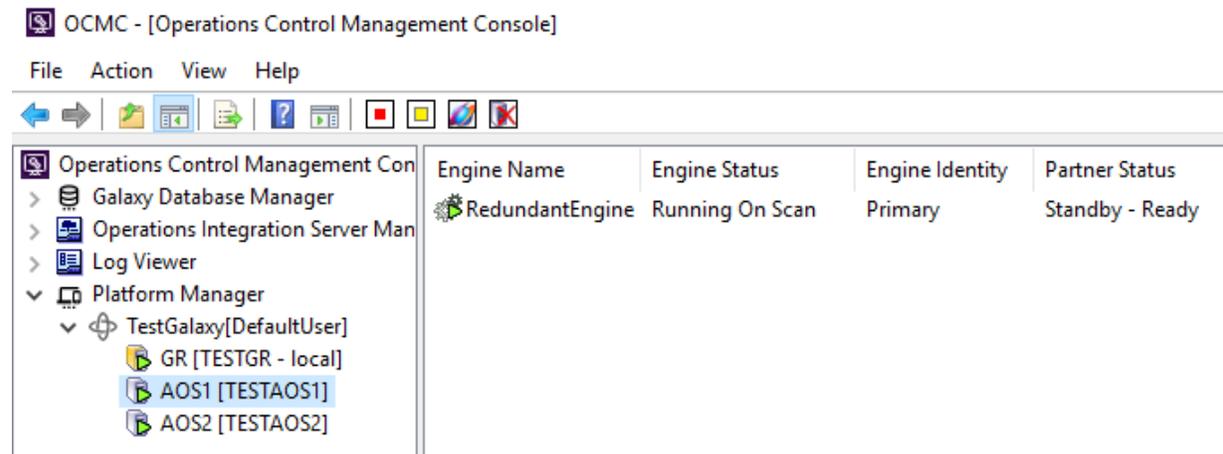
00:00:21.734

Close

# Upgrade and Migration

## Node Replacement Upgrade...cont'd

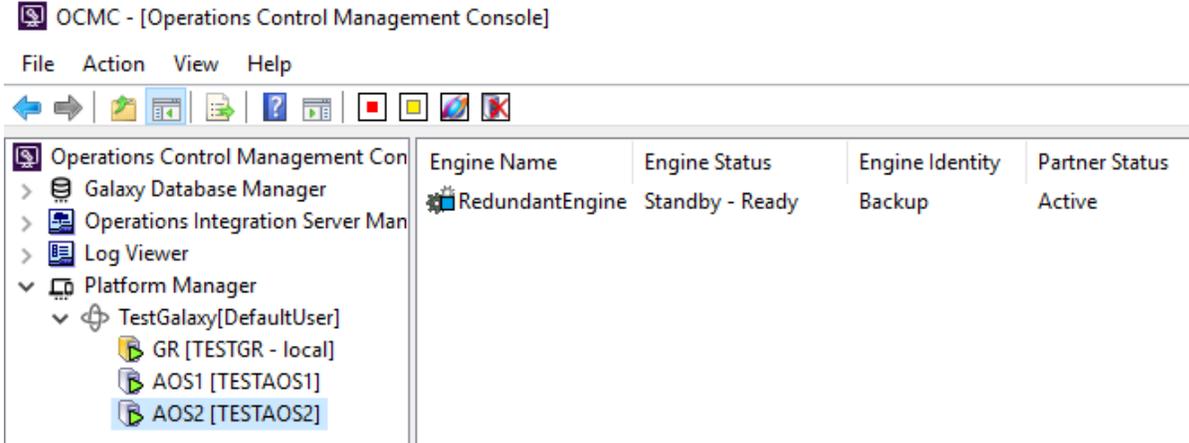
- Deploy backup engine assigned under AOS2
- In the SMC Platform Manager ensure that the engine is listed as “Running On Scan” under AOS1 with its partner status as “Standby-Ready”
- 



# Upgrade and Migration

## Node Replacement Upgrade...cont'd

- Deploy backup engine assigned under AOS2
- In the SMC Platform Manager ensure that the engine is listed as “Running On Scan” under AOS1 with its partner status as “Standby-Ready”
- In the SMC Platform Manager ensure that the engine is listed as “Standby-Ready” under AOS2 with its partner status as “Active”



The screenshot shows the OCMC interface with a tree view on the left and a table on the right. The tree view shows the following structure:

- Operations Control Management Con
  - Galaxy Database Manager
  - Operations Integration Server Man
  - Log Viewer
  - Platform Manager
    - TestGalaxy[DefaultUser]
      - GR [TESTGR - local]
      - AOS1 [TESTAOS1]
      - AOS2 [TESTAOS2]

The table on the right displays the following data:

Engine Name	Engine Status	Engine Identity	Partner Status
RedundantEngine	Standby - Ready	Backup	Active

---

# Upgrade and Migration

## Node replacement upgrade...cont'd

- **Pros**

- Seamless upgrade of the Galaxy
- Operators at HMI stations continue to visualize the plant data while the upgrade is in progress in the background
- It is possible to upgrade the hardware and operating system of platform nodes while avoiding downtime.

- **Cons**

- None

# Questions?

Please wait for the microphone.  
State your name and company.



# Please remember to...

Navigate to this session in the mobile app to complete the survey.



# Thank you!

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