VOSS Automate
Upgrade Guide with ISO and Template

Release 25.3

December 03, 2025

Legal Information

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Contents

Important: This guide is *only* used to upgrade to a major version release, for example, 24.x, 25.x. For Patch Bundle upgrades, use the *Upgrade Guide with Delta or Patch Bundle* document.

1. Prepare for Upgrade

1.1. Before upgrading

1.1.1. Dependencies

The supported upgrade paths to release 25.3 using this ISO upgrade:

- `24.x > 25.3`

1.1.2. Versions

Before starting with this upgrade, please read the following notes related to upgrades from earlier versions of the software.

Microsoft PowerShell upgrade

Important: Microsoft customers:

- Before proceeding with the upgrade, ensure that you have installed the required version of Windows PowerShell. For details, refer to Run PowerShell proxy server setup script in the Automate Core Feature Guide.
- During the upgrade to 25.3, a migration will be performed on all Microsoft Tenant instances. Please export all existing instances of the Microsoft Tenant configurations (`relation/MicrosoftTenant`) to Excel or JSON prior to upgrading, to be used as a reference in case connectivity issues to either MSGraph or PowerShell are encountered during the upgrade.

Release 24.2 - Sync and Dashboard Management

- After upgrade to release 24.2, dashboard management is available after 30 minutes, since the scheduled `delta-sync` process initially carries out a *full sync* and thereafter an incremental resource sync. No manual sync is therefore required after upgrade. For details, see the Insights Analytics section of the Platform Guide.
- Ensure that:
  - An additional 70 GB disk is available for the Insights database

– All application and database nodes memory allocation is 32 GB with 32 GB reservation

See *Adding Hard Disk Space* in the Platform Guide and *VOSS Automate Hardware Specifications* in the Architecture and Hardware Specification Guide.

This disk is needed to assign to the `insights-voss-sync:database` mount point. See *Mount the Insights disk*.

Release 24.1 onwards - Microsoft Teams, Deprecation of Basic Authentication

Starting with Automate 24.1, Microsoft PowerShell must be set up for app (application) registration for authentication.

See the following references:

- VOSS Automate 24.1 - Microsoft Customers, Upgrade Planning for App Registration
- Create MS Teams Service Account on Microsoft Cloud in the Core Feature Guide

Release 24.1 onwards - Virtual Machine and ESXi Version Compatibility, and AVX Support

Before starting your upgrade, ensure that the hardware version of each of your virtual machines (VMs) is at least version 11, compatible with ESXi 6.0 and up, and that your host CPU supports AVX (Advanced Vector Extensions).

A `cluster check` command in the Automate pre-upgrade steps checks for AVX support. To ensure that AVX support is added to the VMs, you'll need to upgrade the compatibility of the VM in vCenter.

Before upgrading to release 24.1:

- Install `EKB-21455-21.4.0_patch.script` first. Refer to `MOP-EKB-21455-21.4.0_patch.pdf`.
    - **Server Name**: https://voss.portalshape.com
    - **Path**: **Downloads > VOSS Automate > 24.1 > Upgrade > ISO**
    - **MOP**: MOP-EKB-21455-21.4.0_patch.pdf
    - **Patch File**: EKB-21455-21.4.0_patch.script

Release 21.4 onwards - Product License Changes

From release 21.4 onwards, VOSS Automate allows for the registration and update of product licenses within the application. A licensing service is installed during installation or upgrade and a license token is associated with the platform on which it is installed.

1.1.3. Maintenance windows and upgrade duration

Note: Release 25.2 installed `tmux` to replace `screen`. If you are upgrading from earlier than 25.2:

- The `screen` command should be used where indicated *before* the upgrade. See: *Using the screen command*.

- The `tmux` command should be used where indicated *after* the upgrade. See: *Using the tmux command*.

If you are upgrading from 25.2:

- The `tmux` command should be used throughout. See: *Using the tmux command*.

Normal operations will be interrupted during an upgrade. Perform the upgrade in a maintenance window. Refer to the type of upgrade for details on the upgrade duration.

Tasks that are marked **Prior to Maintenance Window** can be completed a few days prior to the scheduled maintenance window so that VOSS support can be contacted if needed and in order to allow for reduced downtime.

Ensure that sufficient time is allocated to the maintenance window. This may vary in accordance with your topology, number of devices and subscribers.

The information below serves as a guideline:

Note: Contact VOSS support if further guidance is required.

- Cluster upgrade: 4h

- Template install: 2.5h

- For a 500K Data User system (13Mil RESOURCE documents), the expected `upgrade_db` step is about 12h.

- For a 160K Data User system (2.5Mil RESOURCE documents), the expected `upgrade_db` step is about 2.5h.

You can follow the progress on the Admin Portal transaction list.

1.2. Upgrade and data migration

After the upgrade of the system with **cluster upgrade <file.ISO>**, any changes and updates to core model schemas need to be added to the system database. It is recommended that this step is run in a terminal opened with the `tmux` command.

This database upgrade is carried out from the Command Line Interface (CLI) by means of **voss upgrade_db**. It is recommended that this step is run in a terminal opened with the `tmux` command.

From instructions in the newly upgraded ISO, the schemas of system core models are updated as required and existing data is migrated to these updated model schemas. Schema updates would include updated version numbers and may for example add or remove new model attributes to schemas and add new default data.

Migration instructions from existing model versions to new updated versions are used to create the updated model schemas and update data to be stored in the system database.

In the case of the installation of an updated template, the **app template <template_file>** command will also execute any migration instructions included in the template file to upgrade the database with the updated template data.

1.3. Using the `screen` command

1.3.1. Overview

The `screen` command is used to execute long-running commands in the background, for example, when upgrading.

The following commands require the running of `screen`:

- `cluster provision`
- `cluster upgrade`
- `app template`
- `voss export type <args>`
- `voss export group <args>`
- `voss subscriber_data_export`

A message is displayed to indicate that `screen` should be run first:

```
This is a potentially long-running command and should be executed in a screen session
Run `screen` and then execute the command again
```

The use of `screen` is *not affected* by the use of the `--force` parameter with any of these commands.

The commands then run in a screen session that can be reconnected.

Standard `screen` command parameters are available, in particular:

- `screen` - start a new session
- `screen -ls` - show sessions already available
- `screen -r [screen PID]` - reconnect to a disconnected session

The version of `screen` used in VOSS Automate also supports the creation of a log file. If long-running commands will be run, the log file captures screen console output up to the session timeout. The following message displays:

```
timed out waiting for input: auto-logout
```

1.3.2. Create a screen log file

To create a screen log file:

1. Run `screen` and wait for screen to open.

2. Press **<Ctrl>-a** then **:** (colon). This will enter screen command mode at the bottom of the console.

3. Create your screen logfile in the `media/` directory:

   a. In screen command mode, type **logfile media/<screen-logfilename>.log**

   b. Press **<Enter>**

   c. Press **<Ctrl>-a** and then **H** to start writing to the log file

   d. Run your commands.

If the **screen** session times out, you can obtain console output from the log file, for example:

```
$ sftp platform@<host>:media/<screen-logfilename>.log
```

1.4. Using the `tmux` command

The `tmux` command is available to execute long-running commands (for example, when upgrading) in the background.

Note: From release 25.2, the `screen` command is no longer available on the Automate CLI - typing in `screen` on the CLI will return a message to use `tmux` instead.

The following commands require the running of `tmux`:

- **backup create <location-name>**
- **cluster provision**
- **cluster upgrade**
- **app template**
- **voss export type <args>**
- **voss export group <args>**
- **voss subscriber_data_export**

A message is displayed to indicate that `tmux` should be run first:

```
This is a potentially long-running command and should be executed in a tmux session
Run tmux and then execute the command again
```

The use of `tmux` is *not affected* by the use of the `--force` parameter with any of these commands.

The commands then run in a tmux session that can be reconnected. The standard `tmux` command parameters are available, in particular:

- List sessions:

```
tmux list-sessions
0: 1 windows (created Thu Apr 10 22:32:29 2025)
1: 1 windows (created Thu Apr 10 22:32:41 2025) (attached)
```

- Detach

```
Ctrl+b + d
```

- Exit (kill session)

```
Ctrl+d
```

- Attach to a session

```
tmux attach -t 0
```

- Scroll

```
Ctrl+b + [
```

- Scroll off

```
Esc
```

- Execute a command (example)

```
$ tmux -c 'voss export type license_audit'
Starting license_audit export, please wait...
Completed license_audit export, created vlf_[...]
```

To create a `tmux` log file in the `/var/log/platform/tmux/` directory:

```
tmux -Log
```

For details, refer to the on-line help - also referenced below.

If the `tmux` session times out, you can obtain console output from the log file, for example:

$ sftp platform@<host>:media/<tmux-logfilename>.log

1.4.1. On-line help

The platform CLI offers an enhanced online help to the `tmux` command that also includes details and examples, as well as custom parameters to output the session to a log file.

The enhanced, full on-line help information available from the CLI is shown below:

```
platform@VOSS:~$ tmux -h
usage: tmux [-2CDlNuvV] [-c shell-command] [-f file] [-L socket-name]
            [-S socket-path] [-T features] [command [flags]]
```

(continues on next page)

```
COMMON COMMANDS
 attach-session (alias: attach) [-t target-session]    target-session is the number
                                                        from 'tmux ls'.
 list-commands  (alias: lscm) [command]                List the syntax of command or
                                                        - if omitted - of all commands
                                                        supported by tmux.
 list-sessions  (alias: ls)                            List all sessions managed by
                                                        the server.
 man                                                   Displays tmux manual.


COMMON KEY BINDINGS
 tmux may be controlled from an attached client by using a key combination of a
 prefix key, 'Ctrl-b', followed by a command key

 d             Detach the current client.
 :             Enter the tmux command prompt.


VOSS LOGGING ENHANCEMENTS:

 -Log                   Turn on output logging. Log folder /var/log/platform/tmux/
 -LogPrefix [prefix]    Prefix added to the log filename.

LOG NAME PATTERN:

<[PREFIX]->tmuxlog-[TIMESTAMP]-[USER_ID]-S[SESSION_NAME]-W[WINDOW_ID]-P[PROCESS_ID].log
 I.e.
   tmuxlog-20250527120013-1401-0-W0-P1329199.log
   my-prefix-tmuxlog-20250527120013-1401-S0-W0-P1329199.log

Examples:
  1. Start a logged session with default name pattern:
  tmux -Log
      I.e. tmuxlog-20250527120013-1401-S0-W0-P1329199.log
  2. Run specific command with custom log prefix:
  tmux -LogPrefix my-log -c "my-long-running-command"
      I.e. my-log-tmuxlog-20250527120013-1401-S0-W0-P1329199.log
```

The `list-commands` parameter offers details on available commands, such as shown in the snippet below:

```
platform@VOSS:~$ tmux list-commands
attach-session (attach) [-dErx] [-c working-directory] [-f flags] [-t target-session]
bind-key (bind) [-nr] [-T key-table] [-N note] key [command [arguments]]
break-pane (breakp) [-abdP] [-F format] [-n window-name] [-s src-pane] [-t dst-window]
capture-pane (capturep) [-aCeJNpPq] [-b buffer-name] [-E end-line] [-S start-line] [-t␣
→target-pane]
choose-buffer [-NrZ] [-F format] [-f filter] [-K key-format] [-O sort-order] [-t target-
→pane] [template]
choose-client [-NrZ] [-F format] [-f filter] [-K key-format] [-O sort-order] [-t target-
→pane] [template]
choose-tree [-GNrswZ] [-F format] [-f filter] [-K key-format] [-O sort-order] [-t target-
→pane] [template]
```

```
clear-history (clearhist) [-t target-pane]
clock-mode [-t target-pane]
command-prompt [-1kiNTW] [-I inputs] [-p prompts] [-t target-client] [template]
[...]
```

1.5. Automate hardware specifications

1.5.1. Overview

Note: For details around the open source software components used in Automate, see the *Open Source License Usage Guide*.

Virtualized hardware and resource oversubscription

It is recommended that no more than two Unified nodes and one Web Proxy node be run on a physical server (VM server) and that the disk subsystems are unique for each Unified node.

Automate virtual machines should maintain a 1:1 ratio between virtual RAM and Disk hardware and physical hardware, in other words:

  • 1 GB of virtual RAM (vRAM) must map to 1 GB of physical RAM

  • 1 GB of virtual Disk (vDisk) storage must map to 1 GB of physical storage

For virtual CPU (vCPU), hyper-threading is supported.

1.5.2. Unified node hardware specifications

Single-node cluster (cluster-of-one) hardware specification

This section provides the virtual machine specification for a single node cluster deployment topology in Automate.

  • For details on supported virtual machine platforms:

    See: *Supported virtualization and hypervisor platforms*

  • For supported virtual machine platform versions, refer to the Compatibility Matrix

Virtual machine requirements are specified in the table below.

Node type	Quantity	Memory	CPU	Disk	Network

Single node cluster	1	32 GB with 32 GB reservation	4 vCPU @ 2 GHz with 4000 MHz reservation	Total: 440 GB as allocated below. 370 GB partitioned:
				• 20 GB for OS
				• 50 GB for application:
				  – 10 GB for logs
				  – 40 GB for our apps
				• 50 GB for compressed back-ups
				• 250 GB for database
				70 GB database disk to be added after upgrade or installation. Refer to the Upgrade Guide with ISO and Template or Installation Guide.
					1 Gbit/s minimum

Note:

- From release 24.1, allowance should be made for an additional 70GB database disk to be added after upgrade or installation. This disk will be used for Insights sync.

  Refer to the Upgrade Guide with ISO and Template or Installation Guide and *Add disks in the AWS or MS Azure cloud hosted platform*.

- If memory allocations are customized, ensure that the memory reservation remains equal to the allocated memory in order to prevent possible negative side-effects due to memory reclamation.

The maximum number of users for a single node cluster is 50,000.

Multinode cluster hardware specification

- For details on supported virtual machine platforms:

  See: *Supported virtualization and hypervisor platforms*

- For supported virtual machine platform versions, refer to the Compatibility Matrix

Virtual machine requirements are specified in the table below.

Node type	Quantity	Memory	CPU	Disk	Network

Unified	4 or 6	32 GB with 32 GB reservation	4 vCPU @ 2 GHz with 4000 MHz reservation	Total: 440 GB as allocated below. 370 GB partitioned:
				 • 20 GB for OS
				 • 50 GB for application:
				   – 10 GB for logs
				   – 40 GB for our apps
				 • 50 GB for compressed back-ups
				 • 250 GB for database
				 70 GB database disk to be added after upgrade or installation. Refer to the Upgrade Guide with ISO and Template or Installation Guide.
					1 Gbit/s minimum

WebProxy	2	4 GB with 4 GB reservation	2 vCPU @ 2 GHz with no reservation	70 GB partitioned: • 20 GB for OS • 50 GB for application	1 Gbit/s minimum

Note:

- From release 24.1, allowance should be made for an additional 70GB database disk to be added after upgrade or installation. This disk will be used for Insights sync.

  Refer to the Upgrade Guide with ISO and Template or Installation Guide and *Add disks in the AWS or MS Azure cloud hosted platform*.

- If memory allocations are customized, ensure that the memory reservation remains equal to the allocated memory in order to prevent possible negative side-effects due to memory reclamation.

The OS disk requirement is fixed and logs are rotated to ensure that 10 GB is sufficient. 40 GB for applications is a generous allocation and does not scale with the number of users.

The Database storage partition is sized to support 250 K users. Database backups are compressed and the partition is sized to ensure that sufficient space available to support backup of 250 GB database.

Note: To change the TRANSACTION_LOG cap size to greater than 10GB at larger providers for operational reasons, for example for diagnostics and a longer transaction replay window, the `voss db_collection_cap TRANSACTION_LOG <10-50GB>` command can be used from the command line.

Refer to Database Commands in the Platform Guide for more details.

The resize operation will impact the usage on the disk size allocated for the database (typically, 250GB is reserved upon installation). Consider a larger database disk size allocation upon installation if a larger cap size is set.

The backup disk should be Thick Provisioned and Eager Zeroed for better performance immediately after installation.

Web Proxies are optional, but if Web Proxies are used, then they form part of the cluster to allow sharing of static data and other content as needed (for example, themes).

2 Node cluster hardware specification

- For details on supported virtual machine platforms:

  See: *Supported virtualization and hypervisor platforms*

- For supported virtual machine platform versions, refer to the Compatibility Matrix

Virtual machine requirements are specified in the table below.

Node type	Quantity	Memory	CPU	Disk	Network
Unified	= 2	32 GB with 32 GB reservation	4 vCPU @ 2 GHz with 4000 MHz reservation	Total: 440 GB as allocated below. 370 GB partitioned: • 20 GB for OS • 50 GB for application: – 10 GB for logs – 40 GB for our apps • 50 GB for compressed backups • 250 GB for database 70 GB database disk to be added after upgrade or installation. Refer to the Upgrade Guide with ISO and Template or Installation Guide.	1 Gbit/s minimum
WebProxy	>= 0	4 GB with 4 GB reservation	2 vCPU @ 2 GHz with no reservation	70 GB partitioned: • 20 GB for OS • 50 GB for application	1 Gbit/s minimum

For Memory and CPU, the Resource Allocation Reservation on VMware should correspond with these requirements.

Note:

- From release 24.1, allowance should be made for an additional 70GB database disk to be added after upgrade or installation. This disk will be used for Insights sync.

  Refer to the Upgrade Guide with ISO and Template or Installation Guide and *Add disks in the AWS or MS Azure cloud hosted platform*.

- If memory allocations are customized, ensure that the memory reservation remains equal to the allocated memory in order to prevent possible negative side-effects due to memory reclamation.

1.5.3. Modular cluster hardware specifications

Multinode modular cluster hardware specification

- For details on supported virtual machine platforms:

  See: *Supported virtualization and hypervisor platforms*

- For supported virtual machine platform versions, refer to the Compatibility Matrix

Virtual machine requirements are specified in the table below.

Node type	Quantity	Memory	CPU	Disk	Network

Application	3	32 GB with 32 GB reservation	4 vCPU @ 2 GHz with 4000 MHz reservation	70 GB partitioned:
				• 20 GB for OS
				• 50 GB for application:
				  – 10 GB for logs
				  – 40 GB for our apps
					1 Gbit/s minimum

Database	3	32 GB with 32 GB reservation	4 vCPU @ 2 GHz with 4000 MHz reservation	Total: 440 GB as allocated below.
				370 GB partitioned:
				• 20 GB for OS
				• 50 GB for compressed backups
				• 50 GB for application:
				  – 10 GB for logs
				  – 40 GB for our apps
				• 250 GB for database
				70 GB database disk to be added after upgrade or installation. Refer to the Upgrade Guide with ISO and Template or Installation Guide.
					1 Gbit/s minimum

WebProxy	2	4 GB with 4 GB reservation	2 vCPU @ 2 GHz with no reservation	70 GB partitioned: • 20 GB for OS • 50 GB for application	1 Gbit/s minimum

Note:

- From release 24.1, allowance should be made for an additional 250GB database disk to be added after upgrade or installation. This disk will be used for Insights sync.

  Refer to the Upgrade Guide with ISO and Template or Installation Guide and *Add disks in the AWS or MS Azure cloud hosted platform*.

- If memory allocations are customized, ensure that the memory reservation remains equal to the allocated memory in order to prevent possible negative side-effects due to memory reclamation.

The OS disk requirement is fixed and logs are rotated to ensure that 10 GB is sufficient. 40 GB for an applications role node is a generous allocation and the size will not have to be increased with the number of users.

The Database storage partition is sized to support 250 K users. Database backups are compressed and the partition is sized to ensure that sufficient space is available to support backup of 250 GB database.

Note: To change the TRANSACTION_LOG cap size to greater than 10GB at larger providers for operational reasons, for example for diagnostics, the **voss db_collection_cap TRANSACTION_LOG <10-50GB>** command can be used from the command line.

Refer to Database Commands in the Platform Guide for more details.

The resize operation will impact the usage on the size of the disk allocated for the database (typically, 250GB is reserved upon installation). Consider a larger database disk size allocation upon installation if a larger cap size is set.

The backup disk should be Thick Provisioned and Eager Zeroed for better performance immediately after installation.

Web Proxies are optional, but if Web Proxies are used, then they form part of the cluster to allow sharing of static data and other content as needed (for example, themes).

1.5.4. Add disks in the AWS or MS Azure cloud hosted platform

The steps below are required to add a disk that provides for the Insights database in release 24.1 - that should then be assigned to the `insights-voss-sync:database` mount point (refer to the final step in the *Upgrade Guide with ISO and Template* for your topology).

AWS

1. Create the EBS Volumes for each DB node in the Amazon EC2 console.

   Go to **EC2 > Volumes > Create volume**

   For **Volume settings**, enter:

   - Volume type: Provisioned IOPS SSD (io2)
   - Size (GiB): 70GB
   - IOPS: 750

   For **Availability Zone**:

   - Create 3 volumes in each of the zones (for example: us-east-1a, us-east-1b, us-east-1c)

2. Attach the newly created volumes to each of the database nodes.

   Go to **EC2 > Volumes > volume_id > Attach volume**

   - **Instance**: Select the database instance within the same corresponding az
   - **Device Name**: `/dev/sde` (This will display as `xvde` in drives list)

Microsoft Azure

1. In the Microsoft Azure portal, search for Virtual Machines
    - Select each of the database nodes
    - Select **Disk** under **Properties**
2. Click **Create and attach a new disk**.
    - **LUN**: Next available
    - **Disk Name**: Label according to your recommended naming convention
    - **Storage Type**: Premium SSD LRS
    - **Size**: 70GB
    - **Encryption**: Set according to your requirements
    - **Host Caching**: Read/Write

2. Upgrade (all topologies)

2.1. Upgrade Automate

2.1.1. Overview

This section provides the steps for upgrading Automate with ISO and template, for all topologies. At each step in this procedure we've added labels to indicate the relevant topologies:

- Unified node cluster topology: **Unified Node Cluster**

- Modular node cluster topology: **Modular Node Cluster**

- Single unified node topology: **Single Unified Node**

You can find out more about the Automate deployment topologies in the *Automate Architecture and Hardware Specification Guide*.

2.1.2. Before you start

Note: For deployments with a two-node cluster with unified nodes topology and upgrading from release 24.X to the current release, contact VOSS support to carry out the commands below:

- Root access: `app install nrs`

- Run command: `config.py --app=mongodb delete /servers_arb`

Unified Node Cluster **Modular Node Cluster** **Single Unified Node**

Review section "Prepare for Upgrade" before proceeding.

Important: Before starting the upgrade, ensure that the application and hardware version of each of your virtual machines (VMs) is as indicated in the Compatibility Matrix.

Ensure your host CPU supports AVX (Advanced Vector Extensions). A `cluster check` command in the Automate pre-upgrade steps checks for AVX support.

2.1.3. Prior to maintenance window

Prior to the maintenance window, you will need to complete the following tasks:

1. Verify the primary database node and application node

2. Download and check files

3. Check the version

Verify the primary database node and application node

Unified Node Cluster Modular Node Cluster

Note: This task is **optional** for a **single unified node cluster** topology.

---

1. Verify the primary application node, run the following command on the node:

```
cluster primary role application
```

Note:

- In a **modular node cluster** topology, the application and database are on separate nodes.

- In a **unified node cluster** topology you will need to ensure that the database and application status is primary on the same node (the node configured as "primary"). In this case (**unified node cluster**), you'll need to run the command on each node until you find the "primary" node. For example, the database node with the highest "weight" is "primary".

The output should be true, for example:

```
platform@UN2:~$ cluster primary role application
is_primary: true
```

2. Verify the primary database node, run the following command on the node:

```
cluster primary role database
```

Note:

- In a **modular node cluster** topology, the application and database are on separate nodes.

- In a **unified node cluster** topology you will need to ensure that the database and application status is "primary" on the same node (the node configured as "primary"). In this case (**unified node cluster**), you'll need to run the command on each node until you find the "primary" node. For example, the database node with the highest "weight" is "primary".

The output should be true, for example:

```
platform@UN1:~$ cluster primary role database
is_primary: true
```

2.1. Upgrade Automate

Download and check files

Unified Node Cluster | Modular Node Cluster | Single Unified Node

---

Note: Ensure that the **.iso** file is available on all nodes.

---

1. Go to the download location for VOSS files (where XXX is the major version in your upgrade path requirement, for example, 24.2, if you're upgrading to 24.2-PB1):

   https://voss.portalshape.com > Downloads > VOSS Automate > XXX > Upgrade

2. Download **.iso** and **.template** files.

3. Transfer the files to the **media**/ folder, using either SFTP or SCP:

   • Transfer the **.iso** file to the **media**/ folder of all nodes.

   • Transfer the **.template** file to the **media**/ folder of the primary application node.

   Transfer using SFTP:

For all nodes	`sftp platform@<node_hostname>`
	`cd media`
	`put <upgrade_iso_file>`

For primary application node	`sftp platform@<application_node_hostname>`
	`cd media`
	`put <upgrade_template_file>`

   Transfer using SCP:

For all nodes	`scp <upgrade_iso_file> platform@<node_ip_address>:~/` `media`
For primary application node	`scp <upgrade_template_file> platform@<application_node_ip_address>:~` `media`

4. Verify that the **.iso** image and **.template** file copied: `ls -l media/`

5. Verify that the original **.sha256** checksums on the Download site match:

   On any node, run:

   `cluster run all system checksum media/<upgrade_iso_file>`

Note: If you have multiple nodes, run this command on only one node.

The output should be:

```
Checksum: <SHA256>
```

On the primary application node, run: `system checksum media/<upgrade_template_file>`

The output should be:

```
Checksum: <SHA256>
```

Version check

`Unified Node Cluster` `Modular Node Cluster` `Single Unified Node`

1. If you have customized data settings (data/Settings), record these or export as JSON. Customizations can be re-applied or the exported JSON instances can be merged following the upgrade. See *Post-template upgrade*.

2. Record current version information for upgrade troubleshooting:

   a. Log in to the Admin Portal.

   b. Go to **About > Version**.

   c. Make a note of the system version information.

2.1.4. Maintenance window

In the maintenance window, you will need to complete the following tasks:

1. Perform security and health checks

2. Validate system health

3. Perform pre-upgrade steps

4. Upgrade

5. Perform post-upgrade and health check steps

6. Perform database schema upgrade

7. Perform template upgrade

8. Perform post-template upgrade steps

9. Inspect the log files and check for errors

Security and health checks

Note: From Automate 25.1 and later, the `security check` and `security update` commands are no longer available, since security updates are included during the release upgrade process.

---

1. `Unified Node Cluster` `Modular Node Cluster`

   Note: This step is not relevant when upgrading a **single unified node** topology.

   Verify that the primary database node is the active primary node at the time of upgrade:

   ```
   database config
   ```

Note: A **unified node cluster** topology will have the primary and database on the same node.

2. `Unified Node Cluster` `Modular Node Cluster`

Note: This step is not relevant when upgrading a **single unified node** topology.

Ensure that the primary database node on which installation will be initiated has the **stateStr** parameter set to "PRIMARY" and has the highest priority number.

The highest priority number could vary depending on cluster layout.

Example output:

```
<ip address>:27020:
    priority: <number>
    stateStr: PRIMARY
    storageEngine: WiredTiger
```

```
<ip address>:27020:
    priority: 70.0
    stateStr: PRIMARY
    storageEngine: WiredTiger
<ip address>:27030:
    priority: 0.0
    stateStr: ARBITER
    storageEngine: WiredTiger
<ip address>:27020:
    priority: 50.0
    stateStr: SECONDARY
    storageEngine: WiredTiger
<ip address>:27030:
    priority: 0.0
    stateStr: ARBITER
    storageEngine: WiredTiger
<ip address>:27020:
    priority: 30.0
    stateStr: SECONDARY
    storageEngine: WiredTiger
```

Validate system health

`Unified Node Cluster` `Modular Node Cluster` `Single Unified Node`

Note: From release 25.1, new packages are being installed at the start of upgrade and fresh install. There is no longer a need to do a security check.

1. Mount upgrade ISO: `system mount`

---

2. Install the new version of the cluster check command: `app install check_cluster`

   For details, see **Cluster Check**.

3. Run `cluster check`.

   Inspect the output for warnings and errors. You can also use `cluster check verbose` to see more details, for example, to check that avx is enabled.

   Review and resolve any warnings or errors before proceeding with the upgrade. Contact VOSS Support for assistance, if required.

   For troubleshooting and resolutions, also refer to the *Health Checks for Cluster Installations Guide* and the *Platform Guide*.

   If there is any sign that the paths below are over 80% full, a clean-up is required, for example, to avoid the risk of full logs during upgrade. Recommended steps to resolve are indicated at each path:

Path	Resolution
/	Contact VOSS Support if over 80%
/var/log	Run `log purge`
/opt/platform	Remove any unnecessary files from **/media** directory
/tmp	Reboot

Note:

- If you run `cluster status` after installing the new version of `cluster check`, any error message regarding a failed command can be ignored. This error message will not show after upgrade.

- Adaptation checks - if the **GS SME Adaptation** is installed, check for duplicate instances of of **GS_SMETemplateData_DAT** and delete any duplicates before upgrading to 24.2.

Pre-upgrade

Unified Node Cluster   Modular Node Cluster   Single Unified Node

1. Obtain a suitable restore point as part of the rollback procedure (as per the guidelines for the infrastructure on which the VOSS Automate platform is deployed).

   Important: All nodes must be powered off prior to creating the restore point, and must be powered back on again when the restore point is complete.

   Optionally, if a backup is also required, use the following commands on the primary database node:

   `backup add <location-name>`

   `backup create <location-name>`

   For details, see the *Platform Guide*.

2. Validate system health and check all services, nodes, and weights for the cluster:

   A. Run `cluster run application cluster list`, and ensure that all application nodes show.

B. Run `cluster check`, then inspect the output of this command for warnings and errors. You can use the `cluster check verbose command` to see more details.

Note: When upgrading cloud deployments to release 25.1, the pre-upgrade `cluster check` command output will show a an `error`, with messages containing `package in an undesired state`. These messages can be safely ignored, as the newer check cluster installation will fix these errors.

C. Ensure that no services are stopped or broken: `app status`

The following message is normal on fresh database nodes:

```
suspended waiting for mongo ...
```

D. **Important**! Check that the database weights are set before upgrading a cluster.

Run `database weight list`.

Example output:

```
<ip address>:
      weight: 80
 <ip address>:
      weight: 70
 <ip address>:
      weight: 60
 <ip address>:
      weight: 50
```

E. Verify the primary node in the primary site and ensure no nodes are in the recovering state (**stateStr** is not "RECOVERING").

Upgrade

Unified Node Cluster **Modular Node Cluster** **Single Unified Node**

It is recommended that the upgrade steps are run in a terminal opened with the `screen` command.

By default, the cluster upgrade is carried out in parallel on all nodes and without any backup in order to provide a fast upgrade.

Important: The VOSS platform maintenance mode starts automatically when running `cluster upgrade`. This prevents any new occurrences of scheduled transactions, including database syncs associated with insights sync. For details, see *Insights Analytics* in the *Platform Guide*. Note however that after upgrade, the maintenance mode needs to be ended manually using `cluster maintenance-mode stop` - refer to the *Post-maintenance window* topic below.

---

1. Verify that the ISO has been uploaded to the **media**/ directory on each node. This speeds up the upgrade time.

On the primary database node (**modular node cluster**) or primary unified node (**unified node cluster** and **single unified node**), run the following commands:

```
screen
```

```
cluster upgrade media/<upgrade_iso_file>
```

2. To remove a mount directory **media/<iso_file basename>** on nodes that may have remained after, for example, an upgrade, run:

```
cluster run all app cleanup
```

3. If the message: `*** Reboot Required - New Kernel Installed vmlinuz-x.xx.x-xxx-generic ***` displayed at the bottom after the upgrade, reboot the cluster:

Topology	Command
Unified Node Cluster Modular Node Cluster	`cluster run notme system reboot` When all other nodes have rebooted, run `system reboot` on the local node.
Single Unified Node	`system reboot`

If the following node messages display, these can be ignored:

```
<node name> failed with timeout
```

Since all services will be stopped, this takes some time.

4. Press **Ctrl+d** to close `screen` if no reboot was required.

Post-upgrade and health check

Note: From Automate 25.1 and later, the `security check` and `security update` commands are no longer available, since security updates are included during the release upgrade process.

Unified Node Cluster Modular Node Cluster Single Unified Node

1. Run `cluster check` and verify no errors display.

Database schema upgrade

Important: Commands requiring a session post upgrade therefore require the use of `tmux`. For more details, see: *Using the tmux command*.

It is recommended that the upgrade steps are run in a terminal opened with the `tmux` command.

Unified Node Cluster Modular Node Cluster Single Unified Node

1. On the primary application node, run the following:

```
tmux
```

```
voss upgrade_db
```

2. Check cluster status: `cluster check`

Template upgrade

It is recommended that the upgrade steps are run in a terminal opened with the `tmux` command.

| Unified Node Cluster | Modular Node Cluster | Single Unified Node |

1. On the primary application node, run the following commands:

   `tmux`

   `app template media/<VOSS Automate.template>`

2. View the message that displays:

   ```
   Running the DB-query to find the current environment's existing solution deployment
   →config ...
   ```

3. View progress:

   • Python functions are deployed

   • System artifacts are imported

   Note: To perform fewer upgrade steps, updates of instances of some models are skipped, where:

   – data/CallManager instance does not exist as instance in data/NetworkDeviceList

   – data/CallManager instance exists, but data/NetworkDeviceList is empty

   – Call Manager AXL Generic Driver and Call Manager Control Center Services match the data/CallManager IP

   • The template upgrade automatically detects the deployment mode, Enterprise or Provider. A system message displays for the selected deployment mode, for example:

   On Enterprise deployment:

   ```
   Importing EnterpriseOverlay.json
   ```

   On Provider deployment:

   ```
   Importing ProviderOverlay.json
   ```

   • The template install automatically restarts necessary applications. If a cluster is detected, the installation propagates changes throughout the cluster.

   Review the output to verify that the upgrade message displays:

   ```
   Deployment summary of PREVIOUS template solution
   (i.e. BEFORE upgrade):
   ------------------------------------------------

   Product: [PRODUCT]
   Version: [PREVIOUS PRODUCT RELEASE]
   Iteration-version: [PREVIOUS ITERATION]
   Platform-version: [PREVIOUS PLATFORM VERSION]
   ```

This is followed by updated product and version details:

```
Deployment summary of UPDATED template solution
(i.e. current values after installation):
--------------------------------------------


Product: [PRODUCT]
Version: [UPDATED PRODUCT RELEASE]
Iteration-version: [UPDATED ITERATION]
Platform-version: [UPDATED PLATFORM VERSION]
```

4. If no errors are indicated, create a restore point.

   As part of the rollback procedure, ensure that a suitable restore point is obtained prior to the start of the activity, as per the guidelines for the infrastructure on which the VOSS Automate platform is deployed.

   For unsupported upgrade paths, the install script stops with the message:

```
Upgrade failed due to unsupported upgrade path.
Please log in as sysadmin and see Transaction logs for more detail.
```

   You can roll back as per the guidelines for the infrastructure on which the VOSS Automate platform is deployed.

   If there are errors for another reason, the install script stops with a failure message listing the problem. Contact VOSS Support.

5. For post-upgrade migrations, run the following command on a single application node of a cluster:

   `voss post-upgrade-migrations`

   Data migrations that are not critical to system operation can have significant execution time at scale. These need to be performed after the primary upgrade, allowing the migration to proceed while the system is in use - thereby limiting upgrade windows.

6. View transaction progress. A transaction is queued on VOSS Automate and its progress displays as it executes.

7. On the primary database node, check cluster status and health: `cluster status`

Post-template upgrade

Unified Node Cluster Modular Node Cluster Single Unified Node

1. Verify the upgrade:

   a. Log in on the Admin Portal, and check version details in **About > Version**.

      If your web browser can't open the user interface, clear your browser cache before trying to open the interface again.

   b. Confirm that versions are upgraded (where *XXX* is the release version).

      • Release should display XXX

      • Platform version should display XXX

2. Check that themes on all roles are set correctly.

3. For configurations using Northbound Billing Integration (NBI), check the service status of NBI, and restart if necessary.

Log files and error checks

Unified Node Cluster **Modular Node Cluster** **Single Unified Node**

1. Inspect the output of the command line interface for upgrade errors, for example, "File import failed!" or "Failed to execute command".

2. If there are any errors referring to log files, for example:

```
For more information refer to the execution log file with ``log view platform/
→execute.log``
```

Then run the `log view` command on the primary application node command to view any log files indicated in the error messages.

If required, send all the install log files in the install directory to an SFTP server:

```
log send sftp://x.x.x.x install
```

3. Log in on the Admin Portal as system level admin, then go to **Administration Tools > Transaction**, and inspect the transaction list for errors.

2.1.5. Post-maintenance window

In the post-maintenance part of the upgrade you will need to perform the following tasks:

1. End the maintenance window

2. Apply the license

3. Mount the Insights disk

End maintenance window and restore schedules

Unified Node Cluster **Modular Node Cluster** **Single Unified Node**

On the CLI, run the following command to end the VOSS maintenance window:

```
cluster maintenance-mode stop
```

Scheduled data sync transactions can now resume, including insights sync operations added in 25.1. For details, see *Maintenance Mode* in the *Platform Guide*.

Licensing

`Unified Node Cluster` `Modular Node Cluster` `Single Unified Node`

The Automate deployment requires a license. After installation, a 7-day grace period is available to license the product.

Since license processing is only scheduled every hour, if you wish to license immediately, first run `voss check-license` from the primary application node CLI.

1. Obtain the required license token from VOSS.

2. Apply the license:

   - If applying a license via the GUI, follow the steps indicated in the *Product License Management* section of the *Core Feature Guide*.

   - If applying a license through the CLI, follow the steps indicated in *Product Licensing* in the *Platform Guide*.

Mount the Insights disk

`Unified Node Cluster` `Modular Node Cluster` `Single Unified Node`

1. On each database/unified node, assign the **insights-voss-sync:database** mount point to the drive added for the Insights database prior to upgrade.

   For example, if drives list shows the added disk as . . .

   ```
   Unused disks:
   sde
   ```

   Then run the following command on each database/unified node where the drive has been added:

   ```
   drives add sde insights-voss-sync:database
   ```

   Sample output:

   ```
   $ drives add sde insights-voss-sync:database
   Configuration setting "devices/scan_lvs" unknown.
   Configuration setting "devices/allow_mixed_block_sizes" unknown.
   WARNING: Failed to connect to lvmetad. Falling back to device scanning.
   71ad98e0-7622-49ad-9fg9-db04055e82bc
   Application insights-voss-sync processes stopped.
   Migrating data to new drive - this can take several minutes
   Data migration complete - reassigning drive
   Checking that /dev/sde1 is mounted
   Checking that /dev/dm-0 is mounted
   /opt/platform/apps/mongodb/dbroot
   Checking that /dev/sdc1 is mounted
   /backups

   Application services:firewall processes stopped.
   Reconfiguring applications...
   Application insights-voss-sync processes started.
   ```

Index

A

app
    app cleanup, 16
    app template, 4--6

C

cluster
    cluster check, 16
    cluster maintenance-mode, 16
    cluster provision, 5, 6
    cluster upgrade, 5, 6, 16

D

database
    database convert_drive, 16

S

screen, 5

T

tmux, 4, 6, 16

V

voss
    voss db_collection_cap, 10
    voss upgrade_db, 4
voss export
    voss export group, 5, 6
    voss export type, 5, 6
voss subscriber_data_export, 5, 6