



VOSS-4-UC
Upgrade Guide with Delta Bundle

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Contents

- 1 Using the screen command** **2**
- 2 Multinode Upgrade** **3**
 - 2.1 Upgrade a Multinode Environment with the Delta Bundle 3
- 3 Standalone Upgrade** **13**
 - 3.1 Upgrade a Standalone Environment with the Delta Bundle 13
- Index** **21**

Important:

- When upgrading from any of the following versions, first obtain and apply the patch corresponding to your version from the VOSS secure FTP site. Even if you have applied a previous version patch, you need to apply your current version patch before proceeding.
 - 19.1.2 - /software/patches/19.1.2/Recommended_Patches/EKB-3853-19.1.2_patch
 - 19.2.1 - /software/patches/19.2.1/Recommended_Patches/EKB-3853-19.2.1_patch
 - 19.3.1 - /software/patches/19.3.1/Recommended_Patches/EKB-3853-19.3.1_patch
 - 19.3.2 - /software/patches/19.3.2/Recommended_Patches/EKB-3853-19.3.2_patch
-

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

1 Using the screen command

The **screen** command should be used to execute long-running commands (for example, when upgrading) in the background:

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

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. The 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-4-UC 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. A message shows:

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

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
```

2 Multinode Upgrade

2.1. Upgrade a Multinode Environment with the Delta Bundle

Note:

- While system upgrade takes approximately two hours at a single site, this may vary in accordance with your topology, number of devices and subscribers. Adjust your upgrade maintenance window to allow for your configuration.
-

From VOSS-4-UC 18.1 or CUCDM 11.5.3 onwards, the standard **screen** command should be used where indicated, and the *reconnect* parameter is available if needed:

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

We recommend using the **screen** command to avoid failures if the connection is interrupted whilst running the command. If the connection is interrupted whilst running the command in **screen** then the session can be retrieved by first listing the sessions PID currently running in **screen**: **screen -ls**, and then reconnecting to the session using **screen -r [screen PID]**.

The version of **screen** used in VOSS-4-UC 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. A message shows:

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

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
```

2.1.1. Download Files and Check

Description and Steps	Notes and Status
<ul style="list-style-type: none"> • Server Name: https://voss.portalshape.com • Path: Downloads > VOSS-4-UC > XXX > Upgrade • Directory: Delta Bundle • File: XXX-Delta-Bundle.script <p>Transfer the XXX-Delta-Bundle.script file to the media/ folder of the primary Unified node. Note: It is recommended that the file upload is done prior to the maintenance window.</p> <p>On the primary Unified node, verify that the .script file copied:</p> <ul style="list-style-type: none"> • ls -l media/ <p>Verify that the original .sha256 checksums match.</p> <ul style="list-style-type: none"> • system checksum media/<XXX-Delta-Bundle.script> <p>Checksum: <SHA256></p>	

2.1.2. Adaptations Check

Description and Steps	Notes and Status
<p>Identify installed adaptations and determine any effect on the upgrade plan. If the release is accompanied by Upgrade Notes, refer to the details.</p>	
<p>Run template customization audits at the sys and sys.hcs hierarchy levels to identify template definitions and instances that were not delivered in the standard template packages during an installation or upgrade.</p> <p>The audit report includes custom model schema definitions as well as data, domain, and view instances created on the hierarchy node as a result of workflow execution. If the release is accompanied by Upgrade Notes, refer to the details.</p> <ol style="list-style-type: none"> 1. Log in as an administrator above Provider level that has access to the hierarchies. 2. Choose Administration Tools > Reports > Audit Template Customization. 3. Choose the hierarchy node for which you want to audit customized templates. 4. Click Save. <p>View the audit report:</p> <ol style="list-style-type: none"> 5. Choose Administration Tools > Reports > Template Customization Reports. A list of template customization audit reports is displayed. 6. Click a report to view the details. The message field shows how many customized templates were found at the hierarchy node. The details fields lists the model type and instance of each customized template. 	

2.1.3. Schedules, Transactions and Version Check

Description and Steps	Notes and Status
<p>Turn off any scheduled imports to prevent syncs triggering part way through the upgrade. Two options are available:</p> <p>Individually for each job:</p> <ol style="list-style-type: none"> 1. Log in on the GUI as a high level administrator above Provider level. 2. Select the Scheduling menu to view scheduled jobs. 3. Click each scheduled job. On the Base tab, uncheck the Activate check box. <p>Mass modify:</p> <ol style="list-style-type: none"> 1. On the GUI, export scheduled syncs into a bulk load sheet. 2. Modify the schedule settings to de-activate scheduled syncs. 3. Import the sheet. <p>Schedules enabled on the CLI:</p> <ol style="list-style-type: none"> 1. Run schedule list to check if any schedules exist and overlap with the maintenance window. 2. For overlapping schedules, disable. Run schedule disable <job-name>. 	
<p>Check for running imports. Either wait for them to complete or cancel them:</p> <ol style="list-style-type: none"> 1. Log in on the GUI as a high level administrator above Provider level. 2. Select the Transaction menu to view transactions. 3. Filter the Action column: <ol style="list-style-type: none"> a. Choose Status as "Processing" and then choose each Action that starts with "Import", for example, "Import Unity Connection". b. Click Search and confirm there are no results. c. If there are transactions to cancel, select them and click Cancel. 	
<p>Customized ``data/Settings``</p> <p>If data/Settings instances have been modified, record these or export them as JSON. The modifications can be re-applied or exported JSON instances can be merged following the upgrade. See: Post Template Upgrade Tasks.</p> <p>Version</p> <p>Record the current version information. This is required for upgrade troubleshooting.</p> <ul style="list-style-type: none"> • Log in on the GUI and record the information contained in the About > Extended Version 	

2.1.4. Pre-Upgrade, Security and Health Steps

Description and Steps	Notes and Status
<p>Verify that the primary node is the active primary node at the time of upgrade.</p> <p>database config</p> <p>Ensure that the node on which the installation will be initiated has the <code>stateStr</code> parameter set to PRIMARY and has the highest priority number (highest priority number could vary depending on cluster layout).</p> <p>Example output</p> <pre><ip address>:27020: priority: <number> stateStr: PRIMARY storageEngine: WiredTiger</pre> <p>Validate the system health.</p> <p>On the Primary Unified Node, verify cluster connectivity:</p> <ul style="list-style-type: none"> • cluster status <p>On each node verify network connectivity, disk status and NTP.</p> <ul style="list-style-type: none"> • cluster check <p>If there is any sign of the paths below are over 80% full, a clean-up is needed to avoid risk of for example full logs occurring during upgrade. Clean-up steps are indicated next to the paths:</p> <pre>/ (call support if over 80%) /var/log (run: log purge) /opt/platform (remove any unnecessary files from /media directory) /tmp (reboot)</pre> <p>On the Primary Unified Node, verify there are no pending Security Updates on any of the nodes:</p> <ul style="list-style-type: none"> • cluster run all security check 	
<p>Shutdown servers and take snapshots from VMWare and then power on all servers, starting with the primary:</p> <p>Use VMware snapshots. Consider the following:</p> <ul style="list-style-type: none"> • VOSS cannot guarantee that a VMware snapshot can be used to successfully restore VOSS-4-UC or any Cisco HCS Management application. If you cannot restore the application from a snapshot, your only recourse is to reinstall the application. • When the backup is complete and you do not need the VMware snapshot for restore activities, delete the snapshot immediately to preserve LUN space. • cluster run notme system shutdown –force && system shutdown –force <p>Log into VMWare and take snapshots of all unified nodes and all web proxies.</p> <p>After snapshots, restart the servers:</p> <ul style="list-style-type: none"> • Power up the servers via VMWare. <p>Optional: If a backup is required in addition to the snapshot, use the backup add <location-name> and backup create <location-name> commands. For details, refer to the Platform Guide.</p>	

Description and Steps	Notes and Status
<p>Before upgrading, check all services, nodes and weights for the cluster: Make sure no services are stopped/broken. The message 'suspended waiting for mongo' is normal on the fresh unified nodes.</p> <ul style="list-style-type: none"> • cluster run all app status <p>Make sure all application nodes show 3 or 5 nodes.</p> <ul style="list-style-type: none"> • cluster run application cluster list <p>Check that the database weights are set. It is <i>critical</i> to ensure the weights are set before upgrading a cluster.</p> <ul style="list-style-type: none"> • cluster run application database weight list <p>Example output:</p> <pre>172.29.21.240: weight: 80 172.29.21.241: weight: 70 172.29.21.243: weight: 60 172.29.21.244: weight: 50</pre> <p>Verify the primary node in the primary site and ensure no nodes are in the 'recovering' state (stateStr is not RECOVERING). On the primary node:</p> <ul style="list-style-type: none"> • database config 	

2.1.5. Upgrade

Description and Steps	Notes and Status
<p>On the primary unified node:</p> <ul style="list-style-type: none"> • screen <p>Run (optionally with command parameters below):</p> <ul style="list-style-type: none"> • app install media/<script_file> <p>The upgrade will also silently run an updated version of cluster check and the upgrade will fail to proceed if any error conditions exist. Fix before proceeding. Refer to the Platform Guide for details on the new version of the cluster check command.</p> <p>Run:</p> <ul style="list-style-type: none"> • database config <p>and verify the number of nodes are <i>uneven</i>, i.e. either 5 or 7. If not, run: cluster provision role database and ensure an arbitrator shows when you run database config again (stateStr: ARBITER).</p> <p>From release 19.1.2 and later, the <code>delete-on-success</code> parameter and <code>yes</code> or <code>no</code> value have been added to remove or keep the the script file in the <code>media/</code> directory after successful installation.</p> <p>Note that during the upgrade, phone registration data is cleared. A message will show in the log: <code>Remove phone registration data</code>. This is required so that old values are not displayed, since after the upgrade this information is no longer stored in the resource cache.</p>	

2.1.6. Post-Upgrade, Security and Health Steps

Description and Steps	Notes and Status
<p>On the primary unified node, verify the cluster status:</p> <ul style="list-style-type: none"> • cluster status • cluster check • If any of the above commands show errors, check for further details to assist with troubleshooting: cluster run all diag health 	
<p>If upgrade is successful, the screen session can be closed by typing exit in the screen terminal. If errors occurred, keep the screen terminal open for troubleshooting purposes and contact VOSS support.</p>	
<p>Check for needed security updates. On the primary node, run:</p> <ul style="list-style-type: none"> • cluster run all security check <p>If one or more updates are required for any node, run on the primary Unified node:</p> <ul style="list-style-type: none"> • cluster run all security update <p>Note: <i>if the system reboots, do not carry out the next manual reboot step.</i> Manual reboot <i>only if needed</i>:</p> <ul style="list-style-type: none"> • cluster run notme system reboot <p>If node messages: <code><node name> failed with timeout</code> are displayed, these can be ignored.</p> <ul style="list-style-type: none"> • system reboot <p>Since all services will be stopped, this takes some time.</p>	

2.1.7. Database Filesystem Conversion

Important: This step is to be carried out *only if* you have not converted the file system before.

To check if the step is *not* required:

1. Run **database config** and ensure that the storage engine for *all database nodes* shows as `storageEngine: WiredTiger`.
2. Run **drives list** and ensure that the LVM storage shows for *all converted database nodes* under `Volume Groups`.

The **database convert_drive** command provides parameters that allow for a flexible upgrade schedule in order to limit system downtime.

When the **database convert_drive** command is run, the `voss-deviceapi` service will be stopped first and started after completion. The command should therefore be run during a maintenance window while there are no running transactions.

The procedure and commands in this step depend on:

- your topology
- latency between data centers
- upgrade maintenance windows - **Window 1** to **Window 3** represent chosen maintenance windows.

For the Database Filesystem Conversion step below, *first* inspect the table below for guidance on the commands to run according to your configuration and preferences.

- Run all commands on the primary unified node:
 - Ensure states of database nodes are not DOWN - otherwise the command will fail:
database config (stateStr is not DOWN)
 - Ensure database weights are set and there is 1 maximum weight - otherwise the command will fail:
database weight list (one weight value is maximum)
- For 2 and 3 maintenance windows: after the upgrade (prior to Windows 2 and 3), only nodes with converted drives will generate valid backups.

For example, if the primary drive is converted, backups from the primary node can be used to restore the database. If there is a database failover to the highest weight secondary node that was not converted, it will not be possible for backups to be generated on that secondary node until the drive is converted.

Note: The **database convert_drive** command can also be run on a single node only by running the following command and parameter from the specific node: **database convert_drive standalone**. This option can for example be used for performance reasons in cases where a node is in a remote location.

Topology	Win- dow 1	Win- dow 2	Win- dow 3	Commands (DC = valid data center name)	Description
multin- ode	Y			database convert_drive secondary all database convert_drive primary	Recommended for a system with latency < 10ms.
multin- ode	Y	Y		Window 1: database convert_drive primary Window 2: database convert_drive secondary all	Can be used for a system with latency < or > 10ms. Allows for smaller maintenance windows. Cluster is not available during maintenance.
multin- ode	Y	Y	Y	Window 1: database convert_drive primary Window 2: database convert_drive secondary <first DC> Window 3: database convert_drive secondary <second DC>	Can be used for a system with latency > 10ms. Allows for smaller maintenance windows. Cluster is not available during maintenance.

Description and Steps	Notes and Status
<p>Database Filesystem Conversion step Shut down all the nodes. Since all services will be stopped, this takes some time.</p> <ul style="list-style-type: none"> • cluster run notme system shutdown –force && system shutdown –force <p>Create a VMWare snapshot for all the unified servers so that the system can easily be reverted in the case of a conversion error. Boot all the systems in VMWare.</p> <ul style="list-style-type: none"> • Run the convert_drive command <i>with parameters according to the table above</i>. Wait until it completes successfully. • database config Ensure that the storage engine for <i>all converted database nodes</i> shows as storageEngine: WiredTiger • drives list Ensure that the LVM storage shows for <i>all converted database nodes</i> under Volume Groups In the example below, dbroot/dm-0 shows under Volume Groups, Logical volumes <pre>\$ drives list Used disks and mountpoints: sdc1 - services:backups dm-0 - mongodb:dbroot Unused disks: none - if disks have been hot-mounted, it may be necessary to ↳reboot the system Unused mountpoints: services:SWAPSPACE Volume Groups voss - 10.0 GB free, 60.0 GB total Physical volumes: sdd1 Logical volumes: dbroot/dm-0 - 50.0 GB</pre> 	

2.1.8. Post Template Upgrade Tasks

Description and Steps	Notes and Status
<p>Customized ``data/Settings`` Merge the previously backed up customized data/Settings with the latest settings on the system by manually adding the differences or exporting the latest settings to JSON, merging the customized changes and importing the JSON.</p> <p>Support for VG400 and VG450 Analogue Gateways Before adding the VG400 or VG450 Gateway, the device/cucm/GatewayType model needs to be imported for each Unified CM.</p> <ol style="list-style-type: none"> 1. Create a Model Type List which includes the device/cucm/GatewayType model. 2. Add the Model Type List to all the required Unified CM Data Syncs. 3. Execute the Data Sync for all the required Unified CMs. <p>Verify the upgrade Log in on the GUI and check the information contained in the About > Extended Version menu. Confirm that versions have upgraded:</p> <ul style="list-style-type: none"> • Release should show 19.3.4 • Platform Version should show 19.3.4 <p>If your web browser cannot open the user interface, clear your browser cache before trying to open the interface again.</p>	

2.1.9. Restore Adaptations

Description and Steps	Notes and Status
<p>Restore and adaptations prior to upgrade. If the release is accompanied by Upgrade Notes, refer to the details on adaptation impact.</p>	

2.1.10. Restore Schedules

Description and Steps	Notes and Status
<p>Re-enable scheduled imports if any were disabled prior to the upgrade. Two options are available:</p> <p>Individually for each job:</p> <ol style="list-style-type: none"> 1. Log in on the GUI as a high level administrator above Provider level. 2. Select the Scheduling menu to view scheduled jobs. 3. Click each scheduled job. On the Base tab, check the Activate check box. <p>Mass modify:</p> <ol style="list-style-type: none"> 1. Modify the exported sheet of schedules to activate scheduled syncs. 2. Import the bulk load sheet. <p>Schedules enabled on the CLI:</p> <ol style="list-style-type: none"> 1. For disabled schedules that were overlapping the maintenance window, enable. Run schedule enable <job-name>. 	

2.1.11. Log Files and Error Checks

Description and Steps	Notes and Status
<p>Inspect the output of the command line interface for upgrade errors. Use the log view command to view any log files indicated in the error messages, for example, run the command if the following message appears:</p> <p>For more information refer to the execution log file with 'log view platform/execute.log'</p> <p>For example, if it is required send all the install log files in the install directory to an SFTP server:</p> <ul style="list-style-type: none">• log send sftp://x.x.x.x install	
<p>Log in on the GUI as system level administrator, go to Administration Tools > Transaction and inspect the transactions list for errors.</p>	

3 Standalone Upgrade

3.1. Upgrade a Standalone Environment with the Delta Bundle

Note:

- While system upgrade takes approximately two hours at a single site, this may vary in accordance with your topology, number of devices and subscribers. Adjust your upgrade maintenance window to allow for your configuration.
-

From VOSS-4-UC 18.1 or CUCDM 11.5.3 onwards, the standard **screen** command should be used where indicated, and the *reconnect* parameter is available if needed:

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

We recommend using the **screen** command to avoid failures if the connection is interrupted whilst running the command. If the connection is interrupted whilst running the command in **screen** then the session can be retrieved by first listing the sessions PID currently running in **screen**: **screen -ls**, and then reconnecting to the session using **screen -r [screen PID]**.

The version of **screen** used in VOSS-4-UC 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. A message shows:

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

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
```


3.1.1. Download Files and Check

Description and Steps	Notes and Status
<ul style="list-style-type: none"> • Server Name: https://voss.portalshape.com • Path: Downloads > VOSS-4-UC > XXX > Upgrade • Directory: Delta Bundle • File: XXX-Delta-Bundle.script <p>Transfer the XXX-Delta-Bundle.script file to the media/ folder. Note: It is recommended that the file upload is done prior to the maintenance window.</p> <p>verify that the .script file copied:</p> <ul style="list-style-type: none"> • ls -l media/ <p>Verify that the original .sha256 checksums match.</p> <ul style="list-style-type: none"> • system checksum media/<XXX-Delta-Bundle.script> <p>Checksum: <SHA256></p>	

3.1.2. Adaptations Check

Description and Steps	Notes and Status
<p>Identify installed adaptations and determine any effect on the upgrade plan. If the release is accompanied by Upgrade Notes, refer to the details.</p>	
<p>Run template customization audits at the sys and sys.hcs hierarchy levels to identify template definitions and instances that were not delivered in the standard template packages during an installation or upgrade.</p> <p>The audit report includes custom model schema definitions as well as data, domain, and view instances created on the hierarchy node as a result of workflow execution. If the release is accompanied by Upgrade Notes, refer to the details.</p> <ol style="list-style-type: none"> 1. Log in as an administrator above Provider level that has access to the hierarchies. 2. Choose Administration Tools > Reports > Audit Template Customization. 3. Choose the hierarchy node for which you want to audit customized templates. 4. Click Save. <p>View the audit report:</p> <ol style="list-style-type: none"> 5. Choose Administration Tools > Reports > Template Customization Reports. A list of template customization audit reports is displayed. 6. Click a report to view the details. The message field shows how many customized templates were found at the hierarchy node. The details fields lists the model type and instance of each customized template. Record and / or export the report details so that any adaptations to models can be restored during the post-upgrade steps. 	

3.1.3. Schedules, Transactions and Version Check

Description and Steps	Notes and Status
<p>Turn off any scheduled imports to prevent syncs triggering part way through the upgrade. Two options are available:</p> <p>Individually for each job:</p> <ol style="list-style-type: none"> 1. Log in on the GUI as a high level administrator above Provider level. 2. Select the Scheduling menu to view scheduled jobs. 3. Click each scheduled job. On the Base tab, uncheck the Activate check box. <p>Mass modify:</p> <ol style="list-style-type: none"> 1. On the GUI, export scheduled syncs into a bulk load sheet. 2. Modify the schedule settings to de-activate scheduled syncs. 3. Import the sheet. <p>Schedules enabled on the CLI:</p> <ol style="list-style-type: none"> 1. Run schedule list to check if any schedules exist and overlap with the maintenance window. 2. For overlapping schedules, disable. Run schedule disable <job-name>. 	
<p>Check for running imports. Either wait for them to complete or cancel them:</p> <ol style="list-style-type: none"> 1. Log in on the GUI as a high level administrator above Provider level. 2. Select the Transaction menu to view transactions. 3. Filter the Action column: <ol style="list-style-type: none"> a. Choose Status as "Processing" and then choose each Action that starts with "Import", for example, "Import Unity Connection". b. Click Search and confirm there are no results. c. If there are transactions to cancel, select them and click Cancel. 	
<p>Customized ``data/Settings``</p> <p>If data/Settings instances have been modified, record these or export them as JSON. The modifications can be re-applied or exported JSON instances can be merged following the upgrade. See: Post Template Upgrade Tasks.</p> <p>Version</p> <p>Record the current version information. This is required for upgrade troubleshooting.</p> <ul style="list-style-type: none"> • Log in on the GUI and record the information contained in the About > Extended Version 	

3.1.4. Pre-Upgrade, Security and Health Steps

Description and Steps	Notes and Status
<p>Validate the system health.</p> <p>diag health</p> <p>If there is any sign of the paths below are over 80% full, a clean-up is needed to avoid risk of full logs occurring during upgrade. Clean-up steps are indicated next to the paths:</p> <ul style="list-style-type: none"> / (call support if over 80%) /var/log (run: log purge) /opt/platform (remove any unnecessary files from /media directory) /tmp (reboot) <p>Verify there are no pending Security Updates:</p> <p>security check</p>	
<p>Shutdown server and take snapshots from VMWare and then restart server:</p> <p>Use VMware snapshots. Consider the following;</p> <ul style="list-style-type: none"> • VOSS cannot guarantee that a VMware snapshot can be used to successfully restore VOSS-4-UC or any Cisco HCS Management application. If you cannot restore the application from a snapshot, your only recourse is to reinstall the application. • When the backup is complete and you do not need the VMware snapshot for restore activities, delete the snapshot immediately to preserve LUN space. • system shutdown <p>Log into VMWare and take a snapshot.</p> <p>After the snapshot, restart:</p> <ul style="list-style-type: none"> • Power up the servers via VMWare. <p>Optional: If a backup is required in addition to the snapshot, use the backup add <location-name> and backup create <location-name> commands. For details, refer to the Platform Guide.</p>	

Description and Steps	Notes and Status
<p>Before upgrading, check all services:</p> <p>Make sure no services are stopped/broken. The message 'suspended waiting for mongo' is normal on a fresh node.</p> <ul style="list-style-type: none"> • app status <p>Verify the node is not in the 'recovering' state (stateStr is not RECOVERING)</p> <ul style="list-style-type: none"> • database config 	

3.1.5. Upgrade

Description and Steps	Notes and Status
<p>From VOSS-4-UC 18.1 or CUCDM 11.5.3 onwards, it is recommended that the upgrade steps are run in a terminal opened with the screen command.</p> <ul style="list-style-type: none"> • screen <p>Run (optionally with command parameters below):</p> <ul style="list-style-type: none"> • app install media/<script_file> <p>The upgrade will also silently run an updated version of cluster check and the upgrade will fail to proceed if any error conditions exist. Fix before proceeding. Refer to the Platform Guide for details on the new version of the cluster check command.</p> <p>From release 19.1.2 and later, the <code>delete-on-success</code> parameter and <code>yes</code> or <code>no</code> value have been added to remove or keep the the script file in the <code>media/</code> directory after successful installation.</p> <p>Note that during the upgrade, phone registration data is cleared. A message will show in the log: <code>Remove phone registration data</code>. This is required so that old values are not displayed, since after the upgrade this information is no longer stored in the resource cache.</p>	

3.1.6. Post-Upgrade, Security and Health Steps

Description and Steps	Notes and Status
<p>Verify the status:</p> <ul style="list-style-type: none"> • diag health 	
<p>If upgrade is successful, the screen session can be closed by typing exit in the screen terminal. If errors occurred, keep the screen terminal open for troubleshooting purposes and contact VOSS support.</p>	
<p>Check for needed security updates.</p> <ul style="list-style-type: none"> • security check <p>If one or more updates are required, complete all the security updates.</p> <ul style="list-style-type: none"> • security update <p>Note: <i>if the system reboots, do not carry out the next manual reboot step.</i></p> <p>Manual reboot <i>only if needed</i>:</p> <ul style="list-style-type: none"> • system reboot 	

3.1.7. Database Filesystem Conversion

Important: This step is to be carried out *only if* you have not converted the file system before.

To check if the step is *not* required:

1. Run **database config** and ensure that the storage engine shows as `storageEngine: WiredTiger`.
2. Run **drives list** and ensure that the LVM storage shows for the converted database node under Volume Groups.

The **database convert_drive** command provides parameters allows for a flexible upgrade schedule in order to limit system downtime.

When the **database convert_drive** command is run, the `voss-deviceapi` service will be stopped first and started after completion. The command should therefore be run during a maintenance window while there are no running transactions.

For a standalone system drive conversion, ensure the `standalone` parameter is used.

Description and Steps	Notes and Status
<p>Shut down. Since all services will be stopped, this takes some time.</p> <ul style="list-style-type: none"> • system shutdown <p>Create a VMWare snapshot so that the system can easily be reverted in the case of a conversion error. Boot the system in VMWare. Stop transactions from being scheduled. Run:</p> <ul style="list-style-type: none"> • database convert_drive standalone Note: this step may take a while. Wait until it completes successfully. • database config Ensure that the storage engine for the <i>database node</i> shows as <code>storageEngine: WiredTiger</code>. • drives list Ensure that the LVM storage shows for the <i>database node</i> under Volume Groups. In the example below, <code>dbroot/dm-0</code> shows under Volume Groups, Logical volumes <pre>\$ drives list Used disks and mountpoints: sdc1 - services:backups dm-0 - mongodb:dbroot Unused disks: none - if disks have been hot-mounted, it may be necessary to ↳reboot the system Unused mountpoints: services:SWAPSPACE Volume Groups voss - 10.0 GB free, 60.0 GB total Physical volumes: sdd1 Logical volumes: dbroot/dm-0 - 50.0 GB</pre>	

3.1.8. Post Template Upgrade Tasks

Description and Steps	Notes and Status
<p>Customized ``data/Settings`` Merge the previously backed up customized data/Settings with the latest settings on the system by manually adding the differences or exporting the latest settings to JSON, merging the customized changes and importing the JSON.</p> <p>Support for VG400 and VG450 Analogue Gateways Before adding the VG400 or VG450 Gateway, the device/cucm/GatewayType model needs to be imported for each Unified CM.</p> <ol style="list-style-type: none"> 1. Create a Model Type List which includes the device/cucm/GatewayType model. 2. Add the Model Type List to all the required Unified CM Data Syncs. 3. Execute the Data Sync for all the required Unified CMs. <p>Verify the upgrade Log in on the GUI and check the information contained in the About > Extended Version menu. Confirm that versions have upgraded.</p> <ul style="list-style-type: none"> • Release should show 19.3.4 • Platform Version should show 19.3.4 <p>If your web browser cannot open the user interface, clear your browser cache before trying to open the interface again.</p>	
<ul style="list-style-type: none"> • Check themes on all roles are set correctly 	

3.1.9. Restore Adaptations

Description and Steps	Notes and Status
<p>Restore and adaptations prior to upgrade. If the release is accompanied by Upgrade Notes, refer to the details on adaptation impact.</p>	

3.1.10. Restore Schedules

Description and Steps	Notes and Status
<p>Re-enable scheduled imports if any were disabled prior to the upgrade. Two options are available:</p> <p>Individually for each job:</p> <ol style="list-style-type: none"> 1. Log in on the GUI as a high level administrator above Provider level. 2. Select the Scheduling menu to view scheduled jobs. 3. Click each scheduled job. On the Base tab, check the Activate check box. <p>Mass modify:</p> <ol style="list-style-type: none"> 1. Modify the exported sheet of schedules to activate scheduled syncs. 2. Import the bulk load sheet. <p>Schedules enabled on the CLI:</p> <ol style="list-style-type: none"> 1. For disabled schedules that were overlapping the maintenance window, enable. Run schedule enable <job-name>. 	

3.1.11. Log Files and Error Checks

Description and Steps	Notes and Status
<p>Inspect the output of the command line interface for upgrade errors. Use the log view command to view any log files indicated in the error messages, for example, run the command if the following message appears:</p> <p>For more information refer to the execution log file with 'log view platform/execute.log'</p> <p>For example, if it is required send all the install log files in the install directory to an SFTP server:</p> <ul style="list-style-type: none">• log send sftp://x.x.x.x install	
<p>Log in on the GUI as system level administrator, go to Administration Tools > Transaction and inspect the transactions list for errors.</p>	

Index

A

app

app template, 2

app upgrade, 2

C

cluster

cluster provision, 2

cluster status, 3

cluster upgrade, 2, 3

D

database

database convert_drive, 3, 13

S

screen, 2, 3, 13

V

voss

voss post-upgrade-migrations, 13

voss export

voss export group, 2

voss export type, 2

voss subscriber_data_export, 2