System Release M2020.02
MOTOTRBO™ CAPACITY MAX

System Release Upgrade Guide

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Document History

Version	Description	Date
MN003506A01-AA	Original release of the *System Release Upgrade Guide* for MOTOTRBO™ Capacity Max for upgrades from R2.6.0 to R2.7.0.	November 2016
MN003506A01-AB	This release includes unspecified updates for upgrades from R2.6.0 to R2.7.0.	December 2016
MN003506A01-AC	This release includes updates to the following topics: • Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.6.0 to R2.7.0 on page 21. • Updated Upgrading the Enhanced Software Update Application from R2.6.0 to R2.7.0 on page 22. • Upgrading the Applications on the Capacity Max System Server from R2.6.0 to R2.7.0 on page 23 • Rolling Back a CMSS Application Upgrade from R2.7.0 to R2.6.0 on page 25	January 2017
MN003506A01-AD	This release includes updates to the following topics: • System Performance During Upgrade from R2.6.0 to R2.7.0 on page 16 • Recommended Upgrade Sequence for Capacity Max Systems • Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.6.0 to R2.7.0 on page 21. • Upgrading a Capacity Max System Server That Does Not Contain a Trunk Controller from R2.6.0 to R2.7.0 on page 26	March 2017
MN003506A01-AE	This release includes the addition of Capacity Max System Upgrade from R2.7.0 to R2.8.0 on page 30 and its subsections.	July 2017
MN003506A01-AF	This release includes the addition of Capacity Max System Upgrade from R2.8.0 to R2.9.0 on page 41 and its subsections.	May 2018
MN003506A01-AG	This release includes updates to the Upgrading the Applications on the Capacity Max System Server from R2.8.0 to R2.9.0 on page 47.	August 2018
MN003506A01-AH	This release includes the addition of Capacity Max System Upgrade from R2.9.0 to R2.10.0 on page 56 and its subsections.	April 2019
MN003506A01-AJ	This release includes updates to the Capacity Max System Upgrade from R2.9.0 to R2.10.0 on page 56.	July 2019

Version	Description	Date
MN003506A01-AK	This release includes updates to the Upgrading a Capacity Max System from R2.10.0 to R2.10.5 on page 73.	August 2019
MN003506A01-AL	This release includes updates to the Capacity Max System Upgrade from R2.10.0 to M2020.01 on page 79	April 2020
MN003506A01-AM	This release includes updates to the Capacity Max System Upgrade from M2020.01 to M2020.02 on page 87	August 2020

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About the System Release Upgrade Guide

This manual provides instructions for upgrading software in a MOTOTRBO™ Capacity Max system.

What Is Covered in This Guide

This guide currently contains the following chapters:

Additional chapters may be added for future releases, and additional updates may require additional releases as indicated in the Document History on page 4.

Helpful Background Information

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Related Information

Related Information	Purpose
Standards and Guidelines for Communication Sites (6881089E50)	Provides standards and guidelines that should be followed when setting up a communications site. Also known as R56 manual.
Capacity Max Installation and Configuration Manual	Provides instructions for setting up a MOTOTRBO™ Capacity Max system.
Capacity Max System Planner	Provides standards, guidelines and theory of operation for a MOTOTRBO™ Capacity Max system.

Chapter 1

Capacity Max System Upgrade from R2.6.0 to R2.7.0

This document provides a high-level guideline for backward compatibility and upgrade for a MOTOTRBO Capacity Max system from R2.6.0 to R2.7.0. This includes backward compatibility issues as well as the recommended order of system component upgrades.

System setup details are not captured in this document. Rather, they are captured in the *System Planner* and the *Installation and Configuration Manual* for MOTOTRBO Capacity Max.

Although this document is intended specifically for an upgrade from R2.6.0 to R2.7.0, it can be applied to upgrades of system components from R2.6.X interim releases to R2.7.X release as well.

1.1 System Performance During Upgrade from R2.6.0 to R2.7.0

This section describes Capacity Max system performance during a system upgrade from R2.6.0 to R2.7.0.

Infrastructure communication protocols were significantly modified in order to support capacity expansion in terms of the number of sites, Trunk Controllers (TCs), MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateways, and System Advisors (SAs) as well as data gateway redundancy.

In order to support R2.6.0 feature functionality during the upgrade process, the configurable **RM System Upgrade Complete** field shall be unchecked until all non-radio entities have been upgraded to R2.7.0.

As long as this flag is unchecked, the functionality of R2.6.0 features is supported, but the following R2.7.0 features are not supported in any manner.

- System All Call
- MSI Multi-Site All Call
- Multiple Talkgroup Affiliation
- Status Message
- Radio Kill
- Radio Initiated Stun/Revive
- Priority Monitor
- Adding a Site to an Existing Talkgroup Call
- Voice Calls to More Than 15 Sites (calls limited to 15 sites)
- Centralized Distribution Sites (treated as normal site)
- More Than 30 Sites Per System
- More Than Two TCs Per System
- More Than Five VRC Pairs Per System
- Data Gateway Redundancy

Expansion of the system in terms of sites, TCs, VRCs, or SAs is not supported until all infrastructure entities are upgraded to R2.7.0. Additionally, the addition of a R2.7.0 repeater to a site with R2.6.0

repeaters is not recommended, because this action disables all R2.6.0 repeater functionality at that site until all repeaters are upgraded to R2.7.0.

In R2.7.0 the repository for Capacity Max Talkpath Licenses has been moved from the Capacity Max System Server (CMSS) hosting the VRC Gateway to the CMSS hosting the TC. This moved the licensing to a centralized location and reduced the total number of Talkpath Licenses required when redundant VRC gateways are deployed. When an existing R2.6.0 CMSS hosting the TC that is **not** also hosting a VRC Gateway is upgraded to R2.7.0, new (duplicate) Talkpath Licenses must be loaded onto the CMSS hosting the TC. In this scenario it is recommended that the Talkpath Licenses be loaded onto the CMSS hosting the TC **before** it is upgraded to R2.7.0. Failure to do so will result in a loss of voice application functionality when the CMSS supports the active Trunk Controller. For further assistance with obtaining additional Talkpath Licenses, contact your local Motorola Solutions technical support team.

1.2 Recommended IP Plan Change from R2.6.0 to R2.7.0

During the upgrade process, system expansion is not supported, and therefore the reprogramming of any network equipment is unnecessary. Note that the recommended IP plan is not a requirement for a Capacity Max system. However, if the recommended IP plan for R2.6.0 is being utilized, there are a few things to consider because the recommended IP plan for R2.7.0 is different from the recommended IP plan for R2.6.0.

Deployments that are not foreseen to go beyond 30 RF sites, two (2) Trunk Controllers (TCs), five (5) MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateways, and five (5) MNIS Data Gateways should continue to use the IP plan for R2.6.0.

For deployments where the previous limitations will be exceeded, there are two options.

- Option 1 is to continue to use the IP plan for R2.6.0. This plan can be extended as necessary to cover the future expansion. Because there is no change, the system will continue to operate in wide area trunking during the expansion phase.
- Option 2 is to switch to the recommended IP plan for R2.7.0 when the upgrade process is complete.
  - When the IP address for the primary Capacity Max System Server (CMSS) is changed, if an alternate CMSS TC is not deployed in the system, all sites will revert to site trunking.
  - If an alternate CMSS is deployed, it will become active, and the system will be in wide area trunking after the switchover.

As sites are updated to the recommended IP plan for R2.7.0 (repeater configuration as well as network equipment configuration), they will join the primary CMSS TC. The system will be bifurcated, with some sites connected to the primary TC and some sites connected to the alternate TC. The radios will roam as normal and may end up on either part of the bifurcated system.

1.3
Software Versions for R2.6.0 and R2.7.0

All system components must be upgraded to R2.7.0 before R2.7.0 feature functionality is supported.

This section provides the prior and the recent system release software versions for Capacity Max system components. This is a reference material that can be used to identify the system release that is associated with the software version for a specific system component.

NOTICE: Upgrades can occur from interim R2.6.X software releases to R2.7.X releases, and not just the R2.6.0 versions to R2.7.0 versions listed in the following tables.

Table 1: Motorola Solutions Non-Radio Software Versions for R2.6.0 and R2.7.0

System Component	R2.6.0 Version	R2.7.0 Version
Trunk Controller (TC)	02.60.50.04	02.70.50.02
MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway	2.60.5003	2.70.5001
System Advisor Server	01.00.02.68	01.01.00.98
MNIS Data Gateway	2.60.5003	2.70.5001
WAVE 5000 Server	N/A	WAVE 5.12
Enhanced Software Update (ESU)	02.05.03.03.05	02.07.03.39.01

Table 2: Motorola Solutions Configuration and Radio Software Versions for R2.6.0 and R2.7.0

System Component	R2.6.0 Version	R2.7.0 Version
Radio Management (RM)	V2.0.43.0	V2.4.10.0
Repeaters	R02.06.00.07	R02.07.00.04
Portable Radios	R2.60.03	R02.07.00.0003
Mobile Radios	R2.60.03	R02.07.00.0003

Table 3: Third-Party Application Software Versions for R2.6.0 and R2.7.0

System Component	R2.6.0 Version	R2.7.0 Version
Avtec: Scout	N/A	4.3.10.24
Elcomplus: Smart PTT	9.0.0.23016	9.1.0.23175
Neocom: TRBOnet	5.0.0.1018	5.1.0.1150
Genesis: GW3-TRBO	3.2.12.27.0	3.2.13.19.30

1.4
Upgrading a Capacity Max System from R2.6.0 to R2.7.0

The following upgrade sequence is recommended to minimize backward compatibility issues.

Each step in the recommended upgrade process is described in a detailed, step-by-step procedure. Where appropriate, implications and tradeoffs are highlighted to understand how the system operates

during the upgrade process. It is recommended to review the entire procedure before initiating the upgrade process.

NOTICE: Some portions of the upgrade process can take a significant amount of time. It is recommended that upgrades be performed at non-peak hours if possible to minimize system performance impact.

It is also recommended that the system contain an alternate Trunk Controller (TC) to maintain wide area trunking during the Capacity Max System Server (CMSS) upgrade process. A deployment with only TC functionality results in all sites operating in site trunking mode.

Procedure:

1. Upgrade the Radio Management (RM) application. See Upgrading the Radio Management Application from R2.6.0 to R2.7.0 on page 20.
2. Upgrade the RM configuration of the TC. See Upgrading the Trunk Controller Configuration in the Radio Management Application from R2.6.0 to R2.7.0 on page 20.

   CAUTION: In order to support the functionality of R2.6.0 features during the upgrade process, leave the **System Upgrade Complete** flag **unchecked** until the upgrade process is complete.
3. Upgrade and configure each CMSS that contains a TC. See Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.6.0 to R2.7.0 on page 21.
   a. Optional: If the CMSS contains a TC but not a MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway, load Talkpath Licenses onto this CMSS.

      CAUTION: Failure to load Talkpath Licenses before upgrading to R2.7.0 results in loss of voice application functionality when the CMSS supports the active Trunk Controller.
   b. Optional: Back up System Advisor (SA) data on the CMSS. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.
   c. Upgrade the Enhanced Software Update (ESU) application (15 to 20 minutes). See Upgrading the Enhanced Software Update Application from R2.6.0 to R2.7.0 on page 22.
   d. Upgrade the applications on the CMSS (50 to 75 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.6.0 to R2.7.0 on page 23.

      CAUTION: Upgrading voice applications before upgrading the VRC Gateway will result in loss of voice connectivity of the application to the system.
   e. Optional: Restore SA data on the CMSS from backup. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.
4. Upgrade each CMSS that does *not* contain a TC (typically a VRC). See Upgrading a Capacity Max System Server That Does Not Contain a Trunk Controller from R2.6.0 to R2.7.0 on page 26.
   a. Upgrade the ESU application (15 to 20 minutes). See Upgrading the Enhanced Software Update Application from R2.6.0 to R2.7.0 on page 22.
   b. Upgrade the applications on the CMSS (50 to 75 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.6.0 to R2.7.0 on page 23.
5. Upgrade each MNIS Data Gateway. See Upgrading a Data Gateway from R2.6.0 to R2.7.0 on page 26.
6. Upgrade RF sites (repeaters). See RF Site (Repeater) Upgrades from R2.6.0 to R2.7.0 on page 26 and its subsections.
7. Optional: If applicable, perform the following upgrades in any order:
   - Voice Applications

- Data Applications
- Subscriber Radios

These upgrades are not covered in detail in this guide.

Postrequisites: After upgrading all system components to R2.7.0, check the **System Upgrade Complete** flag in the TC.

1.4.1
Upgrading the Radio Management Application from R2.6.0 to R2.7.0

Use this procedure to upgrade the Radio Management (RM) application from R2.6.0 to R2.7.0.

Procedure:

1. Download the RM application for R2.7.0 from the Motorola On Line (MOL) website.
2. Back up the RM application content from R2.6.0 using the RM Server Utility.
3. Apply the RM application upgrade for R2.7.0 to the RM Server, RM Device Programmer(s) and RM Client(s).

   If Auto Update is enabled, when an RM Client connects to the RM Server, it is automatically upgraded.

1.4.2
Upgrading the Trunk Controller Configuration in the Radio Management Application from R2.6.0 to R2.7.0

Use this procedure to upgrade the Trunk Controller (TC) configuration in the Radio Management (RM) application from R2.6.0 to R2.7.0.

Procedure:

1. Launch the RM client for configuration of the Capacity Max System Server (CMSS).
2. When prompted, select **Allow the RM client to perform a database upgrade**.
3. On the **System Parameter** screen, *uncheck* the **System Upgrade Complete** flag and save.
4. On the **Impacts to System Parameter** screen, set the Call Monitoring IP Address and UDP Port pairs.
   - In R2.6.0, up to three Call Monitoring IP Address and UDP Port pairs can be configured.
   - In R2.7.0, one configurable IP Address and UDP Port pair is used for third-party call monitoring. This pair *must* be Call Monitoring IP Address 1 and UDP Port 1. If this differs from the pair configured in R2.6.0 deployment, change this now.
   - In R2.7.0, Call Monitoring IP Addresses 2 and 3 and Call Monitoring UDP Ports 2 and 3 are ignored.
   - In R2.7.0, up to two System Advisors are automatically selected for call monitoring. The design uses a fixed UDP Port of 51112, which cannot be changed by RM. Make sure there is no conflict on the network.
5. Optional: If applicable, make any other RM configuration changes that impact CMSS applications, repeaters, data gateways or subscriber radios, including those specific to R2.7.0 features.

   As long as the **System Upgrade Complete** flag remains unchecked, these features are not supported.
6. Save all configuration changes.

7 Schedule a write job to each CMSSs that contains a Trunk Controller.

1.4.3
Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.6.0 to R2.7.0

Use this procedure to update a Capacity Max System Server (CMSS) that contains a Trunk Controller (TC) from R2.6.0 to R2.7.0.

When and where to use: Upgrades must be performed at the CMSS location. Remote upgrades are not supported at this time.
The CMSS upgrades take a significant amount of time (65 to 95 minutes), and it is recommended that upgrades occur during periods of low traffic loading. It is also recommended that an alternate TC reside in the system in order to retain wide area trunking during the CMSS upgrade process. If only one TC resides in the system, then all sites revert to site trunking during the upgrade process. It is recommended that the primary TC be upgraded first, as this will result in the ability to test the upgraded CMSS TC. This is because the primary CMSS reclaims the TC, MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway, and System Advisor roles from the alternate TC.

If an alternate CMSS is deployed, it takes over all CMSS functionality (TC, System Advisor and VRC Gateway) in about one (1) minute. Depending on the number of radios active on the system, the registration records should be obtained by the TC in one (1) to 10 minutes. The fewer active radios, the shorter time required to obtain the registration records. At this point all active radios are operating on the wide area network.

- If the primary CMSS and alternate CMSS are co-located, then during the upgrade process all sites in the system may experience audio impacts as the CMSS upgrade files are transferred.
- If the primary CMSS and alternate CMSS are geographically separated, then during the upgrade process the local site may experience audio impacts as the CMSS upgrade files are transferred.

Procedure:

1 Optional: If the CMSS contains a TC but not a VRC Gateway, load Talkpath Licenses onto this CMSS.

CAUTION: Failure to load Talkpath Licenses before upgrading to R2.7.0 results in loss of voice application functionality when the CMSS supports the active TC.

2 Optional: Back up System Advisor (SA) data on the CMSS. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.

3 Upgrade the Enhanced Software Update (ESU) application (15 to 20 minutes). See Upgrading the Enhanced Software Update Application from R2.6.0 to R2.7.0 on page 22.

4 Upgrade the CMSS application (50 to 75 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.6.0 to R2.7.0 on page 23.

CAUTION: Upgrading voice applications before upgrading the MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway will result in loss of voice connectivity of the application to the system.

5 Optional: Restore SA data on the CMSS from backup. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.

1.4.3.1

Upgrading the Enhanced Software Update Application from R2.6.0 to R2.7.0

This section provides a step-by-step procedure to perform a self upgrade of the Enhanced Software Update (ESU) application from R2.6.0 to R2.7.0.

Prerequisites: Obtain the archive file `cmss_upgrade_2.6.0_to_2.7.0_xx_yy_zzzz.zip` from the Motorola Online (MOL) website, extract the contents, and store them on the laptop to be used to perform the ESU upgrade. From this point forward all files are referenced from the extracted location. This archive file contains the following files, which are required for this upgrade:

- **ESU CM ISO**: File `ESU\DESU-PCR-02.07.xx.yy-zz.iso`
- **Red Hat 6.x Image for ESU CM**: File `ESU\rhel-x86_64-server-6.7.z.xxxxyyzz.iso`
- **Upgrade Install Server (UIS) Upgrade Artifact**: File `ESU\UpgradeArtifact_desu_upgrade.zip`
- **Upgrade Definition File**: File `ESU\UpgradeDefinition_ESU_CM_2.6.0_to_2.7.0.zip`
- **Upgrade ISO Bundle**: File `Applications\CapMax_SW_Upgrade_Bundle_02.70.xx.iso`

NOTICE: Upgrade ISO Bundle is not used in this procedure but is used in Upgrading the Applications on the Capacity Max System Server from R2.6.0 to R2.7.0 on page 23.

When and where to use:
The upgrade occurs through a webpage, and the procedure takes approximately 15 to 20 minutes. This procedure must be performed before upgrading the Capacity Max applications on the Capacity Max System Server (CMSS), such as the Trunk Controller (TC), MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway, and System Advisor.

Procedure:

1. Connect the laptop to a technician switch port serving the CMSS to be upgraded.
2. Open a web browser on the laptop and enter the following address:

   `https://`***`<ESU_IP_Address>`***`/ui`
   `<ESU_IP_Address>` is the CMSS IP address + 3 when using the recommended IP plan

   This address requires a switch port for ESU connection.
3. Log into the ESU interface using the `upgrade` role.
   - User name: `upgrade`
   - Password: `upgrade`
4. From the **Upgrade Composer** screen, perform the following actions:
   a. Click **Choose File** and select the **Upgrade Definition File** listed in the Prerequisites to this procedure.
   b. Click **Upload**.
   c. Click **Compose**.
5. On the **Choose System Configuration** screen, click **Next**.
6. On the **Files Storage** screen, perform the following actions:
   a. Browse and select the **ESU CM ISO**, **Red Hat 6.x Image for ESU CM**, and **UIS Upgrade Artifact** files listed in the Prerequisites to this procedure for each Software Name listed in the Upload Software table.

b Click **Upload**.

The Status columns of the Upload Software table display the progress of the upload and processing of the files. When upload and processing of each file is complete, the status of each operation appears as `COMPLETED`.

c Click **Next**.

7 On the **Review System Configuration** screen, click **Create**.

8 Click **Run Upgrade Flow**.

The Upgrade - Execution table displays `Upgrade ESU` as the current operation, with a status of `Waiting`.

9 Click **Advanced View**.

The table displayed shows `Upgrade ESU` with the **Open** link available for selection.

10 Click **Open**.

The table displayed shows `Upgrade ESU Application - Execute Updater` with the **Run** button available for selection.

11 Click **Run**.

The **Task List Administration** dialog box appears, indicating that the Web GUI will be unavailable for approximately five (5) minutes during the upgrade.

12 Click **Yes** in the dialog box.

The web browser loses connectivity to the ESU server.

13 Wait for approximately 15 minutes, then refresh the web browser display.

The login screen for the ESU user interface appears.

14 Log into the ESU interface using the `admin` role.

- User name: `admin`
- Password: `motorola`

15 From the **About UIS** screen, verify that the new version of ESU software is present.

Postrequisites: Upgrading the Applications on the Capacity Max System Server from R2.6.0 to R2.7.0 on page 23

1.4.3.2

Upgrading the Applications on the Capacity Max System Server from R2.6.0 to R2.7.0

This section provides a step-by-step procedure to perform an upgrade from R2.6.0 to R2.7.0 for the Trunk Controller (TC), MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway, and System Advisor applications on the Capacity Max System Server (CMSS).

Prerequisites:
Verify that the **Upgrade ISO Bundle** uploaded in Upgrading the Enhanced Software Update Application from R2.6.0 to R2.7.0 on page 22 (and listed in the Prerequisites to that procedure) is present on the laptop to be used to perform the upgrade. This procedure starts where the ESU upgrade procedure ends.

Ensure that Java version on client is **not higher than 8u151; 8u152 or upgrade it to 8u172**.

IMPORTANT: Java versions 8u161, 8u171, and 8u162 contain Java FX bug which does not allow UEM to work properly.

When and where to use:
The upgrade occurs through a webpage, and the procedure takes approximately 50 to 75 minutes. The ISO bundle file contains the upgrades for all three applications, and are automatically loaded, whether licensed or not, once the upgrade process is initiated.

Procedure:

1. Log into the Enhanced Software Upgrade (ESU) interface using the `admin` role.
   - User name: `admin`
   - Password: `motorola`
2. To verify the registered agents, perform the following actions:
   a. Navigate to the **Inventory** screen.
   b. Verify that all agents (uis01, sysadv01, tc01, mnis01) are registered and show a state of `active` under the esxi folder.
   c. Verify that the validation status is `Success`.
   d. Log out of the `admin` role.
3. To compose software for the upgrade, perform the following actions, which take approximately 40 to 60 minutes:
   a. Log into the ESU interface using the `upgrade` role.
      - User name: `upgrade`
      - Password: `upgrade`
   b. Navigate to the **Upgrade Composer** screen.
   c. Click the **browse** link and locate the **Upgrade ISO Bundle** uploaded in Upgrading the Enhanced Software Update Application from R2.6.0 to R2.7.0 on page 22.
   d. Click **Upload**.

      The Status columns of the Upload Software table display the progress of the upload and processing of the files. When the upload and processing of each file is complete, the **Upgrade Composer** screen becomes the **Upgrade Player** screen.
4. To upgrade the TC, VRC Gateway, and SA applications, perform the following actions, which take approximately 10 to 15 minutes:
   a. From the **Upgrade Player** screen, click **Run Upgrade Flow**.

      The Status columns of the Upload Software table display the progress of the upload and processing of the files. When the upload and processing of each file is complete, the status of each operation appears as `COMPLETED`.

   b. Log out of the ESU interface.
5. Launch the Radio Management (RM) application client.

   When the Device Programmer detects the CMSS write job previously scheduled, the configuration is automatically downloaded.
6. Clear the old System Advisor client binaries from the Java cache on the PCs where the System Advisor clients were running. Perform the following actions:

a Launch the Windows Start menu.

b Click **Programs (All Apps on Windows 10)**.

c c. Locate the “Java” program listing.

d Click **Configure Java** to launch the **Java Control Panel**.

e In the **General** tab, under **Temporary Internet Files**, click **View**.

f In the **Java Cache Viewer**, from the pull-down menu, select **Applications → System Advisor Client** in then (or use the large red cross in the toolbar).

g From the **Context Menu**, select the application and delete it.

The System Advisor client launch downloads the upgraded application automatically.

1.4.3.3

Rolling Back a CMSS Application Upgrade from R2.7.0 to R2.6.0

Use this procedure to roll back the upgrade of an application on the Capacity Max System Server (CMSS).

When and where to use:
After the primary CMSS is upgraded and configured, it is possible to test the functionality of R2.7.0 features on the upgraded device. If the performance at this point is unsatisfactory, a rollback to the R2.6.0 versions of the CMSS applications may be initiated, using the Enhanced Software Upgrade (ESU) interface. This process takes approximately five (5) to 10 minutes.

Procedure:

1. Connect the laptop to a technician switch port serving the CMSS to be upgraded.
2. Open a web browser on the laptop and enter the following address:

   `https://`***`<ESU_IP_Address>`***`/ui`
   `<ESU_IP_Address>` is the CMSS IP address + 3 when using the recommended IP plan

   This address requires a switch port for ESU connection.
3. Log into the ESU interface using the default `upgrade` role credential.
   - User name: `upgrade`
   - Password: `upgrade`
4. Select the last upgraded tab.
5. Click **Advanced View**.
6. From the **Upgrade Flows** dropdown list, select the most recent upgrade flow listed.
7. Under **Rollback Phase**, locate **Revert Trunk Controller (TC) Snapshot** and select **Open → Run.**
8. When the rollback status appears as `Completed`, click **Back**.
9. Under **Rollback Phase**, locate **Revert System Advisor (SysAdv) Snapshot** and select **Open → Run.**
10. When the rollback status appears as `Completed`, click **Back**.
11. Under **Rollback Phase**, locate **Revert MNIS Snapshot** and select **Open → Run.**
12. When the rollback status appears as `Completed`, click **Back**.
13. Log out of the ESU interface.

1.4.4
Upgrading a Capacity Max System Server That Does Not Contain a Trunk Controller from R2.6.0 to R2.7.0

When and where to use:
The upgrade process of a Capacity Max System Server (CMSS) not containing a Trunk Controller (TC) is exactly the same as the upgrade process of a CMSS containing a TC, except there is no need to load any Talkpath Licenses. If a primary TC and the corresponding alternate TC are geographically separated, both must be upgraded before a CMSS without a TC is updated. This may require multiple trips to the site.

Procedure:

1. Upgrade the Enhanced Software Update (ESU) application (15 to 20 minutes). See Upgrading the Enhanced Software Update Application from R2.6.0 to R2.7.0 on page 22.
2. Upgrade the CMSS application (50 to 75 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.6.0 to R2.7.0 on page 23.

   CAUTION: Upgrading voice applications before upgrading the MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway will result in loss of voice connectivity of the application to the system.

1.4.5
Upgrading a Data Gateway from R2.6.0 to R2.7.0

Perform the tasks listed in this process to upgrade a MOTOTRBO Network Interface Service (MNIS) Data Gateway from R2.6.0 to R2.7.0.

Prerequisites: Contact your Motorola Solutions representative for details about the actions required to perform the following tasks.

When and where to use: The upgrade process of an MNIS Data Gateway is straightforward. There is no need to reconfigure the device for R2.7.0, because all configuration from R2.6.0 is retained.

Procedure:

1. Uninstall the R2.6.0 version of the MNIS Data Gateway application from the computer where it resides.
2. Install the R2.7.0 version of the MNIS Data Gateway application on the computer from which the previous version was uninstalled.
3. Start the R2.7.0 version of the MNIS Data Gateway application.
4. From the user interface, click **Start** to initiate the application.

1.4.6
RF Site (Repeater) Upgrades from R2.6.0 to R2.7.0

When at least one repeater at a site is upgraded to R2.7.0, all repeaters using firmware from R2.6.0 cease to function as control channel, traffic channel or data revert repeaters. Repeaters return to functioning only after they have been upgraded to R2.7.0. Therefore a batch upgrade of repeaters is recommended.

During an upgrade, a repeater is not available to the Capacity Max system for a duration of time. This time is dependent upon the repeater model.

- For legacy repeaters (XPR, DGR, XIR, DR, or MTR3000 Series), this “down” time includes both the data transfer time and the repeater’s reset time (approximately 2.5 minutes).

- For SLR Series repeaters, this “down” time is only the repeater’s reset time (approximately 1 minute). Therefore SLR series repeaters remain active in the Capacity Max system during the data transfer time. During the repeater’s “down” time the following site impacts should be taken into account.

When all control channel capable repeaters at a site (includes sites when only one exists) are upgraded at once, the site is offline to radios for the duration of the “down” time. When a fraction of the control channel capable repeaters at a site (includes sites where one repeater has hardware redundancy) are upgraded at once, another control channel repeater becomes the control channel with a brief switchover time.

The radios display `searching` when the control channel repeater begins the “down” time until the radio acquires another control channel at the current site or roams to a new site and successfully registers to the new site.

When a traffic channel repeater is upgraded, the site is down two traffic channels for every repeater being simultaneously upgraded during the “down” time. This may increase call queuing frequency of occurrence and queuing duration.

When a Scheduled Data revert channel repeater is upgraded, location updates are unavailable during this time on the two data revert channels supported by the repeater. If all scheduled data revert repeaters are upgraded simultaneously, then location updates are unavailable during the “down”.

A batch process takes significantly less overall time than a one-by-one serial approach. The upgrade time for three repeaters is significantly less than three times the single repeater time as seen in Time Required to Upgrade Repeater Firmware from R2.6.0 to R2.7.0 on page 27.

Performing a batch process upgrade to multiple repeaters has a significantly positive impact on the total upgrade time. However, when all the repeaters at a site are upgraded at once, the site does not support any functionality during the upgrade time.

If site functionality must be retained during the repeater upgrade process, then several upgrades may need to be applied to subsets of the repeaters. If performed during periods of high traffic volume, it may be necessary to perform a multiple-phase upgrade such that the number of traffic channel resources impacted at any one time is minimized. If performed during non-peak hours a two-phase upgrade would consist of the following tasks:

1. Upgrade half of control channel capable repeaters, half of traffic channel repeaters, and half of data revert repeaters.
2. Upgrade the remaining half of control channel capable repeaters, the remaining half of traffic channel repeaters, and the remaining half of data revert repeaters.

For step-by-step instructions to upgrade repeaters, see the following subsections:

- Upgrading a Repeater from R2.6.0 to R2.7.0 Locally When a Site Is Not Connected to the Radio Management Server on page 28
- Upgrading a Repeater Locally from R2.6.0 to R2.7.0 When a Site Is Connected to the Radio Management Server on page 28
- Upgrading One or More Repeaters from R2.6.0 to R2.7.0 Remotely on page 29

1.4.6.1
Time Required to Upgrade Repeater Firmware from R2.6.0 to R2.7.0

Repeaters can be upgraded remotely or locally at the physical location. The time to upgrade is a function of the number of repeaters updated in a batch process through the Radio Management (RM) application as well as the data rate to the repeaters. When the upgrade is performed remotely, the data rate is limited by the downlink data rate to the site. When the upgrade is performed locally, the data

rate is limited by the switch port speed and amount of other network traffic. The following table lists estimated average upgrade times for legacy repeaters for various downlink speeds.

Table 4: Estimated Upgrade Times and Link Speeds for Upgrades to Multiple Repeaters from R2.6.0 to R2.7.0

Number of Repeaters	1 Mbps Link	3 Mbps Link	10 Mbps Link	30 Mbps Link	100 Mbps Link
1	11.3 minutes	8.7 minutes	8.6 minutes	8.6 minutes	8.6 minutes
3	19.7 minutes	10.2 minutes	9.0 minutes	9.0 minutes	9.0 minutes
5	28.1 minutes	14.9 minutes	10.3 minutes	9.5 minutes	9.5 minutes
10	49.2 minutes	22.7 minutes	13.4 minutes	10.8 minutes	10.7 minutes
15	70.2 minutes	30.5 minutes	16.6 minutes	12.6 minutes	11.8 minutes

NOTICE: 100 Mbps is the estimated upgrade speed when connected to a local switch technician port.

1.4.6.2

Upgrading a Repeater from R2.6.0 to R2.7.0 Locally When a Site Is Not Connected to the Radio Management Server

When there is no connection from the site to the Radio Management (RM) application server, repeaters must be individually upgraded offline via a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from the Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade.

Procedure:

1. Connect the laptop directly to the repeater.
2. From the radio view, highlight the intended repeater.
3. Right-click the highlighted repeater and select **Upgrade Firmware**.
4. Select the appropriate firmware.
5. Schedule the write job.

1.4.6.3

Upgrading a Repeater Locally from R2.6.0 to R2.7.0 When a Site Is Connected to the Radio Management Server

When there is a connection from the site to the Radio Management (RM) application server, repeaters may be batch upgraded via a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from the Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade. This prevents having to transfer the upgrade over the site link and potentially disrupt call quality.

Procedure:

1. Connect the laptop to the technician switch port .
2. From the radio view, highlight the intended repeater.
3. Right-click the highlighted repeater and select **Upgrade Firmware**.

4 Select the appropriate firmware.

5 Schedule the write job.

1.4.6.4

Upgrading One or More Repeaters from R2.6.0 to R2.7.0 Remotely

When there is a connection from the site to the Radio Management (RM) application server, repeaters may be upgraded in a batch, using a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from the Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade. It is recommended this occur during low call volume periods sa as to not disrupt call quality.

Procedure:

1 From the RM Client, schedule the upgrade for the selected repeaters.

2 From the radio view, highlight the intended repeaters.

3 Right-click the highlighted repeaters and select **Upgrade Firmware**.

4 Select the appropriate firmware.

5 Schedule the write job.

Chapter 2

Capacity Max System Upgrade from R2.7.0 to R2.8.0

This document provides a high-level guideline for backward compatibility and upgrade for a MOTOTRBO Capacity Max system from R2.7.0 to R2.8.0. This includes backward compatibility issues as well as the recommended order of system component upgrades.

System setup details are not captured in this document. Rather, they are captured in the *System Planner* and the *Installation and Configuration Manual* for MOTOTRBO Capacity Max.

Although this document is intended specifically for an upgrade from R2.7.0 to R2.8.0, it can be applied to upgrades of system components from R2.7.X interim releases to R2.8.X release as well.

2.1 Capacity Max Performance During Upgrade from R2.7.0 to R2.8.0

In contrast to the process for upgrades from R2.6.0 to R2.7.0, the **RM System Upgrade Complete** field is not utilized in upgrades from R2.7.0 to R2.8.0. R2.7.0 feature functionality is fully supported throughout the upgrade process, regardless of the configurable value in the **RM System Upgrade Complete** field.

The support of R2.8.0 features during the upgrade process is a function of the specific feature. The following table specifies the minimum upgrades required to support the full capabilities of the following R2.8.0 features:

- Confirmed Group Data
- Voice Bridging to Connect Plus

Table 5: Capacity Max Feature Matrix for Upgrade from R2.7.0 to R2.8.0

System Component	Confirmed Group Data	Voice Bridging to Connect Plus
Trunk Controller	✓	✗
MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway	✗	✓
Voice Application	✗	✗
System Advisor	✓	✓
MNIS Data Gateway	✓	✗
Data Application	✓	✗
WAVE 5000	✗	✗
Repeaters	✓	✗

System Component	Confirmed Group Data	Voice Bridging to Connect Plus
Mobile and Portable Radios	✔	✘

IMPORTANT: Expansion of the system in terms of adding sites, Trunk Controllers, MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateways, and System Advisors to the system is not supported until all infrastructure entities are upgraded to R2.7.0

2.2 Software Versions for R2.7.0 and R2.8.0

This section provides the prior and the recent system release software versions for Capacity Max system components.

This is a reference material that can be used to identify the system release that is associated with the software version for a specific component.

NOTICE: Upgrades can occur from interim R2.7.X software version releases, and not just the R2.7.0 versions listed in the following tables.

Table 6: Motorola Solutions Non-Radio Software Versions for R2.7.0 and R2.8.0

System Component	R2.7.0 Version	R2.8.0 Version
Trunk Controller (TC)	02.70.50.02	2.80.50.03-01
MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway	2.70.5001	2.80.5001
System Advisor Server	2.70.5001	2.08.00.70-00
MNIS Data Gateway	2.70.5001	2.80.50-01
WAVE 5000 Server	WAVE 5.12	5.13.0.6944
Enhanced Software Update (ESU)	02.07.03.39.01	02.08.03.53-03

Table 7: Motorola Solutions Configuration and Radio Software Versions for R2.7.0 and R2.8.0

System Component	R2.7.0 Version	R2.8.0 Version
Radio Management	V2.4.10.0	2.8.14
Repeaters	R02.07.00.04	R02.08.00.07
Portable Radios	R02.07.00.0003	R02.08.00.0004
Mobile Radios	R02.07.00.0003	R02.08.00.0004

Table 8: Third-Party Application Software Versions for R2.7.0 and R2.8.0

System Component	R2.7.0 Version	R2.8.0 Version
Avtec: Scout	4.3.10.24	4.4.8.15
Elcomplus: Smart PTT	9.1.0.23175	9.1.2.23236
Neocom: TRBOnet	5.1.0.1150	5.2.0.1340
Genesis: GW3-TRBO	3.2.13.19.30	3.2.0.1304

2.3
Upgrading a Capacity Max System from R2.7.0 to R2.8.0

The following upgrade sequence is recommended to minimize backward compatibility issues.

Each step in the recommended upgrade process is described in a detailed, step-by-step procedure. Where appropriate, implications and tradeoffs are highlighted to understand how the system operates during the upgrade process. It is recommended to review the entire procedure before initiating the upgrade process.

NOTICE: Some portions of the upgrade process can take a significant amount of time. It is recommended that upgrades be performed at non-peak hours if possible to minimize system performance impact.

It is also recommended that the system contain an alternate Trunk Controller (TC) to maintain wide area trunking during the Capacity Max System Server (CMSS) upgrade process. A deployment without TC functionality results in all sites operating in site trunking mode.

Procedure:

1. Upgrade the Radio Management (RM) application. See Upgrading the Radio Management Application from R2.7.0 to R2.8.0 on page 33.
2. Upgrade the RM configuration of the TC. See Upgrading the Trunk Controller Configuration in the Radio Management Application from R2.7.0 to R2.8.0 on page 33.
3. Upgrade and configure each CMSS that contains a TC. See Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.7.0 to R2.8.0 on page 33.
   a. Optional: Back up System Advisor (SA) data on the CMSS. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.
   b. Upgrade the Enhanced Software Update (ESU) application (45 to 50 minutes). See Upgrading the Enhanced Software Update Application from R2.7.0 to R2.8.0 on page 34.
   c. Upgrade the applications on the CMSS (75 to 100 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.7.0 to R2.8.0 on page 35.
   d. Optional: Restore SA data on the CMSS from backup. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.
4. Upgrade each CMSS that does *not* contain a TC, typically a MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway. See Upgrading a Capacity Max System Server That Does Not Contain a Trunk Controller from R2.7.0 to R2.8.0 on page 37.
   a. Upgrade the ESU application (45 to 50 minutes). See Upgrading the Enhanced Software Update Application from R2.7.0 to R2.8.0 on page 34
   b. Upgrade the applications on the CMSS (75 to 100 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.7.0 to R2.8.0 on page 35.
5. Upgrade each MNIS Data Gateway. See Upgrading a Data Gateway from R2.7.0 to R2.8.0 on page 38.
6. Upgrade RF sites (repeaters). See RF Site (Repeater) Upgrades from R2.7.0 to R2.8.0 on page 38 and its subsections.
7. Optional: If applicable, perform the following upgrades in any order:
   - Voice Applications
   - Data Applications
   - Subscriber Radios

   These upgrades are not covered in detail in this guide.

2.3.1
Upgrading the Radio Management Application from R2.7.0 to R2.8.0

Use this procedure to upgrade the Radio Management (RM) application from R2.7.0 to R2.8.0.

Procedure:

1. Download the RM application for R2.8.0 from the Motorola On Line (MOL) website.
2. Back up the RM application content from R2.7.0 using the RM Server Utility.
3. Apply the RM application upgrade for R2.8.0 to the RM Server, RM Device Programmer(s) and RM Client(s).

   If Auto Update is enabled, when an RM Client connects to the RM Server, it is automatically upgraded.

2.3.2
Upgrading the Trunk Controller Configuration in the Radio Management Application from R2.7.0 to R2.8.0

Use this procedure to upgrade the Trunk Controller (TC) configuration in the Radio Management (RM) application from R2.7.0 to R2.8.0.

Procedure:

1. Launch the RM client for configuration of the Capacity Max System Server (CMSS).
2. When prompted, select **Allow the RM client to perform a database upgrade**.
3. Optional: If applicable, make any other RM configuration changes that impact CMSS applications, repeaters, data gateways or subscriber radios, including those specific to R2.8.0 features.
4. Save all configuration changes.
5. Schedule a write job to each CMSS that contains a TC.

2.3.3
Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.7.0 to R2.8.0

Use this procedure to update a Capacity Max System Server (CMSS) that contains a Trunk Controller (TC) from R2.7.0 to R2.8.0.

When and where to use: Upgrades must be performed at the CMSS location. Remote upgrades are not supported at this time.
The CMSS upgrades take a significant amount of time (120 to 150 minutes), and it is recommended that upgrades occur during periods of low traffic loading. It is also recommended that an alternate TC reside in the system in order to retain wide area trunking during the CMSS upgrade process. If only one TC resides in the system, then all sites revert to site trunking during the upgrade process. It is recommended that the primary TC be upgraded first, as this will result in the ability to test the upgraded CMSS TC. This is because the primary CMSS reclaims the TC, the MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway, and the System Advisor roles from the alternate TC.

If an alternate CMSS is deployed, it takes over all CMSS functionality (TC, System Advisor and VRC Gateway) in about one (1) minute. Depending on the number of radios active on the system, the registration records should be obtained by the TC in one (1) to 10 minutes. The fewer active radios, the shorter time required to obtain the registration records. At this point all active radios are operating on the wide area network.

- If the primary CMSS and alternate CMSS are co-located, then during the upgrade process all sites in the system may experience audio impacts as the CMSS upgrade files are transferred.
- If the primary CMSS and alternate CMSS are geographically separated, then during the upgrade process the local site may experience audio impacts as the CMSS upgrade files are transferred.

Procedure:

1. Optional: Back up System Advisor (SA) data on the CMSS. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.
2. Upgrade the Enhanced Software Update (ESU) application (45 to 50 minutes). See Upgrading the Enhanced Software Update Application from R2.7.0 to R2.8.0 on page 34.
3. Upgrade the applications on the CMSS (75 to 100 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.7.0 to R2.8.0 on page 35.
4. Optional: Restore SA data on the CMSS from backup. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.

2.3.3.1 Upgrading the Enhanced Software Update Application from R2.7.0 to R2.8.0

This section provides a step-by-step procedure to perform a self upgrade of the Enhanced Software Update (ESU) application from R2.7.0 to R2.8.0.

Prerequisites: Obtain the archive file `ESU_CM_2.7.0_to_2.8.0_Upgrade_xxx-yy.iso` from the Motorola Online (MOL) website and store it on the laptop to be used to perform the ESU upgrade.

NOTICE: Use of Firefox browser can improve upgrade performance by up to 10 times.

When and where to use: The upgrade occurs through a web page, and the procedure takes approximately 45 to 50 minutes. This procedure must be performed before upgrading the Capacity Max applications on the Capacity Max System Server (CMSS), such as the Trunk Controller (TC), MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway, and System Advisor.

Procedure:

1. Connect the laptop to a technician switch port serving the CMSS to be upgraded.
2. Open a web browser on the laptop and enter the following address:

   `https://`***`<<ESU_IP_Address>>`***`/ui`

   `<<ESU_IP_Address>>` is the CMSS IP address plus three (3) when using the recommended IP plan

   This address requires a switch port for ESU connection.
3. Log into the ESU interface using the upgrade role.
   - User name: `upgrade`
   - Password: `upgrade`
4. From the **Upgrade Composer** screen, perform the following actions:
   a. From **Selected File** click the **Browse** link and select the file listed in the Prerequisites to this procedure.
   b. Click **Upload** and wait for the update to complete.

c When the upload is complete, click **Compose**.

This step takes approximately 30 minutes.

5 Click **Run Upgrade Flow**.

The Upgrade - Execution table displays `Upgrade ESU` as the current operation, with a status of `Waiting`.

6 Click **Advanced View**.

The table displayed shows `Upgrade ESU` with the **Open** link available for selection.

7 Click **Open**.

The table displayed shows `Upgrade ESU Application - Execute Updater` with the **Run** button available for selection.

8 Click **Run**.

The **Task List Administration** dialog box appears, indicating that the Web GUI will be unavailable for approximately 15 minutes during the upgrade.

9 Click **Yes** in the dialog box.

The web browser loses connectivity to the ESU server.

10 Wait for approximately 15 minutes, then refresh the web browser display.

The log-in screen for the ESU user interface appears.

11 Log into the ESU interface using the admin role.

- User name: `admin`
- Password: `motorola`

Postrequisites: Upgrading the Applications on the Capacity Max System Server from R2.7.0 to R2.8.0 on page 35

2.3.3.2

Upgrading the Applications on the Capacity Max System Server from R2.7.0 to R2.8.0

This section provides a step-by-step procedure to perform an upgrade from R2.7.0 to R2.8.0 for the Trunk Controller (TC), MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway, and System Advisor (SA) applications on the Capacity Max System Server (CMSS).

Prerequisites:
Obtain the archive file `CapMax_SW_Upgrade_Bundle_www.xx.yy.zz _2.7_to_2.8.iso` from the Motorola Online (MOL) website and store it on the laptop to be used to perform the CMSS upgrade.

To avoid JavaFX bug, verify that the Java version on client is not 8u161 or 8u171. Upgrade to at least 8u172 or older version such as 8u151.

When and where to use: The upgrade occurs through a web page, and the procedure takes approximately 75 to 100 minutes. The ISO bundle file contains the upgrades for all three applications, whether licensed or not, and is automatically loaded when the upgrade process is initiated.

Procedure:

1 Log into the Enhanced Software Upgrade (ESU) interface using the admin role.

- User name: `admin`
- Password: `motorola`

2 Verify the registered agents. Perform the following actions:

a Navigate to the **Inventory** screen.

b Verify that all agents (`uis01`, `sysadv01`, `tc01`, `mnis01`) are registered and show a state of `active` under the `esxi` folder.

c Verify that the validation status is `Success`.

d Log out of the admin role.

3 Compose software for the upgrade. Perform the following actions, which take approximately 20 to 40 minutes:

a Log into the ESU interface using the upgrade role.

- User name: `upgrade`
- Password: `upgrade`

b Navigate to the **Upgrade Composer** screen.

c Click the browse link and locate the archive file listed in the Prerequisites to this procedure.

d Click **Upload and Compose**.

The Status columns of the **Upload Software** table display the progress of the upload and processing of the files. When the upload and processing of each file is complete, the **Upgrade Composer** screen becomes the **Upgrade Player** screen.

4 Upgrade the TC, VRC Gateway, and SA applications. Perform the following actions, which take approximately 50 to 60 minutes:

a From the **Upgrade Player** screen, click **Run Upgrade Flow**.

The Status columns of the **Upload Software** table display the progress of the upload and processing of the files. When the upload and processing of each file is complete, the status of each operation appears as `COMPLETED`.

b Log out of the ESU interface.

5 Launch the Radio Management (RM) application client.

When the Device Programmer detects the CMSS write job previously scheduled, the configuration is automatically downloaded.

6 Clear the old SA client binaries from the Java cache on the PCs where the SA clients were running. Perform the following actions:

a From the Windows desktop, select **Start** → **Programs** (or **Start** → **All Apps** in Windows 10).

b Locate the “Java” program listing.

c Click **Configure Java**.

d On the **Java Control Panel**, in the **General** tab, under **Temporary Internet Files**, click **View**.

e In the **Java Cache Viewer**, select **Applications** → **System Advisor Client** (or use the large red cross in the toolbar).

f From the context menu, select the application and delete it.

The System Advisor client launch downloads the upgraded application automatically.

2.3.3.3
Rolling Back a CMSS Application Upgrade from R2.8.0 to R2.7.0

Use this procedure to roll back the upgrade of an application on the Capacity Max System Server (CMSS).

When and where to use: After the primary CMSS is upgraded to R2.8.0 and configured, it is possible to test the functionality of R2.7.0 features on the upgraded device. If the performance at this point is unsatisfactory, a rollback to the R2.7.0 versions of the CMSS applications may be initiated, using the Enhanced Software Upgrade (ESU) interface. This process takes approximately five (5) to 10 minutes.

Procedure:

1. Connect the laptop to a technician switch port serving the CMSS to be upgraded.
2. Open a web browser on the laptop and enter the following address:

   `https://`***`<<ESU_IP_Address>>`***`/ui`

   `<<ESU_IP_Address>>` is the CMSS IP address plus three (3) when using the recommended IP plan

   This address requires a switch port for ESU connection.
3. Log into the ESU interface using the upgrade role.
   - User name: `upgrade`
   - Password: `upgrade`
4. Select the last upgraded tab.
5. Click **Advanced View**.
6. From the **Upgrade Flows** dropdown list, select the most recent upgrade flow listed.
7. Under **Upgrade - Rollback Phase**, locate **Revert Snapshot (TC01)** and select **Open** → **Run**.
8. When the rollback status appears as `Completed`, click **Back**.
9. Under **Upgrade - Rollback**, locate **Revert Snapshot (SYSADV01)** and select **Open** → **Run**.
10. When the rollback status appears as `Completed`, click **Back**.
11. Under **Upgrade - Rollback**, locate **Revert MNIS Snapshot** and select **Open** → **Run**.
12. When the rollback status appears as `Completed`, click **Back**.
13. Log out of the ESU interface.

2.3.4
Upgrading a Capacity Max System Server That Does Not Contain a Trunk Controller from R2.7.0 to R2.8.0

The upgrade process of a Capacity Max System Server (CMSS) not containing a Trunk Controller (TC) is exactly the same as the upgrade process of a CMSS containing a TC.

When and where to use: If a primary TC and the corresponding alternate TC are geographically separated, both must be upgraded before a CMSS without a TC is updated. This may require multiple trips to the site.

Procedure:

1. Upgrade the Enhanced Software Update (ESU) application (45 to 50 minutes). See Upgrading the Enhanced Software Update Application from R2.7.0 to R2.8.0 on page 34.
2. Upgrade the applications on the CMSS (75 to 100 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.7.0 to R2.8.0 on page 35.

2.3.5
Upgrading a Data Gateway from R2.7.0 to R2.8.0

Perform the tasks listed in this process to upgrade a MOTOTRBO Network Interface Service (MNIS) Data Gateway from R2.7.0 to R2.8.0.

Prerequisites: Contact your Motorola Solutions representative for details about the actions required to perform the following tasks.

When and where to use: The upgrade process of an MNIS Data Gateway is straightforward. There is no need to reconfigure the device for R2.8.0, because all configuration from R2.7.0 is retained.

Procedure:

1. Uninstall the R2.7.0 version of the MNIS Data Gateway application from the computer where it resides.
2. Install the R2.8.0 version of the MNIS Data Gateway application on the computer from which the previous version was uninstalled.
3. Start the R2.8.0 version of the MNIS Data Gateway application.
4. From the user interface, click **Start** to activate the application.

2.3.6
RF Site (Repeater) Upgrades from R2.7.0 to R2.8.0

During an upgrade, a repeater is not available to the Capacity Max system for a duration of time. This time is dependent upon the repeater model.

- • For XPR and MTR3000 repeaters this downtime includes both the data transfer time and the repeater's reset time (approximately 2.5 minutes).
- For SLR repeaters this downtime is only the repeater reset time (approximately a minute). Therefore SLR repeaters remain active in the Capacity Max system during the data transfer time. During the repeater downtime, the following site impacts should be taken into account.

When all control channel capable repeaters at a site (including situations in which only one exists) are upgraded at once, the site is offline to radios for duration of downtime. When a fraction of the control channel capable repeaters at site (including situations in which one exists with hardware redundancy) are upgraded at once, another control channel repeater becomes the control channel with a brief switchover time.

The radios display "searching" when the control channel repeater begins the downtime until the radio acquires another control channel at the current site or roams to a new site and successfully registers to the new site.

When a traffic channel repeater is upgraded, the site is down two traffic channels for every repeater being simultaneously upgraded during the downtime. This may increase call queuing frequency of occurrence and queuing duration.

When a scheduled data revert channel repeater is upgraded, location updates are unavailable during this time on the two data revert channels supported by the repeater. If all scheduled data revert repeaters are upgraded simultaneously then location updates are unavailable during the downtime.

A batch process requires significantly less overall time than a one-by-one serial approach. The upgrade time for three (3) repeaters is significantly less than three (3) times the single repeater time, as indicated in Time to Upgrade Repeater Firmware from R2.7.0 to R2.8.0 on page 39.

Performing a batch process upgrade to multiple repeaters has a significantly positive impact on the total upgrade time. However, when all the repeaters at a site are upgraded at once, the site does not support any functionality during the upgrade time.

If site functionality must be retained during the repeater upgrade process, then several upgrades may need to be applied to subsets of the repeaters. If these upgrades are performed during periods of high traffic volume, it may be necessary to perform a multiple-stage upgrade so that the number of traffic channel resources impacted at any one time is minimized.

If performed during non-peak hours, a two-stage upgrade would consist of the following tasks:

1 Upgrade half of control channel capable repeaters, half of traffic channel repeaters, and half of data revert repeaters.

2 Upgrade the remaining half of control channel capable repeaters, remaining half of traffic channel repeaters, and remaining half of data revert repeaters.

2.3.6.1

Time to Upgrade Repeater Firmware from R2.7.0 to R2.8.0

Repeaters can be upgraded remotely or locally at the physical location. The time to upgrade is a function of the number of repeaters updated in a batch process through the Radio Management (RM) application as well as the data rate to the repeaters. When the upgrade is performed remotely, the data rate is limited by the downlink data rate to the site. When the upgrade is performed locally, the data rate is limited by the switch port speed and amount of other network traffic. The following table lists average upgrade times for NGR repeater(s) for various downlink speeds.

Table 9: Estimated Upgrade Times and Link Speeds for Upgrades to Multiple Repeaters from R2.7.0 to R2.8.0

Number of Repeaters	1 Mbps Link	3 Mbps Link	10 Mbps Link	30 Mbps Link	100 Mbps Link
1	11.3 minutes	8.7 minutes	8.6 minutes	8.6 minutes	8.6 minutes
3	19.7 minutes	10.2 minutes	9.0 minutes	9.0 minutes	9.0 minutes
5	28.1 minutes	14.9 minutes	10.3 minutes	9.5 minutes	9.5 minutes
10	49.2 minutes	22.7 minutes	13.4 minutes	10.8 minutes	10.7 minutes
15	70.2 minutes	30.5 minutes	16.6 minutes	12.6 minutes	11.8 minutes

NOTICE: 100 Mbps is the estimated upgrade speed when connected to a local switch technician port.

2.3.6.2

Upgrading a Repeater from R2.7.0 to R2.8.0 Locally When a Site Is Not Connected to the Radio Management Server

When there is no connection from the site to the Radio Management (RM) server, repeaters must be individually upgraded offline via a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade.

Procedure:

1 Connect the laptop directly to the repeater.

2 From the radio view, highlight the intended repeater.

3 Right-click the intended repeater and select **Upgrade Firmware**.

4 Select the appropriate firmware.

5 Schedule the write job.

2.3.6.3

Upgrading a Repeater Locally from R2.7.0 to R2.8.0 When a Site Is Connected to the Radio Management Server

When there is a connection from the site to the Radio Management (RM) application server, repeaters may be upgraded in a batch using a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from the Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade. This prevents having to transfer the upgrade over the site link and potentially disrupt call quality.

Procedure:

1. Connect the laptop to the technician switch port.
2. From the radio view, highlight the intended repeater.
3. Right-click the intended repeater and select **Upgrade Firmware**.
4. Select the appropriate firmware.
5. Schedule the write job.

2.3.6.4

Upgrading One or More Repeaters from R2.7.0 to R2.8.0 Remotely

When there is a connection from the site to the Radio Management (RM) application server, repeaters may be upgraded in a batch, using a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from the Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade. It is recommended that the upgrade occur during low call volume periods so as to not disrupt call quality.

Procedure:

1. From the RM Client, schedule the upgrade for the selected repeaters.
2. From the radio view, highlight the intended repeaters.
3. Right-click the intended repeaters and select **Upgrade Firmware**.
4. Select the appropriate firmware.
5. Schedule the write job.

Chapter 3

Capacity Max System Upgrade from R2.8.0 to R2.9.0

This document provides a high-level guideline for backward compatibility and upgrade for a MOTOTRBO Capacity Max system from R2.8.0 to R2.9.0. This includes backward compatibility issues as well as the recommended order of system component upgrades.

System setup details are not captured in this document. Rather, they are captured in the *System Planner* and the *Installation and Configuration Manual* for MOTOTRBO Capacity Max.

Although this document is intended specifically for an upgrade from R2.8.0 to R2.9.0, it can be applied to system components from R2.8.X interim releases. If the current system is operating on R2.7.x, the procedure defined in Capacity Max System Upgrade from R2.7.0 to R2.8.0 on page 30 must be performed before upgrading to R2.9.0.

3.1 Capacity Max Performance During Upgrade from R2.8.0 to R2.9.0

R2.8.0 feature functionality is fully supported throughout the upgrade process, regardless of the configurable RM **System Upgrade Complete** field value.

3.2 Software Versions for R2.8.0 and R2.9.0

This section provides the prior and the recent system release software versions for Capacity Max system components.

This is a reference material that can be used to identify the system release that is associated with the software version for a specific component.

NOTICE: Upgrades can occur from interim R2.8.X software version releases, and not just the R2.9.0 versions listed in the following tables.

Table 10: Motorola Solutions Non-Radio Software Versions for R2.8.0 and R2.9.0

System Component	R2.8.0 Version	R2.9.0 Version
Trunk Controller (TC)	2.80.50.03-01	Refer to R2.9.0 Release Notes for the firmware version.
MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway	2.80.5001	
System Advisor Server	2.08.00.70-00	
MNIS Data Gateway	2.80.50-01	
WAVE 5000 Server	5.13.0.6944	

System Component	R2.8.0 Version	R2.9.0 Version
Enhanced Software Update (ESU)	02.08.03.53-03	

Table 11: Motorola Solutions Configuration and Radio Software Versions for R2.8.0 and R2.9.0

System Component	R2.8.0 Version	R2.9.0 Version
Radio Management	2.8.14	Refer to R2.9.0 Release Notes for the firmware version.
Repeaters	R02.08.00.07	
Portable Radios	R02.08.00.0004	
Mobile Radios	R02.08.00.0004	

Table 12: Third-Party Application Software Versions for R2.8.0 and R2.9.0

System Component	R2.8.0 Version	R2.9.0 Version
Avtec: Scout	4.4.8.15	Refer to R2.9.0 Release Notes for the firmware version.
Elcomplus: Smart PTT	9.1.2.23236	
Neocom: TRBOnet	5.2.0.1340	
Genesis: GW3-TRBO	3.2.0.1304	

3.3

Upgrading a Capacity Max System from R2.8.0 to R2.9.0

The following upgrade sequence is recommended to minimize backward compatibility issues.

Each step in the recommended upgrade process is described in a detailed, step-by-step procedure. Where appropriate, implications and tradeoffs are highlighted to understand how the system operates during the upgrade process. It is recommended to review all the procedures before initiating the upgrade process.

NOTICE: Some portions of the upgrade process can take a significant amount of time. It is recommended that upgrades be performed at non-peak hours if possible to minimize system performance impact.

It is also recommended that the system contain an alternate Trunk Controller (TC) to maintain wide area trunking during the Capacity Max System Server (CMSS) upgrade process. A deployment without TC functionality results in all sites operating in site trunking mode.

Procedure:

1. Upgrade the Radio Management (RM) application. See Upgrading the Radio Management Application from R2.8.0 to R2.9.0 on page 43
2. Upgrade the RM configuration of the TC. See Upgrading the Trunk Controller Configuration in the Radio Management Application from R2.8.0 to R2.9.0 on page 43.
3. Upgrade and configure each CMSS that contains a TC. See Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.8.0 to R2.9.0 on page 44.
   a. Optional: Back up System Advisor (SA) data on the CMSS. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.
   b. Upgrade the Enhanced Software Update (ESU) application (45 to 50 minutes). See Upgrading the Enhanced Software Update Application from R2.8.0 to R2.9.0 on page 45.

c Upgrade the applications on the CMSS (75 to 100 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.8.0 to R2.9.0 on page 47.

d Optional: Restore SA data on the CMSS from backup. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.

4 Upgrade each CMSS that does *not* contain a TC, typically a MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway. See Upgrading a Capacity Max System Server That Does Not Contain a Trunk Controller from R2.8.0 to R2.9.0 on page 53.

a Upgrade the ESU application (45 to 50 minutes). See Upgrading the Enhanced Software Update Application from R2.8.0 to R2.9.0 on page 45

b Upgrade the applications on the CMSS (75 to 100 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.8.0 to R2.9.0 on page 47.

5 Upgrade each MNIS Data Gateway. See Upgrading a Data Gateway from R2.8.0 to R2.9.0 on page 53.

6 Upgrade RF sites (repeaters). See RF Site (Repeater) Upgrades from R2.8.0 to R2.9.0 on page 53 and its subsections.

7 Optional: If applicable, perform the following upgrades in any order:

- Voice Applications
- Data Applications
- Subscriber Radios

These upgrades are not covered in detail in this guide.

3.3.1
Upgrading the Radio Management Application from R2.8.0 to R2.9.0

Use this procedure to upgrade the Radio Management (RM) application from R2.8.0 to R2.9.0.

Procedure:

1 Download the RM application for R2.9.0 from the Motorola On Line (MOL) website.

2 Back up the RM application content from R2.8.0 using the RM Server Utility.

3 Apply the RM application upgrade for R2.9.0 to the RM Server, RM Device Programmer(s) and RM Client(s).

If Auto Update is enabled, when an RM Client connects to the RM Server, it is automatically upgraded.

3.3.2
Upgrading the Trunk Controller Configuration in the Radio Management Application from R2.8.0 to R2.9.0

Use this procedure to upgrade the Trunk Controller (TC) configuration in the Radio Management (RM) application from R2.8.0 to R2.9.0.

Procedure:

1 Launch the RM client for configuration of the Capacity Max System Server (CMSS).

2 When prompted, select **Allow the RM client to perform a database upgrade**.

3 Optional: If applicable, make any other RM configuration changes that impact CMSS applications, repeaters, data gateways or subscriber radios, including those specific to R2.8.0 features.

4 Save all configuration changes.

5 Schedule a write job to each CMSS that contains a TC.

3.3.3
Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.8.0 to R2.9.0

Use this procedure to update a Capacity Max System Server (CMSS) that contains a Trunk Controller (TC) from R2.8.0 to R2.9.0.

When and where to use: Upgrades must be performed at the CMSS location. Remote upgrades are not supported at this time.
The CMSS upgrades take a significant amount of time (120 to 150 minutes), and it is recommended that upgrades occur during periods of low traffic loading. It is also recommended that an alternate TC reside in the system in order to retain wide area trunking during the CMSS upgrade process. If only one TC resides in the system, then all sites revert to site trunking during the upgrade process. It is recommended that the primary TC be upgraded first, as this will result in the ability to test the upgraded CMSS TC. This is because the primary CMSS reclaims the TC, the MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway, and the System Advisor roles from the alternate TC.

If an alternate CMSS is deployed, it takes over all CMSS functionality (TC, System Advisor and VRC Gateway) and the registration records should be obtained by the TC in one (1) minute.

- If the primary CMSS and alternate CMSS are co-located, then during the upgrade process all sites in the system may experience audio impacts as the CMSS upgrade files are transferred.
- If the primary CMSS and alternate CMSS are geographically separated, then during the upgrade process the local site may experience audio impacts as the CMSS upgrade files are transferred.

Procedure:

1 Check if your CMSS requires additional licenses for your system. See Counting the Number of Necessary Licenses to Obtain on page 44.

2 Optional: Back up System Advisor (SA) data on the CMSS. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.

3 Upgrade the applications on the CMSS (70 to 100 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.8.0 to R2.9.0 on page 47.

4 Optional: Restore SA data on the CMSS from backup. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.

3.3.3.1
Counting the Number of Necessary Licenses to Obtain

Due to licensing requirement changes in the R2.9 release, you may need additional licenses to complete the CMSS upgrade to version R2.9. Before upgrading the CMSS, count the number of licenses required for your system, and check if you need any additional licenses.

For a simple calculation of the number of required additional licenses, perform the following steps:

Procedure:

1 Count the number of additional VRC licenses required for the system by performing the following actions:

a Count the number of VRC Sites in the system, and let this number be **<*x*>**.

NOTICE: Two VRC Sites sharing the same Site ID, where one site acts as the primary and the other as redundant, are considered to be **one** site.

b Count the number of CMSSs in which a primary or a redundant Trunking Controller (TC) can run, and let this number be ***<Y>***.

c Count the number of VRC licenses on each CMSS with a TC. Let ***<Z>*** be the sum of all VRC Licenses on these CMSSs.

d Calculate the number of VRC Licenses to obtain by following the formula: **(X * Y) - Z**

After adding the licenses, the number of VRC licenses on each CMSS with a TC should be equal to ***<X>***.

NOTICE: For further assistance with obtaining additional licenses, contact your local Motorola Solutions technical support team.

2 Count the number of additional Talkpath licenses required for the system by performing the following actions:

a Count the number of VRC Sites in the system, and let this number be ***<X>***.

NOTICE: Two VRC Sites sharing the same Site ID, where one site acts as the primary and the other as redundant, are considered to be **one** site.

b Count the number of active talkpaths configured per VRC Site and let this number be ***<Y>***.

c Count the number of Talkpath licenses on each CMSS with a TC. Let ***<Z (CMSS Number)>*** be the following: ***<Y>*** – the number of Talkpath licenses on one CMSS. If **Z <= 0**, then let ***<Z>*** be 0.

d Calculate the number of Talkpath licenses to obtain by following the formula: **Z(CMSS 1) + Z(CMSS 2) + … +**, adding together the values for all CMSSs.

After adding the licenses, the number of Talkpath licenses on each CMSS with a TC should be equal to ***<Y>***.

NOTICE: For further assistance with obtaining additional licenses, contact your local Motorola Solutions technical support team.

3.3.3.2
Upgrading the Enhanced Software Update Application from R2.8.0 to R2.9.0

This section provides a step-by-step procedure to perform a self upgrade of the Enhanced Software Update (ESU) application from R2.8.0 to R2.9.0.

Procedure:

Perform the following actions to use the ESU Launchpad to upgrade applications on the CMSS:

1 Install ESU Launchpad on user laptop. See Installing ESU Launchpad on User Laptop (R2.9.0) on page 45

2 Upgrade the applications on the Capacity Max System Server. See Upgrading the Applications on the Capacity Max System Server from R2.8.0 to R2.9.0 on page 47.

3.3.3.2.1
Installing ESU Launchpad on User Laptop (R2.9.0)

Prerequisites:

1 To obtain the ESU Launchpad, order the ESU Launchpad installation file (part number T8486A) which contains the required DVD and the installation file. Proceed to 2 on page 46 when you received the ESU Launchpad.

NOTICE: The installation file takes a week to be delivered. It is recommended to include the time taken for the package to be delivered into planning.

2 Ensure that the laptop meets the following minimum system requirements:

- Operating System: Windows 7, Windows 8, or Windows 10
- Processor: 64-bit x 86 Intel Core 2 Duo processor or equivalent
- AMD Athlon™ 64 FX Dual Core processor or equivalent (1.3 GHz or faster core speed)
- 6 GB RAM
- 80.5 GB of free disk space
- 1000 Mbps Ethernet adapter
- Antivirus software
- Antimalware software

3 Disable hibernation and sleep mode on the laptop. For instructions, see the Windows documentation of your operating system.

4 Ensure that the ESU Launchpad user interface launches automatically in the default browser.

NOTICE: The web browser must support HTML5 and File API. Each version that is equal or greater than Chrome 39, IE11, or Firefox 29 is supported.

5 Enable Virtualization Technology (VT) in the BIOS of your laptop. Running ESU Launchpad without VT enabled is not possible as you cannot power on a 64-bit virtual machine. For more information, see the VMware website. For instructions to enable VT, see the vendor documentation.

6 Prepare the VMware Workstation Player commercial license key.

Procedure:

1 Insert the ESU Launchpad media into the DVD drive and launch `setup.exe`.

Motorola Solutions ESU Launchpad Setup Wizard appears.

2 Perform the setup recommendation and click **Next**.

3 Read the warning about enabling VT and, if VT is enabled, click **Next**.

4 Select the **installation directory** and click **Next**.

The default installation location is `C:\Program Files (x86)\Motorola\Motorola Esu Launchpad`.

5 Select the shortcut directory and click **Next**.

The default shortcut directory location is the `Start Menu` folder.

6 Click **Install** to install Motorola Solutions ESU Launchpad.

VMware Workstation 12 Player Setup Wizard appears.

7 In the **VMware Workstation 12 Player Setup** window, click **Next** and perform one of the following steps:

If...	Then...
If prompted with a window containing Repair and Remove options,	Perform the following actions:

If...	Then...
	• Click **Cancel** and confirm that you want to stop the VMware Workstation installation. • Exit the **VMware Workstation 12 Player Setup** by clicking **Finish**.
If prompted with a window containing the VMware Workstation 12 Player License Agreement,	Perform the following actions: • Accept the license agreement and click **Next**. • Progress through the installer by following the on-screen instructions. It is recommended not to install any additional VMware features during this setup • Clear all the feature check boxes that you see in the installer windows. • When the installation is complete, click **License**. • Enter the license key and click **Enter**. • Click **Finish**.

If your OS does not contain the required version of Microsoft Visual C++, **Microsoft Visual C++ Setup Wizard** window appears.

8 Accept the license conditions and click **Install**.

Wait for the ESU Launchpad to finish the installation process.

The **OVFtool.exe** command line window appears, where you can view the progress of ESU LP (Launchpad) virtual machine deployment.

WARNING: Do not interrupt the virtual machines deployment.

9 In the **Setup - Motorola Enhanced Software Update Launchpad** window, click **Finish**.

ESU Launchpad icon is created on the desktop.

10 If there are more than one network connections, check the following:

a Open **ESU Launchpad - RHEL VM** under **VMware Workstation Player**.

b Select **Player** → **Manage** → **Virtual Machine Settings...**.

c Under **Network Adapter** → **Bridged (Automatic)**, select **Change Adapters**.

d Clear all adapters except for the adapter for ESXI communication.

3.3.3.3 Upgrading the Applications on the Capacity Max System Server from R2.8.0 to R2.9.0

Prerequisites:
To obtain the upgrade `CVNXXXX.zip` file , order the installation file (part number T8480A) which contains a USB stick and the `CVNXXXX.zip` file.

NOTICE: The installation file takes a week to be delivered. It is recommended to include the time taken for the package to be delivered into planning.

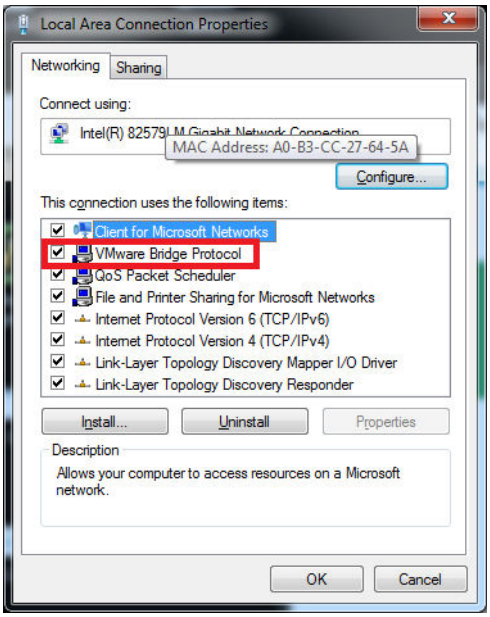
Extract the zip contents, and store it on the laptop to be used to perform the CMSS upgrade. All files are referenced from the extracted location to perform the upgrade.

To avoid JavaFX bug, verify that the Java version on client is **not** 8u161 or 8u171. Upgrade to at least 8u172 or older version such as 8u151.

Procedure:

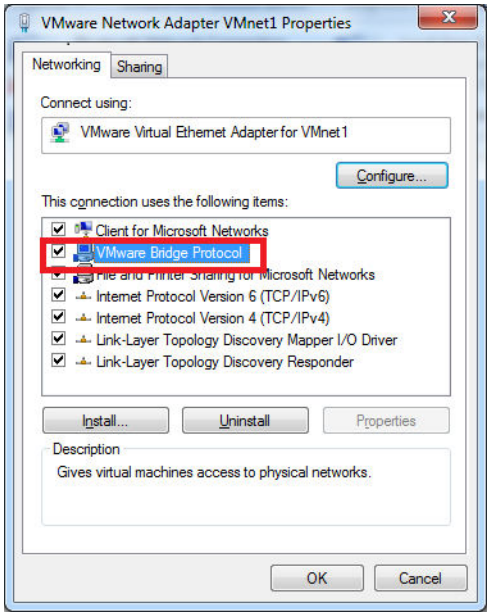
1. Install the Enhanced Software Upgrade (ESU) launchpad on the laptop.
2. Connect the laptop to a technician switch port serving the CMSS to be upgraded.
3. Start the **ESU Launchpad Control** application and run the ESU Launchpad tool by clicking **Start ESU backend**.
4. Click **Start ESU GUI**.
5. Log on to the ESU interface with the `admin` role.
   - User name: `admin`
   - Password: `motorola`
6. The connection is properly bridged.
   a. Ensure the LAN connection of your physical Ethernet adapter is bridged and configured properly to have access to CMSS which should be upgraded.

   Figure 1: Local Area Connection Properties



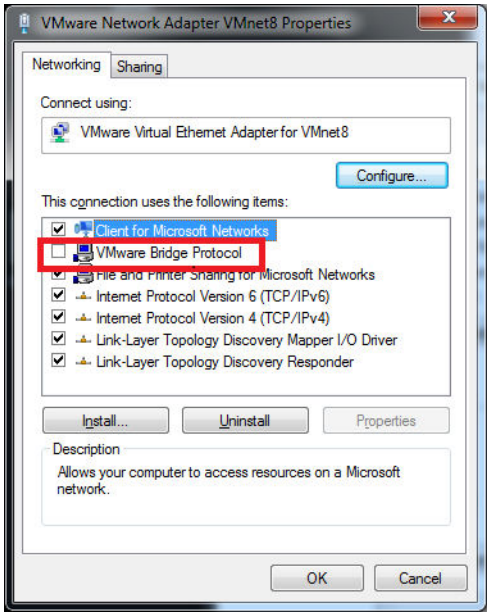
   b. Ensure VMnet1 LAN connection is bridged.

Figure 2: VMware Network Adapter VMnet1 Properties



c Ensure VMnet8 LAN and all other available connections are not bridged.

Figure 3: VMware Network Adapter VMnet8 Properties



d Only one physical Ethernet adapter is used for connection with CMSS.

1 Check ESU LP virtual machine network settings.

Figure 4: ESU Launchpad Window

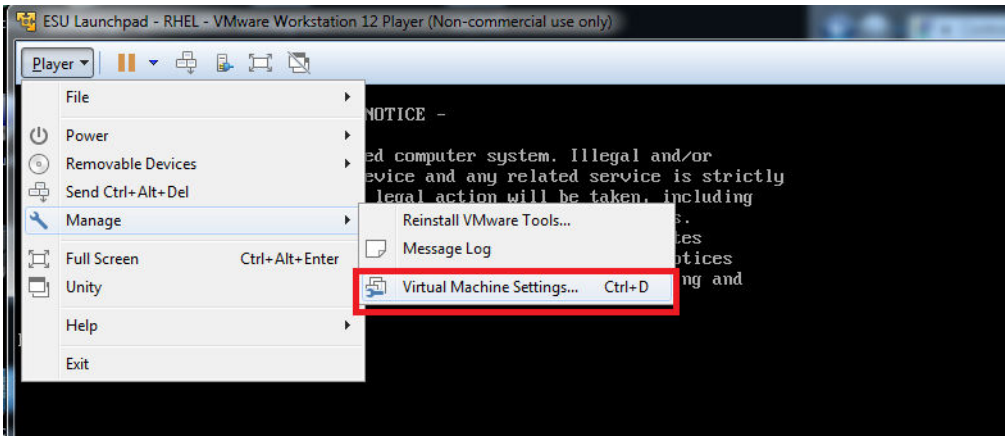
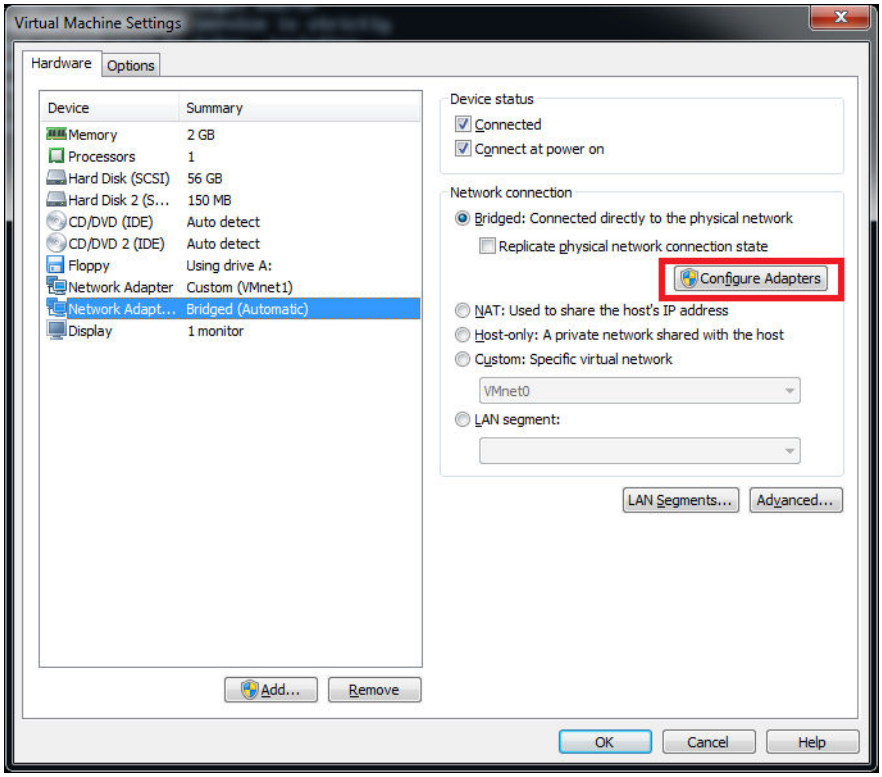
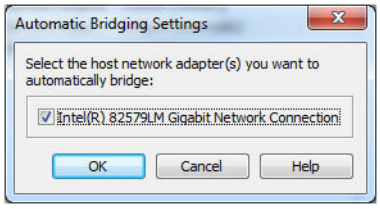


Figure 5: Virtual Machine Settings



2 Only one physical Ethernet adapter which is used for connection with CMSS is selected. Deselect other adapters if there are other adapters present in list.

Figure 6: Automatic Bridging Settings



7 Navigate to the **Discovery** page. Add a CMSS instance for the particular customer.

8 Select the **Add** button. **Manage ESXI elements** appear.

a Enter target ESXI IP Address. This is the IP address of ESXI on CMSS which planned to be upgraded.

b Enter ESU LP RHEL IP Address.

IMPORTANT: This address should be from the same subnet as the laptop where LP is installed. It is assigned to LP RHEL virtual machine during the discovery process. For example:

Laptop: 172.21.9.58

LP RHEL: 10.172.0.59

If there are several CMSS to be upgraded in the network, the IP should be unique for each CMSS in the network. This is to avoid conflict between OPA agents from VMs on different CMSS during discovery and upgrade processes. If some CMSS were upgraded previously using LP, perform re-discovery process for all CMSS with new IP addresses for each CMSS before upgrading to avoid conflicts with OPA agents.

c Enter Netmask/Gateway for the ESU LP address added in step b.

NOTICE: Configure netmask/gateway to communicate to ESXI.

d Click **Submit**.

9 Select the CMSS instance to be discovered and click the **Discovery** button.

10 Verify the registered agents by performing the following actions:

a Navigate to the **Inventory** screen.

b Verify that all agents (`uis01`, `sysadv01`, `tc01`, `mnis01`) are registered and show a state of `active` under the `esxi` folder.

c Verify that the validation status is `Success`.

d Log out `admin` role.

11 Compose software for the upgrade by perform the following actions, which take approximately 70 to 100 minutes:

a Log on to the ESU interface with the `upgrade` role.

- User name: `upgrade`
- Password: `upgrade`

b Navigate to the **Upgrade Composer** screen.

c Click the browse link and locate the `CapMax_SW_Upgrade_Bundle_2.8_to_2.9_xxyyzzzz.iso` from **Prerequisites**.

d Click **Upload and Compose**.

The Status columns of the Upload Software table display the progress of the upload and processing of the files. When the upload and processing of each file is complete, the **Upgrade Composer** screen becomes the **Upgrade Player** screen.

12 Upgrade the ESU CM, TC, VRC Gateway, and SA applications by performing the following action, which take approximately 60 to 90 minutes. Navigate to the **Upgrade Player** screen and click **Run Upgrade Flow**.

13 Log out of the ESU interface.

14 Navigate to the **ESU Launchpad GUI** application.

15 Click the **Stop ESU Backend** to stop.

The Backend status shows `stop`.

16 Shut down **ESU Launchpad GUI** application.

3.3.3.4
Rolling Back a CMSS Application Upgrade from R2.9.0 to R2.8.0

Use this procedure to roll back the upgrade of an application on the Capacity Max System Server (CMSS).

When and where to use: After the primary CMSS is upgraded to R2.8.0 and configured, it is possible to test the functionality of R2.9.0 features on the upgraded device. If the performance at this point is unsatisfactory, a rollback to the R2.8.0 versions of the CMSS applications may be initiated, using the Enhanced Software Upgrade (ESU) interface. This process takes approximately five (5) to 10 minutes.

Procedure:

1 Connect the laptop to a technician switch port serving the CMSS to be upgraded.

2 Start Motorola Solutions **ESU Launchpad Control** application and click **Start ESU backend** to run the ESU Launchpad tool.

3 Click **Start ESU GUI**.

4 Log into the ESU interface using the admin role.

5 Log into the ESU interface using the upgrade role.

- User name: `upgrade`
- Password: `upgrade`

6 Select the last upgraded tab.

7 Click **Advanced View**.

8 From the **Upgrade Flows** dropdown list, select the most recent upgrade flow listed.

9 Under **Rollback Phase**, locate **Revert Trunk Controller (TC) Snapshot** and select **Open → Run**.

10 When the rollback status appears as `Completed`, click **Back**.

11 Under **Rollback Phase**, locate **Revert System Advisor (SysAdv) Snapshot** and select **Open → Run**.

12 When the rollback status appears as `Completed`, click **Back**.

13 Under **Rollback Phase**, locate **Revert MNIS Snapshot** and select **Open → Run**.

14 When the rollback status appears as `Completed`, click **Back**.

15 Log out of the ESU interface.

16 Navigate to **ESU Launchpad GUI** application.

17 Click **Stop ESU Backend**.

The Backend status shows `stop`.

18 Shutdown **ESU Launchpad GUI** application.

3.3.4
Upgrading a Capacity Max System Server That Does Not Contain a Trunk Controller from R2.8.0 to R2.9.0

The upgrade process of a Capacity Max System Server (CMSS) not containing a Trunk Controller (TC) is exactly the same as the upgrade process of a CMSS containing a TC.

When and where to use: If a primary TC and the corresponding alternate TC are geographically separated, both must be upgraded before a CMSS without a TC is updated. This may require multiple trips to the site.

Procedure:

Upgrade the applications on the CMSS (75 to 100 minutes). See Upgrading the Applications on the Capacity Max System Server from R2.8.0 to R2.9.0 on page 47.

3.3.5
Upgrading a Data Gateway from R2.8.0 to R2.9.0

Perform the tasks listed in this process to upgrade a MOTOTRBO Network Interface Service (MNIS) Data Gateway from R2.8.0 to R2.9.0.

Prerequisites: Contact your Motorola Solutions representative for details about the actions required to perform the following tasks.

When and where to use: The upgrade process of an MNIS Data Gateway is straightforward. There is no need to reconfigure the device for R2.9.0, because all configuration from R2.8.0 is retained.

Procedure:

1. Uninstall the R2.8.0 version of the MNIS Data Gateway application from the computer where it resides.
2. Install the R2.9.0 version of the MNIS Data Gateway application on the computer from which the previous version was uninstalled.
3. Start the R2.9.0 version of the MNIS Data Gateway application.
4. From the user interface, click **Start** to activate the application.

3.3.6
RF Site (Repeater) Upgrades from R2.8.0 to R2.9.0

During an upgrade, a repeater is not available to the Capacity Max system for a duration of time. This time is dependent upon the repeater model.

- • For XPR and MTR3000 repeaters this downtime includes both the data transfer time and the repeater reset time (approximately 2.5 minutes).
- For SLR repeaters this downtime is only the repeater reset time (approximately a minute). Therefore SLR repeaters remain active in the Capacity Max system during the data transfer time. During the repeater downtime, the following site impacts should be taken into account.

When all control channel capable repeaters at a site (including situations in which only one exists) are upgraded at once, the site is offline to radios for duration of downtime. When a fraction of the control channel capable repeaters at site (including situations in which one exists with hardware redundancy) are upgraded at once, another control channel repeater becomes the control channel with a brief switchover time.

The radios display `searching` when the control channel repeater begins the downtime until the radio acquires another control channel at the current site or roams to a new site and successfully registers to the new site.

When a traffic channel repeater is upgraded, the site is down two traffic channels for every repeater being simultaneously upgraded during the downtime. This may increase call queuing frequency of occurrence and queuing duration.

When a scheduled data revert channel repeater is upgraded, location updates are unavailable during this time on the two data revert channels supported by the repeater. If all scheduled data revert repeaters are upgraded simultaneously then location updates are unavailable during the downtime.

A batch process requires significantly less overall time than a one-by-one serial approach. The upgrade time for three (3) repeaters is significantly less than three (3) times the single repeater time, as indicated in Time to Upgrade Repeater Firmware from R2.8.0 to R2.9.0 on page 54.

Performing a batch process upgrade to multiple repeaters has a significantly positive impact on the total upgrade time. However, when all the repeaters at a site are upgraded at once, the site does not support any functionality during the upgrade time.

If site functionality must be retained during the repeater upgrade process, then several upgrades may need to be applied to subsets of the repeaters. If these upgrades are performed during periods of high traffic volume, it may be necessary to perform a multiple-stage upgrade so that the number of traffic channel resources impacted at any one time is minimized.

If performed during non-peak hours, a two-stage upgrade would consist of the following tasks:

1. Upgrade half of control channel capable repeaters, half of traffic channel repeaters, and half of data revert repeaters.
2. Upgrade the remaining half of control channel capable repeaters, remaining half of traffic channel repeaters, and remaining half of data revert repeaters.

3.3.6.1
Time to Upgrade Repeater Firmware from R2.8.0 to R2.9.0

Repeaters can be upgraded remotely or locally at the physical location. The time to upgrade is a function of the number of repeaters updated in a batch process through the Radio Management (RM) application as well as the data rate to the repeaters. When the upgrade is performed remotely, the data rate is limited by the downlink data rate to the site. When the upgrade is performed locally, the data rate is limited by the switch port speed and amount of other network traffic. The following table lists average upgrade times for NGR repeater(s) for various downlink speeds.

Table 13: Estimated Upgrade Times and Link Speeds for Upgrades to Multiple Repeaters from R2.8.0 to R2.9.0

Number of Repeaters	1 Mbps Link	3 Mbps Link	10 Mbps Link	30 Mbps Link	100 Mbps Link
1	11.3 minutes	8.7 minutes	8.6 minutes	8.6 minutes	8.6 minutes
3	19.7 minutes	10.2 minutes	9.0 minutes	9.0 minutes	9.0 minutes
5	28.1 minutes	14.9 minutes	10.3 minutes	9.5 minutes	9.5 minutes
10	49.2 minutes	22.7 minutes	13.4 minutes	10.8 minutes	10.7 minutes
15	70.2 minutes	30.5 minutes	16.6 minutes	12.6 minutes	11.8 minutes

NOTICE: 100 Mbps is the estimated upgrade speed when connected to a local switch technician port.

3.3.6.2

Upgrading a Repeater from R2.8.0 to R2.9.0 Locally When a Site Is Not Connected to the Radio Management Server

When there is no connection from the site to the Radio Management (RM) server, repeaters must be individually upgraded offline via a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade.

Procedure:

1. Connect the laptop directly to the repeater.
2. From the radio view, highlight the intended repeater.
3. Right-click the intended repeater and select **Upgrade Firmware**.
4. Select the appropriate firmware.
5. Schedule the write job.

3.3.6.3

Upgrading a Repeater Locally from R2.8.0 to R2.9.0 When a Site Is Connected to the Radio Management Server

When there is a connection from the site to the Radio Management (RM) application server, repeaters may be upgraded in a batch using a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from the Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade. This prevents having to transfer the upgrade over the site link and potentially disrupt call quality.

Procedure:

1. Connect the laptop to the technician switch port.
2. From the radio view, highlight the intended repeater.
3. Right-click the intended repeater and select **Upgrade Firmware**.
4. Select the appropriate firmware.
5. Schedule the write job.

3.3.6.4

Upgrading One or More Repeaters from R2.8.0 to R2.9.0 Remotely

When there is a connection from the site to the Radio Management (RM) application server, repeaters may be upgraded in a batch, using a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from the Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade. It is recommended that the upgrade occur during low call volume periods so as to not disrupt call quality.

Procedure:

1. From the RM Client, schedule the upgrade for the selected repeaters.
2. From the radio view, highlight the intended repeaters.
3. Right-click the intended repeaters and select **Upgrade Firmware**.
4. Select the appropriate firmware.
5. Schedule the write job.

Chapter 4

Capacity Max System Upgrade from R2.9.0 to R2.10.0

This document provides a high-level guideline for backward compatibility and upgrade for a MOTOTRBO Capacity Max system from R2.9.0 to R2.10.0. This includes backward compatibility issues, as well as the recommended order of system component upgrades.

System setup details are not captured in this document. Rather, they are captured in the *Capacity Max System Planner* and the *Installation and Configuration Manual* for MOTOTRBO Capacity Max.

Although this document is intended specifically for an upgrade from R2.9.0 to R2.10, it can be applied to system components from R2.9.X interim releases as well. If the current system is operating on R2.8.x, the procedure defined in Capacity Max System Upgrade from R2.8.0 to R2.9.0 on page 41 must be performed before upgrading to R2.10.

NOTICE: To receive help with the upgrade process, contact Motorola Solutions technical support.

4.1 Capacity Max Performance During Upgrade from R2.9.0 to R2.10.0

R2.10.0 feature functionality is fully supported during the upgrade process, regardless of the configurable RM **System Upgrade Complete** field value.

4.2 Software Versions for R2.9.0 and R2.10.0

This section provides the prior and the recent system release software versions for Capacity Max system components.

This is a reference material that can be used to identify the system release that is associated with the software version for a specific component.

NOTICE: Upgrades can occur from interim R2.9.X software version releases, and not just the R2.9.0 versions listed in the following tables.

Table 14: Motorola Solutions Non-Radio Software Versions for R2.9.0 and R2.10.0

System Component	R2.9.0 Version	R2.10.0 Version
Trunk Controller (TC)	2.09.00.03	Refer to R2.10.0 Release Notes for the firmware version.
MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway	2.90.00.0594	
System Advisor Server	2.09.00.71-00	
MNIS Data Gateway	2.90.5002	
WAVE 5000 Server	5.13.0.73083	

System Component	R2.9.0 Version	R2.10.0 Version
Enhanced Software Update (ESU)	14.03.77.01	

Table 15: Motorola Solutions Configuration and Radio Software Versions for R2.9.0 and R2.10.0

System Component	R2.9.0 Version	R2.10.0 Version
Radio Management	2.11.44	Refer to R2.10.0 Release Notes for the firmware version.
Repeaters	R02.09.00.13	
Portable Radios	R02.09.00.0004	
Mobile Radios	R02.09.00.0004	

Table 16: Third-Party Application Software Versions for R2.9.0 and R2.10.0

System Component	R2.9.0 Version	R2.10.0 Version
Avtec: Scout	4.6.11.9	Refer to R2.10.0 Release Notes for the firmware version.
Elcomplus: Smart PTT	9.3.24.0	
Neocom: TRBOnet	5.3.0.1651	
Genesis: GW3-TRBO	2.15.4.72	

4.3 Upgrading a Capacity Max System from R2.9.0 to R2.10.0

The following upgrade sequence is recommended to minimize backward compatibility issues.

Each step in the recommended upgrade process is described in a detailed, step-by-step procedure. Where appropriate, implications and tradeoffs are highlighted to understand how the system operates during the upgrade process. It is recommended to review the entire procedure before initiating the upgrade process.

NOTICE: Some portions of the upgrade process can take a significant amount of time. It is recommended that upgrades be performed at non-peak hours if possible to minimize system performance impact.

It is also recommended that the system contains an alternate Trunk Controller (TC) to maintain wide area trunking during the Capacity Max System Server (CMSS) upgrade process. A deployment without TC functionality results in all sites operating in site trunking mode.

Procedure:

1. Upgrade the Radio Management (RM) application. See Upgrading the Radio Management Application from R2.9.0 to R2.10.0 on page 58.
2. Upgrade the RM configuration of the TC. See Upgrading the Trunk Controller Configuration in the Radio Management Application from R2.9.0 to R2.10.0 on page 58.
3. Upgrade and configure each CMSS that contains a TC. See Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.9.0 to R2.10.0 on page 59.
   a. Optional: Back up System Advisor (SA) data on the CMSS. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.
   b. Upgrade the Enhanced Software Update (ESU) Launchpad application (45 to 50 minutes). See Upgrading the Enhanced Software Update Application from R2.9.0 to R2.10.0 on page 60.

c Upgrade the applications on the CMSS (75 to 100 minutes), SPP (BIOS) Capacity Max System Firmware, and ESXi to 6.0. See Upgrading the Applications / SPP (BIOS) on the Capacity Max System Server from R2.9.0 to R2.10.0 / ESXi to Version 6.x on page 62.

d Optional: Restore SA data on the CMSS from backup. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.

4 Upgrade each CMSS that does *not* contain a TC, typically a MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway. See Upgrading a Capacity Max System Server That Does Not Contain a Trunk Controller from R2.9.0 to R2.10.0 on page 70.

a Upgrade the ESU application (45 to 50 minutes). See Upgrading the Enhanced Software Update Application from R2.9.0 to R2.10.0 on page 60.

b Upgrade the applications on the CMSS (75 to 100 minutes), SPP (BIOS) Capacity Max System Firmware, and ESXi to 6.0. See Upgrading the Applications / SPP (BIOS) on the Capacity Max System Server from R2.9.0 to R2.10.0 / ESXi to Version 6.x on page 62.

5 Upgrade each MNIS Data Gateway. See Upgrading a Data Gateway from R2.9.0 to R2.10.0 on page 70.

6 Upgrade RF sites (repeaters). See RF Site (Repeater) Upgrades from R2.9.0 to R2.10.0 on page 70 and its subsections.

7 Optional: If applicable, perform the following upgrades in any order:

- Voice Applications
- Data Applications
- Subscriber Radios

These upgrades are not covered in detail in this guide.

4.3.1
Upgrading the Radio Management Application from R2.9.0 to R2.10.0

Use this procedure to upgrade the Radio Management (RM) application from R2.9.0 to R2.10.0.

Procedure:

1 Download the RM application for R2.10 from the Motorola Online (MOL) website.

2 Back up the RM application content from R2.9.0 by using the RM Server Utility.

3 Apply the RM application upgrade for R2.10.0 to the RM Server, RM Device Programmer(s) and RM Client(s).

If Auto Update is enabled, when an RM Client connects to the RM Server, it is automatically upgraded.

4.3.2
Upgrading the Trunk Controller Configuration in the Radio Management Application from R2.9.0 to R2.10.0

Use this procedure to upgrade the Trunk Controller (TC) configuration in the Radio Management (RM) application from R2.9.0 to R2.10.0.

Procedure:

1 Launch the RM client for configuration of the Capacity Max System Server (CMSS).

2 When prompted, select **Allow the RM client to perform a database upgrade**.

3 Optional: If applicable, make any other RM configuration changes that impact CMSS applications, repeaters, data gateways or subscriber radios, including those specific to R2.10.0 features.

4 Save all configuration changes.

5 Required: **Important:** Schedule a write job to each CMSS that contains a TC.

4.3.3
Upgrading a Capacity Max System Server That Contains a Trunk Controller from R2.9.0 to R2.10.0

Use this procedure to update a Capacity Max System Server (CMSS) that contains a Trunk Controller (TC) from R2.9.0 to R2.10.0.

IMPORTANT:

- Upgrades must be performed at the CMSS location. Remote upgrades are not supported at this time.
- The CMSS upgrades take a significant amount of time (120 to 150 minutes), upgrades should occur during periods of low traffic loading.
- An alternate TC should reside in the system in order to retain wide area trunking during the CMSS upgrade process. If only one TC resides in the system, then all sites revert to site trunking during the upgrade process.
- The primary TC should be upgraded first, as this will result in the ability to test the upgraded CMSS TC. This is because the primary CMSS reclaims the TC, the MOTOTRBO Network Interface Service (MNIS) Voice and Radio Command (VRC) Gateway, and the System Advisor roles from the alternate TC. If an alternate CMSS is deployed, it takes over all CMSS functionality (TC, System Advisor and VRC Gateway) and the registration records should be obtained by the TC in 1 minute.
  - If the primary CMSS and alternate CMSS are co-located, then during the upgrade process all sites in the system may experience audio impacts as the CMSS upgrade files are transferred.
  - If the primary CMSS and alternate CMSS are geographically separated, then during the upgrade process the local site may experience audio impacts as the CMSS upgrade files are transferred.

Procedure:

1 Optional: Back up System Advisor (SA) data on the CMSS. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.

2 Upgrade the applications on the CMSS (70 to 100 minutes), SPP (BIOS) Capacity Max System Firmware, and ESXi to 6.0. See Upgrading the Applications / SPP (BIOS) on the Capacity Max System Server from R2.9.0 to R2.10.0 / ESXi to Version 6.x on page 62.

3 Optional: Restore SA data on the CMSS from backup. Refer to "Backup and Restore of System Advisor Data" in the *Capacity Max System Planner*.

4.3.3.1

Upgrading the Enhanced Software Update Application from R2.9.0 to R2.10.0

Follow this procedure to perform a self upgrade of the Enhanced Software Update (ESU) application from R2.9.0 to R2.10.0.

Procedure:

1. Install or upgrade ESU Launchpad on user laptop. See Installing ESU Launchpad on User Laptop on page 60.
2. Upgrade the applications on the Capacity Max System Server. See Upgrading the Applications / SPP (BIOS) on the Capacity Max System Server from R2.9.0 to R2.10.0 / ESXi to Version 6.x on page 62.

4.3.3.1.1

Installing ESU Launchpad on User Laptop

Prerequisites: Perform the following actions:

- Order (1) T8486A, MOTOTRBO Capacity Max System Server SW Update Launch Pad which contains the new ESU LP software files on a DVD. (The R2.10.x upgrade requires this new ESU LP version).

  Alternatively, for customers with the MSI MyView portal access, you can order T8483A, MOTOTRBO Capacity Max System Server SW Update Launch Pad, and receive an e-mail with a unique link to access/download the ESU LP application files from the MyView portal. The T8483A requires an e-mail address at time of order.

  NOTICE: The USB (T8486A) takes 2-3 weeks to deliver, while the downloadable MyView portal file (T8483A) is available within a week. When scheduling your upgrade, take delivery time into consideration.
  The ESU Launchpad **About** page describes the target CMSS versions that it supports. Please ensure the appropriate ESU Launchpad version is ordered along with the CMSS upgrade installation files.
- Ensure that the laptop meets the following minimum system requirements:
  - Operating System: Windows 7, Windows 8, or Windows 10
  - Processor: 64-bit x 86 Intel Core 2 Duo processor or equivalent
  - AMD Athlon™ 64 FX Dual Core processor or equivalent (1.3 GHz or faster core speed)
  - 6 GB RAM
  - 80.5 GB of free disk space
  - 1000 Mbps Ethernet adapter
  - Antivirus software
  - Antimalware software
- Disable hibernation and sleep mode on the laptop. For instructions, see the Windows documentation of your operating system.
- Ensure that the ESU Launchpad user interface launches automatically in the default browser.

  NOTICE: The web browser must support HTML5 and File API. Each version that is equal or greater than Chrome 39, IE11, or Firefox 29 is supported.

- Enable Virtualization Technology (VT) in the BIOS of your laptop.

  NOTICE: Running ESU Launchpad without VT enabled is not possible as you cannot power on a 64-bit virtual machine. For more information, see the VMware website. For instructions on how to enable the VT, see the vendor documentation.

- Prepare the VMware Workstation Player commercial license key.

Procedure:

1 Perform one of the following actions:

- Insert the ESU Launchpad media into the DVD drive and launch `setup.exe`
- Download the ISO file from MyView Portal on the laptop used to perform the CMSS upgrade, mount it as a virtual DVD or extract ISO content, and launch `setup.exe`.

2 Follow the installation steps, and click **Install**.

VMware Workstation 12 Player Setup Wizard appears.

3 In the **VMware Workstation 12 Player Setup** window, click **Next** and perform one of the following steps:

If…	Then…
If prompted with a window containing Repair and Remove options,	Perform the following actions: • Click **Cancel** and confirm that you want to stop the VMware Workstation installation. • Exit the **VMware Workstation 12 Player Setup** by clicking **Finish**.
If prompted with a window containing the VMware Workstation 12 Player License Agreement,	Perform the following actions: • Accept the license agreement and click **Next**. • Progress through the installer by following the on-screen instructions. It is recommended not to install any additional VMware features during this setup • Clear all the feature check boxes that you see in the installer windows. • When the installation is complete, click **License**. • Enter the license key and click **Enter**. • Click **Finish**.

If your OS does not contain the required version of Microsoft Visual C++, **Microsoft Visual C++ Setup Wizard** window appears.

4 Accept the license conditions and click **Install**.

Wait for the ESU Launchpad to finish the installation process.

The **OVFtool.exe** command line window appears, where you can view the progress of ESU LP (Launchpad) virtual machine deployment.

WARNING: Do not interrupt the virtual machines deployment.

5 Monitor the progress of the **Setup - Motorola Enhanced Software Update Launchpad** window, click **Finish** when completed.

ESU Launchpad icon is created on the desktop.

4.3.3.2

Upgrading the Applications / SPP (BIOS) on the Capacity Max System Server from R2.9.0 to R2.10.0 / ESXi to Version 6.x

Prerequisites: Perform the following actions:

- For each Capacity Max System Server (CMSS), order T8482A, MOTOTRBO 2.10.x Capacity Max System Server SW Upgrade which contains the `CVN7213X.zip` file loaded on a USB drive, and depending on the age of the CMSS, includes an ESXi license.

  Alternatively, for customers with the MSI MyView portal access, you can order T8481A, MOTOTRBO 2.10.x Capacity Max System Server SW Upgrade, and receive an e-mail with a unique link to access/download the `CVN7213X.zip` file from the MyView portal. The T8481A requires an e-mail address at time of order.

  NOTICE: The USB drive (T8482A) takes 2-3 weeks to deliver, while the downloadable MyView portal file is available within a week. When scheduling your upgrade, take delivery time into consideration.
  Both the T8481A and T8482A also require the MSI Capacity Max Server's Serial Number (SN: ***<435xxxxxxx>***) at time of order for validation purposes.
- Install ESU Launchpad. See Installing ESU Launchpad on User Laptop on page 60.
- Extract the zip contents and store it on the laptop used to perform the CMSS upgrade. All files are referenced from the extracted location to perform the upgrade.

Procedure:

1 Connect the laptop to a technician switch port.

2 Start the **ESU Launchpad Control** application and run the ESU Launchpad tool by clicking **Start ESU backend**.

3 When **ESU Backend Status** shows **Started**, click **Start ESU GUI**.

4 Log on to the ESU interface by using the upgrade role.

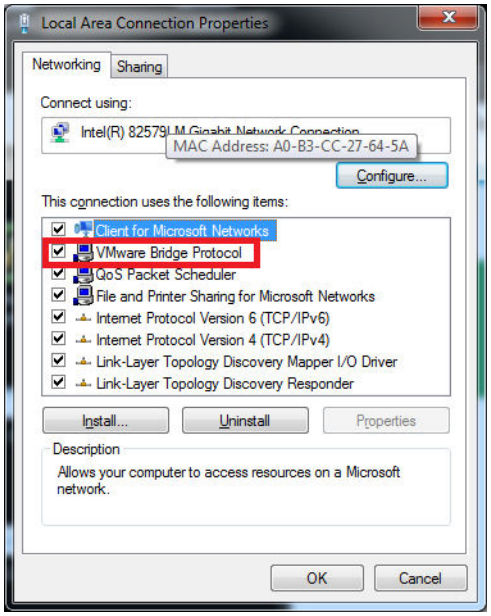
- User name: `upgrade`
- Password: `upgrade`

With R2.10, the upgrade role has the **Discovery** and **Inventory** sections available.

5 Ensure that the connection is properly bridged by making the following actions:

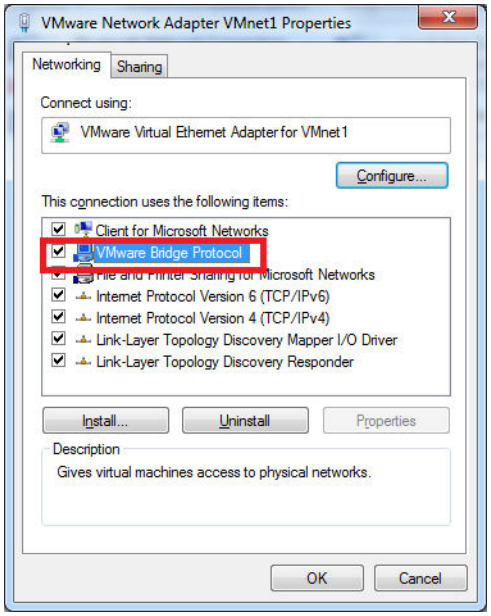
a Ensure that the LAN connection of your physical Ethernet adapter is bridged and configured properly to have access to CMSS which should be upgraded.

Figure 7: Local Area Connection Properties



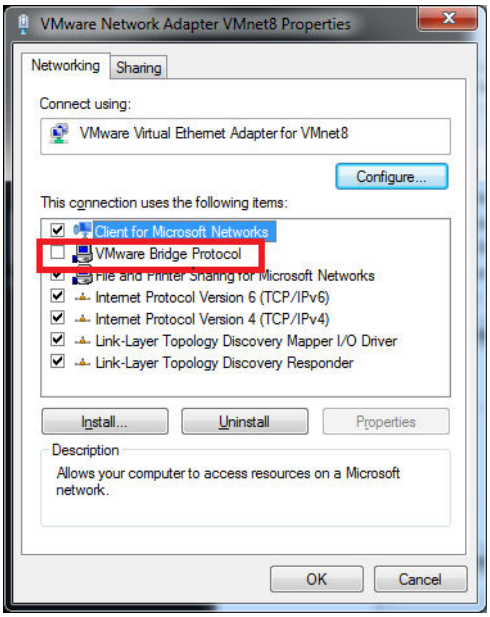
b Ensure VMnet1 LAN connection is bridged.

Figure 8: VMware Network Adapter VMnet1 Properties



c Ensure VMnet8 LAN and all other available connections are not bridged.

Figure 9: VMware Network Adapter VMnet8 Properties



d Ensure that only one physical Ethernet adapter is used for connection with CMSS.

1 Check ESU LP virtual machine network settings.

Figure 10: ESU Launchpad Window

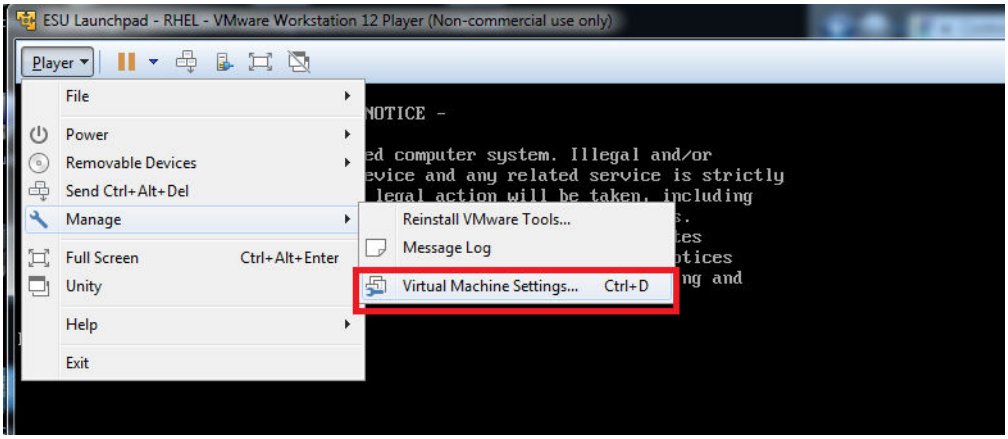
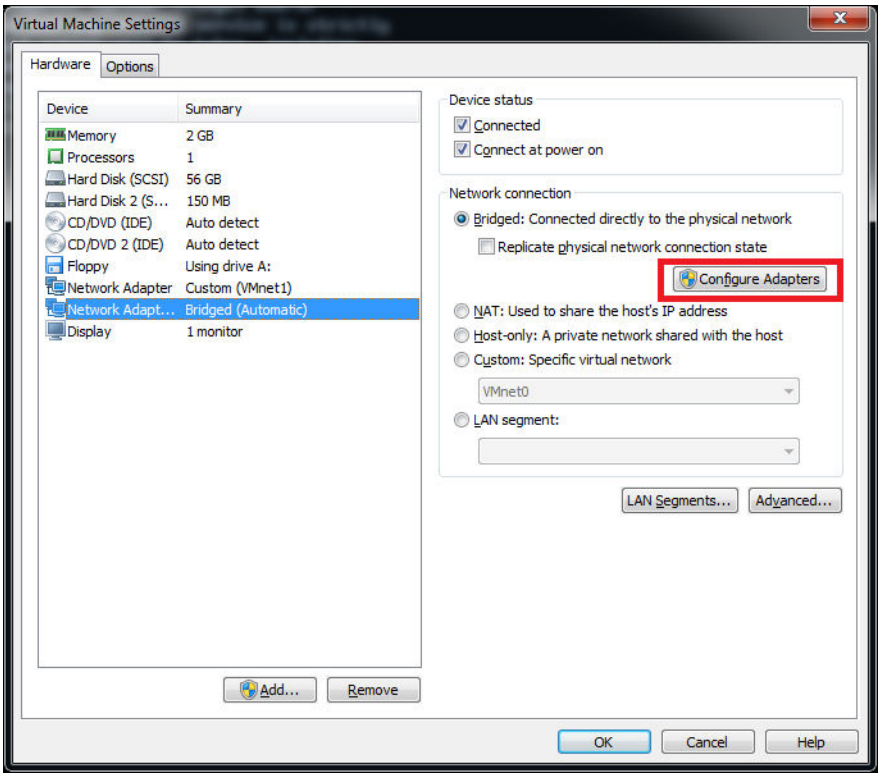
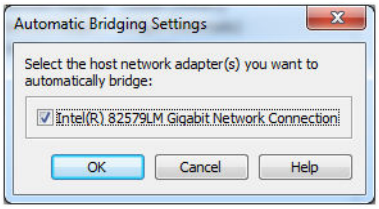


Figure 11: Virtual Machine Settings



2 Ensure that only one physical Ethernet adapter which is used for connection with CMSS is selected. Deselect other adapters if there are other adapters present in list.

Figure 12: Automatic Bridging Settings



6 Navigate to the **Discovery** page. Add a CMSS instance for the particular customer.

7 Click **Add** button.

a In the **Manage ESXI elements** window, enter ***<target ESXI IP Address>***.

where ***<target ESXI IP Address>*** is the IP address of ESXI on CMSS which is being upgraded.

NOTICE: ESXI address has to be TC IP + 1 in the last octet.
For example:
TC IP: 172.21.0.1
ESXI IP: 172.21.0.2

b Enter ESU LP RHEL IP Address.

IMPORTANT: This address should be from the same subnet as the laptop where LP is installed. It is assigned to LP RHEL virtual machine during the discovery process. For example:

Laptop: 172.21.9.58

LP RHEL: 172.21.9.59

If there are several CMSS to be upgraded in the network, the IP should be unique for each CMSS in the network. This is to avoid conflict between OPA agents from VMs on different CMSS during discovery and upgrade processes. If some CMSS were upgraded previously using LP, perform re-discovery process for all CMSS with new IP addresses for each CMSS before upgrading to avoid conflicts with OPA agents.

c Enter Netmask/Gateway for the ESU LP address added in step 7b.

NOTICE: Configure netmask/gateway to communicate to ESXI.
The netmask/gateway must be the same as laptop's netmask/gateway.

d Click **Submit**.

8 Select the CMSS instance to be discovered and click the **Discovery** button.

9 Verify the registered agents by performing the following actions:

a Navigate to the **Inventory** screen.

b Verify that all agents (`uis01`, `sysadv01`, `tc01`, `mnis01`) are registered and show a state of `active` under the `esxi` folder.

c Verify that the validation status is `Success`.

10 Navigate to the **Upgrade Composer** tab.

11 Compose software for the upgrade by performing one the following actions:

IMPORTANT: All updates must be performed for the R2.10.x upgrade.

If…	Then…
If you are upgrading the Applications on the Capacity Max System Server from R2.9.0 to R2.10.0,	perform the following actions: **a** Click **Browse**, and locate the ***<CapMax_SW_Upgrade_2.9_to_2.10_xxyyzzzz.iso>***. **b** Click **Upload and Compose**. **NOTICE:** The Status columns of the Upload Software table display the progress of the upload and processing of the files which takes approximately 60 to 90 minutes. **c** When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**. **d** Upgrade the ESU CM, TC, VRC Gateway, and SA applications by navigating to the **Upgrade Player** section and clicking **Run Upgrade Flow**. **NOTICE:** The upgrade process takes approximately 60 to 90 minutes.
If you are upgrading SPP (BIOS)	perform the following actions: **a** Click **Browse**, and locate ***<CapMax_SPP_Firmware_Upgrade_Bundle_2.10_xxxxxx.iso>***

If…	Then…
Capacity Max System Firm-ware,	**b** Click **Upload and Compose**. **NOTICE:** This takes approximately 20 minutes. **c** When the upload is complete, navigate to the **Upgrade Player** section, and click **Run Upgrade Flow**. **d** When status displays **Waiting (1 out of 4)**, click **Open**, and in the **Power off all virtual machines** row, click **run**. **e** Acknowledge pop-up message and wait for this to complete. **f** In the **Enter maintenance mode** row, click **run**. **g** Once complete, click **Back to the upgrade player** and click **Run upgrade flow**. **NOTICE:** SPP upgrade takes about 30 - 45 min, and requires presence of an operator.
If you are up-grading ESXi to Version 6.x,	perform the following actions: **a** Click **Browse**, and locate ***<CapMax_Esxi_Upgrade_Bundle_2.10_xxxxxx.iso>*** **b** Click **Upload and Compose**. **c** When the upload is complete, in the uploaded file row, click **Compose**. **d** In the **ESXi 6.x License Key String** section, provide a valid license key. Click **Create**. **e** Navigate to the **Upgrade Player** section and click **Run Upgrade Flow**. **f** When status displays **Waiting (1 out of 5)**, click **Open**, and in the **Shut-down all virtual machines** row, click **run**. **g** Acknowledge pop-up message and wait for this to complete. **h** In the **Deliver ESXi upgrade software to ESXi datastore** row, click **run**. **i** Once complete, click **Back to the upgrade player** and click **Run upgrade flow**.

12 When the upgrade is complete, log out of the ESU interface.

13 Navigate to the **ESU Launchpad control** application.

14 Click the **Stop ESU Backend** to stop.

The Backend status shows `stop`.

15 Quit **ESU Launchpad control** application.

Postrequisites: SPP/ESXi only: Verify if SPP and ESXi6.x are installed by performing the following actions:

1 Reboot the CMSS box.

2 In the console, locate the following:

```
HP System BIOS P8 2018-05-21…. ---- BIOS had been upgraded.
VMware, Inc. VMware ESXi 6.0.0 build-10719132…..----The system had been
upgraded to ESXi6.0
```

4.3.3.3
Rolling Back a CMSS Application Upgrade from R2.10.0 to R2.9.0

Use this procedure to roll back the upgrade of an application on the Capacity Max System Server (CMSS).

When and where to use: After the primary CMSS is upgraded to R2.10.0 and configured, it is possible to test the functionality of R2.9.0 features on the upgraded device. If the performance is unsatisfactory, a rollback to the R2.9.0 versions of the CMSS applications can be initiated by using the Enhanced Software Upgrade (ESU) interface. This process takes approximately 5 to 10 minutes.

Procedure:

1. Connect the laptop with the CMSS to a technician switch port.
2. Start Motorola Solutions **ESU Launchpad Control** application and click **Start ESU backend** to run the ESU Launchpad tool.
3. Click **Start ESU GUI**.
4. Log into the ESU interface using the upgrade role.
   - User name: `upgrade`
   - Password: `upgrade`
5. Select the last upgraded tab.
6. Click **Advanced View**.
7. From the **Upgrade Flows** dropdown list, select the most recent upgrade flow listed.
8. Under **Rollback Phase**, locate **Revert Trunk Controller (TC) Snapshot** and select **Open** → **Run**.
9. When the rollback status appears as `Completed`, click **Back**.
10. Under **Rollback Phase**, locate **Revert System Advisor (SysAdv) Snapshot** and select **Open** → **Run**.
11. When the rollback status appears as `Completed`, click **Back**.
12. Under **Rollback Phase**, locate **Revert MNIS Snapshot** and select **Open** → **Run**.
13. Under **Rollback Phase**, locate **Revert ESU (UIS) Snapshot** and select **Open** → **Run**.
14. When the rollback status appears as `Completed`, click **Back**.
15. Log out of the ESU interface.
16. Navigate to **ESU Launchpad GUI** application.
17. Click **Stop ESU Backend**.

    The Backend status shows `stop`.
18. Shutdown **ESU Launchpad GUI** application.

4.3.3.4
Rolling Back Failed ESXi Upgrade

Use this procedure to revert the failed ESXi Upgrade procedure.

Procedure:

1. Connect the laptop with the CMSS to a technician switch port.
2. Start Motorola Solutions **ESU Launchpad Control** application, and click **Start ESU backend** to run the ESU Launchpad tool.

3 Click **Start ESU GUI**.
4 Log into the ESU interface by using the upgrade role.
   - User name: `upgrade`
   - Password: `upgrade`
5 Select the last upgraded tab.
6 Click **Advanced View**.
7 From the **Upgrade Flows** drop-down list, select the most recent upgrade flow listed.
8 Locate the failed steps and their details of operator rollback ID, and perform the suggested rolling back failure action
9 Log out of the ESU interface.
10 Navigate to **ESU Launchpad GUI** application.
11 Click **Stop ESU Backend**.
   The Backend status shows `stop`.
12 Shutdown **ESU Launchpad GUI** application.

4.3.3.5
Rolling Back Failed SPP Upgrade

There are six rollback scenarios for the SPP upgrade, and depending on the procedure to perform, some of the tasks may require the system to be in maintenance mode.

Procedure:

1 Connect the laptop with the CMSS to a technician switch port.
2 Start Motorola Solutions **ESU Launchpad Control** application, and click **Start ESU backend** to run the ESU Launchpad tool.
3 Click **Start ESU GUI**.
4 Log into the ESU interface by using the upgrade role.
   - User name: `upgrade`
   - Password: `upgrade`
5 Select the last upgraded tab.
6 Click **Advanced View**.
7 From the **Upgrade Flows** drop-down list, select the most recent upgrade flow listed.
8 Locate the failed step and its details of operator rollback ID, and perform the suggested rollback failure action.
9 Log out of the ESU interface.
10 Navigate to **ESU Launchpad GUI** application.
11 Click **Stop ESU Backend**.
   The Backend status shows `stop`.
12 Shutdown **ESU Launchpad GUI** application.

4.3.4
Upgrading a Capacity Max System Server That Does Not Contain a Trunk Controller from R2.9.0 to R2.10.0

The upgrade process of a Capacity Max System Server (CMSS) not containing a Trunk Controller (TC) is exactly the same as the upgrade process of a CMSS containing a TC.

When and where to use: If a primary TC and the corresponding alternate TC are geographically separated, both must be upgraded before a CMSS without a TC is updated. This may require multiple trips to the site.

Procedure:

Upgrade the applications on the CMSS (75 to 100 minutes), SPP (BIOS) Capacity Max System Firmware, and ESXi to 6.0. See Upgrading the Applications / SPP (BIOS) on the Capacity Max System Server from R2.9.0 to R2.10.0 / ESXi to Version 6.x on page 62.

4.3.5
Upgrading a Data Gateway from R2.9.0 to R2.10.0

Perform the tasks listed in this process to upgrade a MOTOTRBO Network Interface Service (MNIS) Data Gateway from R2.9.0 to R2.10.0.

Prerequisites: Contact your Motorola Solutions representative for details about the actions required to perform the following tasks.

When and where to use: The upgrade process of an MNIS Data Gateway is straightforward. There is no need to reconfigure the device for R2.10.0, because all configuration from R2.9.0 is retained.

Procedure:

1. Uninstall the R2.9.0 version of the MNIS Data Gateway application.
2. Install the R2.10.0 version of the MNIS Data Gateway application on the computer.
3. Start the R2.10.0 version of the MNIS Data Gateway application.
4. From the user interface, click **Start** to activate the application.

4.3.6
RF Site (Repeater) Upgrades from R2.9.0 to R2.10.0

During an upgrade, a repeater is not available to the Capacity Max system for a duration of time. This time depends on the repeater model.

- For XPR and MTR3000 repeaters this downtime includes both the data transfer time and the repeater reset time (approximately 2.5 minutes).
- For SLR repeaters this downtime is only the repeater reset time (approximately a minute). Therefore, SLR repeaters remain active in the Capacity Max system during the data transfer time. During the repeater downtime, the following site impacts should be taken into account.

When all control channel capable repeaters at a site (including situations in which only one exists) are upgraded at once, the site is offline to radios for duration of downtime. When a fraction of the control channel capable repeaters at site (including situations in which one exists with hardware redundancy) are upgraded at once, another control channel repeater becomes the control channel with a brief switchover time.

The radios display `searching` when the control channel repeater begins the downtime until the radio acquires another control channel at the current site or roams to a new site and successfully registers to the new site.

When a traffic channel repeater is upgraded, the site is down two traffic channels for every repeater being simultaneously upgraded during the downtime. This can increase call queuing frequency of occurrence and queuing duration.

When a scheduled data revert channel repeater is upgraded, location updates are unavailable during this time on the two data revert channels supported by the repeater. If all scheduled data revert repeaters are upgraded simultaneously then location updates are unavailable during the downtime.

A batch process requires significantly less overall time than a one-by-one serial approach. The upgrade time for three (3) repeaters is significantly less than three (3) times the single repeater time, as indicated in Time to Upgrade Repeater Firmware from R2.8.0 to R2.9.0 on page 54.

Performing a batch process upgrade to multiple repeaters has a significantly positive impact on the total upgrade time. However, when all the repeaters at a site are upgraded at once, the site does not support any functionality during the upgrade time.

If site functionality must be retained during the repeater upgrade process, then several upgrades may need to be applied to subsets of the repeaters. If these upgrades are performed during periods of high traffic volume, it may be necessary to perform a multiple-stage upgrade so that the number of traffic channel resources impacted at any one time is minimized.

If performed during non-peak hours, a two-stage upgrade would consist of the following tasks:

1. Upgrade half of control channel capable repeaters, half of traffic channel repeaters, and half of data revert repeaters.
2. Upgrade the remaining half of control channel capable repeaters, remaining half of traffic channel repeaters, and remaining half of data revert repeaters.

4.3.6.1

Time to Upgrade Repeater Firmware from R2.9.0 to R2.10.0

Repeaters can be upgraded remotely or locally at the physical location. The time to upgrade is a function of the number of repeaters updated in a batch process through the Radio Management (RM) application as well as the data rate to the repeaters. When the upgrade is performed remotely, the data rate is limited by the downlink data rate to the site. When the upgrade is performed locally, the data rate is limited by the switch port speed and amount of other network traffic. The following table lists average upgrade times for NGR repeater(s) for various downlink speeds.

Table 17: Estimated Upgrade Times and Link Speeds for Upgrades to Multiple Repeaters from R2.8.0 to R2.9.0

Number of Repeaters	1 Mbps Link	3 Mbps Link	10 Mbps Link	30 Mbps Link	100 Mbps Link
1	11.3 minutes	8.7 minutes	8.6 minutes	8.6 minutes	8.6 minutes
3	19.7 minutes	10.2 minutes	9.0 minutes	9.0 minutes	9.0 minutes
5	28.1 minutes	14.9 minutes	10.3 minutes	9.5 minutes	9.5 minutes
10	49.2 minutes	22.7 minutes	13.4 minutes	10.8 minutes	10.7 minutes
15	70.2 minutes	30.5 minutes	16.6 minutes	12.6 minutes	11.8 minutes

NOTICE: 100 Mbps is the estimated upgrade speed when connected to a local switch technician port.

4.3.6.2

Upgrading a Repeater from R2.9.0 to R2.10.0 Locally When a Site Is Not Connected to the Radio Management Server

When there is no connection from the site to the Radio Management (RM) server, repeaters must be individually upgraded offline via a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from Motorola Online (MOL) website and is available on the laptop used to perform the repeater upgrade.

Procedure:

1. Connect the laptop directly to the repeater.
2. From the radio view, highlight the intended repeater.
3. Right-click the intended repeater and select **Upgrade Firmware**.
4. Select the appropriate firmware.
5. Schedule the write job.

4.3.6.3

Upgrading a Repeater Locally from R2.9.0 to R2.10.0 When a Site Is Connected to the Radio Management Server

When there is a connection from the site to the Radio Management (RM) application server, repeaters may be upgraded in a batch using a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from the Motorola Online (MOL) website and is available on the laptop used to perform the repeater upgrade. This prevents having to transfer the upgrade over the site link and potentially disrupt call quality.

Procedure:

1. Connect the laptop to the technician switch port.
2. From the radio view, highlight the intended repeater.
3. Right-click the intended repeater and select **Upgrade Firmware**.
4. Select the appropriate firmware.
5. Schedule the write job.

4.3.6.4

Upgrading One or More Repeaters from R2.9.0 to R2.10.0 Remotely

When there is a connection from the site to the Radio Management (RM) application server, repeaters may be upgraded in a batch, by using a laptop with the RM client and Device Programmer.

Prerequisites: Verify that the upgrade file was obtained from the Motorola Online (MOL) website and resides on the laptop to be used to perform the repeater upgrade. It is recommended that the upgrade occur during low call volume periods so as to not disrupt call quality.

Procedure:

1. From the RM Client, schedule the upgrade for the selected repeaters.
2. From the radio view, highlight the intended repeaters.
3. Right-click the intended repeaters and select **Upgrade Firmware**.
4. Select the appropriate firmware.
5. Schedule the write job.

4.4 Upgrading a Capacity Max System from R2.10.0 to R2.10.5

Use the following process to upgrade the Capacity Max System to R2.10.5.

Procedure:

1. Upgrade a Capacity Max System from R2.9.0 to R2.10.0. See Upgrading a Capacity Max System from R2.9.0 to R2.10.0 on page 57.
2. Upgrade the applications on the CMSS (75 to 100 minutes). See Upgrading the Applications and ESXI on the Capacity Max System Server from R2.10.0 to R2.10.5 on page 73.

4.4.1 Upgrading the Applications and ESXI on the Capacity Max System Server from R2.10.0 to R2.10.5

Prerequisites: Perform the following actions:

- Upgrade a Capacity Max System to R2.10.0. See Upgrading a Capacity Max System from R2.9.0 to R2.10.0 on page 57.
- For each Capacity Max System Server (CMSS), order T8699A, MOTOTRBO 2.10.5 Capacity Max System Server SW Upgrade which contains the `CVN7213X.zip` file loaded on a USB drive, and depending on the age of the CMSS, includes an ESXi license.

  Alternatively, for customers with the MSI MyView portal access, you can order T8700A, MOTOTRBO 2.10.5 Capacity Max System Server SW Upgrade, and receive an e-mail with a unique link to access/download the `CVN7213X.zip` file from the MyView portal. The T8700A requires an e-mail address at time of order.

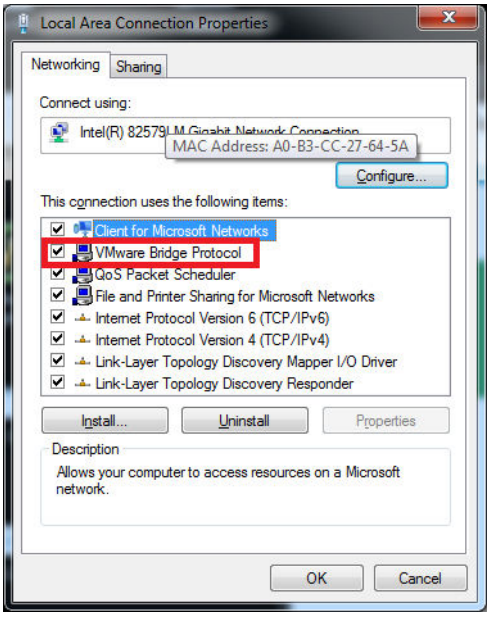
  NOTICE: The USB drive (T8699A) takes 2-3 weeks to deliver, while the downloadable MyView portal file is available within a week. When scheduling your upgrade, take delivery time into consideration.
- Install ESU Launchpad. See Installing ESU Launchpad on User Laptop on page 60.
- Extract the zip contents and store it on the laptop used to perform the CMSS upgrade. All files are referenced from the extracted location to perform the upgrade.
- Reboot the server and identify the ESXi build version by locating the following in the server console:

```
VMware ESXi X.X.X (VMKernel Release Build XXXXXXXX)
```

Procedure:

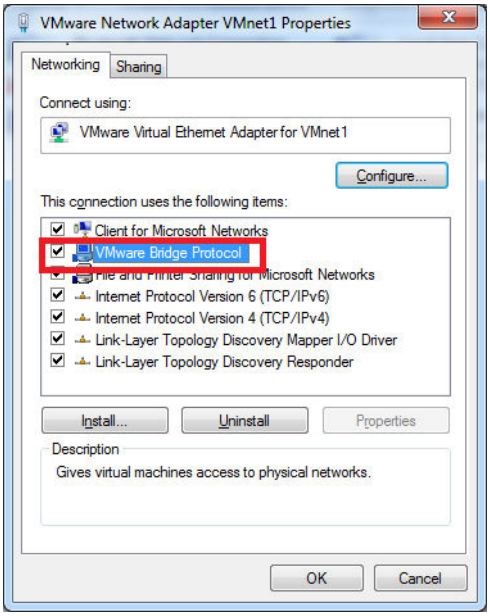
1. Connect the laptop to a technician switch port.
2. Start the **ESU Launchpad Control** application and run the ESU Launchpad tool by clicking **Start ESU backend**.
3. When **ESU Backend Status** shows **Started**, click **Start ESU GUI**.
4. Log on to the ESU interface by using the upgrade role.
   - User name: `upgrade`
   - Password: `upgrade`
5. Ensure that the connection is properly bridged by making the following actions:
   a. Ensure that the LAN connection of your physical Ethernet adapter is bridged and configured properly to have access to CMSS which should be upgraded.

Figure 13: Local Area Connection Properties



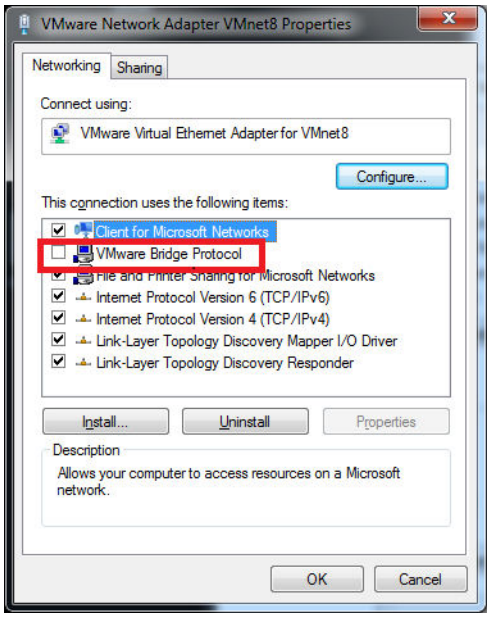
b Ensure VMnet1 LAN connection is bridged.

Figure 14: VMware Network Adapter VMnet1 Properties



c Ensure VMnet8 LAN and all other available connections are not bridged.

Figure 15: VMware Network Adapter VMnet8 Properties



d Ensure that only one physical Ethernet adapter is used for connection with CMSS.

1 Check ESU LP virtual machine network settings.

Figure 16: ESU Launchpad Window

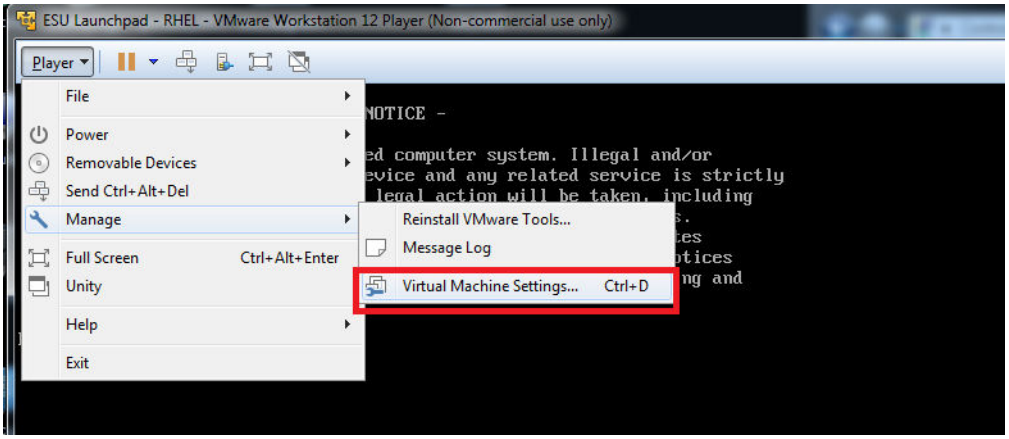
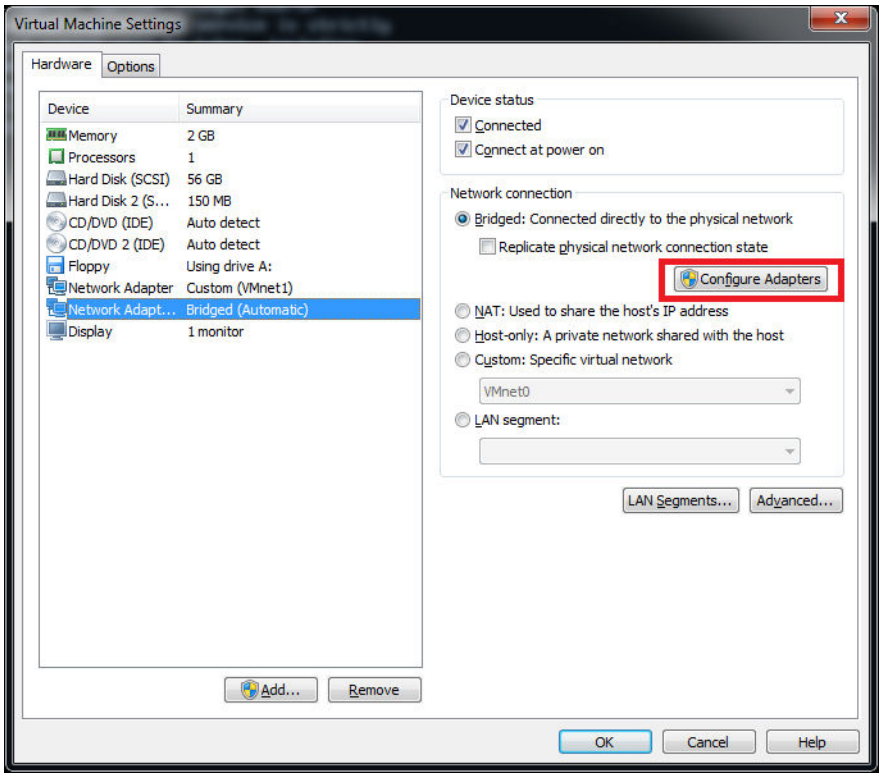
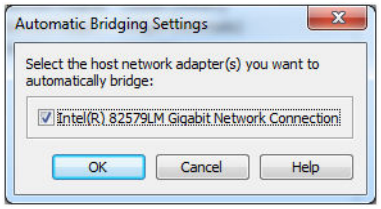


Figure 17: Virtual Machine Settings



2 Ensure that only one physical Ethernet adapter which is used for connection with CMSS is selected. Deselect other adapters if there are other adapters present in list.

Figure 18: Automatic Bridging Settings



6 Navigate to the **Discovery** page. Add a CMSS instance for the particular customer.

7 Click **Add** button.

a In the **Manage ESXI elements** window, enter ***<target ESXI IP Address>***.

where ***<target ESXI IP Address>*** is the IP address of ESXI on CMSS which is being upgraded.

NOTICE: ESXI address has to be TC IP + 1 in the last octet.
For example:
TC IP: 172.21.0.1
ESXI IP: 172.21.0.2

b Enter ESU LP RHEL IP Address.

IMPORTANT: This address should be from the same subnet as the laptop where LP is installed. It is assigned to LP RHEL virtual machine during the discovery process. For example:

Laptop: 172.21.9.58

LP RHEL: 172.21.9.59

If there are several CMSS to be upgraded in the network, the IP should be unique for each CMSS in the network. This is to avoid conflict between OPA agents from VMs on different CMSS during discovery and upgrade processes. If some CMSS were upgraded previously using LP, perform re-discovery process for all CMSS with new IP addresses for each CMSS before upgrading to avoid conflicts with OPA agents.

c Enter Netmask/Gateway for the ESU LP address added in step 7b.

NOTICE: Configure netmask/gateway to communicate to ESXI.
The netmask/gateway must be the same as laptop's netmask/gateway.

d Click **Submit**.

8 Select the CMSS instance to be discovered and click the **Discovery** button.

9 Verify the registered agents by performing the following actions:

a Navigate to the **Inventory** screen.

b Verify that all agents (`uis01`, `sysadv01`, `tc01`, `mnis01`) are registered and show a state of `active` under the `esxi` folder.

c Verify that the validation status is `Success`.

10 Navigate to the **Upgrade Composer** tab.

11 Upgrade the Applications on the Capacity Max System Server from R2.10.0 to R2.10.5 by performing the following actions:

a Click **Browse**, and locate the `CapMax_SW_Upgrade_Bundle_R2.10_to_2.10.5_xxxxxxxx.iso`.

b Click **Upload and Compose**.

NOTICE: The Status columns of the Upload Software table display the progress of the upload and processing of the files which takes approximately 60 to 90 minutes.

c When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**.

d Upgrade the ESU CM, TC, VRC Gateway, and SA applications by navigating to the **Upgrade Player** section and clicking **Run Upgrade Flow**.

NOTICE: The upgrade process takes approximately 60 to 90 minutes.

12 **ESXi lower than 6.0.0 build 10719132 only:** Upgrade the ESXi by performing the following actions:

a Click **Browse**, and locate `CapMax_Esxi_Upgrade_Bundle_2.10.5_xxxxxx.iso`

b Click **Upload and Compose**.

c When the upload is complete, in the uploaded file row, click **Compose**.

d When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**.

e In the **ESXi 6.x License Key String** section, provide a valid license key. Click **Create**.

f Navigate to the **Upgrade Player** section and click **Run Upgrade Flow**.

g When status displays **Waiting (1 out of 5)**, click **Open**.

h In the **Shutdown all virtual machines** row, click **Run**.

i Acknowledge the pop-up message and wait for this to complete.

j Click **Back**, and click **Run upgrade flow**.

13 When the upgrade is complete, log out of the ESU interface.

14 Navigate to the **ESU Launchpad control** application.

15 Click the **Stop ESU Backend** to stop.

The Backend status shows `stop`.

16 Quit **ESU Launchpad control** application.

Chapter 5

Capacity Max System Upgrade from R2.10.0 to M2020.01

This document provides high-level guidelines for backward compatibility and upgrade for MOTOTRBO Capacity Max system from R2.10.0 to M2020.01. This includes backward compatibility issues and the recommended order of system component upgrades.

For the system setup details, see *Capacity Max System Planner* and the *Installation and Configuration Manual* for MOTOTRBO Capacity Max.

This document is intended specifically for an upgrade from R2.10.0 to M2020.01, but it can be applied to system components from R2.10.X interim releases as well. If the current system operates on R2.9.x, the procedure defined in Capacity Max System Upgrade from R2.9.0 to R2.10.0 on page 56 must be performed before upgrading to M2020.01.

NOTICE: To receive help with the upgrade process, contact Motorola Solutions technical support.

5.1 Installing ESU Launchpad on User Laptop (M2020.01)

The M2020.01 upgrade requires a new ESU Launchpad (LP) version.

Prerequisites:

1 To obtain the ESU Launchpad, perform one of the following actions:

- Order MOTOTRBO Capacity Max System Server SW Update Launch Pad (Part Number T8486A), which contains the new ESU LP software files on a DVD.
- If you have the MSI MyView portal access, you can order MOTOTRBO Capacity Max System Server SW Update Launch Pad (Part Number T8483A) and receive an email with a unique link to access the ESU LP application files from the MyView portal. The T8483A requires an e-mail address at the time of order.

NOTICE: The DVD (T8486A) takes 2–3 weeks to be delivered, while the downloadable MyView portal file (T8483A) is available within a week. It is recommended to include the time taken for the package to be delivered into planning.

NOTICE: The ESU Launchpad **About** page describes the target CMSS supported versions. Please ensure that the appropriate ESU Launchpad version is ordered along with the CMSS upgrade installation files.

2 Ensure that the laptop meets the following minimum system requirements:

- Operating System: Windows 10
- Processor: 64-bit x 86 Intel Core i7-4800MQ or equivalent
- 8 GB RAM
- 80.5 GB of free disk space
- 1000 Mbps Ethernet adapter
- Antivirus software
- Antimalware software

3 Disable hibernation and sleep mode on the laptop. For instructions, see the Windows documentation of your operating system.

4 Ensure that the ESU Launchpad user interface launches automatically in the default browser.

NOTICE: The web browser must support HTML5 and File API. Use a version equal to or greater than Chrome 39, IE11, or Firefox 29.

5 Enable Virtualization Technology (VT) in the BIOS of your laptop.

NOTICE: Running ESU Launchpad without VT enabled is not possible, as a 64-bit virtual machine cannot be powered on. For more information, see the VMware website. For instructions on how to enable the VT, see the vendor documentation.

6 Prepare the VMware Workstation Player commercial license key.

Procedure:

1 Perform one of the following actions:

- Insert the ESU Launchpad media into the DVD drive and launch `mysetup.exe`.
- Download the ISO file from MyView Portal on the laptop used to perform the CMSS upgrade, mount it as a virtual DVD or extract the ISO content, and launch `mysetup.exe`.

2 When prompted, enable the VT, and click **Next**.

3 To install Motorola Solutions ESU Launchpad, click **Install**.

VMware Workstation 15 Player Setup Wizard appears.

4 In the **VMware Workstation 15 Player Setup** window, click **Next** and perform one of the following actions:

If...	Then...
If prompted with a window containing Repair and Remove options,	perform the following actions: **a** Click **Cancel** and confirm that you want to stop the VMware Workstation installation. **b** Exit the **VMware Workstation 15 Player Setup** by clicking **Finish**.
If prompted with a window containing the VMware Workstation 15 Player License Agreement,	perform the following actions: **a** Accept the license agreement and click **Next**. **b** Progress through the installer by following the on-screen instructions. It is recommended not to install any additional VMware features during this setup. **c** Clear all the feature check boxes that you see in the installer windows. **d** When the installation is complete, click **License**. **e** Enter the license key and click **Enter**. **f** Click **Finish**.

If your OS does not contain the required version of Microsoft Visual C++, **Microsoft Visual C++ Setup Wizard** window appears.

5 Accept the license conditions and click **Install**.

Wait for the ESU Launchpad to finish the installation process.

The **OVFtool.exe** command line window appears, where you can view the progress of ESU LP virtual machine deployment.

WARNING: Do not interrupt the virtual machines deployment.

6 Monitor the progress of the **Setup - Motorola Enhanced Software Update Launchpad** window, then click **Finish** when completed.

The ESU Launchpad icon is created on the desktop.

5.2 Upgrading Capacity Max Server from R2.10.x to M2020.01

Prerequisites:
Perform the following actions:

1 Install the ESU Launchpad. See Installing ESU Launchpad on User Laptop (M2020.01) on page 79.

2 If you use Capacity Max System Server (CMSS) deployed before R2.10 or earlier, obtain Software Maintenance Agreement license from Motorola Service and apply it through Radio Management (RM) to upgrade applications.

3 Upgrade the Capacity Max System to R2.10.0. See Capacity Max System Upgrade from R2.9.0 to R2.10.0 on page 56.

4 For each CMSS, perform one of the following actions:

- Order MOTOTRBO M2020.01 Capacity Max System Server SW Upgrade (Part Number T8733A) which contains the `CVN7292A.zip` file loaded on a USB drive.

  NOTICE: The ESXi license is not included in the USB `CVN7292A.zip`.

- If you have the MSI MyView portal access, you can order MOTOTRBO M2020.01 Capacity Max System Server SW Upgrade (Part Number T8734A) and receive an e-mail with a unique link to access the `CVN7292A.zip` file from the MyView portal. The T8734A requires an e-mail address at the time of order.

5 Extract the zip file and store it on the laptop used to perform the CMSS upgrade. All files from the extracted location are referenced to perform the upgrade.

NOTICE: The USB drive (T8733A) takes 2–3 weeks to be delivered, while the downloadable MyView portal file is available within a week. It is recommended to include the time taken for the package to be delivered into planning.

NOTICE: Upgrade sequence impacts related dependency. The following is the suggested sequence of upgrades:

1 Application

2 MotoPatch (windows security)

3 Hypervisor (ESXi)

4 Firmware (SPP)

Procedure:

1 Connect the laptop to a technician switch port.

2 Start the **ESU Launchpad Control** application, and run the ESU Launchpad tool by clicking **Start ESU backend**.

3 When **ESU Backend Status** shows `Started`, click **Start ESU GUI**.

4 Log on to the ESU interface by using the upgrade role.

User name: `upgrade`

Password: `upgrade`

5 Ensure that the connection is properly bridged by performing the following actions:

a Ensure that the LAN connection of your physical Ethernet adapter is bridged and configured properly to access the upgraded CMSS.

b Ensure **VMnet1 LAN** connection is bridged.

c Ensure **VMnet8 LAN** and all other available connections are **not** bridged.

d Ensure that only one physical Ethernet adapter is used for connection with CMSS.

1 Check ESU LP virtual machine network settings.

2 Ensure that only one physical Ethernet adapter used for connection with CMSS is selected. If there are other adapters present in the list, clear them.

6 Navigate to the **Discovery page**.

7 Add a CMSS instance for the chosen customer and click **Save**.

8 Click **Add** and perform the following actions:

a In the Manage ESXI elements window, enter `target ESXI IP Address`

where `target ESXI IP Address` is the IP address of ESXI on the CMSS being upgraded.

ESXI address follows the **TC IP + 1** rule in the last octet.

Step example:
TC IP: 172.21.0.**1**

ESXI IP: 172.21.0.**2**

b Enter the ESU LP RHEL IP Address.

IMPORTANT: This address should belong to the same subnet as the laptop on which the ESU LP is installed. The address is assigned to the LP RHEL virtual machine during the discovery process.
Example:

Laptop: 172.21.0.38

LP RHEL: 172.21.0.39

NOTICE: If you want to upgrade several CMSSs in the network, the IP should be unique for each CMSS. This is to avoid conflict between OPA agents from VMs on different CMSSs during discovery and upgrade processes.
If some CMSSs were previously upgraded by using LP, perform a re-discovery process for all CMSSs with new IP addresses for each CMSS before upgrading them, to avoid conflicts with OPA agents.

c Enter Netmask/Gateway for the ESU LP address added in step 8b.

NOTICE: Configure the Netmask/Gateway to communicate to ESXI.
The Netmask/Gateway must be the same as the Netmask/Gateway of the laptop.

d Click **Submit**.

9 Select the CMSS instance to be discovered, and click **Discover**.

10 When the **Confirm Discovery Configuration** screen appears, click **Yes**.

11 Verify the registered agents by performing the following actions:

a Navigate to the **Inventory** screen.

b Verify that all the agents (**uis01**, **sysadv01**, **tc01**, **mnis01**) are registered and showing `active` under the ESXi folder.

c Verify that the validation status is `Success`.

12 Navigate to the **Upgrade Composer** tab.

13 Upgrade the Applications on the Capacity Max System Server from R2.10.x to M2020.01 by performing the following actions:

a Click **Browse**, and locate the `cmss_upgrade_application_M2020.01.x.iso`

b Click **Upload and Compose**.

NOTICE: The Status columns of the Upload Software table display the progress of the upload and processing of the files. The process takes approximately 20 to 30 minutes.

c When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**.

d When the upload is complete, navigate to the application upgrade bundle tab section, and click **Execute** to start upgrading the ESU CM, TC, VRC Gateway, and SA applications.

NOTICE: The upgrade process takes approximately 60 to 90 minutes.
If the SMA Upgrade verification step **failed**, contact Motorola Service to obtain a Software Maintenance Agreement license and apply it through Radio Management (RM), then try to upgrade again (no rollback is needed).

If the application upgrade failed, follow the section Rolling Back a CMSS Application Upgrade (M2020.01) on page 84 to reverse the upgrade.

If the application upgrade failed, do **not** proceed with ESXI hypervisor upgrade.

14 Apply Windows MotoPatch on the CMSS by performing the following actions:

a Click **Browse** and locate the `Motopatch_2020.01.xx.iso`

b Click **Upload and Compose**.

NOTICE: The Status columns of the Upload Software table display the progress of the upload and processing of the files. The process takes approximately 10 to 15 minutes.

c When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**.

d When the upload is complete, navigate to the **Motopatch Upgrade** tab, and click **Execute**.

NOTICE: Windows Patches take between 60 and 90 minutes to install. MNIS restarts twice.

15 Upgrade the ESXi hypervisor on the CMSS from R2.10.x to M2020.01 by performing the following actions:

a Click **Browse**, and locate the `cmss_upgrade_hypervisor_M2020.01.x.iso` file.

b Click **Upload and Compose**.

NOTICE: The Status columns of the Upload Software table display the progress of the upload and processing of the files. The process takes approximately 10 to 15 minutes.

c When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**.

d In the **ESXi 6.x License Key String** section, provide a valid license key received from Motorola and click **Create**.

e When the upload is complete, navigate to the Hypervisor Upgrade bundle tab section, and click **Execute**.

f When status displays `Waiting (1 out of 5)`, click **Open**.

g In the **Shutdown all virtual machines** row, click **Run**.

h When complete, click **Back** to the **Upgrade Player Dashboard** and click **Execute**. Wait for the upgrade to complete.

NOTICE: If ESXi hypervisor upgrade failed, follow Rolling Back Failed ESXi Hypervisor Upgrade (M2020.01) on page 85 to reverse the upgrade.

16 Upgrade the HP Firmware on the CMSS from R2.10.x to M2020.01 by performing the following actions:

a Click **Browse**, and locate the `cmss_upgrade_firmware_M2020.01.x.iso`.

b Click **Upload and Compose**.

c When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**.

d When the upload is complete, navigate to the SPP Upgrade tab section, and click **Execute**.

e When status displays `Waiting (1 out of 4)`, click **Open**, and in the **Power off virtual machines** row, click **Run**.

f Acknowledge the pop-up message and wait for the process to complete. When complete, click **Back** to the **Upgrade Player Dashboard**, and click **Execute**.

NOTICE: The upgrade process takes approximately 30 to 45 minutes. If the firmware (SPP) upgrade failed, follow Rolling Back Failed HP Firmware Upgrade on page 86 section to reverse the upgrade.

17 When the upgrade is complete, log out of the ESU interface.

18 Navigate to the **ESU Launchpad Control** application GUI.

19 Click **Stop ESU Backend** and wait for the **ESU backend status** to show `Stop`.

20 To close the ESU Launchpad control application, click **Quit**.

5.3 Rolling Back a CMSS Application Upgrade (M2020.01)

Follow these steps to roll back an upgrade of an application on the Capacity Max System Server (CMSS).

Perform the procedure in one of the following cases:

- After a failed upgrade of the Trunk Controller (TC), System Advisor (SysAdv), MNIS, or ESU VM,
- After the primary CMSS is upgraded to M2020.01 and configured, it is possible to test the functionality of M2020.01 features on the upgraded device. If the performance is unsatisfactory, a rollback to the R2.10.x versions of the CMSS applications is possible.

The process takes approximately 5 to 10 minutes.

Procedure:

1 Connect the laptop to the CMSS technician switch port.

2 Start the ESU Launchpad Control application, and run the ESU Launchpad tool by clicking **Start ESU backend**.

3 When **ESU Backend Status** shows `Started`, click **Start ESU GUI**.

4 Log into the ESU interface using the upgrade role.

User name: `upgrade`

Password: `upgrade`

5 Select the last upgraded tab.

6 If rollback on the upgrade failed, locate the failed application, and perform the following suggested Application rolling back failure actions:

a Under Rollback Phase, locate the Failed application (TC,MNIS, SysAdv, or ESU) under **Revert Application Snapshot** and select **Open → Run**.

b When the rollback status appears as `Completed`, click **Back**.

c If more than one application has failed, repeat step 6a for each application.

d When failed rollback completes, skip to step 8.

7 For CMSS system rollback, perform the following actions:

a Under Rollback Phase, locate **Revert Trunk Controller (TC) Snapshot** and select **Open → Run**.

b When the rollback status appears as `Completed`, click **Back**.

c Under Rollback Phase, locate **Revert System Advisor (SysAdv) Snapshot** and select **Open → Run**.

d When the rollback status appears as `Completed`, click **Back**.

e Under Rollback Phase, locate **Revert MNIS Snapshot** and select **Open → Run**.

f When the rollback status appears as `Completed`, click **Back**.

g Under Rollback Phase, locate **Revert ESU (UIS) Snapshot** and select **Open → Run**.

h When the rollback status appears as `Completed`, click **Back**.

8 When the rollback is complete, log out of the ESU interface.

9 Navigate to the **ESU Launchpad Control** application GUI.

10 Click **Stop ESU Backend** and wait for the **ESU backend status** to show `Stop`.

11 To close the ESU Launchpad control application, click **Quit**.

5.4 Rolling Back Failed ESXi Hypervisor Upgrade (M2020.01)

Follow these steps to revert a failed ESXi Upgrade procedure.

The process takes approximately 10 to 20 minutes.

Procedure:

1 Connect the laptop to the CMSS technician switch port.

2 Start the **ESU Launchpad Control** application, and run the ESU Launchpad tool by clicking **Start ESU backend**.

3 When **ESU Backend Status** shows `Started`, click **Start ESU GUI**.

4 Log into the ESU interface by using the upgrade role.

User name: `upgrade`

Password: `upgrade`

5 Select the last upgraded tab.

6 Locate the failed steps and their details of the operator rollback ID, and perform the suggested rolling back failure actions.

7 When the rollback is complete, log out of the ESU interface.

8 Navigate to the **ESU Launchpad Control** application GUI.

9 Click **Stop ESU Backend** and wait for the **ESU backend status** to show `Stop`.

10 To close the ESU Launchpad control application, click **Quit**.

5.5 Rolling Back Failed HP Firmware Upgrade

There are six rollback scenarios for the SPP upgrade. Some of the tasks may require the system to remain in maintenance mode. The process takes approximately 10 to 20 minutes.

Procedure:

1 Connect the laptop to the CMSS technician switch port.

2 Start the **ESU Launchpad Control** application, and run the ESU Launchpad tool by clicking **Start ESU backend**.

3 When **ESU Backend Status** shows `Started`, click **Start ESU GUI**.

4 Log into the ESU interface by using the upgrade role.

User name: `upgrade`

Password: `upgrade`

5 Select the last upgraded tab.

6 Locate the failed steps and their details of the operator rollback ID, and perform the suggested rolling back failure actions.

7 When the rollback is complete, log out of the ESU interface.

8 Navigate to the **ESU Launchpad Control** application GUI.

9 Click **Stop ESU Backend** and wait for the **ESU backend status** to show `Stop`.

10 To close the ESU Launchpad control application, click **Quit**.

Chapter 6

Capacity Max System Upgrade from M2020.01 to M2020.02

This chapter provides high-level guidelines for backward compatibility and upgrade for MOTOTRBO Capacity Max system from M2020.01 to M2020.02. This includes backward compatibility issues and the recommended order of system component upgrades.

For the system setup details, see *Capacity Max System Planner* and the *Installation and Configuration Manual* for MOTOTRBO Capacity Max.

If the current system operates on R2.10.x, the procedure defined in Capacity Max System Upgrade from R2.10.0 to M2020.01 on page 79 must be performed before upgrading to M2020.02.

6.1 Installing ESU Launchpad on User Laptop (M2020.02)

The M2020.02 upgrade requires a new ESU Launchpad (LP) version.

Prerequisites:

1 To obtain the ESU Launchpad, perform one of the following actions:

- Order MOTOTRBO Capacity Max System Server SW Update Launch Pad (Part Number T8486A), which contains the new ESU LP software files on a DVD.
- If you have the MSI MyView portal access, you can order MOTOTRBO Capacity Max System Server SW Update Launch Pad (Part Number T8483A) and receive an email with a unique link to access the ESU LP application files from the MyView portal. The T8483A requires an e-mail address at the time of order.

NOTICE: The DVD (T8486A) takes 2–3 weeks to be delivered, while the downloadable MyView portal file (T8483A) is available within a week. It is recommended to include the time taken for the package to be delivered into planning.

NOTICE: The ESU Launchpad **About** page describes the target CMSS supported versions. Please ensure that the appropriate ESU Launchpad version is ordered along with the CMSS upgrade installation files.

2 Ensure that the laptop meets the following minimum system requirements:

- Operating System: Windows 10
- Processor: 64-bit x 86 Intel Core i7-4800MQ or equivalent
- 8 GB RAM
- 80.5 GB of free disk space
- 1000 Mbps Ethernet adapter
- Antivirus software
- Antimalware software

3 Disable hibernation and sleep mode on the laptop. For instructions, see the Windows documentation of your operating system.

4 Ensure that the ESU Launchpad user interface launches automatically in the default browser.

NOTICE: The web browser must support HTML5 and File API. Use a version equal to or greater than Chrome 39, IE11, or Firefox 29.

5 Enable Virtualization Technology (VT) in the BIOS of your laptop.

NOTICE: Running ESU Launchpad without VT enabled is not possible, as a 64-bit virtual machine cannot be powered on. For more information, see the VMware website. For instructions on how to enable the VT, see the vendor documentation.

6 Prepare the VMware Workstation Player commercial license key.

Procedure:

1 Perform one of the following actions:

- Insert the ESU Launchpad media into the DVD drive and launch `mysetup.exe`.
- Download the ISO file from MyView Portal on the laptop used to perform the CMSS upgrade, mount it as a virtual DVD or extract the ISO content, and launch `mysetup.exe`.

2 When prompted, enable the VT, and click **Next**.

3 To install Motorola Solutions ESU Launchpad, click **Install**.

VMware Workstation 15 Player Setup Wizard appears.

4 In the **VMware Workstation 15 Player Setup** window, click **Next** and perform one of the following actions:

If...	Then...
If prompted with a window containing Repair and Remove options,	perform the following actions: **a** Click **Cancel** and confirm that you want to stop the VMware Workstation installation. **b** Exit the **VMware Workstation 15 Player Setup** by clicking **Finish**.
If prompted with a window containing the VMware Workstation 15 Player License Agreement,	perform the following actions: **a** Accept the license agreement and click **Next**. **b** Progress through the installer by following the on-screen instructions. It is recommended not to install any additional VMware features during this setup. **c** Clear all the feature check boxes that you see in the installer windows. **d** When the installation is complete, click **License**. **e** Enter the license key and click **Enter**. **f** Click **Finish**.

If your OS does not contain the required version of Microsoft Visual C++, **Microsoft Visual C++ Setup Wizard** window appears.

5 Accept the license conditions and click **Install**.

Wait for the ESU Launchpad to finish the installation process.

The **OVFtool.exe** command line window appears, where you can view the progress of ESU LP virtual machine deployment.

WARNING: Do not interrupt the virtual machines deployment.

6 Monitor the progress of the **Setup - Motorola Enhanced Software Update Launchpad** window, then click **Finish** when completed.

The ESU Launchpad icon is created on the desktop.

6.2 Changing Default Passwords for ESU-CM and ESU-LP

Procedure:

1 Log on to ESU by using the **Admin** credentials.

2 In the menu on the left-hand side of the screen, click **Users/Credentials**.

3 From the list in the center of the screen, choose a role for which you want to change the password, and click **Change Password** in the appropriate row.

4 In a pop-up window, type a new password, confirm it, and click **Change Password**.

5 Log on to ESU by using the new credentials.

6.3 Upgrading Capacity Max Server from M2020.01 to M2020.02

Prerequisites:
Perform the following actions:

1 Install the ESU Launchpad. See Installing ESU Launchpad on User Laptop (M2020.02) on page 87.

2 If you use Capacity Max System Server (CMSS) deployed before R2.10 or earlier, obtain Software Maintenance Agreement license from Motorola Service and apply it through Radio Management (RM) to upgrade applications.

3 Upgrade the Capacity Max System to M2020.01. See Capacity Max System Upgrade from R2.10.0 to M2020.01 on page 79.

4 For each CMSS, perform one of the following actions:

- Order MOTOTRBO M2020.02 Capacity Max System Server SW Upgrade (Part Number T8765A) which contains the `CVN7293C.zip` file loaded on a USB drive.

  NOTICE: The ESXi license is not included in the USB `CVN7293C.zip`.

- If you have the MSI MyView portal access, you can order MOTOTRBO M2020.02 Capacity Max System Server SW Upgrade (Part Number T8766A) and receive an e-mail with a unique link to access the `CVN7293C.zip` file from the MyView portal. The T8766A requires an e-mail address at the time of order.

5 Extract the zip file and store it on the laptop used to perform the CMSS upgrade. All files from the extracted location are referenced to perform the upgrade.

NOTICE: The USB drive (T8765A) takes 2–3 weeks to be delivered, while the downloadable MyView portal file is available within a week. It is recommended to include the time taken for the package to be delivered into planning.

NOTICE: Upgrade sequence impacts related dependency. The following is the suggested sequence of upgrades:

1 Application
2 MotoPatch (windows security)
3 Hypervisor (ESXi)

Procedure:

1 Connect the laptop to a technician switch port.
2 Start the **ESU Launchpad Control** application, and run the ESU Launchpad tool by clicking **Start ESU backend**.
3 When **ESU Backend Status** shows `Started`, click **Start ESU GUI**.
4 Log on to the ESU interface by using the upgrade role.

   User name: `upgrade`

   Password: `upgrade`
5 Ensure that the connection is properly bridged by performing the following actions:
   a Ensure that the LAN connection of your physical Ethernet adapter is bridged and configured properly to access the upgraded CMSS.
   b Ensure **VMnet1 LAN** connection is bridged.
   c Ensure **VMnet8 LAN** and all other available connections are **not** bridged.
   d Ensure that only one physical Ethernet adapter is used for connection with CMSS.
      1 Check ESU LP virtual machine network settings.
      2 Ensure that only one physical Ethernet adapter used for connection with CMSS is selected. If there are other adapters present in the list, clear them.
6 Navigate to the **Discovery page**.
7 Add a CMSS instance for the chosen customer and click **Save**.
8 Click **Add** and perform the following actions:
   a In the Manage ESXI elements window, enter `target ESXI IP Address`

      where `target ESXI IP Address` is the IP address of ESXI on the CMSS being upgraded.

      ESXI address follows the **TC IP + 1** rule in the last octet.

      Step example:
      TC IP: 172.21.0.**1**

      ESXI IP: 172.21.0.**2**

b Enter the ESU LP RHEL IP Address.

IMPORTANT: This address should belong to the same subnet as the laptop on which the ESU LP is installed. The address is assigned to the LP RHEL virtual machine during the discovery process.
Example:

Laptop: 172.21.0.38

LP RHEL: 172.21.0.39

NOTICE: If you want to upgrade several CMSSs in the network, the IP should be unique for each CMSS. This is to avoid conflict between OPA agents from VMs on different CMSSs during discovery and upgrade processes.
If some CMSSs were previously upgraded by using LP, perform a re-discovery process for all CMSSs with new IP addresses for each CMSS before upgrading them, to avoid conflicts with OPA agents.

c Enter Netmask/Gateway for the ESU LP address added in step 8b.

NOTICE: Configure the Netmask/Gateway to communicate to ESXI.
The Netmask/Gateway must be the same as the Netmask/Gateway of the laptop.

d Click **Submit**.

9 Select the CMSS instance to be discovered, and click **Discover**.

10 When the **Confirm Discovery Configuration** screen appears, click **Yes**.

11 Verify the registered agents by performing the following actions:

a Navigate to the **Inventory** screen.

b Verify that all the agents (**uis01**, **sysadv01**, **tc01**, **mnis01**) are registered and showing `active` under the ESXi folder.

c Verify that the validation status is `Success`.

12 Navigate to the **Upgrade Composer** tab.

13 Upgrade the Applications on the Capacity Max System Server from M2020.01 to M2020.02 by performing the following actions:

a Click **Browse**, and locate the `cmss_upgrade_application_M2020.02.x.iso`

b Click **Upload and Compose**.

NOTICE: The Status columns of the Upload Software table display the progress of the upload and processing of the files. The process takes approximately 20 to 30 minutes.

c When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**.

d When the upload is complete, navigate to the application upgrade bundle tab section, and click **Execute** to start upgrading the ESU CM, TC, VRC Gateway, and SA applications.

NOTICE: The upgrade process takes approximately 60 to 90 minutes.
If the SMA Upgrade verification step **failed**, contact Motorola Service to obtain a Software Maintenance Agreement license and apply it through Radio Management (RM), then try to upgrade again (no rollback is needed).

If the application upgrade failed, follow the section Rolling Back a CMSS Application Upgrade (M2020.01) on page 84 to reverse the upgrade.

If the application upgrade failed, do **not** proceed with ESXI hypervisor upgrade.

14 Apply Windows MotoPatch on the CMSS by performing the following actions:

a Click **Browse** and locate the `cmss_upgrade_motopatch_M2020.02.x.iso`

b Click **Upload and Compose**.

NOTICE: The Status columns of the Upload Software table display the progress of the upload and processing of the files. The process takes approximately 10 to 15 minutes.

c When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**.

d When the upload is complete, navigate to the **Motopatch Upgrade** tab, and click **Execute**.

NOTICE: Windows Patches take between 60 and 90 minutes to install. MNIS restarts twice.

15 Upgrade the ESXi hypervisor on the CMSS from M2020.01 to M2020.02 by performing the following actions:

a Click **Browse**, and locate the `cmss_upgrade_hypervisor_M2020.02.x.iso` file.

b Click **Upload and Compose**.

NOTICE: The Status columns of the Upload Software table display the progress of the upload and processing of the files. The process takes approximately 10 to 15 minutes.

c When **Motorola Solutions, Inc. End User License Agreement** screen appears, read the terms and conditions, and click **Accept**.

d When the upload is complete, navigate to the Hypervisor Upgrade bundle tab section, and click **Execute**.

e When status displays `Waiting (1 out of 5)`, click **Open**.

f In the **Shutdown all virtual machines** row, click **Run**.

g When complete, click **Back** to the **Upgrade Player Dashboard** and click **Execute**. Wait for the upgrade to complete.

NOTICE: If ESXi hypervisor upgrade failed, follow Rolling Back Failed ESXi Hypervisor Upgrade (M2020.02) on page 93 to reverse the upgrade.

16 When the upgrade is complete, log out of the ESU interface.

17 Navigate to the **ESU Launchpad Control** application GUI.

18 Click **Stop ESU Backend** and wait for the **ESU backend status** to show `Stop`.

19 To close the ESU Launchpad control application, click **Quit**.

6.4 Rolling Back a CMSS Application Upgrade (M2020.02)

Follow these steps to roll back an upgrade of an application on the Capacity Max System Server (CMSS).

Perform the procedure in one of the following cases:

- After a failed upgrade of the Trunk Controller (TC), System Advisor (SysAdv), MNIS, or ESU VM,
- After the primary CMSS is upgraded to M2020.02 and configured, it is possible to test the functionality of M2020.02 features on the upgraded device. If the performance is unsatisfactory, a rollback to the M2020.01 versions of the CMSS applications is possible.

The process takes approximately 5 to 10 minutes.

Procedure:

1 Connect the laptop to the CMSS technician switch port.

2 Start the ESU Launchpad Control application, and run the ESU Launchpad tool by clicking **Start ESU backend**.

3 When **ESU Backend Status** shows `Started`, click **Start ESU GUI**.

4 Log into the ESU interface using the upgrade role.

User name: `upgrade`

Password: `upgrade`

5 Select the last upgraded tab.

6 If rollback on the upgrade failed, locate the failed application, and perform the following suggested Application rolling back failure actions:

a Under Rollback Phase, locate the Failed application (TC,MNIS, SysAdv, or ESU) under **Revert Application Snapshot** and select **Open → Run**.

b When the rollback status appears as `Completed`, click **Back**.

c If more than one application has failed, repeat step 6a for each application.

d When failed rollback completes, skip to step 8.

7 For CMSS system rollback, perform the following actions:

a Under Rollback Phase, locate **Revert Trunk Controller (TC) Snapshot** and select **Open → Run**.

b When the rollback status appears as `Completed`, click **Back**.

c Under Rollback Phase, locate **Revert System Advisor (SysAdv) Snapshot** and select **Open → Run**.

d When the rollback status appears as `Completed`, click **Back**.

e Under Rollback Phase, locate **Revert MNIS Snapshot** and select **Open → Run**.

f When the rollback status appears as `Completed`, click **Back**.

g Under Rollback Phase, locate **Revert ESU (UIS) Snapshot** and select **Open → Run**.

h When the rollback status appears as `Completed`, click **Back**.

8 When the rollback is complete, log out of the ESU interface.

9 Navigate to the **ESU Launchpad Control** application GUI.

10 Click **Stop ESU Backend** and wait for the **ESU backend status** to show `Stop`.

11 To close the ESU Launchpad control application, click **Quit**.

6.5 Rolling Back Failed ESXi Hypervisor Upgrade (M2020.02)

Follow these steps to revert a failed ESXi Upgrade procedure.

The process takes approximately 10 to 20 minutes.

Procedure:

1 Connect the laptop to the CMSS technician switch port.

2 Start the **ESU Launchpad Control** application, and run the ESU Launchpad tool by clicking **Start ESU backend**.

3 When **ESU Backend Status** shows `Started`, click **Start ESU GUI**.

4 Log into the ESU interface by using the upgrade role.

User name: `upgrade`

Password: `upgrade`

5. Select the last upgraded tab.
6. Locate the failed steps and their details of the operator rollback ID, and perform the suggested rolling back failure actions.
7. When the rollback is complete, log out of the ESU interface.
8. Navigate to the **ESU Launchpad Control** application GUI.
9. Click **Stop ESU Backend** and wait for the **ESU backend status** to show `Stop`.
10. To close the ESU Launchpad control application, click **Quit**.