RF Mesh
Network Device
Upgrade Guide

Publication: 98-1290 Rev AK

Landis+
Gyr+

Limitation on Warranties and Liability

Information in this document is subject to change without notice. This manual or any part of it thereof may not be reproduced in any form unless permitted by contract or by written permission of Landis+Gyr.

In no event will Landis+Gyr be liable for any incidental, indirect, special, or consequential damages (including lost profits) arising out of or relating to this publication or the information contained in it, even if Landis+Gyr has been advised, knew, or should have known of the possibility of such damages.

RF Mesh Network Device Upgrade Guide			
98-1290 Rev AK			
Revision History			
Modification Date	**Revision**	**Description**	**Author**
05/01/2019	AK CC7.4	Released	Kim Utesch
09/04/2018	AJ CC7.2	Released	Kim Utesch
12/12/2017	AI CC7.2	Released	Kim Utesch
08/23/2016	AH CC7.0	Released	Kim Utesch
02/25/2016	AG	Customer Special Edition	Kim Utesch
01/13/2016	AG	Released CC 6.5	Kim Utesch
12/04/2014	AF	Command Center 6.3 (added detail surrounding HAN Init)	Jake Harsha
6/19/2014	AE	Command Center 6.2 (Appendix added for Japanese Market)	Jake Harsha
7/31/2013	AD	Updates to DHES and Release-Specific Deviations in support of Command Center 6.0	Jake Harsha
3/15/2013	AC	First Adobe FM revision (formerly in MS Word) in support of Command Center 6.0	Jake Harsha
© 2013-2019 Landis+Gyr | All rights reserved.			

Contact Us:

Landis+Gyr technical support:
1-888-390-5733
solutionsupport.na@landisgyr.com

To provide feedback about this documentation, contact the Technical Documentation team at:
ustechnicaldocumentation@landisgyr.com.

Table of Contents

1

Introduction

General

The **RF Network Device Upgrade Guide** describes important information regarding the process used to upgrade network devices during a Command Center or firmware release.

This document supports Command Center Version 7.0 and later.

This document explains the following:

- "Single Headend Upgrade" on page 9.
- "Dual Headend Upgrade" on page 17.
- "Release-Specific Deviations" on page 25.
- "Detailed Broadcast Instructions" on page 43.
- "Upgrading Best Practices" on page 47.
- "Monitoring Firmware Upgrades" on page 49.
- "Japanese Devices" on page 53.
- "Best Practices for Over the Air Meter Reprogramming" on page 59.

2
Single Headend Upgrade

Standard Installation Order Steps for Command Center (Single Headend)

The following steps detail the steps that should be followed for a standard Command Center (single host) release. Please reference release notes provided with the release package to determine the specific firmware version numbers that should be used.

ⓘ **NOTE:** See "Release-Specific Deviations" on page 25 determine if a deviation to these steps is necessary.

See "Upgrading Best Practices" on page 47 and incorporate into appropriate installation procedure(s).

See "Detailed Broadcast Instructions" on page 45 for details supporting broadcast steps in the Standard and Deviation Installation Order sections.

ⓘ **NOTE: Contact Landis+Gyr about the correct order of your Gas and Water Firmware upgrade.**

Table 2 - 1. Standard Installation Order Checklist for Command Center (Single Headend)

Order Number	Step	Completed
1	Command Center Installation/Upgrade	
2	Import HFZ Files	
3	Upgrade Collector Firmware	
4	Upgrade Collector Radio Firmware	
5	Upgrade Router Communication Module Firmware	
6	Upgrade Router DCW	
7	Upgrade Mesh Extender Communication Module Firmware	
8	Upgrade Mesh Extender DCW	

**Table 2 - 1. Standard Installation Order Checklist for
Command Center (Single Headend) (Continued)**

Order Number	Step	Completed
9	Upgrade Meter Communication Module Firmware	
10	Upgrade Meter DCW	
11	Upgrade Meter Metrology Firmware	
12	Upgrade Meter ZigBee (HAN) Firmware	

Command Center Installation/Upgrade

Any new releases of Command Center should be applied prior to any other firmware updates. The CCIS/GSIS Integration Suite should also be updated, if provided.

Import HFZ Files

After the new release of Command Center has been installed, import the HFZ files provided by Landis+Gyr. HFZ files contain the firmware necessary for the endpoints.

There are five types of HFZ files:

- Collector code
- Communication Module Firmware
- DCW
- ZigBee (HAN) Firmware
- Meter Metrology Firmware

Following is the procedure for importing the HFZ Files into Command Center.

1. From Command Center home, select **Setup > Firmware > Collector**.   The Collector Firmware window will open, displaying a list of the collector firmware that are currently available in the Command Center database.

Collector Firmware

Name	Version	Description
	6.20	Use with SBC firmware version 2.12.0.35 or later
	5.12	Use with SBC firmware version 2.11.0.25
Collector_4.8.6.0	4.8.6.0	Collector Firmware import
Collector_4.7.6.0_PLGSA_EXP20220731	4.7.6.0	Collector Firmware import
Collector_4.7.14.0	4.7.14.0	Collector Firmware import
Collector_4.7.12.0	4.7.12.0	Collector Firmware import

Figure 2 - 1: Collector Firmware Page

2. Click the **Import** button. The Import Firmware page will open.

Figure 2 - 2: Import Collector Firmware

3. Click the **Browse…** button to navigate to the location of the firmware file.

4. Select the firmware HFZ file and click **Open**. The Import Firmware screen will refresh displaying the selected HFZ file in the Firmware Package File window.

5. Click **Import**.

   The Collector Firmware screen will refresh displaying the new collector code.

6. Repeat steps above for Router and Electric meter communication module firmware HFZ file on the **Setup > Firmware > Communication Module** page.

7. Repeat steps above for two-way gas module firmware HFZ file on the **Setup > Firmware > Communication Module** page.

8. Repeat steps above for two-way water module firmware HFZ file on the **Setup > Firmware > Communication Module** page.

9. Repeat steps for DCW HFZ file on the **Setup > Firmware > DCW** page.

10. Repeat steps for ZigBee (HAN) firmware HFZ file on the **Setup > Firmware > HAN** page.

11. Repeat steps for metrology firmware HFZ file on the **Setup > Firmware > Meter Firmware** page.

Upgrade Collector Firmware

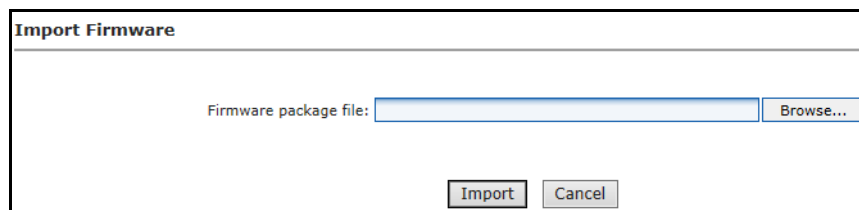Next, upgrade all of the collectors with the latest collector firmware. Following is the procedure for upgrading collector firmware in Command Center.

1. From Command Center home, select **Setup > Collectors**. The Manage Collectors window will open.

Figure 2 - 3: The Manage Collectors Window

2. Select the desired collector.

3. Select the **Manage** tab.

4. From the **Commands to Issue** drop-down list, select the **Collector Firmware Update** command.

5. The **Choose Firmware** drop-down box will be displayed, select the new firmware from the list.

6. Click **Send**.

Upgrade Collector Radio Firmware

Next, upgrade all of the collector radios with the latest firmware version. Following is the procedure for upgrading collector radio firmware.

NOTE: In recent versions of Command Center, the DCW will automatically be sent to collector radios for upgrade following recognized collector radio firmware upgrade. Otherwise, the user will need to upgrade DCW using RadioShop or Command Center for collector radios.

To upgrade collector radio firmware, perform the following steps:

1. Log in to Command Center.

2. Navigate to the **Setup > Collectors** page.

3. Select a collector name.

4. Navigate to the **General Settings** page.

5. Select the collector radio number link in the **Collector Radios** section. The Collector Radio Information window will be displayed:

Figure 2 - 4: Collector Radio Information Window

6. Select the **Manage** tab.

Figure 2 - 5: Issue Endpoint Command

7. Select the **Endpoint Firmware Download** command.

8. Select the **Module Firmware** version

9. Select the **Send** button.

10. Repeat for each collector radio.

Upgrade All Network Devices

Perform all network device upgrades in the order specified in Table 2 - 1 on page 9.

There are multiple ways to upgrade network devices:

Issue a Broadcast Command

To broadcast upgrade commands to network devices, perform the following steps.

(i) **NOTE:** See "Upgrading Best Practices" on page 49 and "Detailed Broadcast Instructions" on page 45 for more information.

(i) **NOTE:** Upgrades can also be performed via RadioShop (point-to-point) but that method is not within the scope of this document.

1. Navigate to the **Network > Endpoints > Broadcast Commands** page and select the **Endpoint Firmware Download** command.

2. Select the desired device from the **Endpoint Model** drop-down list.

3. Select the filter **Module Firmware** version

4. Select the filter **DCW** version.

5. Select the **Collector(s)**.

6. Select the target **New Firmware to Send** version.

7. Select **Send** button.

Issue a Group Command

To send upgrade commands to groups of network devices in Command Center, perform the following steps.

1. Navigate to the **Network > Endpoints > Electric Group Commands** page to send firmware to one or multiple virtual addressing groups.

2. Select the **Virtual Addressing Group**.

3. Select the **Endpoint Firmware Download** command.

4. Select the **Module Firmware** version from the drop-down list.

5. Select the **Send** button.

Issue a Point-to-Point Command

To perform point-to-point updates to a single network device in Command Center, perform the following steps.

1. Navigate to the **Endpoint Information > Manage** page for the route and select the **Endpoint Firmware Download** command.

2. Select the **Module Firmware** version from the drop-down list.

3. Select the **Send** button.

Upgrade Router Module Firmware

Next, upgrade the Router Module Firmware by one of the following methods.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Router DCW

Next, upgrade the Router DCW by one of the following methods.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Mesh Extender DCW

Next, upgrade the Mesh Extender DCW by one of the following methods.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Meter Module Firmware

Next, upgrade the Meter Module Firmware by one of the following methods.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Meter DCW

Next, upgrade the Meter DCW by one of the following methods.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Meter Metrology Firmware

Next all of the applicable Landis+Gyr meters should have their meter firmware updated to the latest version. The meter firmware can be updated using Command Center for Focus AX Modular and CENTRON meters. The meter firmware for Focus AX Integrated meters is automatically updated when the module firmware is updated there no additional steps are necessary.

Upgrade the Meter Metrology Firmware by one of the following methods.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

All other Landis+Gyr meter types not listed above should be updated using 1132Com.

NOTE: When meter metrology firmware is upgraded to a new version (or when upgrading the modular firmware in an integrated meter/module), a new HAN Init command will be sent automatically by Command Center to the endpoint module, notifying it of the new configuration. Once the new Metrology firmware is downloaded to the meter, the module firmware will cause the ZigBee firmware to stop sending usage data to the HAN device. This is to stop the ZigBee firmware from sending erroneous data to the HAN device. **In such cases, the firmware will not send data to the HAN device from the time of the metrology firmware upgrade until the new HAN Init command is received by the module from Command Center.**

NOTE: Whenever the meter program is changed, either over the air or locally, the endpoint will behave the same as when the metrology firmware is upgraded (the meter will stop communicating with the HAN device until it receives a HAN Init command from Command Center).
See Landis+Gyr Publication BP-00141 for more information on the HAN Init process.

Upgrade Meter ZigBee (HAN) Firmware

Next all of the meters should have their ZigBee (HAN) firmware updated to the latest version using one of the following methods.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.

- Group Command. See "Issue a Group Command" on page 14.

- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Two-Way Gas Module Firmware

ⓘ   **NOTE: Contact Landis+Gyr about the correct order of your Gas and Water Firmware upgrade.**

Next, all of the applicable Landis+Gyr two-way gas modules should have their module firmware updated to the latest version. The firmware is sent to the parent device and the parent device sends the firmware to the associated gas modules(s). Use one of the following methods.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.

- Group Command. See "Issue a Group Command" on page 14.

- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Two-Way Water Module Firmware

ⓘ   **NOTE: Contact Landis+Gyr about the correct order of your Gas and Water Firmware upgrade.**

Next, all of the applicable Landis+Gyr two-way water modules should have their module firmware updated to the latest version. The firmware is sent to the parent device and the parent device sends the firmware to the associated water module(s). Use one of the following methods.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.

- Group Command. See "Issue a Group Command" on page 14.

- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

ⓘ   **NOTE:** All water modules must be updated to water FW v2.0 or higher before the electric parent is updated.

Any water module deployed with the old FW v1.37 will not get to Normal if it is a new install into Command Center 7.0. They must be updated to FW v2.0 before installation. These will default to the new Water Config Group B.

Command Center FW v2.0 broadcast to existing water modules must be completed before the electric parent is updated with the new SNR code. The last step would be moving existing modules to Water Config Group B so they can be reconfigured. We suggest doing this after the module goes Normal, the electric parent is updated, and the module is communicating with the parent.

3
Dual Headend Upgrade

LANDIS⁺|Gyr

Standard Installation Order Steps for Command Center (Dual Host Headend)

The following steps detail the steps that should be followed for a standard Command Center (dual host) release. Please reference release notes provided with the release package to determine the specific firmware version numbers that should be used.

ⓘ **NOTE:** See "Release-Specific Deviations" on page 25 determine if a deviation to these steps is necessary.

See "Upgrading Best Practices" on page 47 and incorporate into appropriate installation procedure(s).

See "Detailed Broadcast Instructions" on page 45 for details supporting broadcast steps in the Standard and Deviation Installation Order sections.

⇨ **IMPORTANT:** *Contact Landis+Gyr about the correct order of your Gas and Water Firmware upgrade.*

Table 3 - 1. Standard Installation Order Checklist for Command Center (Dual Headend)

Order Number	Step	Completed
1	Command Center Installation/Upgrade	
2	Import HFZ Files	
3	USC Installation/Upgrade	
4	Upgrade Collector Firmware	
5	Upgrade Collector Radio Firmware	
6	Upgrade Concentrators/MicroCell Controllers Module Firmware	
7	Upgrade Concentrators/MicroCell Controllers Firmware	

**Table 3 - 1. Standard Installation Order Checklist for
Command Center (Dual Headend) (Continued)**

Order Number	Step	Completed
8	Upgrade Concentrators/MicroCell Controllers DCW	
9	Activate Concentrators/MicroCell Controllers Firmware	
10	Upgrade Router Communication Module Firmware	
11	Upgrade Router DCW	
12	Upgrade Mesh Extender Communication Module Firmware	
13	Upgrade Mesh Extender DCW	
14	Upgrade Meter Communication Module Firmware	
15	Upgrade Meter DCW	
16	Upgrade Meter Metrology Firmware	
17	Upgrade Meter ZigBee (HAN) Firmware	

Command Center Installation/Upgrade

Any new releases of Command Center should be applied prior to any other updates. The CCIS/GSIS Integration Suite should also be updated, if provided.

⚠️ **WARNING: Command Center must be populated with the firmware and DCW HFZ files for any firmware/DCW that is currently active in the network. Active refers to the firmware/DCW that is currently installed on devices. If the active firmware is not populated in Command Center, options for upgrading to new firmware/DCW versions will not be available.**

Import HFZ Files

After the new release of Command Center has been installed, import the HFZ files provided by Landis+Gyr. HFZ files contain the firmware necessary for the endpoints.

There are five types of HFZ files:

- Collector code
- Communication Module Firmware
- DCW
- ZigBee (HAN) Firmware
- Meter Metrology Firmware

The procedure to import HFZ files into Command Center is outlined below.

1. From Command Center home, select **Setup > Firmware > Collector**.   The Collector Firmware window will open, displaying a list of the collector firmware that are currently available in the Command Center database.

Collector Firmware

Name	Version	Description
☐	6.20	Use with SBC firmware version 2.12.0.35 or later
☐	5.12	Use with SBC firmware version 2.11.0.25
☐ Collector_4.7.6.0_PLGSA_EXP20220731	4.7.6.0	Collector Firmware import
☐ Collector_4.7.14.0	4.7.14.0	Collector Firmware import
☐ Collector_4.7.12.0	4.7.12.0	Collector Firmware import
☐ Collector_4.7.10.0_PLGSA_EXP20220731	4.7.10.0	Collector Firmware import

Figure 3 - 1. The Collector Firmware Window

2. Click the **Import** button. The Import Firmware window will open.

Import Firmware

Firmware package file: [   ] Browse…

Import   Cancel

Figure 3 - 2. The Import Firmware Window

3. Click the **Browse…** button to navigate to the location of the firmware file.

4. Select the firmware HFZ file and click **Open**. The Import Firmware screen will refresh displaying the selected HFZ file in the Import Firmware window.

5. Click **Import**.

    The Collector Firmware screen will refresh displaying the new collector code.

6. Repeat steps for communication module firmware HFZ file on the **Setup > Firmware > Communication Module** page.

7. Repeat steps for two-way gas modules firmware HFZ file on the **Setup > Firmware > Communication Module** page.

8. Repeat steps for two-way water module firmware HFZ file on the **Setup > Firmware > Communication Module** page.

9. Repeat steps for DCW HFZ file on the **Setup > Firmware > DCW** page.

10. Repeat steps for ZigBee (HAN) Firmware HFZ file on the **Setup > Firmware > HAN** page.

11. Repeat steps for metrology firmware HFZ file on the **Setup > Firmware > Meter Firmware** page.

UtiliNet Solution Center (USC) Installation/Upgrade

Any new releases of UtiliNet Solution Center should be applied prior to any other updates.

Upgrade Collector Firmware

Next, all of the collectors should be updated with the latest collector firmware. Following is the procedure for upgrading collector firmware in Command Center.

1. From Command Center home, select **Setup > Collectors**. The Manage Collectors window will open.

Figure 3 - 3. The Manage Collectors Window

2. Select the desired collector.

3. Select the **Manage** tab.

4. From the **Commands to Issue** drop-down list, select the **Collector Firmware Update** command.

5. The **Choose Firmware** drop-down box will be displayed, select the new firmware from the list.

6. Click **Send**.

Upgrade Collector Radio Firmware

Next, all of the collector radios firmware should be updated with the latest firmware version. Following is the procedure for upgrading collector radio firmware.

NOTE: In recent versions of Command Center, the DCW will automatically be sent to collector radios for upgrade following recognized collector radio Firmware upgrade. Otherwise, the user will need to upgrade DCW using RadioShop or Command Center for collector radios.

Perform the following steps to upgrade the collector radio firmware.

1. Log in to Command Center.

2. Navigate to the **Setup > Collectors** page.

3. Select a collector name.

4. Navigate to the **General Settings** page.

5. Select the collector radio number link in the **Collector Radios** section. The Collector Radio Information window will be displayed:

Gridstream RF Endpoint Information
Meter #**M2155087008**   Endpoint S/N **2155087008(807404A0)**

Status: Normal [View History]
Model: RF Series 5 Collector Head End

Collector: Row4 West Series 5 GAP - Layer: 0

Latitude: n/a Longitude: n/a
WAN Address: 3D.B8.E5.E7.C8.44
IP Address: n/a

General | Manage | History | Security

Latest Signal Quality	0.00	**Latest Phase**	
Initial Programming	7/1/2015 9:34:32 AM [Transaction Log]	**Last Programming**	
DCW Version	09.56.0011	**Module Firmware Version**	09.57
Last Good Packet		**Firmware Download Status**	Success
Pending Firmware Version			
Will Be Activated On		**High Speed Capable**	True
High Speed Enabled	True	**Grid Location**	
Custom #1		**Pole Number**	
Custom #2		**Meter Position**	
Map Location		**Service Location**	

Figure 3 - 4. Collector Radio Information Tab

6. Select the **Manage** tab.

General | Manage | History | Security

Issue Endpoint Commands

Issue Commands [Endpoint Firmware Download ▼]
Module Firmware [▼]

Firmware Activation
⦿ Immediately
○ On this date: [   ] 🗓 [12:00 AM] ⬍

☐ Use Infrastructure Routing

[Send]

Endpoint Events and Commands ⦿ 7 ○ 30 ○ 90 days   Meter Logs
Results limited to 100 rows, so full timeframe may not be reflected.
No commands were issued during the specified period.

Figure 3 - 5. Issue Endpoint Command

7. Select the **Endpoint Firmware Download** command.

8. Select the **Module Firmware** version

9. Select the **Send** button.

10. Repeat for each collector radio.

Upgrade Concentrator/MicroCell Controller (MCC) Module Firmware

Next, upgrade all concentrators and MicroCell controllers module firmware to the latest version.

Command Center 5.7 or higher version supports concentrators and MicroCell controllers.

ⓘ   **NOTE:** MCC will register in Command Center with an endpoint model of concentrator.

There are multiple ways to perform this task to update the module firmware.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.

- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Concentrator/MCC Firmware

Next, all of the concentrators and MCCs should have their firmware updated to the latest version. Live System Upgrade (LSU) is the tool to use for this update.

Please verify that the firmware has been upgraded prior to completing the next step.

Upgrade Concentrator/MCC DCW

Next all of the concentrators/MCCs should have their DCW version updated to the latest version. There are multiple ways to perform this task.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Activate Concentrator/MCC Firmware

Next, all concentrators and MCCs should have their firmware activated.

Upgrade Router Module Firmware

Next, all of the routers should have their module firmware updated to the latest version. There are multiple ways to perform this task.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Router DCW

Next, all of the routers should have their DCW updated to the latest version. There are multiple ways to perform this task.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Mesh Extender Module Firmware

Next all of the Mesh Extenders should have their communication module firmware updated to the latest version. There are multiple ways to perform this task.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
  - Group Command. See "Issue a Group Command" on page 14.
  - Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Mesh Extender DCW

Next all of the Mesh Extenders should have their DCW updated to the latest version.There are multiple ways to perform this task.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Meter Module Firmware

Next all of the meters should have their communication module firmware updated to the latest version. There are multiple ways to perform this task.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Meter DCW

Next all of the meters should have their DCW updated to the latest version. There are multiple ways to perform this task.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Meter Metrology Firmware

Next all of the applicable Landis+Gyr meters should have their meter firmware updated to the latest version. The meter firmware can be updated using Command Center for Focus AX Modular and CENTRON meters. The meter firmware for Focus AX Integrated meters is automatically updated when the module firmware is updated there no additional steps are necessary. There are three ways to perform meter metrology firmware updates.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

All other Landis+Gyr meter types not listed above should be updated using 1132Com.

NOTE: When meter metrology firmware is upgraded to a new version (or when upgrading the

modular firmware in an integrated meter/module), a new HAN Init command will be sent automatically by Command Center to the endpoint module, notifying it of the new configuration. Once the new Metrology firmware is downloaded to the meter, the module firmware will cause the ZigBee firmware to stop sending usage data to the HAN device. This is to stop the ZigBee firmware from sending erroneous data to the HAN device. **In such cases, the firmware will not send data to the HAN device from the time of the metrology firmware upgrade until the new HAN Init command is received by the module from Command Center.**

Upgrade Meter ZigBee (HAN) Firmware

Next all of the meters should have their ZigBee (HAN) firmware updated to the latest version. There are three ways to perform this task.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Two-Way Water Module Firmware

Next, all of the applicable Landis+Gyr two-way water meters should have their module firmware updated to the latest version. The firmware is sent to the parent device and the parent device sends the firmware to the associated water module(s). There are three ways to perform this command.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

Upgrade Two-Way Gas Module Firmware

Next, all of the applicable Landis+Gyr two-way gas meters should have their module firmware updated to the latest version. The firmware is sent to the parent device and the parent device sends the firmware to the associated gas meter(s). There are three ways to perform this command.

- Broadcast Command. See "Issue a Broadcast Command" on page 13.
- Group Command. See "Issue a Group Command" on page 14.
- Point-to-Point Command. See "Issue a Point-to-Point Command" on page 14.

4

Release-Specific Deviations

Overview

This section contains all deviations to the standard installation order process.

1. **Upgrading From 42x Communication Module Firmware**. See details on page 26.

    If upgrading meter or mesh extenders from 42x version of communication module firmware, they must be upgraded to 5.18 version before upgrading to any version higher than 5.18.

2. **For Command Center 5.6+, Design Process Modifications for HAN Enabled Meters**. See details on page 26.

    This deviation applies to environments with Command Center 5.6 or higher.

    This deviation covers changes to the ZigBee HAN firmware and Meter Communication Module Firmware including a new command **HAN: Initialization**.

    The ZigBee HAN firmware must be upgraded in a specific order to avoid critical communication issues with the HAN module, or between the meter and HAN devices.

    The HAN: Initialization command must be sent to all HAN-enabled meters including those with and without an Active HAN.

3. **Installing/Upgrading to Command Center 5.5 or Higher**. See details on page 34.

    This deviation is to be followed under the following two scenarios of installing/upgrading Command Center:

    *   Installing (not upgrading) Command Center 5.5 or higher

    *   Upgrading from Command Center Pre-5.5 to 5.5 or higher

4. **Upgrading to 7.xx or Higher Firmware/DCW**. See details on page 34.

    If upgrading meters from firmware/DCW versions of 6.xx or prior to versions 7.xx or higher, and Command Center is 5.5.x or higher, then there is a deviation to the standard installation order.

5. **Dual-Headend Customer Upgrading from any Concentrator Firmware Version Less than 6.0 to 8.5x or Higher Concentrator Firmware.** See details on page 37.

    Once a customer has followed this process to move from any firmware version less than 6.0 to 8.5x or higher firmware, the standard Dual-Headend upgrade process applies.

6. **Upgrading to Firmware 9.5x or Higher/DCW**. See details on page 38.

With the introduction of Over-The-Air programming (OTA), the Protocol Data Unit Cyclical Redundancy Check (PDU CRC) calculation of OTA supporting firmware now uses the Tariff ID and Misc ID when upgrading to firmware/DCW version 9.54 or later. In order to prevent mass reconfigurations during point-to-point or broadcast upgrades, one meter from each unique meter combination must be seeded in the database.

- When upgrading meters from Endpoint Firmware/DCW versions of 9.2x or prior to versions 9.5x or higher and Command Center is 6.4.x or higher, there is a deviation to the standard upgrade process. This deviation includes a prerequisite followed by overall seeding process of all meters in conjunction with their associated programs. The steps prior to and following this deviation are defined in the standard installation order and any other applicable deviations.

Upgrading From 42x Communication Module Firmware

Any Focus AL meter, Focus AX modular meter and mesh extenders with 42x module firmware should first install 5.18 firmware. After 5.18 firmware has been installed, then the desired target firmware version should be installed. Any other endpoints with 42x firmware can upgrade directly to desired target firmware.

Additionally, broadcast functionality is not available for any meters on 42x module firmware. This feature was added in the 5.x firmware version.

For Command Center 5.6+, Design Process Modifications for HAN-Enabled Meters

This deviation applies to environments with Command Center 5.6 or higher. This deviation covers changes to the ZigBee HAN firmware and meter communication module firmware including a new command: **HAN: Initialization**. The ZigBee HAN firmware must be upgraded in a specific order to avoid critical communication issues with the HAN module, or between the meter and HAN devices. The HAN: Initialization command must be sent to all HAN-enabled meters Regardless of whether or not they currently have an active or non-active Home Area Network.

ⓘ **NOTE:** HAN Initialization is only required to be successfully issued to a meter one time. An exception to this rule is if the meter's program is modified. How HAN Initialization is handled following meter program modification is described in later section.

Summary of this Deviation:

1. Design Changes
2. Firmware Upgrade and HAN Initialization Process
   a. Verify Meter Programs
   b. Send HAN Initialization Command
      i. Active HANs
      ii. Non-Active HANs
      iii. HAN Commands Prior to HAN Initialization

       iv. HAN-ready meters via ETM

    3. Impact and Risk Assessment

Design Changes

Command Center 5.6 introduced the changes in ZigBee HAN Firmware and Communication Module Firmware including a new HAN: Initialization command. Below describes the purpose and benefits of these changes.

Improved Design for Communication of kWh/Instantaneous Demand to IHDs

To resolve an issue with incorrect meter usage information being communicated to in-home devices (IHDs) resulting from some ESI-incompatible meter/meter program combinations, a new HAN Initialization command has been implemented.

This new HAN Initialization command is triggered from Command Center to the meter. The main goal of the HAN Initialization is to communicate the specific meter program details to the communication module firmware that then allows the ZigBee HAN firmware to correctly extract the Summation, Demand, and other specific details from the meter.

This modification allows the Energy Service Interface to flexibly adjust its meter information collection process to work with any meter or meter program, with exception of situations where multiplier/divisor calculations are handled in a system outside of the meter, such as the MDM.

Modularity for Energy Service Interface Firmware

All HAN-enabled meters with firmware prior to System Release 5.6 share HAN firmware code between multiple processors, not just the ZigBee communication module. As a result, new firmware for features/defect fixes requires upgrading both AMI and ZigBee communication modules. A new interface was developed between the AMI Communications Processor/Module and the ZigBee module that eliminates many of the previous firmware interdependencies.

Firmware Upgrade and HAN Initialization Process

Verify Meter Programs

   (i)   **NOTE:** Complete this step before proceeding to start any firmware/DCW/ZigBee/metrology firmware upgrade for any meters.

All meter programs for HAN-enabled meters should have simple testing to verify the correct delivery of Demand and Summation information between meter and HAN devices. Additionally, if a meter program is changed at any point after this initial verification, it should be re-verified.

For a very limited number of meter programs, it is possible for an incompatibility to exist between the meter program configuration and the meter's HAN module (due to Smart Energy Profile 1.x standard limitation) that could result in communication of incorrect Summation or Demand being sent to the HAN devices. To emphasize, this is expected to be very limited.

Test Procedure:

1. This test should be performed in a non-production environment (test/meter shop).

2. Ensure that meter is on firmware platform released with Command Center 5.6 or higher.

3. Upgrade the meter with the meter program to be tested (using Command Center or 1132Com).

4. Register meter with Command Center 5.6 or higher.

5. Send HAN Initialization command. This will automatically occur following Confirm Registration or SetWan on Command Center 5.7 MR2 or higher. Otherwise, issue command to meter via the Endpoint Information screen.

6. Provision the HAN device.

7. Pair the HAN device to the meter.

8. Verify kW and kWh readings on the HAN device match the readings from the meter using the On Demand Read command (or 1132Com or ETM).

9. If an incompatibility of readings exists, do not proceed. Contact Landis+Gyr Customer support for recommendation.

Send HAN Initialization Command

HAN Initialization is only required to be successfully issued to a meter one time. An exception to this rule is if the meter's program is modified. How HAN Initialization is handled following meter program modification is described in later section.

Active Home Area Networks

Upgrade ZigBee HAN firmware process for residential (FOCUS AX) and commercial (S4E3G) meters in the field with active HANs.

An active HAN is defined as a residential or commercial meter with a commissioned HAN network (commissioned network includes: a meter with a paired device, a meter where the provisioning window has been opened, or a meter where the HAN commission network has been executed).

ⓘ   **NOTE:** For active HANs, the HAN Initialization must be successfully completed before ZigBee HAN Firmware is upgraded. (Steps prior to- and following this are defined in the Standard Installation Order sequence and/or applicable additional deviations.)

1. **Active HAN Initialization Manual Command**; this method applies to "Active HANs" in the following scenarios:

    •   Meter exists with Active HAN in Command Center 5.6 through 5.7 MR 1.

    •   Meter exists with Active HAN prior to upgrade to Command Center 5.7 MR 2 or higher and environment is currently on version 5.7 MR 2 or higher.

ⓘ   **NOTE:** As of 5.7 MR 2, Command Center will automatically trigger HAN Initialization for new registering meters; thus as of 5.7 MR 2, meters should complete HAN Initialization while in a non-active HAN state. This is described further in the Non-Active HAN section below.

- To manually issue the HAN Initialization Command, a new command is available in Command Center on both the endpoint and group command screens (Note: This command is not broadcast-enabled.) A group-based "HAN: Initialization" command can be sent to a group of HAN-enabled meters (regardless of meter types and meter programs). Command Center checks each meter for the correct Command Center platform of communication module firmware (5.6 or higher) before sending.

2. **Active HAN Initialization Script**; this script is designed to operate as either a stand-alone script that can manually be initiated or it can be run in the background as an automated script:

   a. The active HAN Initialization Script will look for HAN capable meters that have a commissioned network, are in a state of normal or configure, and meet the minimum firmware configuration requirements (DCW, RF firmware, and metrology firmware) before a meter is selected to receive the HAN Initialization command.

   b. The active HAN Initialization script will put meters that meet the minimum conditions into a group to execute the HAN Initialization. The groups of meters will be placed into a state of configure and will be worked through the standard Command Center Reconfiguration RF process.

      - The default active HAN Initialization script will pull 20 meters per collector into the group for HAN Initialization each time the script is run.

> (i) **NOTE:** The number of meters per group as well as the number of collectors used by the active HAN Initialization Script is configurable to allow for a scalable solution for issuing the HAN Initialization Command.

   c. To confirm the HAN Initialization Command is successful, use a database query to determine meters with a commissioned network that meet the minimum conditions (DCW, RF Firmware, and Metrology Firmware) and have not completed HAN Initialization.

   d. If HAN Initialization is not successful, the meter will still be returned to a state of normal and the HAN Initialization command will be tried again by the active HAN Initialization Script.

3. All Commercial Meters (S4E3G) with an active home area network will require a reboot of the HAN device to allow the HAN device to request a demand multiplier/divisor value from the meter. The demand value may have changed as a result of the HAN Initialization command and a reboot of the HAN device is required to ensure that the HAN device will be able to display correct usage information. This action is specific to the commercial meters (S4E3G), and is only required to be done once.

> (i) **NOTE: Meter change outs for meters with an active HAN:** The HAN devices will need to be de-provisioned from the HAN and the network decommissioned prior to the meter change out. The HAN Initialization will need to be executed on the new meter before a HAN device can be re-commissioned. The process for new meters is described in following sections.

Non-Active HANs

There are 3 approaches to address meters with non-active HAN needing HAN Initialization. These approaches are explained below.

1. **Automated HAN Initialization Command**; this method applies to Command Center 5.7 MR 2 and higher. It only applies to meters that register in Command Center after 5.7 MR 2 or higher has been installed. Example: If meter registered in Command Center, then application was upgraded from 5.6 to 5.10, then meter will not qualify for this automated HAN Initialization method.

    a. Meter successfully responds to Confirm Registration or SetWAN Address command and transitions into Normal status.

    b. IF:

    - Meter communication module firmware is > 7.51...

    - AND meter is flagged for needing HAN Initialization...

    THEN:

    - Meter transitions into Configure status,

    - AND meter is flagged as Pending HAN Initialization.

    c. Reconfigure RF Process Setting starts and issues HAN Initialization command to the meter.

    d. IF meter responds successfully to HAN Initialization...

    THEN the meter transitions from Configure to Normal status.

NOTE: Security Reconfiguration and/or Module Reconfiguration could occur during/after the above steps but regardless, the automated HAN Initialization process will still occur. Example being if the meter goes through Module Reconfiguration prior to HAN Initialization, then automated HAN Initialization process will pick back up to attempt completion.

2. **User Initiated HAN Initialization Command**; this method applies to Command Center 5.6 or higher. This method can be used for non-active HANs in any of the following scenarios:

    - Meter registered in Command Center version prior to 5.7 MR 2 and environment is currently on version 5.7 MR 2 or higher

    - Meter registered in Command Center version prior to 5.7 MR 2 and environment is currently on version prior to 5.7 MR 2

NOTE: For "Non-Active HANs", the HAN Initialization can be completed either before or after ZigBee HAN Firmware is upgraded. (Steps prior to and following this are defined in the Standard Installation Order and/or applicable additional Deviations.)

To issue the HAN Initialization Command, a user can initiate via the Command Center endpoint and group command screens. (This command is not broadcast-enabled.) A group-based "HAN: Initialization" command can be sent to a group of HAN-enabled meters regardless of meter types and meter programs. Command Center checks each meter for the correct Command Center platform of communication module firmware (5.6 or higher) before sending.

3. **General Population HAN Initialization Script**; this method applies to Command Center 5.6 or higher. This method can be used for non-active HANs in any of the following scenarios:

- Meter registered in Command Center version prior to 5.7 MR 2 and environment is currently on version 5.7 MR 2 or higher.

- Meter registered in Command Center version prior to 5.7 MR 2 and environment is currently on version prior to 5.7 MR 2.

This database script is designed to operate as either a stand-alone script that can manually be initiated or it can be run in the background as an automated script. Reminder that it's recommended to proactively complete HAN Initialization on all meters so this script method is an option that has potential for more feasibility than user initiated HAN Initialization commands.

a. The General Population Initialization Script will look for HAN capable meters that are in a state of normal or configure and meet the minimum firmware configuration requirements (DCW, RF Firmware, and Metrology Firmware) before a meter is selected to receive the HAN Initialization command.

b. The General Population script will put meters that meet the minimum conditions into a group to execute the HAN Initialization. The groups of meters will be placed into a state of configure and will be worked through the standard Command Center re-configuration process.

- The default General Population HAN Initialization script will pull 20 meters per collector into the group for HAN Initialization each time the script is run.

NOTE: The number of meters per group as well as the number of collectors used by the General Population HAN Initialization Script is configurable to allow for a scalable solution for issuing the HAN Initialization command.

c. To confirm the HAN Initialization Command is successful, use a query to search and report on the Command Center database to determine meters with a commissioned network that meet the minimum conditions (DCW, RF firmware, and metrology firmware) and have not completed the HAN Initialization.

d. If HAN Initialization is not successful, the meter will still be returned to a state of normal and the HAN Initialization command will be tried again by the Active HAN Initialization Script.

HAN Commands Prior to HAN Initialization

If a meter is already upgraded to required firmware platform (Command Center 5.6 or higher), but has not received HAN Initialization command, and any HAN command is issued, then the following explains how to handle this situation using either Command Center GUI or the Gridstream Integration Suite.

Using the Command Center GUI

1. Command Center user initiates a Provision Device (or any HAN command).

2. The Provision Device command will fail, but the HAN Initialization process will automatically be triggered.

3. A message is displayed informing of the automated action of HAN Initialization process has been triggered.

4. The meter is automatically transitioned into Configure status and marked for needing HAN Initialization.

5. The Reconfigure RF Process runs, identifies the meters needing HAN Initialization and issues the command.

6. The Meter transitions back to Normal status (rather or not the HAN Initialization command was successful).

7. User can now re-initiate the HAN command (which failed Step 2).

Using the Gridstream Integration Suite

1. Command Center user initiates a Provision Device (or any HAN command).

2. The Provision Device command will fail, but the HAN Initialization process will automatically be triggered.

3. Integration message log indicates that the endpoint needs to be HAN Initialized first (prior to provisioning or any other HAN command).

4. The meter is automatically transitioned into Configure status and marked for needing HAN Initialization.

5. The Reconfigure RF Process runs, identifies the meters needing HAN Initialization and issues the command.

6. The Meter transitions back to Normal status (rather or not the HAN Initialization command was successful).

7. User can now re-initiate the HAN command (which failed Step 2).

HAN-Ready Meters Using Endpoint Testing Manager (ETM)

If utilizing HAN in a meter lab (or in the field) with ETM as the main communications interface, the meter must be initialized using Command Center with the HAN Initialization command before use with ETM to ensure correct usage information is provided from meter to In-Home Devices. ETM is not capable of supporting the HAN Initialization command.

Landis+Gyr is aware of the need for a HAN Initialization command within ETM for Black Box Testing during First Article Testing and Random Lot Sampling conducted by Landis+Gyr, our customers, and 3rd party testing services.

ETM version 5.6.6 and greater is designed specifically to address Black Box Testing by issuing a Dummy HAN Initialization Command to allow for the use of the Black Box. If any other testing of HAN is required above Black Box testing, Command Center must be used to send a HAN Initialization to the HAN to ensure correct Usage Information and other HAN functionality.   Once the meter is moved into a production environment, a HAN Initialization Command will need to be sent to the meter before the meter will be allowed to Commission a HAN Network by Command Center.

Impact and Risk Assessment

Plan for Minor Service Interruptions/Changes Within HAN.

1. If the process is followed as defined, end-users can expect the HAN to remain unaffected after each step, except for the following:

2. HAN communication between meter's ESI and HAN devices will not be available during normal module reboots that occur during firmware upgrade process. This reboot duration is typically under a couple minutes and occurs after full download of both Communication Module Firmware and ZigBee HAN firmware.

3. On Enhanced Meters, for devices that are in provision pending, the meters' join window will reset to 30 days when ZigBee HAN firmware upgrade completes. However, the reset join window duration status is not updated in Command Center. This results in discrepancy between Command Center and the meter. The reset join window will remain open in the meter for 30 days even if Command Center is displaying the join window as closed. After 30 days, the meter will close the reset join window if a HAN device has not finished joining the HAN.

4. In order for the firmware updates to be completed, the targeted modules must be rebooted.   During the reboot period of the modules, there is a possibility for the HAN device to receive invalid data for demand and or summation. The display may show incorrect usage information until valid data is received from the meter.   However, the historical consumption may display an incorrect value until it ages out of the display. This issue has been resolved in the Command Center 5.6 platform of HAN Module Firmware, but may be seen during the upgrade process.

HAN Functionality Impacts if Upgrade Process NOT Followed as Defined:

1. "Active HANs": If ZigBee HAN firmware is upgraded prior to communication module firmware, which is an invalid order, then any existing HANs will not be able to communicate with the meter. This is because the HAN Module will be held in "reset status" until the communication module firmware is upgraded. (Not following the proper order can have a higher impact the longer the delay in correcting the mistake.)

2. "Active HANs": If ZigBee HAN firmware is upgraded prior to communication module firmware, which is an invalid order, then DRLC, Price and Messaging state, and previously stored information will be lost and need to be resent after finishing the upgrade. (High Impact)

Downgrade of ZigBee and/or Communication Module Firmware:

If ZigBee HAN Firmware or Communication Module Firmware is downgraded, this will result in loss of connection to provisioned HAN devices. HAN devices will have to be re-provisioned to meters if firmware has been downgraded.

If Meter is Re-Programmed Over-the-Air Using Command Center:

1. Then the HAN Initialization will be automatically resent to all meters that previously received it. However, if the meter was not previously initialized via the HAN Initialization command, it will not be automatically issued thus a method described previously to trigger HAN Initialization is required.

ⓘ   **NOTE:** Whenever the meter program is changed, either over the air or locally, the endpoint will behave the same as when the metrology firmware is upgraded (the meter will stop communicating with the HAN device until it receives a HAN Init command from Command Center). See Landis+Gyr Publication BP-00141 for more information on the HAN Init process.

Installing/Upgrading to Command Center 5.5 or Higher

This deviation is to be followed under the following two scenarios of installing/upgrading Command Center:

- Installing (not upgrading) Command Center 5.5 or higher
- Upgrading from Command Center Pre-5.5 to 5.5 or higher

Perform the steps below to disable the Post Install process setting:

1. Get the environment to the 5.5 or higher level and do not start the Hunt Command Center Service.

2. Execute the following statement to disable the Post Install process:

   UPDATE PlanSchedules SET active = 0 WHERE planId = (SELECT planId FROM Plans WHERE name = 'Post Install Processes')

3. Confirm that the update was successful and commit changes.

4. Proceed with upgrade as planned (Hunt Command Center Service can now be started).

ⓘ   **NOTE:** The reason for these steps is explained further in Deviation #4.

ⓘ   **NOTE:** The Post Install Process setting will not need re-enabled.

Upgrading to 7.xx or Higher Firmware/DCW

When upgrading meters from firmware/DCW versions of 6.xx or prior to versions 7.xx or higher and Command Center is 5.5.x or higher, there is a deviation to the standard installation order. This deviation includes a prerequisite followed by overall upgrade process of DCW prior to communication module firmware on meters. The steps prior to- and following this deviation are those defined in the standard installation order and any other applicable deviations.

1. Prerequisite

2. Upgrade Meter DCW

3. Upgrade Meter Communication Module Firmware

Prerequisite

PDU CRC is supported in Command Center 5.5 and greater. This parameter is used to assist Command Center in tracking electric endpoint firmware and electric endpoint program changes. As of firmware version 7.xx and higher, packets from RF endpoints contain PDU CRC. This value is analyzed by Command Center, if it is different from what is previously on record, then Command Center will send the meter through the RF Reconfiguration process to request current Init Push data from the meter. Therefore, when a meter is upgraded from pre-7.xx firmware to 7.xx firmware or higher, this will result in the meter going through the Command Center RF Reconfiguration process.

The intent of the Post Install process setting was to utilize the Init Push data in Command Center from last Init Push or Get Endpoint Configuration command to calculate and

populate the PDU CRC. This would prevent the meter from having to go through the RF Reconfiguration process. However, some issues can be encountered with this process setting. Therefore, the recommendation is to disable the Post Install process as noted in Deviation #2 and follow the steps outlined in the pre-requisite of Deviation #3.

(i)   **NOTE:** Access to perform select and update statements against the central services database is required.

Table 4 - 1. Deviation #4 - Prerequisite Checklist

Order Number	Step	Completed
1	Validate that the Post Install process is Disabled as expected from Deviation #3	
2	Identify Unique Meter Programs	
3	Upgrade Meter DCW (limited)	
4	Upgrade Meter Communication Module Firmware (limited)	
5	Send Get Endpoint Configuration Command (limited)	
6	Upgrade Meter Metrology Firmware (limited)	
7	Send Get Endpoint Configuration Command (limited)	

Identify Unique Meter Programs

Identify the unique electric endpoint programs in Command Center database, and then locate the corresponding modular and integrated electric endpoint program.

1. In the Command Center central services database, execute the following queries:

- **Integrated Electric Endpoints**

  select emc.meterconfigurationid, emc.meterprogramfactorid, emc.meterprogramid, count(emc.endpointid)
  from endpointmeterconfiguration emc, endpoints e
  where e.endpointid = emc.endpointid and e.hwmodelid in (65555, 65563)
  group by emc.meterconfigurationid, emc.meterprogramfactorid, emc.meterprogramid;

- **Modular Electric Endpoints**

  select emc.meterconfigurationid, emc.meterprogramfactorid, emc.meterprogramid, count(emc.endpointid)
  from endpointmeterconfiguration emc, endpoints e
  where e.endpointid = emc.endpointid and e.hwmodelid not in (65555, 65563)
  group by emc.meterconfigurationid, emc.meterprogramfactorid, emc.meterprogramid;

A combination of meter configuration and programs are displayed. Table below shows a sample output.

Table 4 - 2. Sample Results

MeterConfigurationID	MeterProgramFactorID	MeterProgramID	Count(EndpointID)
13	4	17	1
18	9	20	1
15	6	18	2
21	12	21	1
17	8	18	1
20	11	10	1
14	5	18	1

2. Execute the following query for each electric endpoint configuration program combo per above results (Step 1) by replacing **:1**,**:2**,**:3**, etc.

    select emc.meterconfigurationid, emc.meterprogramfactorid, emc.meterprogramid, e.endpointid, e.serialnumber
    from endpointmeterconfiguration emc, endpoints e
    where e.endpointid = emc.endpointid and e.statuscodeid=8
    and emc.meterconfigurationid= **:1**
    and emc.meterprogramfactorid= **:2**
    and emc.meterprogramid= **:3** ;

    Sample output of results shown below.

Table 4 - 3. Sample Results

MeterConfigurationID	MeterProgramFactorID	MeterProgramID	EndpointID	Serial Number
15	6	18	118	1342778786

Upgrade Meter DCW (Limited)

Execute a limited meter DCW upgrade by targeted one meter from each of the meter program combos. Utilize the results from the Identify Unique Meter Programs section above to perform this step. Start the DCW upgrade to version 7.xx or greater using point-to-point command method through Command Center. (See Standard Installation Order for Dual or Single Headend System for detailed instructions.)

The DCW must be completely upgraded successfully to an endpoint prior to proceeding with next step of communication module firmware upgrade. Therefore, it is recommended to identify meters in Normal status with good two-way communication.

Upgrade Meter Communication Module Firmware (limited)

Execute a limited meter communication module firmware upgrade by targeted the same meters from step 3 that completed successful DCW upgrade. Start the FW upgrade to version 7.xx or greater using point-to-point command method through Command Center.

(See the Standard Installation Order for dual- or single-headend system as appropriate for detailed instructions.)

Endpoint firmware must be completely (and successfully) upgraded before proceeding with the next step.

Send Get Endpoint Config Command

Continuing to utilize the same meters upgraded above (but only the modular meters for this step) Issue the Get Endpoint Config command to module meters. This will obtain the Init Push and update the PDU CRC parameter for the meter, in Command Center (without sending the meter through the RF Reconfiguration process).

Upgrade Meter Metrology Firmware

Continuing to utilize the same meters upgraded above (but only modular meters for this step), upgrade meter metrology firmware for modular meters.

Send Get Endpoint Config Command

Continuing to utilize the same meters upgraded above (include *both* modular and integrated meters for this step), issue the Get Endpoint Config command to the meters. This will obtain the Init Push and update the PDU CRC parameter for the meter in Command Center (without sending the meter through the RF Reconfiguration process).

ⓘ   **NOTE:** This is the second issuance of Get Endpoint Configuration for modular meters in this pre-requisite phase. This is required because for modular meters may have change again after metrology firmware upgrade, the PDU CRC.

Dual-Headend Upgrading from 5.70 or lower 8.5x or Higher Concentrator Firmware.

This deviation applies to dual-headend environments upgrading from any concentrator firmware version less than 6.0 to 8.5x or higher concentrator firmware to support both BEP and Standard security (Command Center 6.0 or later). Failure to follow the order outlined in this deviation the concentrators can lose communications with USC.

Summary of this Deviation:

1. Install Command Center 6.x (or later).

2. Upgrade the firmware in ALL collectors.

3. Ensure that ALL collectors have the setting for **Data Message** set to **Informational**. This is the default, so it should not need to be changed but should still be checked.

4. Configure the new Concentrator Security Configuration Group to an group with **Open** security.

5. Upgrade the firmware and DCWs in ALL concentrators.

> ⚠ **WARNING: Any concentrators that don't have the new firmware and DCW will stop delivering reads and will not be reachable from USC if the Step 5 is not performed and completed before proceeding to Step 6.**

6. Once all of the concentrators are upgraded, switch the **Data Message** setting to **General Query** on ALL collectors.

7. If necessary, the Concentrator Security Configuration Group can then be switched to a **Standard** Security group.

Upgrading to Firmware 9.5x or Higher/DCW

When upgrading meters from Endpoint Firmware/DCW versions of 9.2x or prior to versions 9.5x or higher and Command Center is 6.4.x or higher, there is a deviation to the standard upgrade process. This deviation includes a prerequisite followed by overall seeding process of all meters in conjunction with their associated programs. The steps prior to and following this deviation are defined in the standard installation order and any other applicable deviations.

1. Get Tariff ID and Misc ID information via Small DCW

2. Identify Unique Meter Programs via SQL Query

3. Upgrade Meter DCW to limited scope via Point-to-Point Upgrade

4. Upgrade Meter Communication Module Firmware to limited scope via Point-to-Point Upgrade

5. Upgrade Meter Firmware (Metrology) to limited scope via Point-to-Point Upgrade

6. Issue Get Endpoint Configuration (GEC) to limited scope via Point-to-Point Upgrade

7. Restart Command Center Services

8. After previous steps are complete, then user may proceed to Broadcasting Firmware

DCW 9.5X incorporates the Tariff ID and Misc. ID into the PDUCRC calculation from Standard Table 06 on the meter. This implies that once the DCW is upgraded the PDUCRC for the device will change requiring the endpoint to go through re-configuration.

Get Tariff ID and Misc. ID Information

A Small DCW with two database queries can be requested from Landis+Gyr to assist in gathering the Standard Table 06 data from your meter population. This DCW can be sent via Command Center (point-to-point), or through a Command Center Broadcast. The queries will help in your analysis work on identifying you seed meters

Import Small DCW

1. Select **Setup > Import Small DCW**. Enable check-box for **This setting should be selected if the Small DCW invokes the AMR DCW on the devices.**

Broadcast Command

Import small DCW in Command Center using a Broadcast Command:

1. Select **Network > Endpoints > Broadcast Commands**.

2. Select **Send Small DCW** from the drop-down list.

3. Select the **Endpoint Model** from the drop-down list and select **GetTariffIDMiscID2**.

4. Set desired broadcast filter values: **ZigBee Capable**, **Module Firmware**, **Command Group**, **Collector(s)**, **Maximum Hops**, and **Maximum TTL**.

5. Click **Send**.

6. View Broadcast Command results:

   a. Select **Reporting > Command History Report**.

   b. Select the date that the broadcast was sent.

Figure 4 - 1. Command History Report

   c. Expand the Broadcast Commands to view details.

Figure 4 - 2. Command History Report

   d. Expand one of the targeted collectors and click on the Event Type link to view the events.

Figure 4 - 3. View Events

e. Select an individual Meter number to view the EIS page for the meter. Select the Readings tab and verify that TariffID in the ProgramID column, and MiscID values have been returned.

Figure 4 - 4. Readings Tab Confirmation

Point-to-Point Command

Import small DCW in Command Center using a Point-to-Point (P2P) command:

1. Select **Operations > Endpoints**. Enter a **Meter Number** and click **Go**. The EIS for the meter will open.

2. Click the **Manage** tab. Select **Send Small DCW** from the **Issue Commands** drop-down list. Select **GetTariffIDMiscID2**.

3. Click **Send**.

4. Click the **Readings** tab to view the results.

Figure 4 - 5. Readings Tab Confirmation

Verify that TariffID in the ProgramID column, and MiscID values have been returned.

Identify Unique Meter Programs

1. Run database query `Query1_DCWBroadCast_Final.sql` to get all unique meter combinations.

(i)   **NOTE:** Several date fields may need to be entered for specific broadcast dates.

Figure 4 - 6. Query

(i)   **NOTE:** In some expected cases, the Small DCW may return a blank/null miscID value. This is because that is the value that exists in the meter. See Figure 4 - 6.

2. Run database query `Query2_DCWBroadCast_Final.sql` to get a meter from each unique group to get upgraded in order to seed the database.

Figure 4 - 7. Query

Upgrade Meter DCW (Limited)

Execute a limited meter DCW upgrade by targeting one meter from each of the meter program combos, Utilizing the results from the Identify Unique Meter Programs section above. Start the DCW upgrade to version 9.5xx or greater using point-to-point command methods through Command Center or RadioShop.

(See "Standard Installation Order Steps for Command Center (Single Headend)" on page 9 or "Standard Installation Order Steps for Command Center (Dual Host Headend)" on page 17 for detailed instructions.)

The DCW must be completely upgraded successfully to an endpoint before proceeding with the communication module firmware upgrade. Therefore, it is recommended to identify meters in Normal status with good two-way communication.

Upgrade Meter Communication Module Firmware (Limited)

Execute a limited meter communication module firmware upgrade by targeted the same meters from the previous step that completed successful DCW upgrade. Start the FW upgrade to version 10.xx or greater using point-to-point command method through Command Center or RadioShop.

(See "Standard Installation Order Steps for Command Center (Single Headend)" on page 9 or "Standard Installation Order Steps for Command Center (Dual Host Headend)" on page 17 for detailed instructions.)

Endpoint firmware must be completely (and successfully) upgraded before proceeding with the next step.

Upgrade Meter Firmware (Metrology) (Limited)

Execute a limited meter communication module firmware upgrade by targeted the same meters from the previous step that completed successful DCW upgrade. Start the FW upgrade using point-to-point command method through Command Center or RadioShop.

(See "Standard Installation Order Steps for Command Center (Single Headend)" on page 9 or "Standard Installation Order Steps for Command Center (Dual Host Headend)" on page 17 for detailed instructions.)

Endpoint firmware must be completely (and successfully) upgraded before proceeding with the next step

Issue Get Endpoint Configuration

On each of the meters targeted earlier, send a **Get Endpoint Configuration** command. These commands can be issued from the **Manage** tab on each endpoint or through the **Endpoint Group Commands** page.
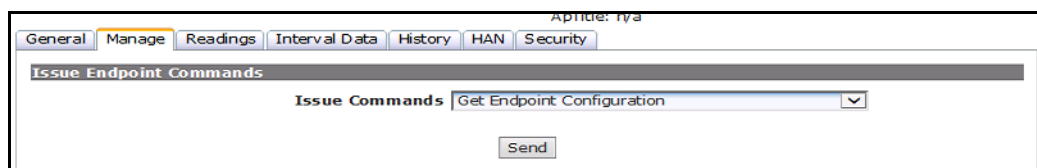

Figure 4 - 8. Get Endpoint Configuration Command

Restart Command Center Services

After all seed meters are completed a restart of Command Center services is required to ensure the cache on the application servers are refreshed.

5
Detailed Broadcast Instructions

LANDIS+Gyr+

Overview

The steps to initiate broadcast functionality (for Command Center 5.1 or higher) will be explained in this section. Previous sections explained installation orders. Later sections will explain best practices and monitoring of the broadcast.

The broadcast functionality can be reached by going to **Network > Endpoints > Broadcast Commands** window. (The user must have authority to navigate to **Network > Endpoints** in order to access this window.)

ⓘ **NOTE:** The **Send** button will be grayed out until all required fields have been selected.

Command

The user will be prompted to specify a broadcast command. The user must have access to the command to be able to select it for broadcasting.

ⓘ **NOTE:** Some commands require specific licenses to access. See the License Requirements table below.

Table 5 - 1. License Requirements

Broadcast Command	License Required
Gas Module firmware download	Gas Endpoints Support (RF)
Water Module firmware download	Water Endpoints Support (RF)
HAN: Firmware Download	Home Area Network

Endpoint Model

After a command has been selected, the user will be prompted to select an endpoint model. The endpoint model is required information. The **Endpoint Model** drop-down list will be populated with currently deployed models supported by this system and applicable to the command.

Broadcast Filter

If the command has additional options (for example, DCW version for DCW Download command), the user will be prompted to make a selection. The broadcast filter section will be displayed. The broadcast filter section allows the user to specify the criteria to target a population of endpoints. Not applicable for Water Firmware download.

Figure 5 - 1. The Broadcast Commands Window (Showing Broadcast Filter Section)

ZigBee Capable

The user may need to specify Yes or No in the **ZigBee Capable** drop-down list. If the target devices are ZigBee-capable, select **Yes**. If they do not support ZigBee, select **No**.

NOTE: For HAN-specific commands, **Yes** will be the default value and the only option. If the device does not support ZigBee (for example: a router), **No** will be the default value and the only option.

Module Firmware Version

The **Module Firmware** drop-down list is populated from the HFZ file imported via the **Setup > Firmware > Communication Module** page. If base versions are missing from the firmware list, please import the HFZ file, or if a specific version should be targeted.

Only Firmware versions that are applicable to the Endpoint Model selected will be displayed for selection. **All** is a valid selection.

When **DCW Download** command is selected, the module firmware version list will display compatible versions for the specified download version.

DCW Version

Compatible DCW versions applicable to the endpoint model selected will be displayed for selection.

The **DCW** drop-down list is populated from the HFZ file imported via the **Setup > Firmware > DCW** page. If base versions are missing from the DCW list, please import the HFZ file, or if a specific version should be targeted. **All** is a valid selection.

Collector

At least one **Collector** is required to issue a broadcast.

One or multiple collectors can be selected.

ⓘ   **NOTE:** The broadcast may actually reach additional collectors even though it is not selected. This may happen when an endpoint included in the original broadcast request can communicate with devices associated to another collector.

All collectors in Normal or Discovered status will be displayed for selection.

Select the **X** button to close the window to return to the broadcast page.

Command Group

One or multiple user-defined addressing groups can be selected for the broadcast. Command group selection is optional.

The number of groups that can be selected is displayed at the bottom right of the pop-up window.

The count available and the count selected will be displayed. For example: **[0/6]** indicates six groups can be selected and the user has not selected any groups.

Depending upon the security mode implemented in Command Center (Open, Standard, Advanced), the endpoint model selected and the firmware versions selected, the user can select a maximum of either 4 or 6 groups. **[4/4]** indicates four can be selected and the user has selected 4 groups. The value will appear in red font if the maximum number of groups has been selected.

Select the **X** button to close the window to return to the broadcast page.

Command Overrides

If the user is authorized to change the maximum hops and TTL (time to live) values, the commands override section will display on the page below the Broadcast Filter section.

By allowing the user to change these values, it will limit (or extend) the 'reach' of an individual broadcast, as needed.

⇨   *IMPORTANT: See "Execution and Planning Recommendations" on page 47 for more information on Maximum Hops and Maximum TTL value recommendations.*

The **Maximum Hops** value must be between **2** and **40**.

The **TTL** must be between **60** to **600** seconds.

Command Overrides

Maximum Hops 40   Maximum TTL 300   seconds   Maximum Segments 0

Figure 5 - 2. The Broadcast Commands Window (Command Overrides Section)

Number of Endpoints Matching Filter Criteria

When the user selects the **Send** button, a pop up window will display the count of endpoints that match the selection criteria. Select the **OK** button to continue with the broadcast.

Only endpoints in Normal status will be counted as target meters.

6
Upgrading Best Practices

Overview

This section includes best practices recommended in relation to upgrading versions of firmware for RF network devices.

Pre-Requisites

- Utilizing RadioShop, verify that the Disable Broadcasts bit is not enabled in a sample of meters. (By default the bit is NOT enabled.)

  RadioShop report navigation path: **RadioShop > Reports > Configuration > Radio**

- Utilizing RadioShop, verify that the 'Encrypt FW Download' bit is not enabled in a sample of meters. By default the bit is NOT enabled.

  RadioShop report navigation path: **RadioShop > Reports > Memory > Advanced > Encryption Contro**l

- Issue Get Endpoint Info (GEI) and Get Endpoint Config Commands (GEC) to every meter with unknown firmware and/or DCW versions prior to initiating upgrade. This is to ensure that the Command Center database is synchronized with the endpoints.

- Import all HFZ files into Command Center including present and target versions. HFZ Files are explained in the Standard Installation Order sections for single- and dual-headend systems.

  Command Center navigation path: **Setup > Firmware > Firmware Type**

- Measure key performance indicators before and during update of RF network device firmware versions.

  Load Profile/Interval Read Success %

  Midnight Register/Snap Read Success %

  Two-way Command Response Success %

Execution and Planning Recommendations

Broadcast commands may be issued to meters that are a member of a user defined addressing group or to any meter. Select **Network > Endpoints > Broadcast Commands**.

- Broadcasting to collectors which are relatively close to each other is not recommended as this generates redundant packets in the network. So it is recommended to run separate broadcasts for collectors that are in geographically close proximity (within two miles distance of each other).

- **Do NOT run parallel broadcasts.** Run broadcast to only one meter model type (model types: Focus Integrated, Modular Focus, S4e) and firmware at a time.

ⓘ **NOTE:** Multiple collectors can be selected in a single broadcast. Separate broadcasts have to be issued to meters with different firmware versions because the firmware filter option is a required field and doesn't let you select all the available Firmware versions.

- **Command Overrides**. Modify the following settings for each broadcast run:
  - **Maximum Hops**. Set this value to the maximum layers for the collector + 1.
    - To view current Maximum Hops setting, select **Collectors > Select the Target Collector > Statistics Tab > Max. Layer**.
  - **Maximum TTL**. The default setting for Maximum TTL is 300. Change this setting to **60** seconds.
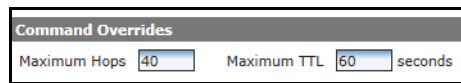
Figure 6 - 1. Command Overrides

- Evaluate success rate after each filtered broadcast, assessing the effectiveness of each pass.
  - Number of devices targeted
  - Number of devices updated
  - Number of devices failed to upgrade

- Broadcast method is recommended when attempting a overall system upgrade. It may be necessary to attempt subsequent (repeat) broadcasts. Continue with broadcast method until a manageable percentage of incomplete remain that can be resolved using other methods (point-to-point, group, RadioShop).

- For meters with communication module firmware versions lower than 7.08, a successful DCW upgrade is reported immediately after the upgrade. Due to this design, meters will all send their DCW Upgrade Success status immediately following broadcast. This will present a momentary spike in network traffic which may result in significant number of DCW Upgrade Success events not making it to the headend system. Therefore, Command Center may not properly reflect DCW version for some meters.

ⓘ **NOTE:** Landis+Gyr can provide a database script to reflect correct DCW version in Command Center.

7
Monitoring Firmware Upgrades

Overview

When broadcasting firmware downloads, there are multiple ways to monitor the process.
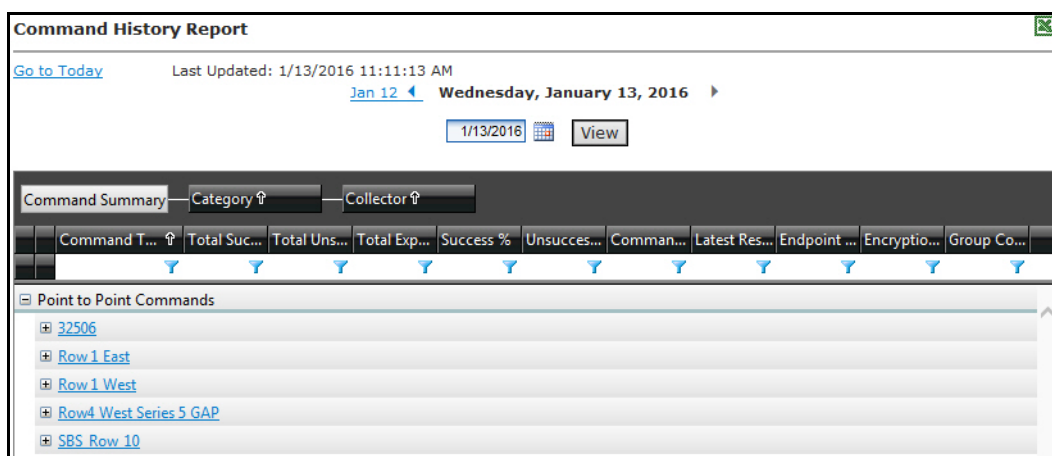
Command Center:

- Command History Report
- Log Viewer - Commands

RadioShop:

- Performance Information Report
- Downloadable Code Report
- Flash Download Progress Report

Command History Report

When a broadcast is run, a Command History report is available to view the overall success rate of the broadcast. The report can be reached by navigating to **Reporting > Command History Report**. Starting with Command Center 5.6 version, all firmware download commands are available on the report.

Figure 7 - 1. Command History Report

Report Date

When the report is run, the selected report date should equal the date the broadcast was initiated – not the completion date. The report is available as soon as the broadcast request is initiated.

Expected Count

When a broadcast request is initiated, Command Center will retrieve all of the endpoints that match the selection criteria (based on data stored in Command Center). The count will be stored in the **Expected** total on the Command History Report. Only endpoints in Normal status are included in the count.

The expected count will be link until responses are received. Selecting the count link allows the user to view the broadcast parameters (example shown below).
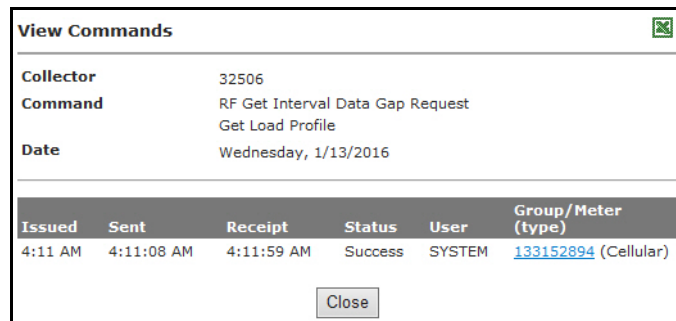
Figure 7 - 2. The View Commands Window

Total Count

As the broadcast command is completed, the Total count will be revised. The Total count will show all endpoints the broadcast attempted to update. Select the **Total** link to view the detail status of each endpoint, whether completed or failed. The latest response date/time will also be updated.

The Total count may be larger or smaller than the Expected count. Command Center firmware/DCW versions and the actual versions stored on the endpoint may not match. Tools like Endpoint Testing Manager can be used to upgrade the endpoint versions – this would cause the endpoint and Command Center to be out of synchronization.

Figure 7 - 3. The Command Summary Window

When the Total link is selected, the user can view all of the endpoints that responded to the request. The Details column will indicate Completed or Failed depending upon the response from the endpoint.

Export Endpoint Results (DCW Download)

Select the **Export to Excel** button to export information for all endpoints. If the DCW Download command was broadcast, all of the data returned (for example: DCW version) can be viewed in a Microsoft Excel spreadsheet.

Firmware Downloads

When firmware downloads (endpoint firmware, HAN firmware, metrology, gas and water module) are broadcast, the Command History report will show **Not Applicable** in the Total Count column. Firmware download commands do not return responses. Firmware downloads generate events. The list of endpoints included in the download won't be shown on the Command History report.

Firmware Download Statistics

By selecting a **Not Applicable** link, the user can view details surrounding the firmware broadcast including the following:

- Firmware Version downloaded
- First packet date/time
- Last packet date/time
- Download duration
- Count of packets sent
- Count of total packets that should be sent

Log Viewer - Commands

In Command Center, navigate to **Reporting > Log Viewer > Commands** and verify that the RF Module Start Firmware Download command is listed. This proves that the firmware download has started from Command Center. While the firmware download is in progress, the count next to Module Firmware Download Spread should increase by 1 for every 70 seconds (based on defaults).

Downloadable Code Report

On a sample of meters to which communication module firmware upgrade has been issued generate the Downloadable Code Report using RadioShop. Verify that the Flash Command Status on the report should be In Progress. This shows that the packets are being received by the meters.

- RadioShop navigation path:

    Reports > Advanced > Downloadable Code

Flash Download Progress Report

On a sample of meters to which communication module firmware upgrade has been issued generate the Flash Download Progress Report using RadioShop. The report should provide you the percentage of the firmware download complete information for the meters.

- RadioShop navigation path:

   Reports > Advanced > Flash Download Progress

Each bit in a tank byte corresponds to a broadcast packet. The **0**s indicate the broadcast packets received by the endpoint and **1**s specify the broadcast packet that needs to be received by an endpoint.

After all the firmware packets are sent to the endpoints if one of the bits is still set to 1 it indicates that the packet was not received by the endpoint and another broadcast will need issued to complete the endpoints upgrade.

Performance Information Report

At the end of each broadcast, ensure that there is no broadcast packet circulating in the network. This can be done by comparing the time stamp of the last broadcast packet sent from Command Center to the Time of Last Broadcast information obtained from a sample of meters.

- Command Center Navigation Path:

   Reporting > Log viewer > Commands

   ...or...

   Network > Command History Report

- RadioShop Navigation Path:

   Reports > Advanced > Performance Information

A
Japanese Devices

Standard Installation Steps for Japanese Market Devices

The following steps detail the steps that should be followed for Japanese Market devices. Please reference release notes provided with the release package to determine the specific firmware version numbers that should be used.

ⓘ **NOTE:** Read the Release-Specific Deviation Information section to determine if a deviation to these steps is necessary.

ⓘ **NOTE:** Read the Upgrading Best Practices section and incorporate into appropriate installation procedure(s).

ⓘ **NOTE:** Read the Detailed Broadcast Instructions section for details supporting broadcast steps in the Standard and Deviation Installation Order sections.

Table A - 1. Standard Installation Order Checklist for Japanese Market Devices
(Command Center Version 6.2 or Later)

Order Number	Step	Completed
1	Command Center Installation/Upgrade	
2	Import HFZ Files	
3	Upgrade Collector Code	
4	Upgrade Collector Radio Firmware	
5	Upgrade 920 Repeater Communication Module Firmware	
6	Upgrade Meter Communication Module Firmware	

Command Center Installation/Upgrade

Any new releases of Command Center should be applied prior to any other firmware updates. The CCIS/GSIS Integration Suite should also be updated, if provided.

Import HFZ Files

After the new release of Command Center has been installed, import the HFZ files provided by Landis+Gyr. HFZ files contain the firmware necessary for the endpoints.

There are two types of HFZ files:

1. Collector code

2. Communication Module Firmware

Following is the procedure for importing the HFZ Files into Command Center.

3. From Command Center home, select **Setup > Firmware > Collector**.   The Collector Firmware window will open, displaying a list of the collector firmware that are currently available in the Command Center database.

Collector Firmware		
Name	**Version**	**Description**
☐	6.20	Use with SBC firmware version 2.12.0.35 or later
☐	5.12	Use with SBC firmware version 2.11.0.25
☐ Collector_4.7.6.0_PLGSA_EXP20220731	4.7.6.0	Collector Firmware import
☐ Collector_4.7.14.0	4.7.14.0	Collector Firmware import
☐ Collector_4.7.12.0	4.7.12.0	Collector Firmware import
☐ Collector_4.7.10.0_PLGSA_EXP20220731	4.7.10.0	Collector Firmware import

Figure A - 1. Collector Firmware Window

4. Click the **Import** button. The Import Firmware window will open.

Import Firmware	
Firmware package file: [ ]	Browse...
Import Cancel	

Figure A - 2. Importing Collector Firmware

5. Click the **Browse…** button to navigate to the location of the firmware file.

6. Select the firmware HFZ file and click **Open**. The Import Firmware screen will refresh displaying the selected HFZ file in the Firmware Package File window.

7. Click **Import**.

The Collector Firmware screen will refresh displaying the new collector code.

8. Repeat steps above for communication module firmware HFZ file on the **Setup > Firmware > Communication Module** page.

Upgrade Collector Firmware

Next, all of the collectors should be updated with the latest collector firmware. Following is the procedure for upgrading collector firmware in Command Center.

1. From Command Center home, select **Setup > Collectors**. The Manage Collectors window will open.

Figure A - 3. The Manage Collectors Window

2. Select the desired collector.

3. Select the **Manage** tab.

4. From the **Commands to Issue** drop-down list, select the **Collector Firmware Update** command.

5. The **Choose Firmware** drop-down box will be displayed, select the new firmware from the list.

6. Click **Send**.

Figure A - 4. Upgrading Collector Firmware

Upgrade Collector Radio Firmware

Next, all of the collector radios firmware should be updated with the latest firmware version. Following is the procedure for upgrading collector radio firmware.

Procedure

Perform the following steps to upgrade the collector radio firmware.

1. Log in to Command Center.

2. Navigate to the **Setup > Collectors** page.

3. Select a collector name.

4. Navigate to the **General Settings** page.

5. Select the collector radio number link in the **Collector Radios** section. The Collector Information window will be displayed:

Figure A - 5. Collector Radio General Tab

6. Select the **Manage** tab.

   a. Select the **Endpoint Firmware Download** command.

   b. Select the **Module Firmware** version

Figure A - 6. The Gridstream RF Endpoint Information Window

7. Select the **Send** button.

8. Repeat for each collector radio.

Collector Group Commands

1. Select **Network > Collector Group Commands**. The Collector Group Commands screen will open.

Figure A - 7. Collector Group Properties

There are four options to Select the Collectors or Collector groups to issue the command to.

- **Collector Search**. Search for specific collectors using search criteria.

- **Collector(s)**. Enter a collector(s) name in the text field separated by commas or semicolons.

- **Collector Group Search**. Search for a specific collector group using search criteria.

- **Collector Group(s)**. Enter a collector group name(s) in the text field separated by commas or semicolons.

2. **Collector Search**. Select **Collector Search** and click **Select...** to open the **Collector Search Criteria** screen.

   a. Enter any search criteria and click **Search**. The results of the search are displayed.

Figure A - 8. Collector Search Criteria

   b. Check the collector(s) to receive the command, the name will appear in the **Selected Collectors** field.

   c. Click **OK**.

Figure A - 9. Selected Collector

...or...

Collector(s). Select the **Collector(s)** radio button and enter a collector name(s) in the text field.

...or...

Collector Group Search. Select **Collector Group Search** and click **Select...** to open the **Collector Group Search Criteria** screen.

a. Enter a **Collector Group Name** and click the **Search** button.

b. Check the collector(s) to receive the command, the name will appear in the **Selected Collectors** field.
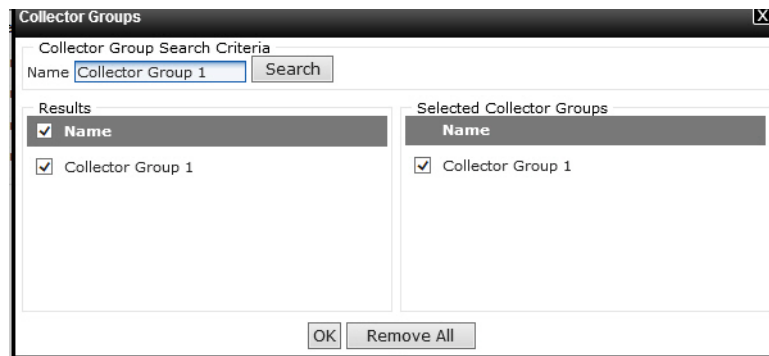
c. Click **OK**.

Figure A - 10. Collector Group Search Criteria

...or...

Collector Groups(s). Select the **Collector Group(s)** radio button and enter a collector group name(s) in the text field.

3. Select a **Command** to issue to your selected collector or group.

4. Click **Send**. The command response will be noted on the Collector(s) Manage tab or by selecting **Reporting > Log Viewer > Commands**.

Upgrade 920 Repeater Module Firmware

Next, all of the repeaters should have their module firmware updated to the latest version. There are multiple ways to perform this task: broadcast, groups of repeaters, or point-to-point. The following will explain the procedures.

Broadcast Procedure

To broadcast module firmware to repeaters, in Command Center, perform the following steps.

ⓘ **NOTE:** Review the Best Practices and Detailed Broadcast Instructions sections.

1. Navigate to the **Network > Endpoints > Broadcast Commands** page and select the **Endpoint Firmware Download** command.

2. Select **920 Repeater** from the **Endpoint Model** drop-down list.

3. Select the filter **Module Firmware** version

4. Select the **Collector**(s)

5. Select the target **New Firmware to Send** version.

6. Select **Send** button.

Group Command Procedure

To send module firmware to groups of 920 Repeaters in Command Center, perform the following steps.

1. Navigate to the **Network > Endpoints > Electric Group Commands** page to send firmware to one or multiple virtual addressing groups.

2. Select the **Virtual Addressing Group**

3. Select the **Endpoint Firmware Download** command.

4. Select the **Module Firmware** version from the drop-down list.

5. Select the **Send** button.

Point-to-Point Command

To perform point-to-point module firmware update to a single repeater in Command Center, perform the following steps.

1. Navigate to the **Endpoint Information > Manage** page and select the **Endpoint Firmware Download** command.

2. Select the **Module Firmware** version from the drop-down list.

3. Select the **Send** button.

Upgrade Meter Module Firmware

Next all of the meters should have their communication module firmware updated to the latest version. Follow the same procedure documented in "Upgrade 920 Repeater Module Firmware" section except for the selection of the appropriate meter value for the endpoint model if utilizing the broadcast method.