# Cisco RF Gateway 1 Remote Provisioning Utility (RPU)

## User Guide

# For Your Safety

## Explanation of Warning and Caution Icons

Avoid personal injury and product damage! Do not proceed beyond any symbol until you fully understand the indicated conditions.

The following warning and caution icons alert you to important information about the safe operation of this product:

**You may find this symbol in the document that accompanies this product. This symbol indicates important operating or maintenance instructions.**

**You may find this symbol affixed to the product. This symbol indicates a live terminal where a dangerous voltage may be present; the tip of the flash points to the terminal device.**

**You may find this symbol affixed to the product. This symbol indicates a protective ground terminal.**

**You may find this symbol affixed to the product. This symbol indicates a chassis terminal (normally used for equipotential bonding).**

**You may find this symbol affixed to the product. This symbol warns of a potentially hot surface.**

**You may find this symbol affixed to the product and in this document. This symbol indicates an infrared laser that transmits intensity-modulated light and emits invisible laser radiation or an LED that transmits intensity-modulated light.**

## Important

Please read this entire guide. If this guide provides installation or operation instructions, give particular attention to all safety statements included in this guide.

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# Contents

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If this document discusses software, the software described is used to monitor and/or control ours and other vendors' electrical and optical equipment designed to transmit video, voice, or data signals. Certain safety precautions must be observed when operating equipment of this nature.

For equipment specific safety requirements, refer to the appropriate section of the equipment documentation.

For safe operation of this software, refer to the following warnings.

**WARNING:**

- **Ensure that all optical connections are complete or terminated before using this equipment to remotely control a laser device. An optical or laser device can pose a hazard to remotely located personnel when operated without their knowledge.**
- **Allow only personnel trained in laser safety to operate this software. Otherwise, injuries to personnel may occur.**
- **Restrict access of this software to authorized personnel only.**
- **Install this software in equipment that is located in a restricted access area.**

# 1

# Introduction

## Overview

The Cisco RF Gateway 1 (RFGW-1) Remote Provisioning Utility (RPU) is a Windows-based tool designed to simplify initial provisioning of multiple RFGW-1 units in an operator's system.

## Purpose

This user guide provides the necessary information to install, operate, maintain, and upgrade the RPU application.

## Who Should Use This Document

This document is intended for authorized service personnel who have experience working with the RFGW-1 or similar equipment. The service personnel should have appropriate background and knowledge to complete the procedures described in this document.

## Qualified Personnel

Only appropriately qualified and skilled personnel should attempt to install, operate, maintain, and service this product.

**WARNING:**

**Allow only qualified and skilled personnel to install, operate, maintain, and service this product. Otherwise, personal injury or equipment damage may occur.**

## In This Chapter

# Features and Benefits

## Primary Benefits

The RPU provides the following benefits:

- Enables mass initial provisioning of RFGW-1 databases in SDV deployments. Provisioning of 48 and 96 channel RFGW-1 hardware configurations is supported.
- Enables mass upgrade provisioning of RFGW-1 databases from 48 channels to 96 channels.
- Enables bulk provisioning of run-time port and channel control settings.
- Generates configuration files in JavaScript Object Notation (JSON) format for export.

# 2

# Provisioning

This chapter describes the components for provisioning the RPU.

## In This Chapter

# Before You Begin

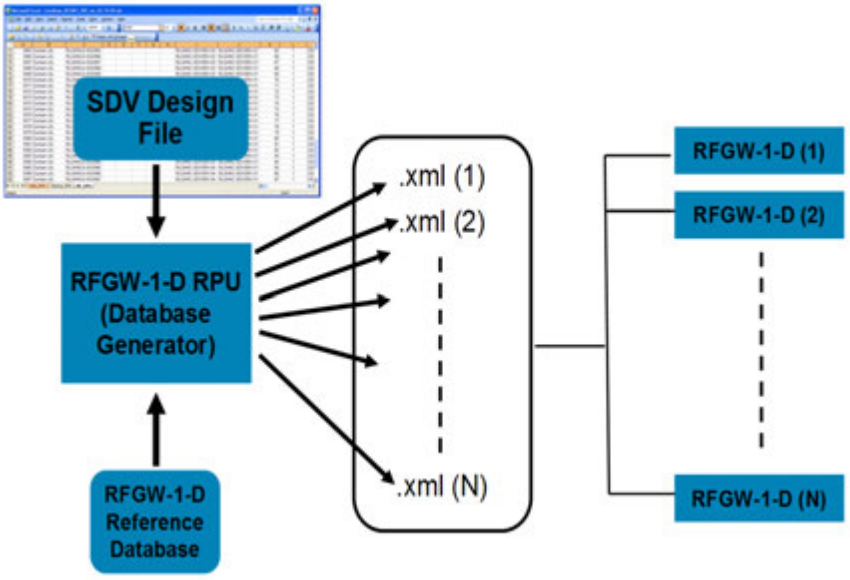
Before you begin, make sure to check the following:

- Your server is running Windows XP or Windows 7.
- Microsoft Office Excel 97 or later must be installed on the server.
- You have the RPU distribution CD or have downloaded the RPU installer.
- You can connect to the Cisco product server.

# Provisioning Overview

The RPU merges a common reference database with unique parameters such as IP address, Transport Stream Identifier (TSID), and frequency information from a SDV Design File to generate and distribute configuration files for each RFGW-1. These operations can also be performed on a per-QAM basis by accessing the embedded Web GUI of the RFGW-1.

The following diagram provides an overview of the RPU application.




The RFGW-1 provisioning parameters are stored internally in .xml database format. The provisioning parameters are usually manipulated either using the Web GUI or via SNMP sets.

The RPU uses provisioning data configured in an SDV Design File to create the internal .xml RFGW-1 database files. The SDV Design File uses a Microsoft Excel spreadsheet. The RPU accesses the SDV Design File and creates RFGW-1 formatted database files. These database files are then uploaded via FTP to the RFGW-1.

## Reference Database

The Reference Database is used by the RPU as a template for all RFGW-1 initial provisioning settings not configured by the RPU. The Reference Database is configured via the Web GUI by the customer on an arbitrarily selected "reference" RFGW-1. The RPU imports the database files from the reference RFGW-1. These database files will then be used by the RPU to create the database files for each RFGW-1 selected.

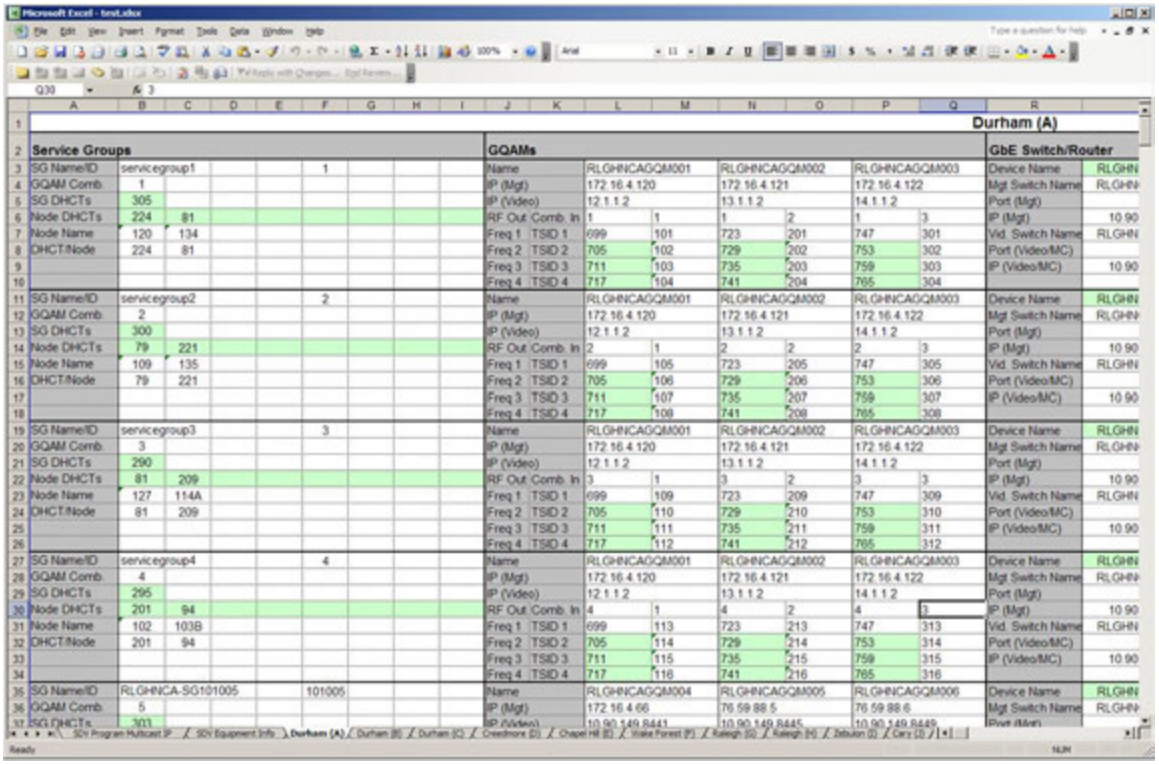
# SDV Design File

SDV Design Files are commonly used by SDV customers to maintain an accounting of configuration parameters and service group associations for the various devices in the network. The SDV Design File was originally conceived to capture legacy SDV Server/GQAM networks in a single common file that could be shared between Cisco network engineering and customers. The SDV Design File now supports USRM and RFGW-1.

SDV Design Files have multiple tabs offering various perspectives of how SDV equipment is arranged hierarchically into headends, hubs, and service groups. Generally, there is a single tab that itemizes all hubs in a network by location name, followed by a series of sheets detailing the QAM/service group associations including frequency, and TSID assignments.

### 1st Generation SDV Design File

The following worksheet shows a GQAM arrangement in the 1st generation SDV Design File. To capture the striping plan of various physical RF ports, GQAM chassis are organized in columns (vertically), while service groups are organized across rows (horizontally).

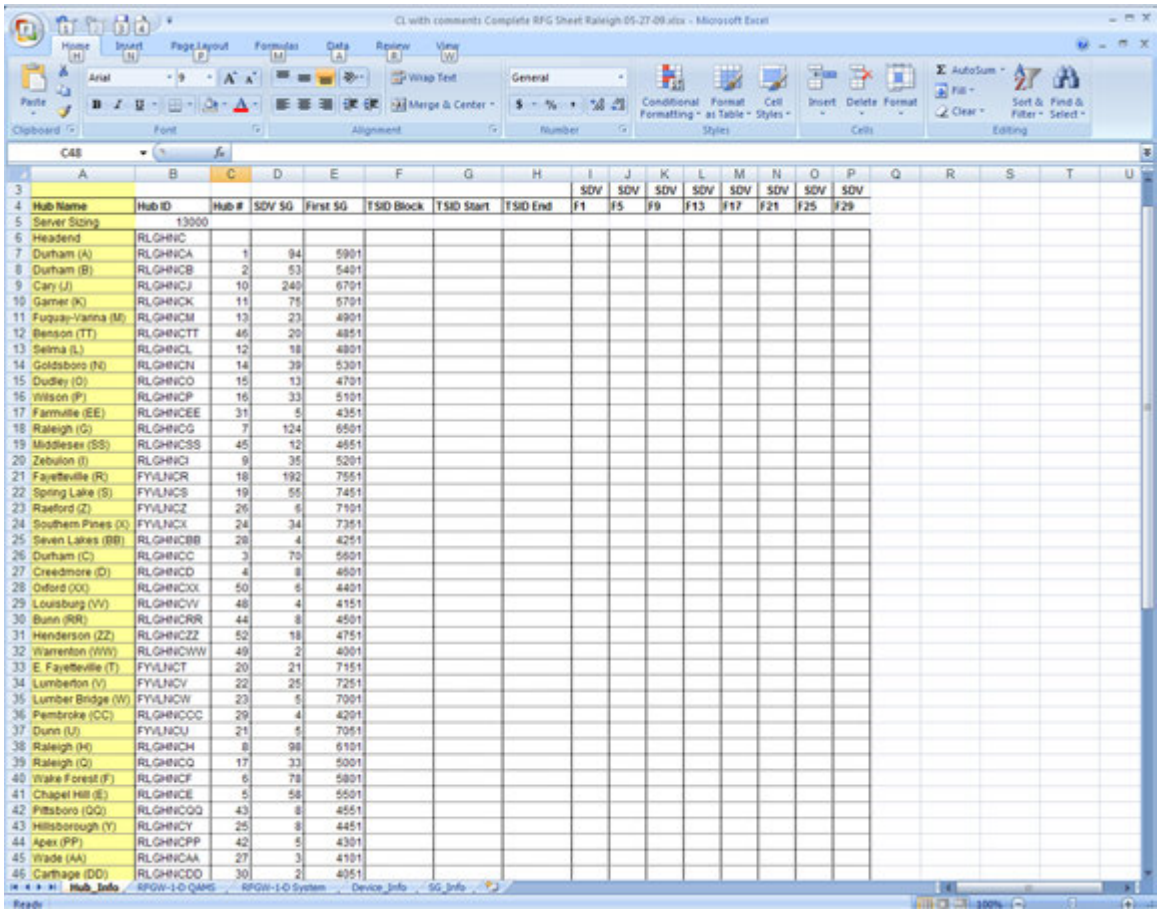


### 2nd Generation SDV Design File

The following sections describe the five tabs of the SDV Design File.

#### Hub_Info Sheet

The following worksheet shows the Hub_Info sheet.



| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | | | | | | | | | SDV | SDV | SDV | SDV | SDV | SDV | SDV | SDV |
| 4 | Hub Name | Hub ID | Hub # | SDV SG | First SG | TSID Block | TSID Start | TSID End | F1 | F5 | F9 | F13 | F17 | F21 | F25 | F29 |
| 5 | Server Sizing | 13000 | | | | | | | | | | | | | | |
| 6 | Headend | RLGHNIC | | | | | | | | | | | | | | |
| 7 | Durham (A) | RLGHNICA | 1 | 94 | 5901 | | | | | | | | | | | |
| 8 | Durham (B) | RLGHNICB | 2 | 53 | 5401 | | | | | | | | | | | |
| 9 | Cary (J) | RLGHNICJ | 10 | 240 | 6701 | | | | | | | | | | | |
| 10 | Garner (K) | RLGHNICK | 11 | 75 | 5701 | | | | | | | | | | | |
| 11 | Fuquay-Varina (M) | RLGHNICM | 13 | 23 | 4901 | | | | | | | | | | | |
| 12 | Benson (TT) | RLGHNICTT | 46 | 20 | 4851 | | | | | | | | | | | |
| 13 | Selma (L) | RLGHNICL | 12 | 18 | 4801 | | | | | | | | | | | |
| 14 | Goldsboro (N) | RLGHNICN | 14 | 39 | 5301 | | | | | | | | | | | |
| 15 | Dudley (O) | RLGHNICO | 15 | 13 | 4701 | | | | | | | | | | | |
| 16 | Wilson (P) | RLGHNICP | 16 | 33 | 5101 | | | | | | | | | | | |
| 17 | Farmville (EE) | RLGHNICEE | 31 | 5 | 4351 | | | | | | | | | | | |
| 18 | Raleigh (G) | RLGHNICG | 7 | 124 | 6501 | | | | | | | | | | | |
| 19 | Middlesex (SS) | RLGHNICSS | 45 | 12 | 4651 | | | | | | | | | | | |
| 20 | Zebulon (I) | RLGHNICI | 9 | 35 | 5201 | | | | | | | | | | | |
| 21 | Fayetteville (R) | FYVLNICR | 18 | 192 | 7551 | | | | | | | | | | | |
| 22 | Spring Lake (S) | FYVLNICS | 19 | 55 | 7451 | | | | | | | | | | | |
| 23 | Raeford (Z) | FYVLNICZ | 26 | 6 | 7101 | | | | | | | | | | | |
| 24 | Southern Pines (X) | FYVLNICX | 24 | 34 | 7351 | | | | | | | | | | | |
| 25 | Seven Lakes (BB) | RLGHNICBB | 28 | 4 | 4251 | | | | | | | | | | | |
| 26 | Durham (C) | RLGHNICC | 3 | 70 | 5601 | | | | | | | | | | | |
| 27 | Creedmore (D) | RLGHNICD | 4 | 8 | 4601 | | | | | | | | | | | |
| 28 | Oxford (XX) | RLGHNICXX | 50 | 6 | 4401 | | | | | | | | | | | |
| 29 | Louisburg (VV) | RLGHNICVV | 48 | 4 | 4151 | | | | | | | | | | | |
| 30 | Bunn (RR) | RLGHNICRR | 44 | 8 | 4501 | | | | | | | | | | | |
| 31 | Henderson (ZZ) | RLGHNICZZ | 52 | 18 | 4751 | | | | | | | | | | | |
| 32 | Warrenton (WW) | RLGHNICWW | 49 | 2 | 4001 | | | | | | | | | | | |
| 33 | E. Fayetteville (T) | FYVLNICT | 20 | 21 | 7151 | | | | | | | | | | | |
| 34 | Lumberton (V) | FYVLNICV | 22 | 25 | 7251 | | | | | | | | | | | |
| 35 | Lumber Bridge (W) | FYVLNICW | 23 | 5 | 7001 | | | | | | | | | | | |
| 36 | Pembroke (CC) | RLGHNICCC | 29 | 4 | 4201 | | | | | | | | | | | |
| 37 | Dunn (U) | FYVLNICU | 21 | 5 | 7051 | | | | | | | | | | | |
| 38 | Raleigh (H) | RLGHNICH | 8 | 98 | 6101 | | | | | | | | | | | |
| 39 | Raleigh (Q) | RLGHNICQ | 17 | 33 | 5001 | | | | | | | | | | | |
| 40 | Wake Forest (F) | RLGHNICF | 6 | 78 | 5801 | | | | | | | | | | | |
| 41 | Chapel Hill (E) | RLGHNICE | 5 | 58 | 5501 | | | | | | | | | | | |
| 42 | Pittsboro (QQ) | RLGHNICQQ | 43 | 8 | 4551 | | | | | | | | | | | |
| 43 | Hillsborough (Y) | RLGHNICY | 25 | 8 | 4451 | | | | | | | | | | | |
| 44 | Apex (PP) | RLGHNICPP | 42 | 5 | 4301 | | | | | | | | | | | |
| 45 | Wade (AA) | RLGHNICAA | 27 | 3 | 4101 | | | | | | | | | | | |
| 46 | Carthage (DD) | RLGHNICDD | 30 | 2 | 4051 | | | | | | | | | | | |

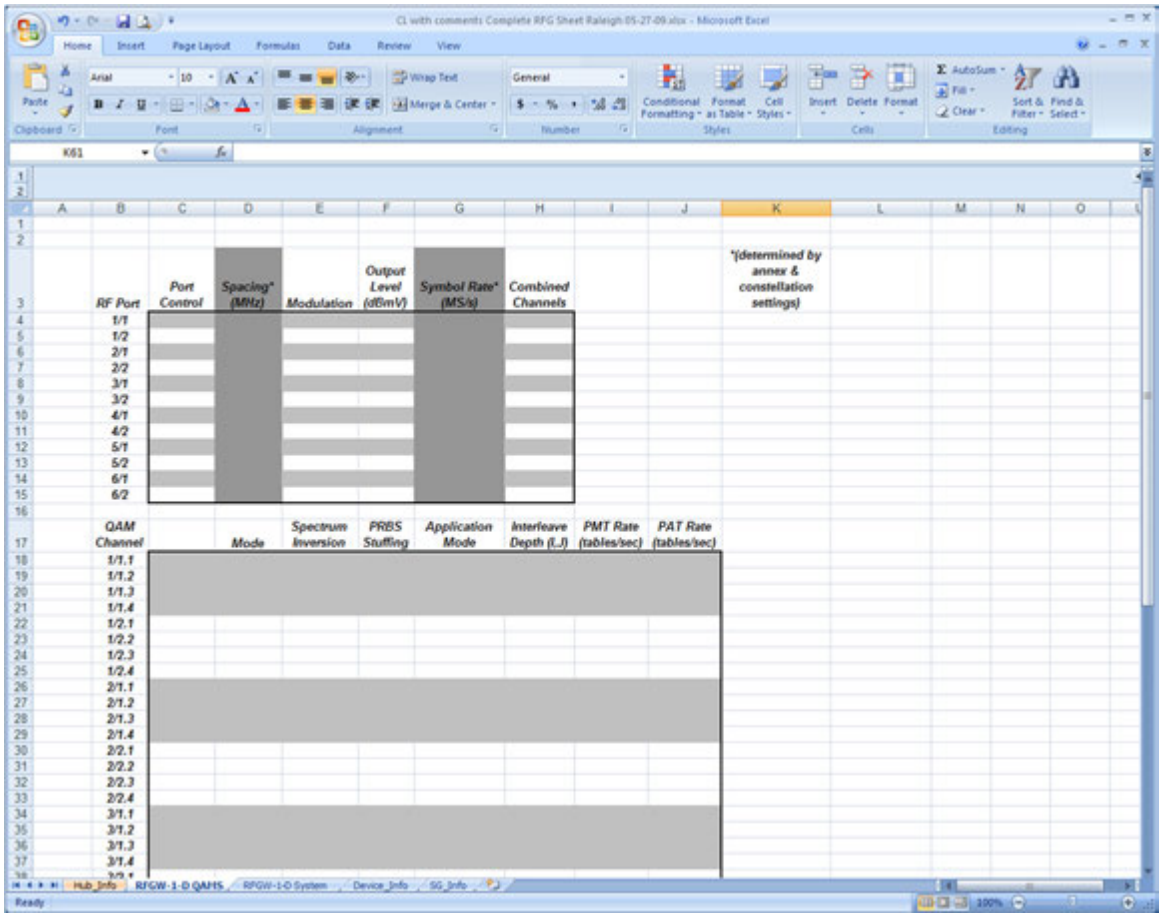
#### RFGW-1 QAMS and System Sheet

The QAMS and System sheet corresponds to the QAMS and System tabs on the RFGW-1 GUI. These tabs are included in the SDV Design File as a common location to facilitate communication and discussion regarding an operator's preferences for the settings in the Reference Database. Either Cisco network engineering or an operator can fill out the parameters in these tabs and share the file with various stakeholders.

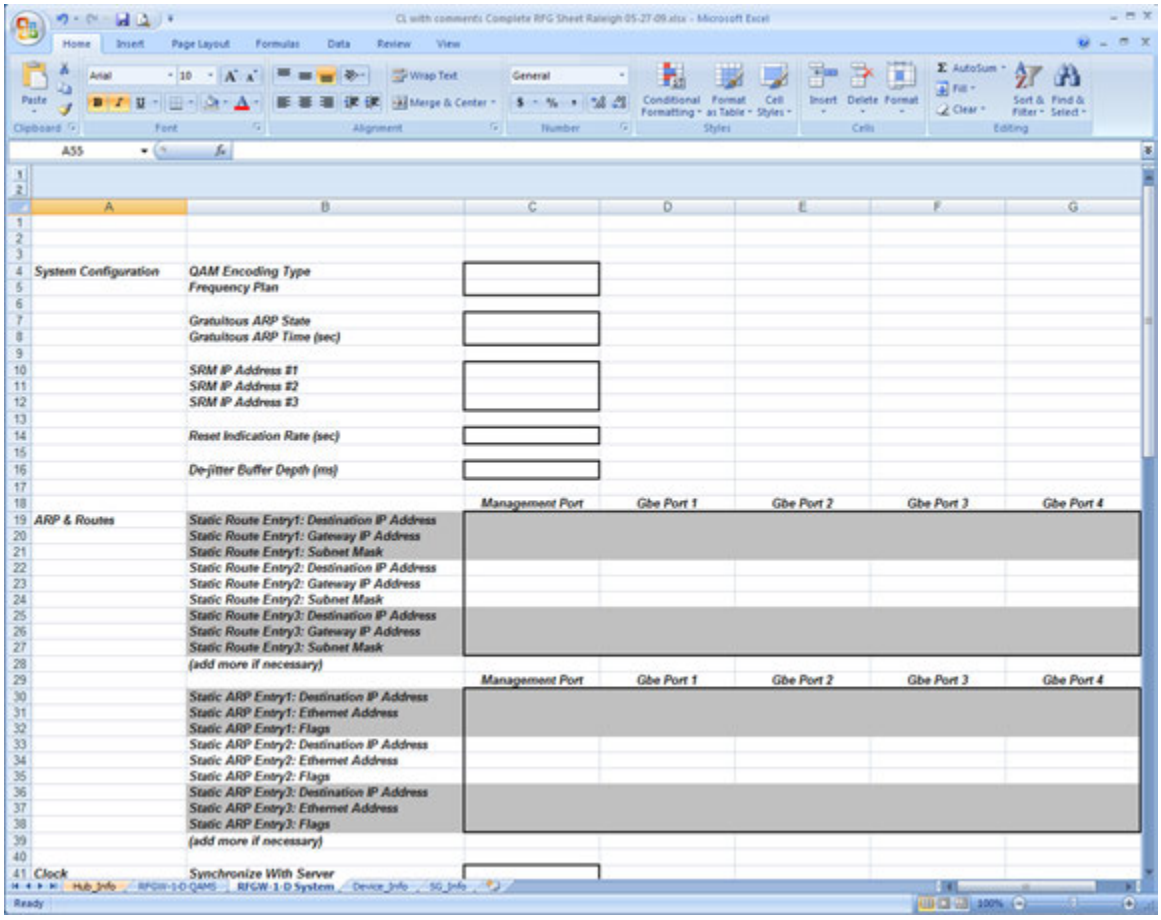
Use of these tabs is optional. Currently, neither the RPU nor any other tool reads these parameters from the SDV Design File. They are included only for discussion and accounting purposes.

The following worksheets show the QAMS and System sheets.

QAMS Sheet



System Sheet

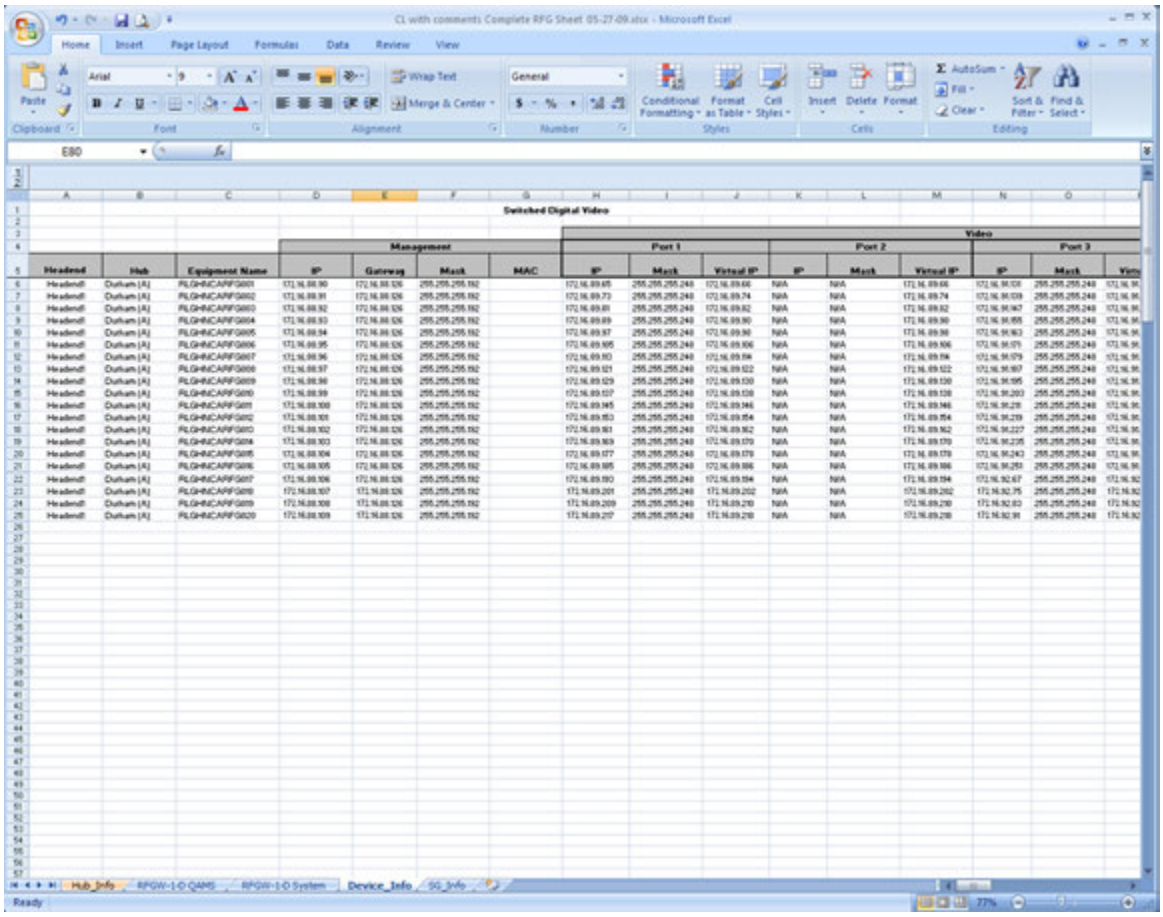


| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 4 | System Configuration | QAM Encoding Type | | | | | |
| 5 | | Frequency Plan | | | | | |
| 7 | | Gratuitous ARP State | | | | | |
| 8 | | Gratuitous ARP Time (sec) | | | | | |
| 10 | | SRM IP Address #1 | | | | | |
| 11 | | SRM IP Address #2 | | | | | |
| 12 | | SRM IP Address #3 | | | | | |
| 14 | | Reset Indication Rate (sec) | | | | | |
| 16 | | De-jitter Buffer Depth (ms) | | | | | |
| 18 | | | Management Port | Gbe Port 1 | Gbe Port 2 | Gbe Port 3 | Gbe Port 4 |
| 19 | ARP & Routes | Static Route Entry1: Destination IP Address | | | | | |
| 20 | | Static Route Entry1: Gateway IP Address | | | | | |
| 21 | | Static Route Entry1: Subnet Mask | | | | | |
| 22 | | Static Route Entry2: Destination IP Address | | | | | |
| 23 | | Static Route Entry2: Gateway IP Address | | | | | |
| 24 | | Static Route Entry2: Subnet Mask | | | | | |
| 25 | | Static Route Entry3: Destination IP Address | | | | | |
| 26 | | Static Route Entry3: Gateway IP Address | | | | | |
| 27 | | Static Route Entry3: Subnet Mask | | | | | |
| 28 | | (add more if necessary) | | | | | |
| 29 | | | Management Port | Gbe Port 1 | Gbe Port 2 | Gbe Port 3 | Gbe Port 4 |
| 30 | | Static ARP Entry1: Destination IP Address | | | | | |
| 31 | | Static ARP Entry1: Ethernet Address | | | | | |
| 32 | | Static ARP Entry1: Flags | | | | | |
| 33 | | Static ARP Entry2: Destination IP Address | | | | | |
| 34 | | Static ARP Entry2: Ethernet Address | | | | | |
| 35 | | Static ARP Entry2: Flags | | | | | |
| 36 | | Static ARP Entry3: Destination IP Address | | | | | |
| 37 | | Static ARP Entry3: Ethernet Address | | | | | |
| 38 | | Static ARP Entry3: Flags | | | | | |
| 39 | | (add more if necessary) | | | | | |
| 41 | Clock | Synchronize With Server | | | | | |

### Device_Info Sheet

The Device_Info sheet is the primary configuration used for RPU data.

The following worksheet shows the Device_Info sheet.



The RPU data is divided into two major sections:

- Identification and IP Configuration
- Port and Channel Frequency and TSID Configuration

The following parameters are included in Identification and IP Configuration:

- Headend – Name of the Headend the RFGW-1 is configured with on the network.
- Hub – Name of the installation location.
- Equipment Name – Name of the RFGW-1 configured for the equipment name database field.
- Management IP, Gateway, Mask, MAC – IP configuration parameters for the management port.
- Port IP, Mask, Virtual IP – GbE input port IP configuration parameters.

**Note:** If the value for any of the Virtual IP address fields is set to **independent**, the database field GbE Data Port Mode will be set to **Four Port Independent**.

- QAM Type – Identifies the type of QAM device. GQAM and RFGW-1 are the only supported types.

  **Note:** The RPU will not create databases or configure GQAM type devices. GQAM configuration data will be used in the Data Integrity Tests, and the GQAM data will be displayed in the RPU data display dialogs.

- Max QAM – Identifies the number of QAM channels for the entire device. 48 or 96 are the supported values.

The following parameters are included in Port and Channel Frequency and TSID Configuration:

- SG ID – Service Group ID to which this port is assigned.

  **Note:** This SGID must be configured in the SG_Info sheet.

- Primary USRM – Name of the Primary USRM (SDV Server) to which this port is configured.
- Backup USRM – Name of the Primary USRM (SDV Server) to which this port is configured.
- Freq 1 – The base frequency assigned to channel 1.

  **Note:** This frequency must be a standard frequency.

- TSID 1 to 4 – The TSID assignments for TSID settings for channels 1 to 4.
- Freq 5 – The base frequency assigned to channel 1.

  **Note:** This frequency must be a standard frequency.

- TSID 5 to 8 – The TSID assignments for TSID settings for channels 5 to 8.

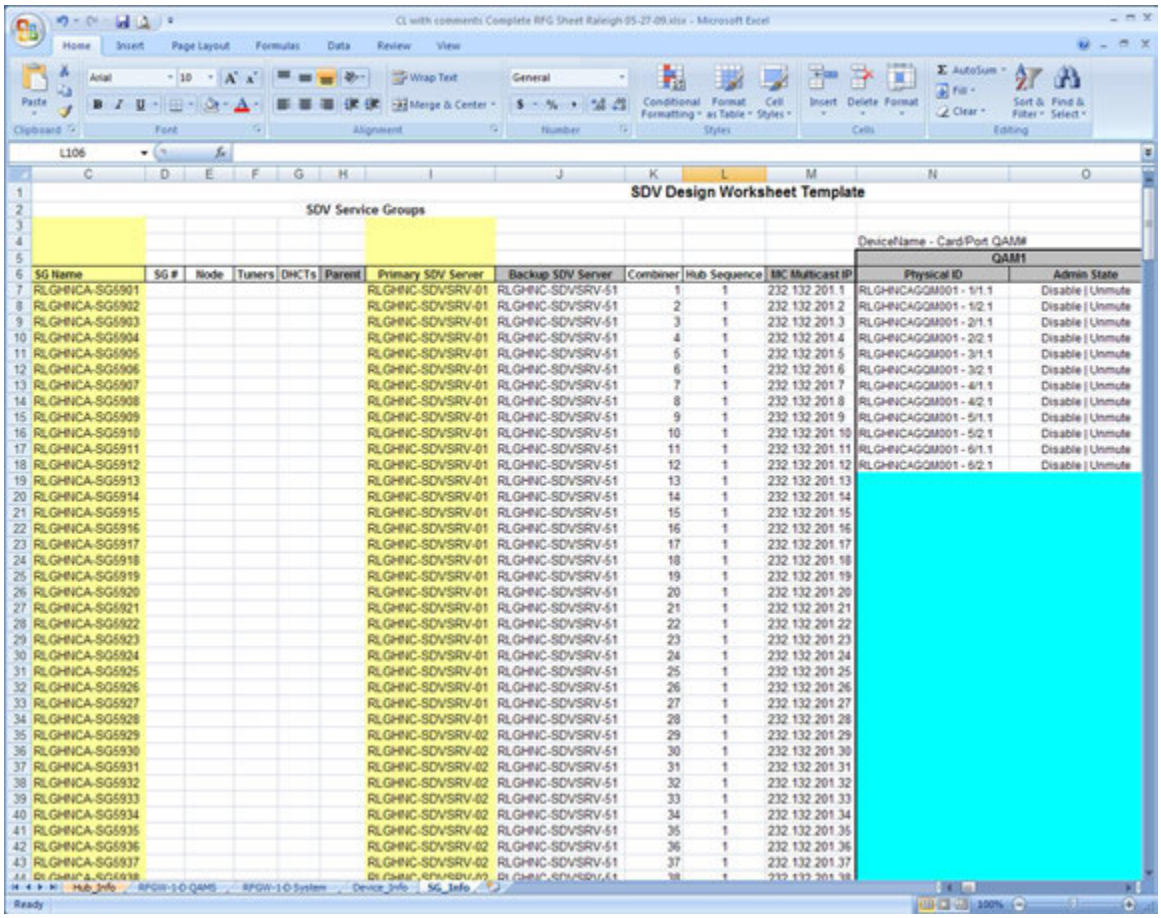
### SG_Info Sheet

The SG_Info sheet is used to configure SDB Service Group information. The following parameters must be configured for use by the RPU:

- SGID
- SG Name
- Primary SDV Server

The other parameters are used for other system configuration purposes. The RPU requires that any service group listed on the Device_Info sheet be defined in the SG_Info sheet.

The following worksheet shows the SG_Info sheet.

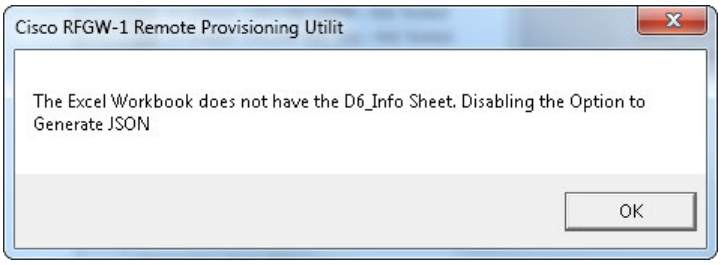



### 3rd Generation SDV Design File

The 3rd generation SDV design file contains all of the information provided in the 2nd generation design file plus a new D6_Info sheet. The 3rd generation design file also replicates QAM details for each RFGW-1 in the RFGW-1 QAMS sheet.

**Note:**

- In the 2nd generation design file, RFGW-1 QAMS sheet is used for reference only; these fields are not manipulated.
- If the latest version of RPU1 is imported with a 2nd generation design file, it will display the message shown below and disable the controls for JSON file export as described in ***Generating the JSON File (Phase 2 Step 2e)*** (on page 31).




RFGW-1 QAMs Sheet

The fields on this sheet are the same as those in the corresponding sheet in the 2nd generation design file, but with the addition of fields used to generate a JSON file that can be exported via HTTP POST method.

All fields that are color-coded green are mandatory, and each RFGW-1 should have an entry in these fields. All other fields can be ignored.

The QAM details for each RFGW-1 are divided into two groups. One group contains RFGW-1 RF Port details, and the other contains RFGW-1 channel details.

The Port group includes the following parameters:

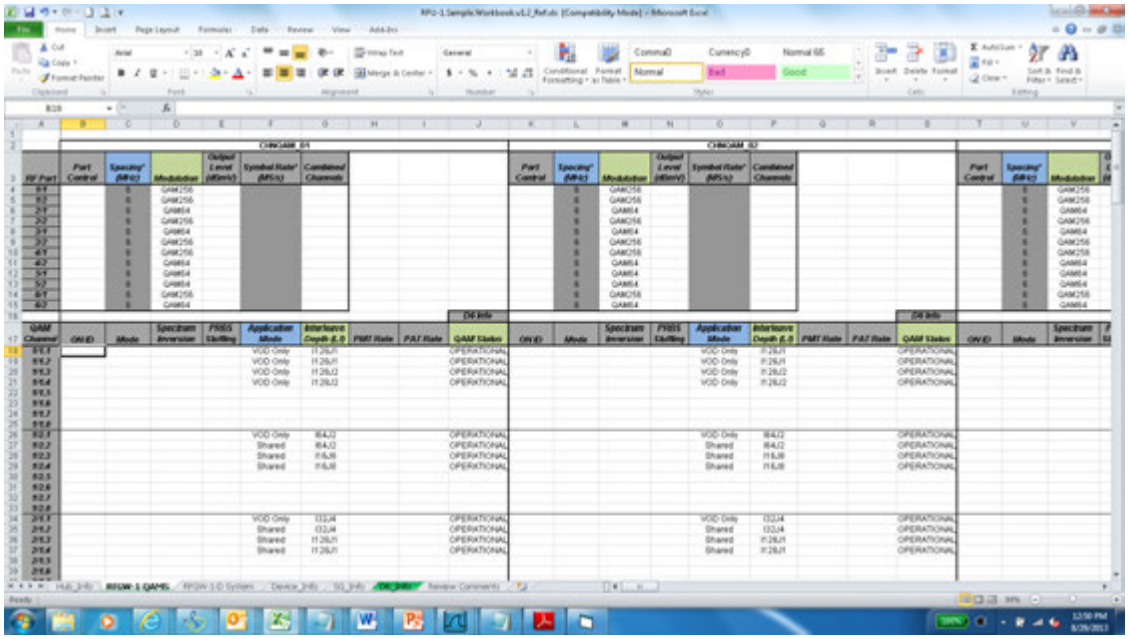
- RF Port – Port ID of RFGW-1.
- Port Control – Possible values are On or Off.
- Spacing – Defaults to 6 MHZ for all channels.
- Modulation – Possible values are QAM64 or QAM256.
- Output Level – Power level in dBmV of the QAM channel.
- Symbol Rate – Symbol rate of the QAM channel.
- Combined Carrier – Number of channels going out from the port. Possible values are None, Single, Dual, Triple, or Quad.

The Channel group includes the following parameters:

- QAM Channel – Channel ID of RFGW-1.
- ON ID – ON ID assigned for each channel in the RFGW-1.
- Mode – Possible values are Normal, Mute, or CW.

- Spectrum Inversion – Possible values are Normal or Swap.
- PRBS Stuffing – Possible values are On or Off.
- Application Mode – Mode in which the RFGW-1s QAM channel should act. Possible values are VoD Only, Broadcast Only, SDV Only, or Shared.
- Interleave Depth – Interleave Depth of a given QAM channel.
- PMT Rate – Rate at which the PMT table should be generated in the output TS.
- PAT Rate – Rate at which the PAT table should be generated in the TS.
- QAM Status – Required field; possible values are OPERATIONAL, OFFLINE, or QUIESE.

The following worksheet shows the RFGW-1 QAMS sheet.



### D6_Info Sheet

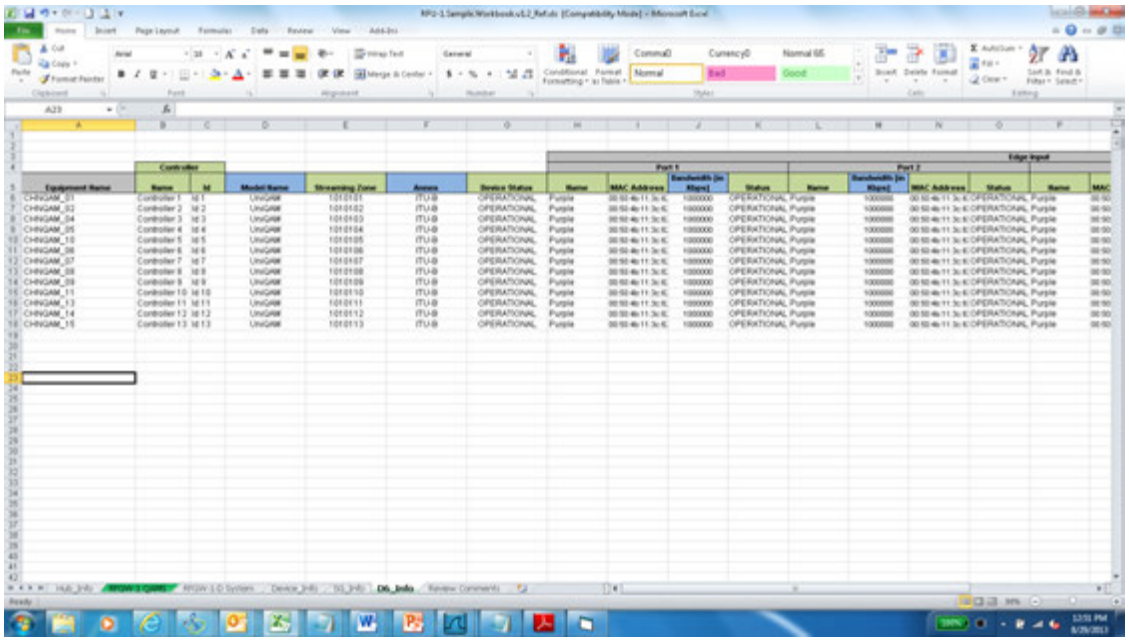
This sheet contains the details of the edge device.

The Channel group includes the following parameters:

- Equipment Name – Name of the edge device; should match the Equipment Name value in the Device_Info sheet.
- Controller Name and Controller Id – User-configurable entry for the controller.
- Model Name – Name of the model configured via the GQI model; should be UniQAM.
- Streaming Zone – Streaming zone assigned to the QAM.
- Annex – ITU mode in which the QAM is working.

- Device Status – Operational status of the entire edge device. Possible values are OPERATIONAL, OFFLINE, or QUIESE.
- Name (of Port) – Name assigned to the port of the edge device.
- MAC Address (of port) – MAC address of the port of the edge device.
- Bandwidth (of port) – Bandwidth of the port in kbps.
- Status (of port) – Operational status of the port. Possible values are OPERATIONAL, OFFLINE, or QUIESE.

The following worksheet shows the D6_Info sheet.



# 3

# Installation and General Operation

This chapter describes how to install and operate the RPU.

## In This Chapter

# Installing the RPU

Before installing a new version of the Cisco RPU, you must first uninstall any older versions present on the system.

### Uninstalling the Old RPU

1. On the windows menu, choose **Start > Control Panel**.
2. Double-click **Add or Remove Programs**.

   The program window is displayed.
3. Highlight the Cisco RFGW Remote Provisioning Utility and click **Remove**.

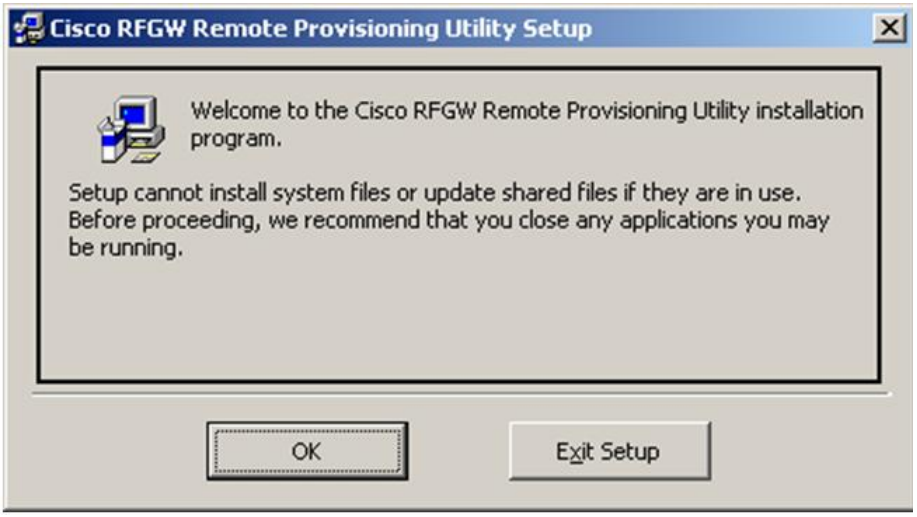
   If the RPU uninstall programs asks if you want to remove shared components, click **Remove All**.

### Installing the New RPU

1. Insert the RPU Installation CD. Contact your RFGW-1 product manager for installation CD.

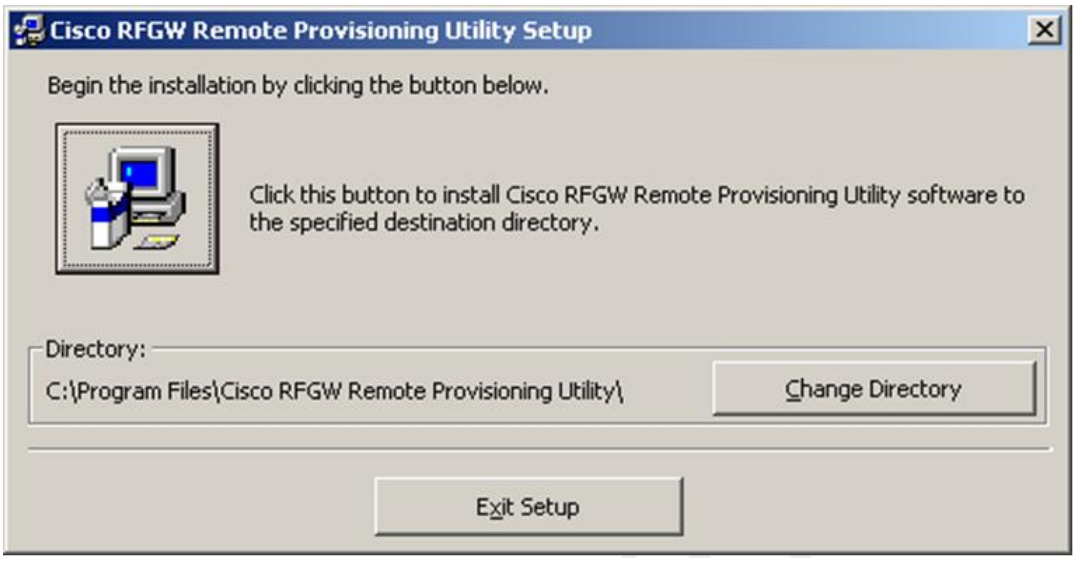
   The following dialog box is displayed.

   **Note:** If the installer warns that your computer has a more recent version of a component being installed, select the option to not install the older component.



2 Click **OK**.

The following dialog box is displayed.




3 Click the **Computer** button to start the installation.

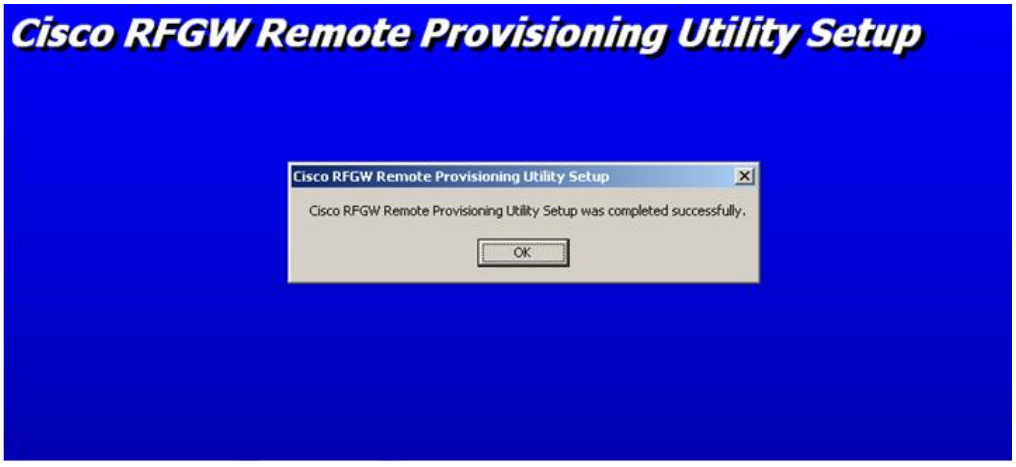
The following dialog box is displayed.

4 Click **Continue**.

The following dialog box is displayed (depending upon your computer's configuration).


5 Click **Yes**.

The following dialog box is displayed.




6 Click **OK.**

The installation is complete.

# Initial Provisioning Mode

The RPU can perform initial provisioning for both 48 and 96 channel RFGW-1 models. The RPU uses the **MAX QAM** column of the Device_Info tab of the SDV Design File to determine whether the RFGW-1 is intended to be provisioned with 48 or 96 channels of data.

## Importing Provisioning Parameters

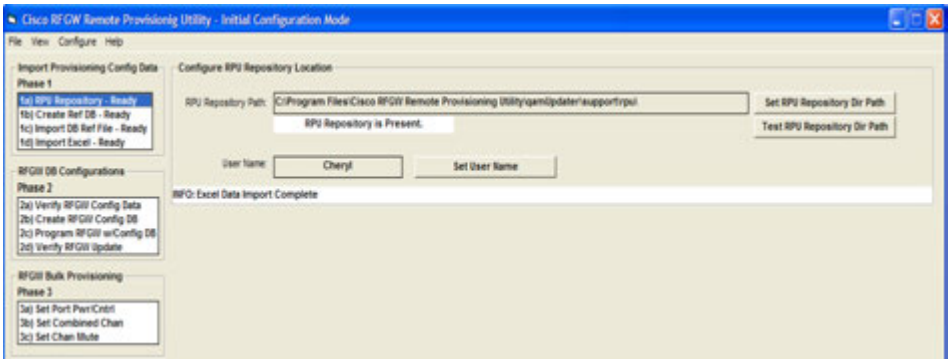
Before starting the provisioning procedure, you must import the Reference Database and the SDV Design File. Refer to ***Importing Reference Database (Phase 1 Step 1c)*** (on page 23) and ***Importing SDV Design File Spreadsheet (Phase 1 Step 1d)*** (on page 24).

## Configure RPU Repository Location (Phase 1 Step 1a)

This feature configures the disk file location where the RPU maintains all of the files created and referenced by the RPU. You can locate the RPU repository on a shared network drive if desired.

### Configuring the Repository Location

1 Click **Set RPU Repository Dir Path** and enter the location of the repository path.




2 Click **Test RPU Repository Dir Path**.

This test indicates whether the RPU repository is present and ready for running the RPU.

3 Click **Set User Name** and enter desired name in the *User Name* window.

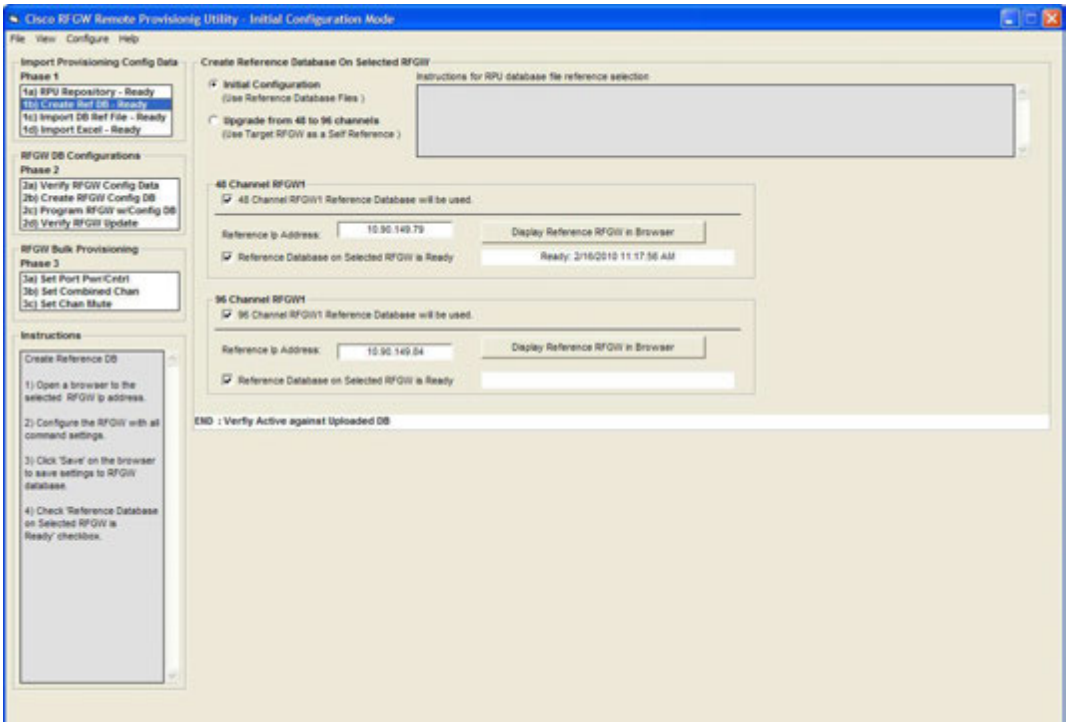
This name is logged in the RPU log file.

# Creating Reference Database (Phase 1 Step 1b)

You must create reference databases to capture all desired provisioning parameters that are not included in the SDV Design File spreadsheet. The RPU maintains separate reference databases for 48 and 96 channel RFGW-1 models. You must identify an appropriate RFGW-1 to be used as the reference for each model.

### Creating the Reference Database

1 Select the **Initial Configuration** Mode option.




2 Select the RFGW-1 to be configured during this session.

**Note:** In this example, both models are selected. Either one or both of the RFGW-1 units may be referenced in this step.

3 Enter the management IP address of the reference unit(s).

**Note:** The reference unit must be online to complete this step.

4 For each unit, click **Display Reference RFGW in Browser**.

The RF Gateway Web GUI is displayed.

5 Configure all common and control parameters.

**Note:** Settings such as IP addresses, frequencies, and TSIDs will be overwritten with information contained in the SDV Design File spreadsheet.

6 Click **Apply** after all settings.

7 Click **Save**. This saves all reference database settings to the RFGW-1 database files.

8 Check the **Reference Database on Selected RFGW is Ready** check box.

The reference database is ready for collection to the RPU repository.

9 Repeat as needed for all RFGW-1 units.

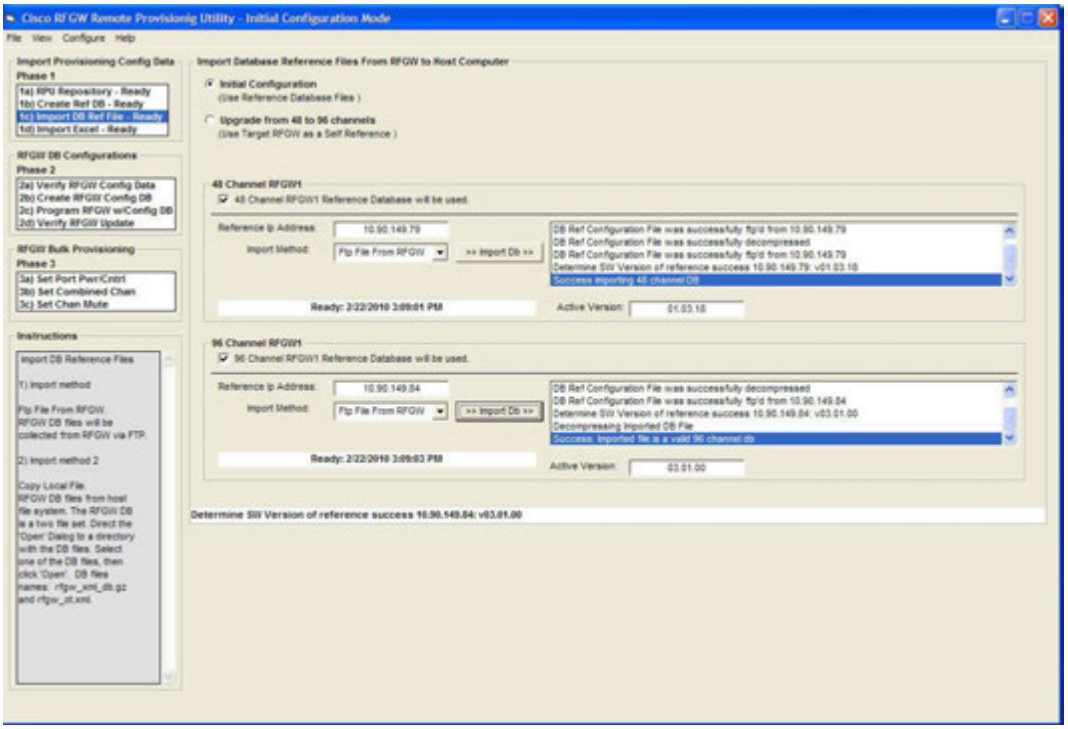
## Importing Reference Database (Phase 1 Step 1c)

There are two options to choose from when importing the reference database: Copy Local File or Ftp File From RFGW. We recommend the FTP option.

### Importing the Reference Database

1 From the Import Method drop-down list, choose **Ftp File From RFGW**.

The RPU copies the reference database files from the RF Gateway unit to the RPU repository.



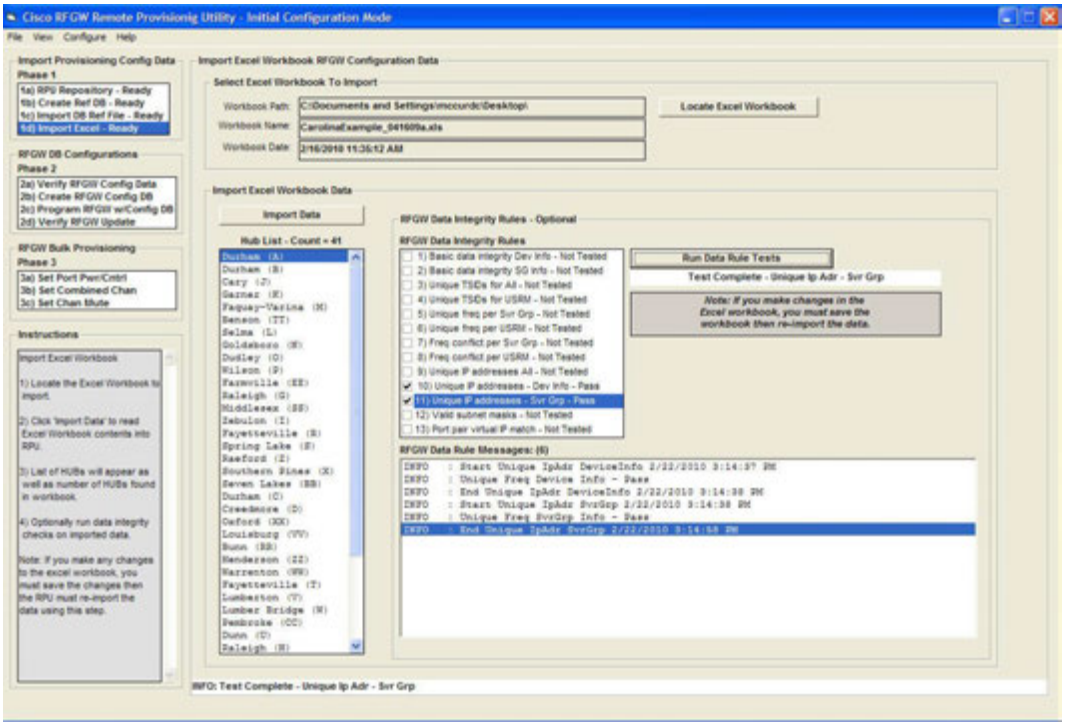

2 Click **Import Db**.

The RPU copies the RFGW-1 database files from the RFGW-1 unit and imports them to the RPU file repository. Progress can be seen in the window to the right of the Import Db button.

3 Repeat as needed for all RFGW-1 models.

# Importing SDV Design File Spreadsheet (Phase 1 Step 1d)

1 Click **Locate Excel Workbook**.




A Windows Open dialog menu opens.

2 From the Windows menu, browse to the spreadsheet to import.

3 In the RPU worksheet, click **Import Data**.

The RPU extracts all the required data from the spreadsheet and displays the Hub names in the Hub List dialog box.

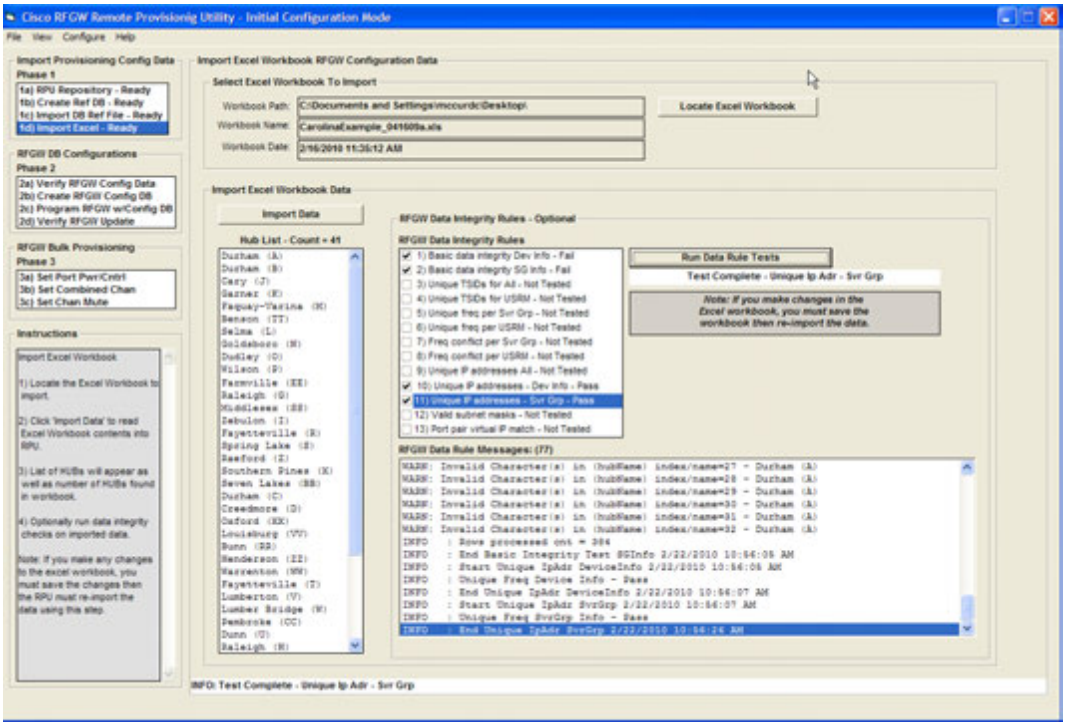
**Note:** It may take several minutes to import large files.

4 To run any or all of the Data Integrity Tests, click the box next to the test.

5 Click **Run Data Rule Tests**.

The results are listed in the RFGW Data Rule Messages list.

**Note:** You can double-click the log report to create a text log file. The RPU automatically displays the created log file in the default text editor.



# Creating Databases and Programming the RFGW-1

After the provisioning data has been imported, the user is ready to create databases and program the RFGW-1 devices.

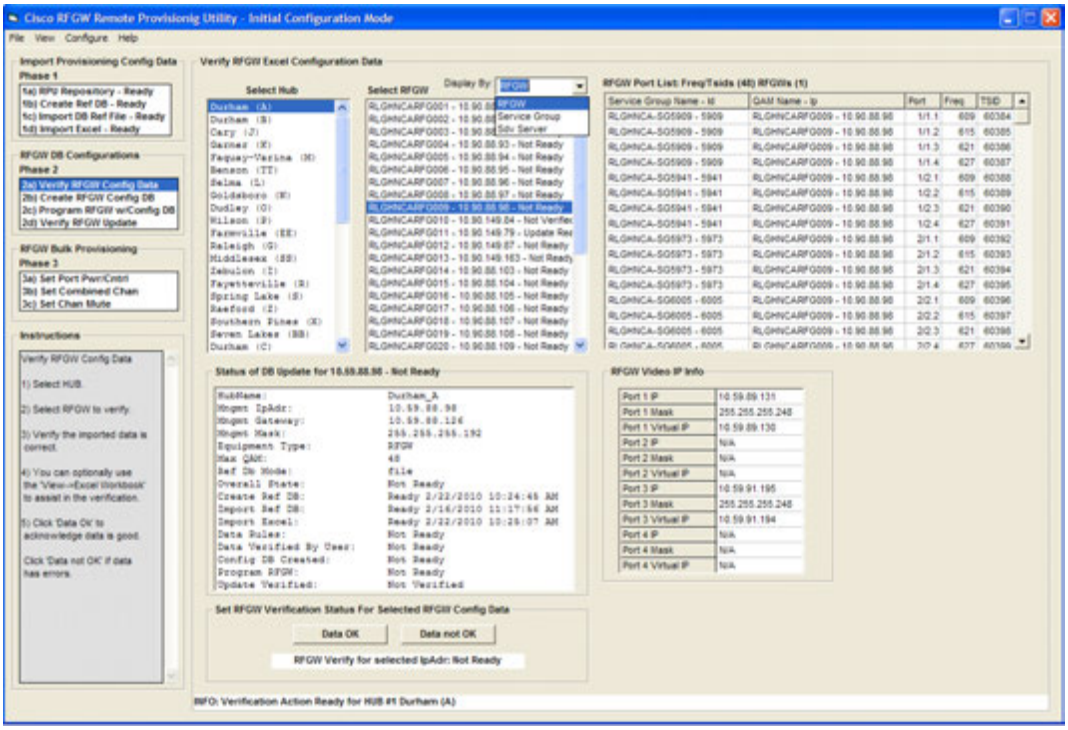
## Verifying SDV Design File Spreadsheet Configuration Data (Phase 2 Step 2a)

This step allows you to manually verify configuration data imported from the SDV Design File spreadsheet. Make sure to check all imported data for each unit.

### Verifying the SDV Design File Spreadsheet Configuration Data

1 From the Select Hub list, choose the desired hub.

All RFGW-1s are displayed for this hub.




**Note:** You can choose how information is displayed by choosing the following options from the drop-down list:

- RFGW
- Service Group
- SDV Server

2 From the **Select RFGW** list, choose one or more units to display and verify.

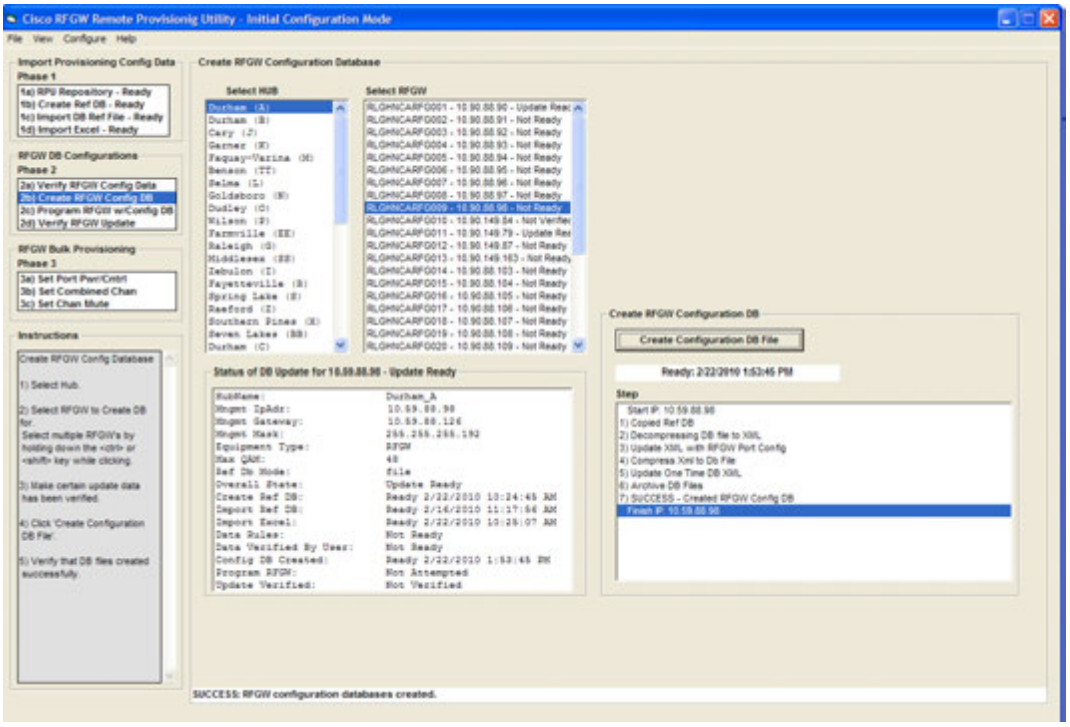
The RFGW Port List list displays the configuration data for the RF outputs of the unit(s) selected. The RFGW Video IP Info list displays the configuration data for the GbE inputs.

3 Once the data has been verified as accurate, click **Data OK**.

## Creating RFGW-1 Configuration Database (Phase 2 Step 2b)

1 From the **Select HUB** list, choose the desired hub to configure.

All units configured for this hub are displayed in the Select RFGW list.




2 Highlight the unit(s) for which you want to create a configuration database.

The Status of Db Update list displays the configuration data for all unit(s) selected.

**Note:** To create databases for more than one unit, hold down the CTRL key and click an additional list element, or hold down the SHIFT key to select a range of units.

3 Click **Create Configuration DB File**.

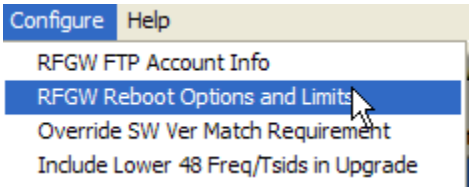
The configuration database files are created for each unit selected.

**Note**: If you select a single RFGW, the RPU displays the current status of each step in the database creation, programming, and verification process.

# Programming the RFGW-1 with Configuration Database (Phase 2 Step 2c)

**Note:** There are two options for programming a list of RFGW-1s. These options are configured using the Configure menu.

1 Select **RFGW Reboot Options and Limits**.



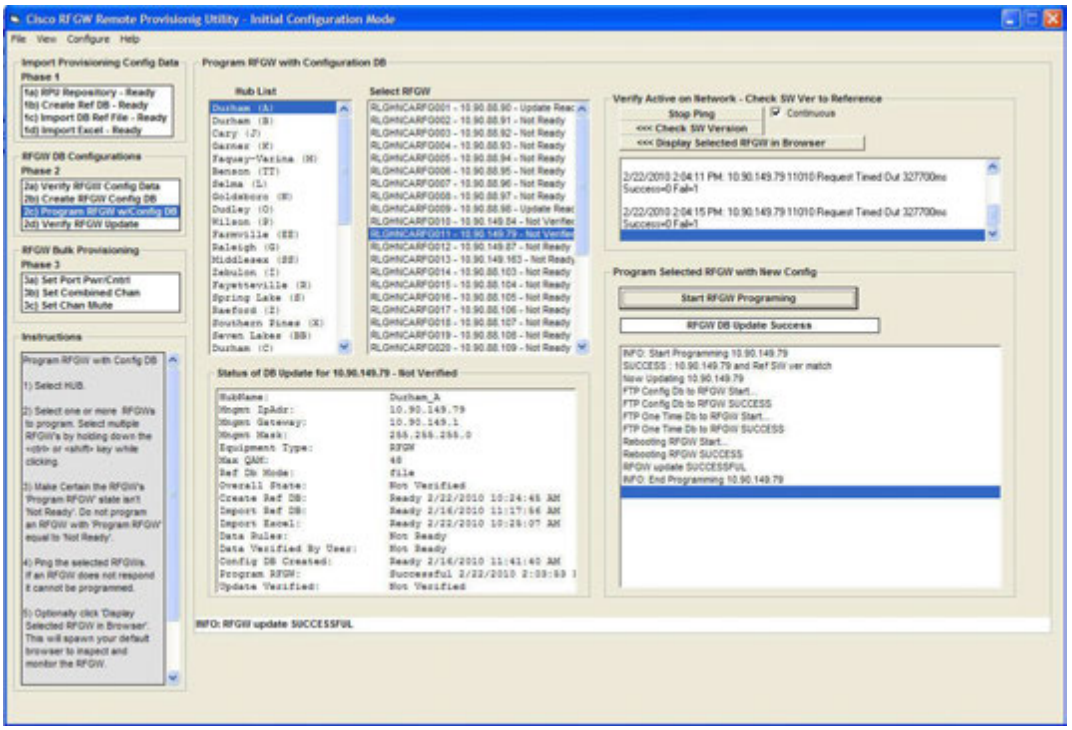

The following options are available:

- Asynchronous – Programs each RFGW-1 and does not wait for the unit to reboot. The unit will be continuously pinged until it responds. The ping status displays the IP addresses and their response status. This is the default mode.
- Synchronous – Programs each RFGW-1 and waits for each unit to reboot.

**Note:** For multiple units, the preferred selection is likely to be Asynchronous mode.

2 From the Hub List list, choose the desired hub.

All units configured for this hub are displayed.



3 In the Select RFGW list, highlight the unit(s) to be programmed.

**Note:** To program more than one unit, hold down the CTRL key and click an additional list element, or hold down the SHIFT key to select a range of units.

4 Click **Ping Selected**.

The RPU pings each unit selected and displays the results in the status log window.

**Note:** If an RFGW does not respond to the ping, it will not be able to be programmed.

5 Click **Check SW Version**.

The RPU collects the software version from each selected RFGW-1.

This software version is compared to the version of the RFGW-1 that provided the Reference Database. If the versions do not match, the RFGW-1 will not be programmed. This check is meant to prevent the user from configuring RFGW-1 units with databases that are incompatible with certain software releases. If the versions do not match, please contact your local Cisco account team for assistance.

**Note:** There is an option on the Configure menu to override this default action, but this option is not recommended.

6 If desired, click **Display Selected RFGW in Browser**.

This permits the user to watch the RFGW-1 reboot. If multiple units are selected, only the last unit will be launched in a browser window.

7 Click **Start RFGW Programming**.

Programming status is displayed in the window.

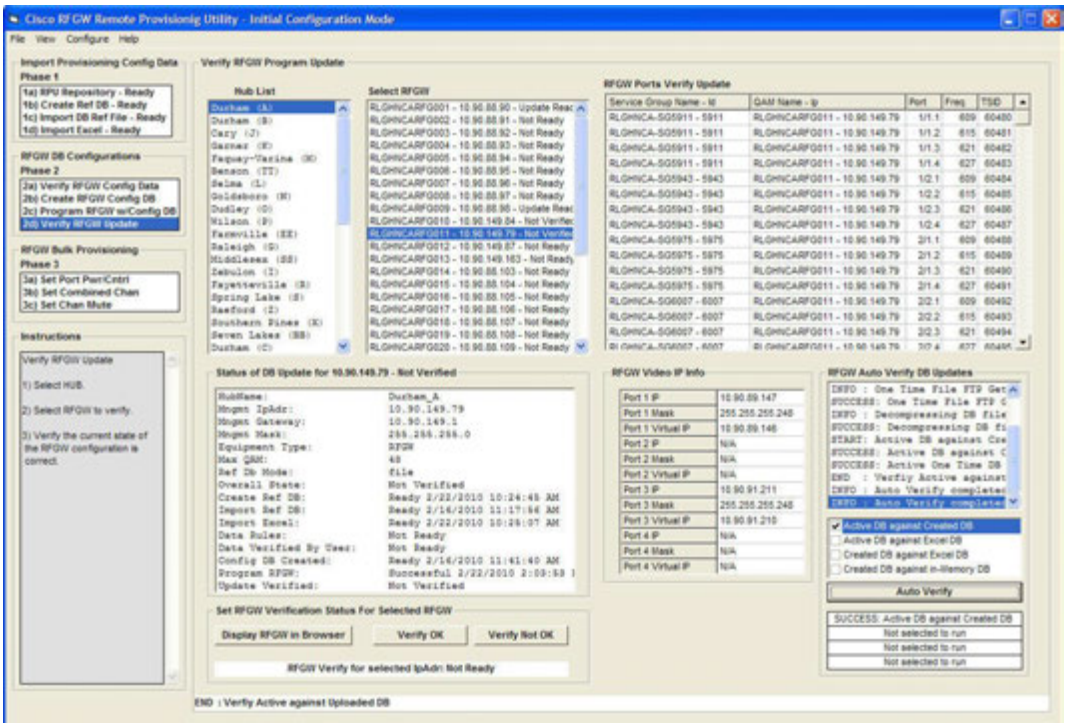
## Verifying RFGW Programming Data (Phase 2 Step 2d)

This step verifies that the configuration data has been correctly programmed into the RFGW-1.

### Verifying RFGW Programming Data

1 From the Hub List list, choose the desired hub.

All RFGW-1s configured for this hub are displayed.




2 Select a single unit to verify.

The selected RFGW-1 configuration is displayed.

3 Choose from the following five optional verification techniques.

- Manual Verify. Displays the RFGW-1 in a browser and uses the GUI interface to compare configuration data displayed for the selected RFGW-1.

  **Note:** You can choose View=>Selected RFGW in Browser from the drop-down menu to display the currently selected RFGW-1.

- Auto Verify. Active DB against Created DB. This option collects active database files from the RFGW-1 and compares the contents to the database files created by the RPU. This process determines if the RFGW-1 has been modified since the RPU programmed the unit.

- Auto Verify. Active DB against SDV Design File. This option collects the active database files from the RFGW-1 and compares the contents to the SDV Design File spreadsheet at the time it was last imported into the RPU. This process determines if the RFGW-1 configuration has been modified and does not match the SDV Design File spreadsheet, or if the SDV Design File spreadsheet has been modified and imported without updating the RFGW-1.

- Auto Verify. Created DB against SDV Design File. This process determines if the SDV Design File spreadsheet has been modified and imported since the creation of the RFGW-1 database.

- Auto Verify. Created DB against in-Memory DB. This process determines if the in memory RFGW-1 settings have been modified since the RPU created the RFGW-1 database.

4 Click **Auto Verify.**

The status is displayed in a window.

5 If all verification tests passed, click **Verify OK**.

The RFGW status display shows the RFGW-1 as verified.

## Generating the JSON File (Phase 2 Step 2e)

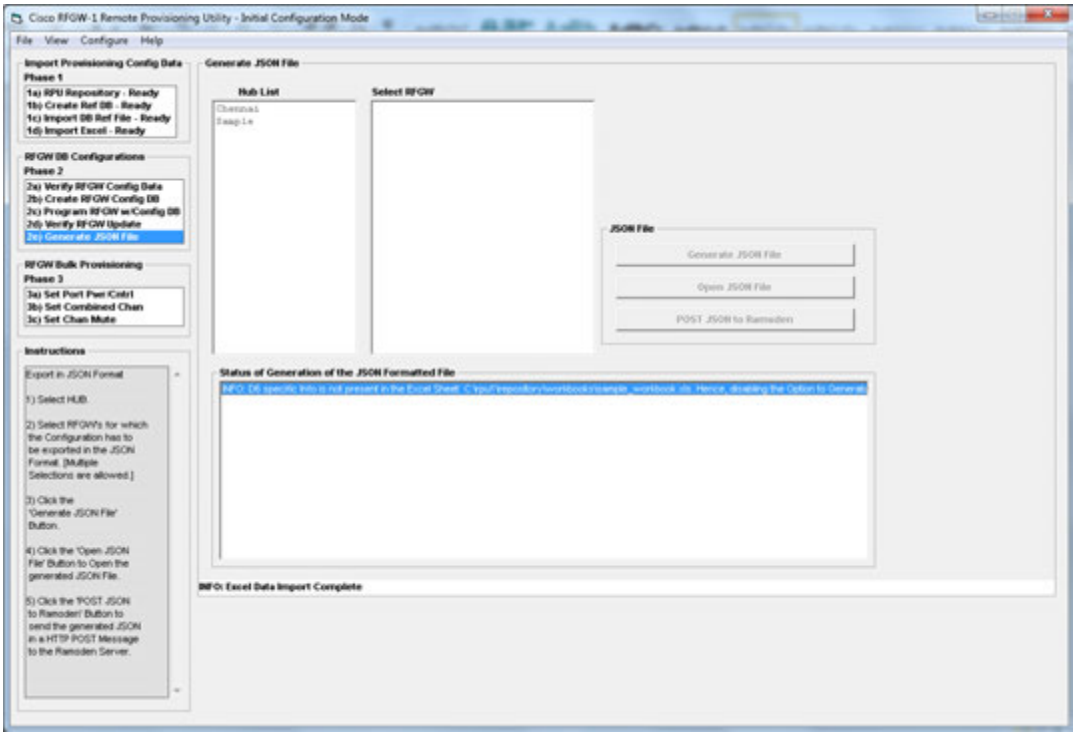
This step generates the configurations in JSON format and exports the configuration file to a server using the HTTP POST method.

**Note:** If the server to which the JSON file is exported does not successfully receive and handle the file, the tool with generate a timeout error.

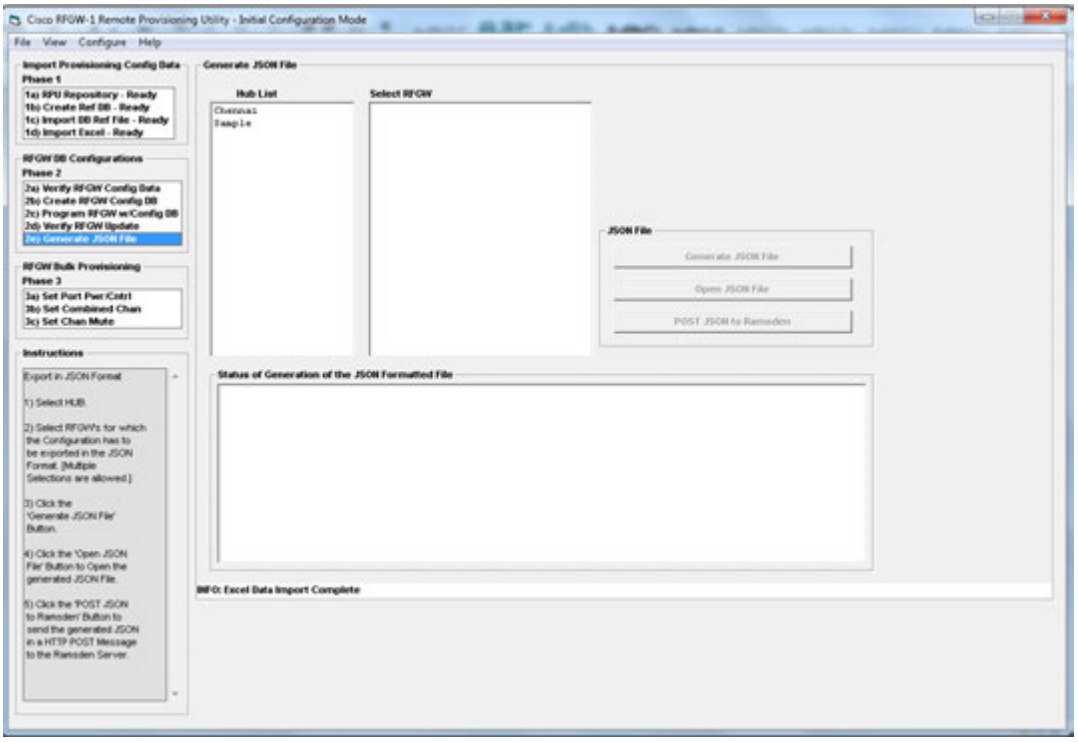
### Generating the JSON File

1 Import the Excel sheet as described in ***Importing SDV Design File Spreadsheet (Phase 1 Step 1d)*** (on page 24).

**Note:** If a 2nd generation design file is imported, all controls will be disabled as shown below.



2 Click **2e) Generate JSON File**. The Generate JSON File screen opens as shown below.

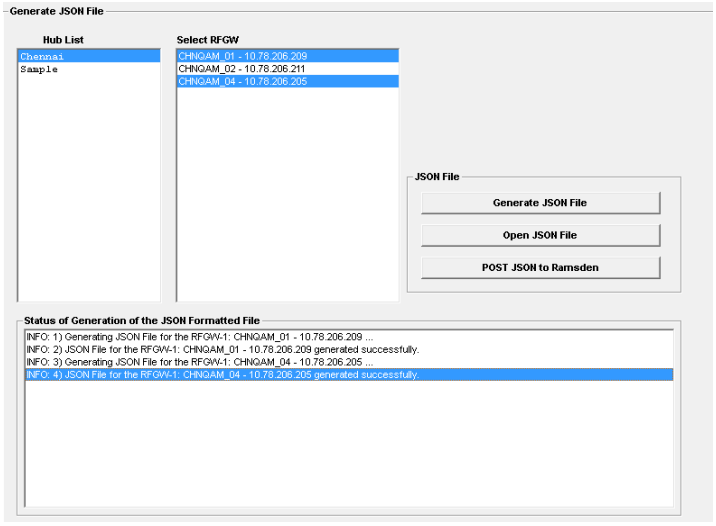



3 Choose a hub from the Hub List list.

4 Choose one or more RFGW-1s from the Select RFGW list.

5 Click **Generate JSON File**.

The tool generates a JSON file containing the QAM configurations of the selected RFGWs. Progress is reported in the status area of the window, as shown below.



6 Click **Open JSON File** to open the generated JSON file and confirm that the file was generated successfully. The file opens in a simple notepad application, as shown below.


7 Click **POST JSON to <servername>** to send the content of file to the server.

8 When prompted by the pop-up window, enter the IP address of the server.

**Note:**

- Before sending the file, RPU1 displays the content of the POST request to be sent.
- Progress of the export is reported in the status area of the window.

9 Monitor the status area of the window and confirm that the export completes successfully.

# RFGW-1 Bulk Provisioning

The RPU provides a bulk provisioning feature to configure specific settings on one or more RFGW-1s. This provisioning is accomplished via SNMP and does not require the system to reboot.

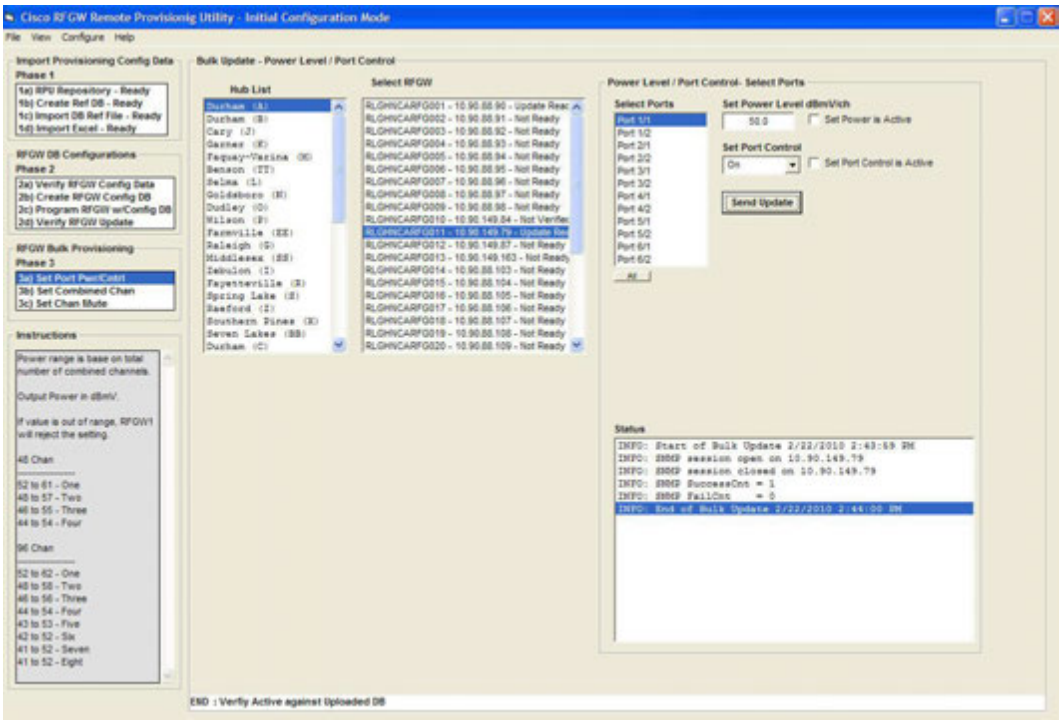
## Set Port Power/Port Control Levels (Step 3a)

This feature provides a mechanism to bulk provision one or more RFGW-1 RF port power or port control levels.

### Setting Port Power or Port Control Levels

1 From the Hub List list, choose the desired hub.

All units configured for this hub are displayed.




2 From the Select RFGW list, choose the unit for which you would like to set power/port control levels.

**Note:** To display data for more than one unit, hold down the CTRL key and click an additional list element, or hold down the SHIFT key to select a range of units.

3 From the Select Ports list, choose the port to configure.

4 Do one of the following as appropriate:

- To set the port power level, enter the port power setting (in dB) in the field, and then check the **Set Power is Active** check box.
- To set the port control setting, choose **on** or **off** from the drop-down list, and then check the **Set Port Control is Active** check box.

5 Click **Send Update**.

The status log displays the results of all SNMP set commands.

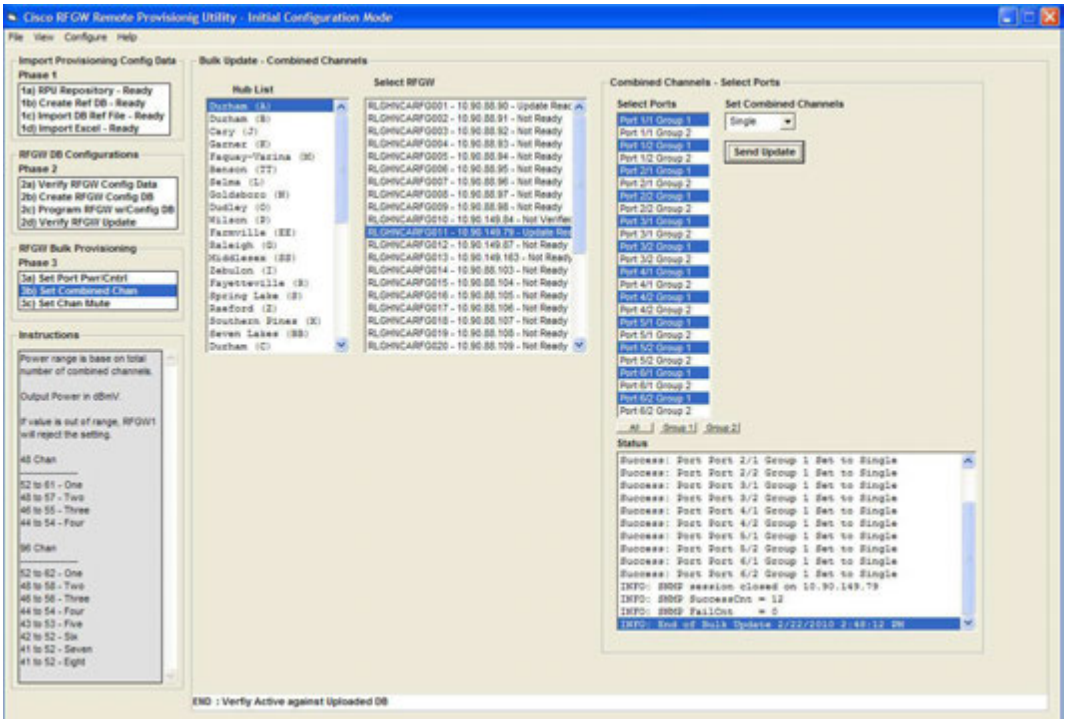
## Set Combined Channels (Phase 3 Step 3b)

This feature allows the user to bulk provision one or more RFGW-1 RF port combined channels.

### Setting Combined Channels

1 From the Hub List list, choose the desired hub.

All units configured for this hub are displayed.




2 From the Select RFGW list, choose the unit for which you would like to set combined channels.

**Note:** To display data for more than one unit, hold down the CTRL key and click an additional list element, or hold down the SHIFT key to select a range of units.

From the Select Ports list, choose the desired port to configure, or to choose multiple ports, click one of the following options located under the Select Ports list:

- All
- Group 1
- Group2

1 Click **Send Update**.

The status log displays the results of all SNMP set commands.

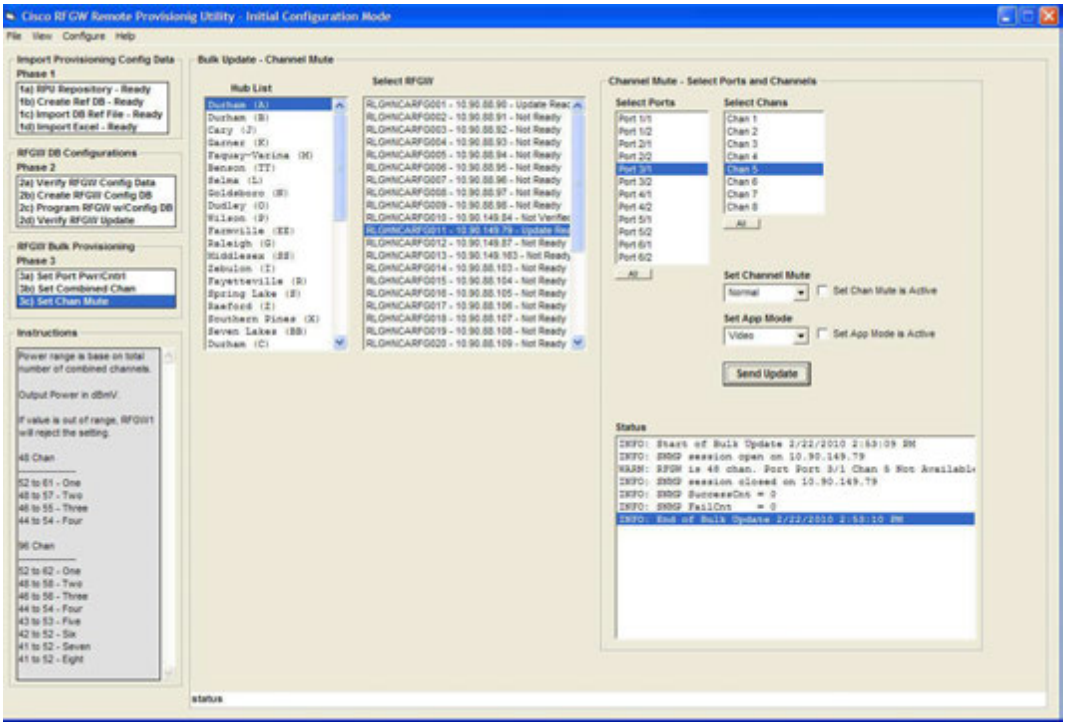
## Set Channel Mute

This feature allows the user to bulk provision one or more of the RF Gateways port channel mute setting.

### Setting Channel Mute

1 From the Hub List list, choose the desired hub.

All units configured for this Hub are displayed.




2 From the Select RFGW list, choose the unit for which you would like to set channel mute.

**Note:** To display data for more than one unit, hold down the CTRL key and click an additional list element, or hold down the SHIFT key to select a range of units.

3 From the Select Ports list, choose the desired port to configure.

4 From the Select Chans list, choose the port channels to configure.

5 Choose the channel mute state from the Set Channel Mute drop-down list.

6 Check the **Set Channel Mute is Active** check box.

7 From the channel application mode from the **Set App Mode** drop-down list.

8 Check the **Set App Mode is Active** check box.

9 Click **Send Update**.

The status log displays the results of all SNMP set commands.

# RPU Menu Options

## File Menu

The File Menu allows the user to import and export database files.

- File > Import > Import - Copy DB files
- File > Export > Export - Copy DB Files
- File > Exit

## View Menu

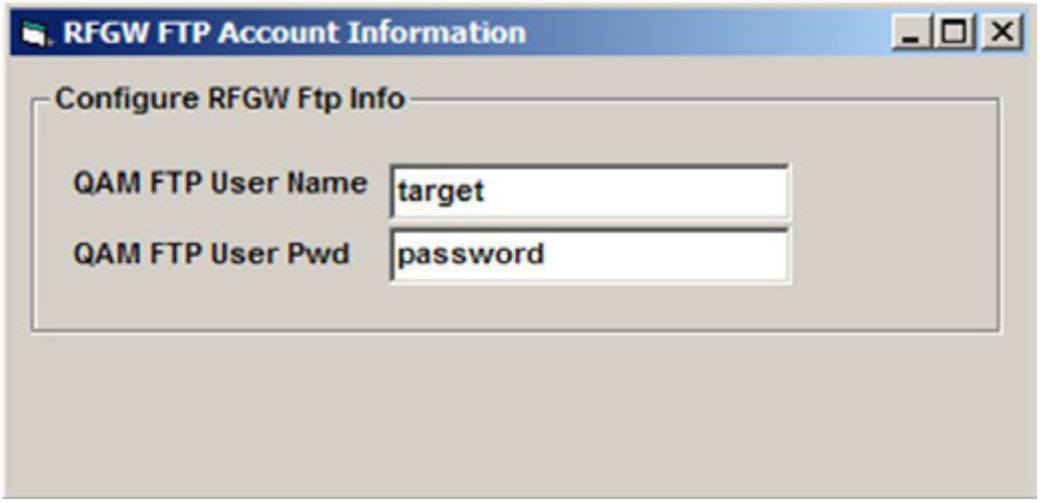
The View menu allows the user to perform the following tasks.

- View > Excel Workbook. Opens the workbook configured in the "Import Excel Workbook" path in Step 1.c in Microsoft Excel.
- View > Selected RFGW in Browser. Displays the current RFGW-1 Web GUI in the default browser. If more than one unit is selected, the last one in the list is displayed.
- View > Database Files - Database Files - XML Viewer. The RPU has a built-in XML viewer dialog. The XML information can be navigated via a tree view. If the XML is badly formed, the viewer presents a warning and will not display the XML data.
- Ref 48 Chan DB. Displays the RFGW-1 reference database file configured for the 48 channel RFGW-1 models.
- Ref 48 Chan One Time DB. Displays the RFGW-1 one-time database file configured for the 48 channel RFGW-1 models.
- Ref 96 Chan DB. Displays the RFGW-1 one-time database file configured for the 96 channel RFGW-1 models.
- Ref 96 Chan One Time DB. Displays the RFGW-1 one-time database file configured for the 96 channel RFGW-1 models.
- Selected RFGW DB. Displays the RFGW-1 reference database file configured for the currently selected RFGW-1.
- Selected RFGW One Time DB. Displays the RFGW-1 one-time database file configured for the currently selected RFGW-1 models.
- View > Database Files - Database Files - Text Viewer. Same choices as with the XML Viewer.

## Configure Menu

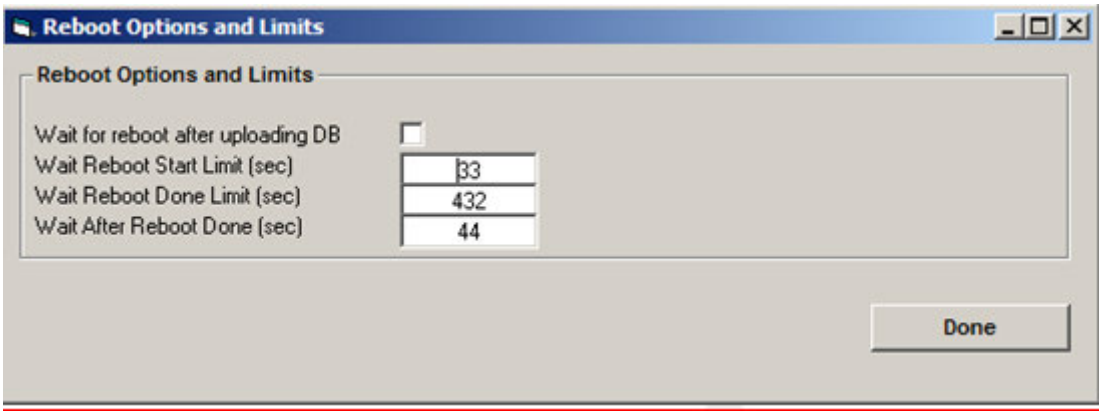
The Configure Menu allows you to configure the following.

- **RFGW FTP Account Information** - The RPU must have the FTP account information to log onto the RFGW-1.

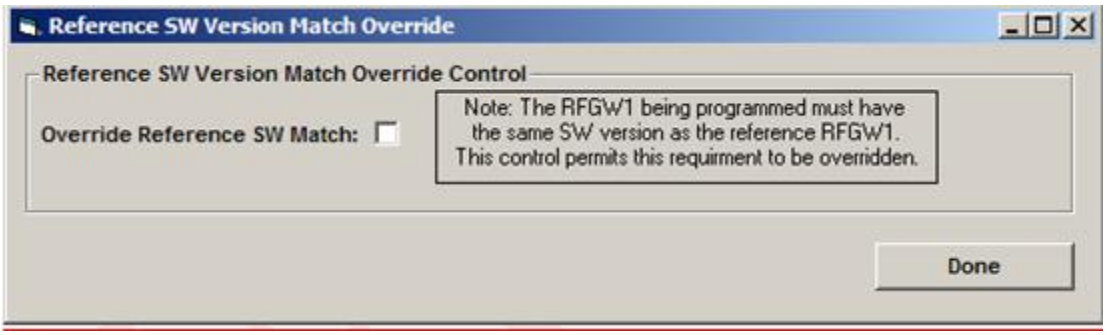



- **RFGW Reboot Options and Limits** - The RPU must reboot the RFGW-1 to get the new database files created by the RPU to become the active database files. The following parameters configure the actions and timeouts for reboot.
  - Wait for reboot after uploading DB - Checking this box configures the RPU to wait for an RFGW-1 to completely reboot after the programming action before continuing on to any other RFGW-1s selected to be programmed.
  - Wait Reboot Start Limit (sec). Number of seconds to wait for the RFGW-1 to start the reboot process. If the RFGW-1 has not started the reboot process after the amount of seconds displayed, this is considered a failure.
  - Wait Reboot Done Limit (sec). Number of seconds to wait for the RFGW-1 to complete the reboot process. If the RFGW-1 has not completed the reboot process after the amount of seconds displayed, this is considered a failure.

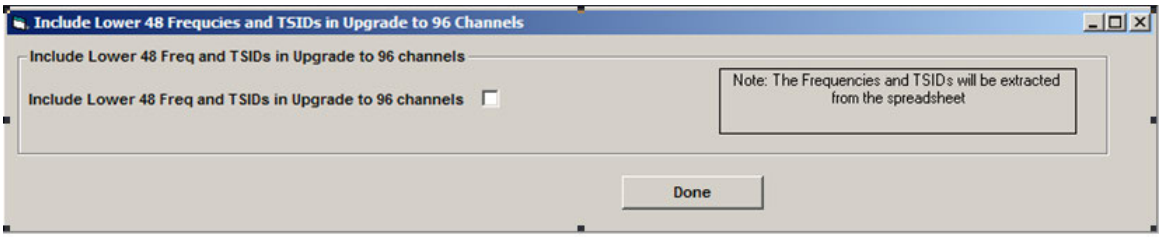
– Wait After Reboot Done (sec). Number of seconds to wait after the RFGW-1 reboots before continuing with processing. The RPU uses a ping command to determine if the RFGW-1 rebooted. This extra wait time after the ping has responded allows other RFGW-1 services to become operational.




- **Reference SW Version Match Override** - The RPU compares the software versions of the RFGW-1 being programmed and the reference RFGW-1. If the versions do not match, the RPU will not program the RFGW-1 unless the Override Reference SW Match option is selected.




- **Lower 48 Frequencies and TSIDs in Upgrade to 96 Channels** - The default action when in upgrade mode is to only update the upper 48 channels with the Frequency and TSID information configured into the SDV Design File spreadsheet. This option permits the upgrade of the RFGW-1 database files to include the lower 48 Frequency and TSID information as well. This can be useful on a network where a new frequency and/or TSID plan is part of the network upgrade process.



## Help Menu

The Help Menu allows the user to view the following tasks.

- Help > Manual. Displays the RPU manual document.
- Help > About. Displays the About dialog that contains the RPU version information.

# 4

# Customer Support Information

## Introduction

This chapter contains information on obtaining product support.

## Obtaining Product Support

| IF… | THEN… |
|---|---|
| You have general questions about this product | Contact your distributor or sales agent for product information or refer to product data sheets on www.cisco.com. |
| You have technical questions about this product | Contact the nearest Technical Support center. |
| You have customer service questions about this product | Contact the nearest Customer Service center. |

# Glossary

ECM

Entitlement Control Messages.

ECMG

Entitlement Control Message Generator.

EIS

Event Information Scheduler.

EMM

Entitlement Management Messages.

ES

Elementary Stream.

FTP

File Transfer Protocol. Allows users to transfer text and binary files to and from a personal computer, list directories on the foreign host, delete and rename files on the foreign host, and perform wildcard transfers between hosts.

GUI

graphical user interface. A program interface that takes advantage of a computer graphics capabilities to make the program visually easier to use.

HTML

Hypertext Markup Language.

HTTP

Hypertext Transfer Protocol.

IP

Internet Protocol. A standard that was originally developed by the United States Department of Defense to support the internetworking of dissimilar computers across a network. IP is perhaps the most important of the protocols on which the Internet is based. It is the standard that describes software that keeps track of the internetwork addresses for different nodes, routes, and outgoing/incoming messages on a network. Some examples of IP applications include email, chat, and Web browsers.

IP address

Internet protocol address. A 32-bit sequence of numbers used for routing IP data. Each IP address identifies a specific component on a specific network. The address contains a network address identifier and a host identifier.

ISO

International Organization for Standardization. An international body that defines global standards for electronic and other industries.

JSON

JavaScript Object Notation. A data interchange format based on a subset of the JavaScript programming language and designed for ease of composition and parsing. JSON is a text format that is language-independent but uses conventions resembling those of C-family languages.

PC

personal computer.

QAM

quadrature amplitude modulation. An amplitude and phase modulation technique for representing digital information and transmitting that data with minimal bandwidth. Both phase and amplitude of carrier waves are altered to represent the binary code. By manipulating two factors, more discrete digital states are possible and therefore larger binary schemes can be represented.

RADIUS

Remote Authentication Dial-In User Service. A networking protocol that provides centralized Authentication, Authorization and Accounting (AAA) management for computers to connect and use a network service.

RF

radio frequency. The frequency in the portion of the electromagnetic spectrum that is above the audio frequencies and below the infrared frequencies, used in radio transmission systems.

RMA

return material authorization. A form used to return products.

RPU

Remote Provisioning Utility.

RU

rack unit. RU is the measuring unit of vertical space in a standard equipment rack. One RU equals 1.75" (44.5 mm).

SCG

Scrambling Control Group.

SCS

Simulcrypt Synchronizer.

# Index

## V

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