

IP-DECT Digital Gateway - Quick Conversion and Configuration Guide

Copyright Notice

© 2023 Spectralink Corporation All rights reserved. Spectralink™, the Spectralink logo and the names and marks associated with Spectralink's products are trademarks and/or service marks of Spectralink Corporation and are common law marks in the United States and various other countries. All other trademarks are property of their respective owners. No portion hereof may be reproduced or transmitted in any form or by any means, for any purpose other than the recipient's personal use, without the express written permission of Spectralink.

All rights reserved under the International and pan-American Copyright Conventions. No part of this manual, or the software described herein, may be reproduced or transmitted in any form or by any means, or translated into another language or format, in whole or in part, without the express written permission of Spectralink Corporation.

Do not remove (or allow any third party to remove) any product identification, copyright or other notices.

Notice

Spectralink Corporation has prepared this document for use by Spectralink personnel and customers. The drawings and specifications contained herein are the property of Spectralink and shall be neither reproduced in whole or in part without the prior written approval of Spectralink, nor be implied to grant any license to make, use, or sell equipment manufactured in accordance herewith.

Spectralink reserves the right to make changes in specifications and other information contained in this document without prior notice, and the reader should in all cases consult Spectralink to determine whether any such changes have been made.

NO REPRESENTATION OR OTHER AFFIRMATION OF FACT CONTAINED IN THIS DOCUMENT INCLUDING BUT NOT LIMITED TO STATEMENTS REGARDING CAPACITY, RESPONSE-TIME PERFORMANCE, SUITABILITY FOR USE, OR PERFORMANCE OF PRODUCTS DESCRIBED HEREIN SHALL BE DEEMED TO BE A WARRANTY BY SPECTRALINK FOR ANY PURPOSE, OR GIVE RISE TO ANY LIABILITY OF SPECTRALINK WHATSOEVER.

Warranty

The Product Warranty and Software License and Warranty and other support documents are available at <http://support.spectralink.com/>.

Contact Information

US Location

+1 800-775-5330

Spectralink Corporation
2560 55th Street
Boulder, CO 80301
USA

info@spectralink.com

Denmark Location

+45 7560 2850

Spectralink Europe ApS
Bygholm Soepark 21 E Stuen
8700 Horsens
Denmark

infoemea@spectralink.com

UK Location

+44 1344 206591

Spectralink Europe UK
The Lightbox, Willoughby
Rd, Bracknell, RG12 8FB
United Kingdom

infoemea@spectralink.com

Table of Contents

Chapter 1: About This Guide.....	4
Environment Information	4
Chapter 2: Setup and Configuration.....	6
Gateway Setup	6
Gateway Configuration.....	10
Chapter 3: Status Pages	13

Chapter 1: About This Guide

This guide describes how to convert a Spectralink DECT Server 2500/8000 into an IP-DECT Digital Gateway, and how to connect it to an IP-DECT Server 400/6500 or Virtual IP-DECT Server One.

In the following, the IP-DECT Server 400/6500 or the Virtual IP-DECT Server One servers will be referred to as "Spectralink IP-DECT Server", while the Spectralink DECT 2500/8000 will be referred to as "Spectralink DECT Server".

This guide is intended for qualified technicians and the reader is assumed to have a basic knowledge about the Spectralink IP-DECT/DECT Servers. It is also assumed, that you have an installed and functioning Spectralink IP-DECT Server and a functioning Spectralink DECT Server.

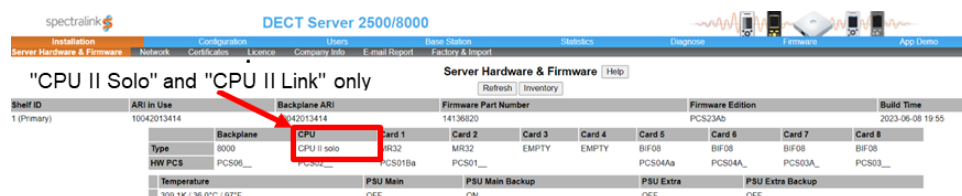
The guide is divided into two parts:

- Setup and Configuration
- Status Pages

The first part describes the general conversion steps and user migration, while the second part illustrates the status pages used for monitoring or debugging the system.

Environment Information

The Gateway conversion is supported exclusively on the DECT Servers with the new CPU card model (CPU II Solo, CPU II Link). The previous CPU models can only be upgraded up to firmware version PCS17C, which does not support the Gateway conversion. If the DECT Server is in a multiple-shelf configuration (exclusive to DECT Server 8000), then all the DECT Servers in the adjacent racks must have the new CPU II type.



DECT Server 2500/8000									
Server Hardware & Firmware									
Shelf ID	ARI in Use	Backplane ARI	Firmware Part Number	Firmware Edition	Build Time				
1 (Primary)	10042013414	1042013414	14136020	PCS23AD	2023-06-08 19:55				
	Backplane	CPU	Card 1	Card 2	Card 3	Card 4	Card 5	Card 6	Card 7
	Type	8000	MR32	EMPTY	EMPTY	EMPTY	BIF08	BIF08	BIF08
	HW PCS	PCS06_	PCS01Ba	PCS01_	PCS04Aa	PCS04A_	PCS04A_	PCS03A_	PCS03_
	Temperature	309.1K / 38.0°C / 97°F	PSU Main	PSU Main Backup	PSU Extra	PSU Extra Backup			
			OFF	ON	OFF	OFF			

In order to upgrade the system with the IP-DECT Digital Gateway software, a software assurance license is required to be present on the server. Even the smallest software assurance license (30 users) is sufficient for the upgrading process, provided all the SIP user licenses are deleted before installing the Gateway software.

If the DECT server is a new server direct from the factory it comes with a 180-day software assurance license (180 days from CPU II production time.)

Digital Base Stations limitations

Digital Base Stations come with the following limitations, that do not apply to IP-DECT base stations:

1. They only support Radio synchronization over the wire from central rack
2. They only support standard DECT encryption.
3. Only RFP5 and RFP6 bases will work.

IP-DECT Digital Gateway limitations

Changes in operation mode on IP-DECT Digital Gateway versus the DECT server:

1. IP-DECT Digital Gateway does not support EMD messaging or serial connection, all messaging must be done over IP to the IP-DECT server in XML-RPC format.
2. Serial port on CPU card is not in operation, when system is configured as IP-DECT Digital Gateway.

Chapter 2: Setup and Configuration

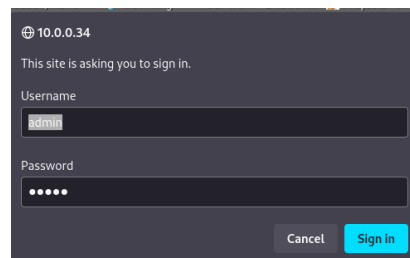
The gateway software can be installed on an existing running and configured DECT server or on a new DECT server directly from the factory.

Below is a description of how to configure the Spectralink DECT Server, the setup process and an overview of all the changes occurring when the server runs in Gateway mode.

Gateway Setup

1) Connecting to the DECT Server

1. Open a web browser and connect to the IP Address of the system that needs to be updated. If this is a new DECT server then connect to 192.168.0.1
2. Login with the username as password of the system. If this is a new DECT server use the following credentials.
 - Username: admin
 - Password: kws8000



2) Updating the DECT Server:

In case of a new DECT server ignore step 1-3 and go directly to step 4.

1. Before connecting the Gateway to a new IP-DECT Server, a user backup* must first be made on the DECT Server, so they can be later reimported in the IP-DECT Server. To create a backup:
 - Go to Users -> Backup & Restore.
 - In the Backup (export) tab, press **Backup** to save the user backup file.



***Note:**

The DECT server must have the latest software installed – Minimum PCS23Ba; as the exported user format must match the import on the IP-DECT server, using a user backup from older softwares can cause an issue with user import.

A service report is also recommended as it contains a backup of the system settings.

- Go to Diagnose -> Service Report and press “Get Service report”
- Once completed, download the file in the bottom right corner.

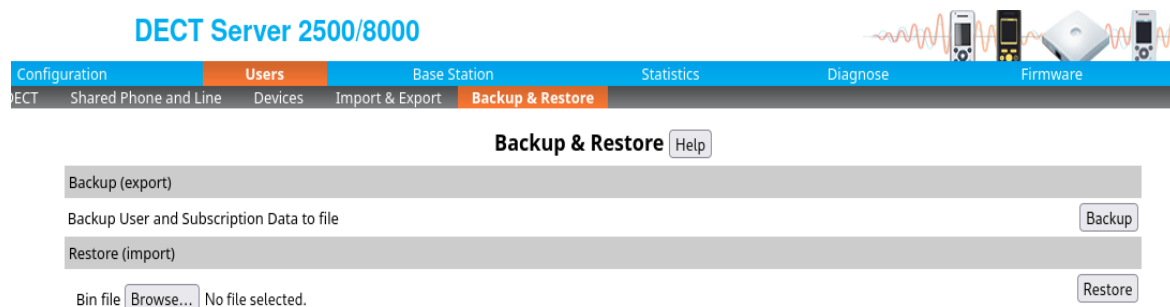
```
00:13:39.552 [][Service][report]Ready to complete configuration, statistic & log files!
301994 bytes collected
```

Done!

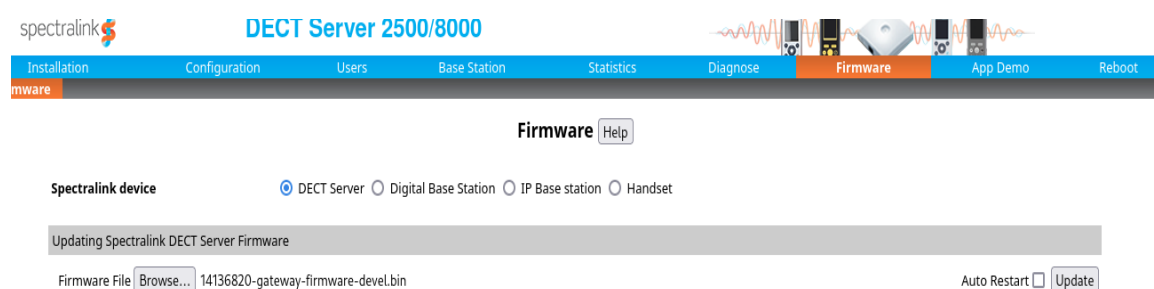
[servicereportfiles_2.tar.gz](#) 
[View warnings](#)

The service report is just a precaution and is only needed in case something goes wrong.

2. If the DECT server has IP-DECT Base Stations connected they will become orphaned once the server is converted to a Gateway. They should be configured to use the new IP-DECT Server before the software is updated.
3. In case any repeaters are connected to the DECT server they will also get orphaned once the server is converted to GW. They need to be updated to use the ARI of the new IP-DECT server instead of the original DECT server ARI.



4. Update the DECT Server firmware to the Gateway version



5. Reboot the system for the Gateway configuration to take place. It might be necessary to manually refresh the page by pressing F5.
6. When the system comes up after reboot login to the admin page using the following credentials.
 - Username: admin
 - Password: admin
5. Now it's time to configure the Network. (this step can be skipped if upgrading an existing DECT Server that where already configured)

3) Network Settings

IP configuration is not required if the server is running with the DHCP option. Both the CPU and MR cards will get an IP from the DHCP server.

When static IP is used, it is necessary to configure the IP address for the Master shelf CPU cards, as they are responsible for running the GUI. Internal communication between the shelves occurs via the backplane and not through the network.



Note:

If the "Method" field is set to DHCP, the IP address displayed in the "IP Address", "Netmask" and "Gateway" fields is ignored. These IP addresses are only used if "Method" is set to Static. IP configuration can be viewed under Status -> Network.

MR Cards require a network connection and must be configured when running a static IP configuration. The network settings can be configured individually on each card.

IP-DECT Digital Gateway

Configuration
Firmware

General Configuration: Shelf 1 Slot 2 MR

IPv4

Method **

DHCP assigned ▼

IP addr **

Netmask **

Gateway **

MTU **

IPv6

Method **

Disabled ▼

Address/prefix **

Default gateway **

Ethernet

VLAN **

DNS

Hostname (FQDN) **

Search domain

Primary Server

Secondary Server

Save

Cancel

*) Required field **) Require restart

4) Connecting the digital base station

To connect the digital Base station to a new IP-DECT Server, there are two possibilities.

The digital base stations can be configured to find the IP-DECT Server using UPnP (enabled by default), if the feature is supported on the network. Alternatively, it is also possible to specify the IP-DECT Server IP address (or hostname) directly under Configuration -> Base Station, in the Server field.



Note:

It is also possible to reboot the system from this page

5) Adding digital base station license on the IP-DECT Server

To enable the Digital bases from a Gateway on an IP-DECT server, an advanced feature bundle license is required, when the license is loaded, then the Digital base stations can be enabled under features.

1. Go to Administration -> License and add the license.
2. After the license is loaded go to Administration -> Features and enable the feature "Digital Base Station" and press save.



Note:

Digital Base Stations will not boot up until connected to the IP-DECT Server with the Digital base license loaded and feature enabled.

If this is a new DECT server the Gateway is now ready for configuration and step 6) can be skipped. If this is an updated existing DECT server we need to restore the backup made earlier.

6) Importing Users on the IP-DECT Server

To complete the Gateway setup, the previously exported users from the DECT Server need to be restored on the IP-DECT Server. To import the users:

1. Go to Users -> Import/Export and load the backup file
2. After the users have been restored, all handsets need to be re-subscribed.

Gateway Configuration

Firmware Update

To update the Gateway to a new firmware version, go to Firmware -> Gateway. It is also possible to downgrade the firmware by simply choosing the DECT Server firmware, instead of the Gateway firmware.

In addition to the server, it may also be necessary to update the Base Station firmware. This can be done from Firmware -> Base Station. The latest software for Digital bases is built into the gateway software.



Note:

If a downgrade is performed all the original user data is still present on the DECT server but all handset needs to be Re-subscribed to DECT Server ARI.

IP-DECT Digital Gateway

Configuration
Firmware

Update base station firmware

Default

RFP5 pcs12__

RFP6 pcs16E__

RFP6 Automatic

Enable ☐

Start time Immediately ▾

Manual

Device
☐ RFP5
☒ RFP6

Firmware file
☐ Default
☒ Upload No file selected.

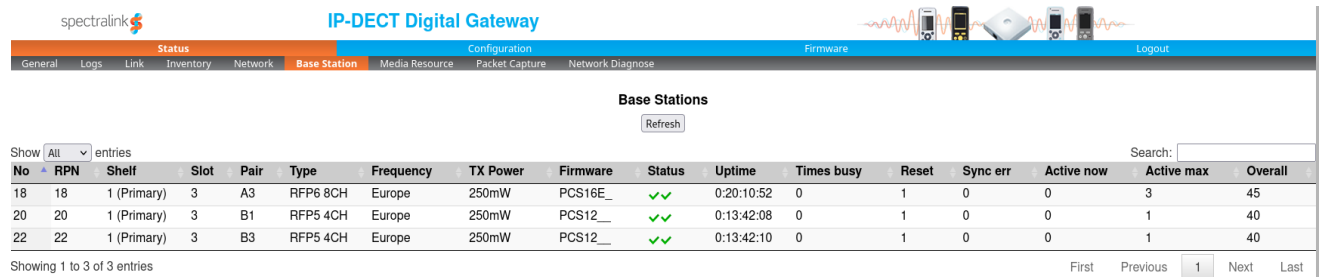
Start base station No *

End base station No *

*) Required field

Region

The Digital Base Station region settings are displayed on the Gateway. You can view them from Status -> Base Station.



Base Stations

Refresh

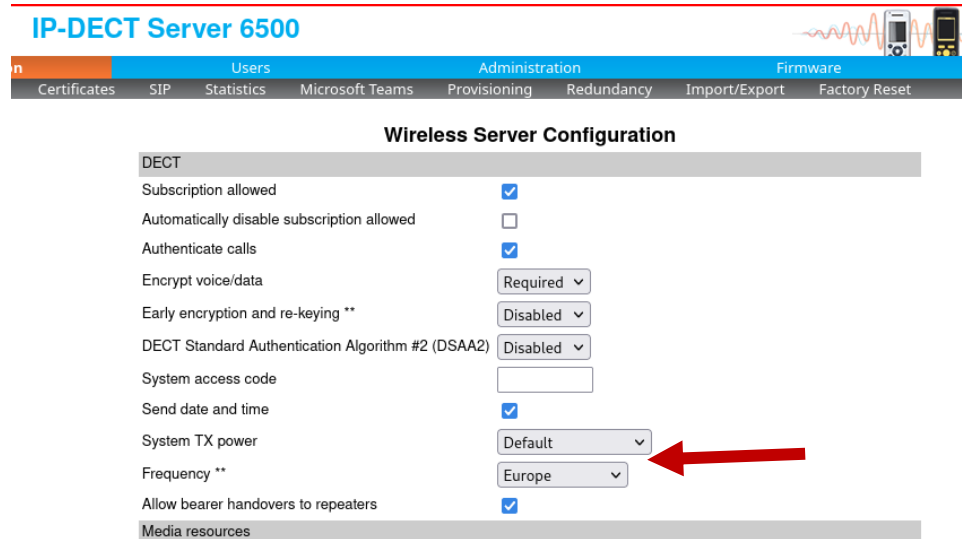
Show All entries

No	RPN	Shelf	Slot	Pair	Type	Frequency	TX Power	Firmware	Status	Uptime	Times busy	Reset	Sync err	Active now	Active max	Overall
18	18	1 (Primary)	3	A3	RFP6 8CH	Europe	250mW	PCS16E_	✓	0:20:10:52	0	1	0	0	3	45
20	20	1 (Primary)	3	B1	RFP5 4CH	Europe	250mW	PCS12_	✓	0:13:42:08	0	1	0	0	1	40
22	22	1 (Primary)	3	B3	RFP5 4CH	Europe	250mW	PCS12_	✓	0:13:42:10	0	1	0	0	1	40

Showing 1 to 3 of 3 entries

First Previous 1 Next Last

Digital bases are either 1G8 (EU) or 1G9 (US), and the region can be changed from the IP-DECT Server if a Region Swap license is installed. Changing the region requires a reboot of the base stations.



IP-DECT Server 6500

Wireless Server Configuration

DECT

Subscription allowed ☒

Automatically disable subscription allowed ☐

Authenticate calls ☒

Encrypt voice/data Required

Early encryption and re-keying ** Disabled

DECT Standard Authentication Algorithm #2 (DSAA2) Disabled

System access code

Send date and time ☒

System TX power Default

Frequency ** Europe

Allow bearer handovers to repeaters ☒

Media resources

Synchronization

When using the Gateway in co-existence with IP-DECT base stations, on same physical site/location it is important to configure the Gateway digital bases as the sync source for IP-DECT bases, either with Radio sync or with Radio/LAN gateway.

This is also the reason why there cannot be two Gateways in the same physical location, as the sync source for the entire system must originate from the DECT Gateway's Digital bases.

**Note:**

Its possible to connect additional Gateways to an IP-DECT server, but only if the two Gateway's digital bases are physically separated, and do not have overlapping radio coverage areas.

spectralink **IP-DECT Server 6500**

Navigation: Status | Configuration | Users | Administration | Firmware | Statistics | Logout

Sub-navigation: Wireless Server | License | Features | Media Resource | **Base Station** | Sites | Phonebook | Dispatchable Locations | Backup

Base stations

Buttons: Refresh | Clear | Loops

Actions: Delete | Assign Site | Assign Dispatchable Location | Sync Type | AutoSync

Show 100 entries

No	Serial	Type	Description	RPN	Site	Firmware	Status	Uptime	Sync	Sync Source	Lost	LAN delay / μs	LAN jitter / ns	LAN sync performance
0	13534335	RFP6 4CH	Serial: 0013534335	148	None	PCS16E_	✗	0:00:00:00	⊗					
1	13534331	RFP5	Serial: 0013534331	144	None	PCS12_	✓	0:01:33:19	✓					
2	13534333	RFP5	Serial: 0013534333	146	None	PCS12_	✓	0:01:33:17	✓					
3	8453414	IP-DECT	Serial: 0008453414	3	None	devel 7b5ce12	✓	0:00:08:06	✓	Gateway: 16 / 18	0 - 0%			
4	13534133	RFP6 8CH	Serial: 0013534133	18	None	PCS16E_	✓	0:01:35:26	✓					
5	13534221	RFP6 8CH	Serial: 0013534221	72	None	PCS16E_	✓	0:01:34:48	✓					
6	13534228	RFP6 4CH	Serial: 0013534228	79	None	PCS16E_	✓	0:01:34:48	✓					
7	13534227	RFP6 4CH	Serial: 0013534227	78	None	PCS16E_	✓	0:01:34:49	✓					
8	13534334	RFP6 4CH	Serial: 0013534334	147	None	PCS16E_	✗	0:00:00:00	⊗					
9	13534131	RFP6 8CH	Serial: 0013534131	16	None	PCS16E_	✓	0:01:35:27	✓					
10	13534332	RFP6 4CH	Serial: 0013534332	145	None	PCS16E_	✓	0:01:33:22	✓					
11	9468962	IP-DECT	Serial: 0009468962	11	None	devel 5a57369	✓	0:00:01:24	✓	LAN: 3	0 - 9%	8	44	✓

Showing 1 to 12 of 12 entries

Navigation: First | Previous | 1 | Next | Last

To configure an IP-DECT base station as Radio/LAN Gateway:

1. Go to Administration -> Base Station and select the IP-DECT base station you want to configure.
2. Select "Radio/LAN Gateway" and then select two digital bases to sync against. Now it is possible for other IP-DECT base stations to synchronize up against this IP-DECT Digital Gateway sync master, either on LAN or with Radio Sync.

Base station 3 configuration

General

IP address: 10.0.0.129

Description: Serial: 0008453414

RPN: 3

Site: None

Dispatchable location: None

Disabled: ☐

TX power: Default

External antenna mode: Use internal & external antenna

Synchronization

Type: Radio/LAN Gateway

Auto radio sync (deployment only): ☐

Primary radio sync (RPN): 16

Secondary radio sync (RPN): 18

RSSI map

RPN	RSSI dB	Offset
16	110	0
11	110	-2
72	110	4
18	110	1
145	110	-1

**Note:**

When using the Radio/LAN Gateway Synchronization function, the DECT system synchronization is transitioned from Radio sync to LAN Sync.

Chapter 3: Status Pages

Below is an overview of all the status pages that display the internal status of the Gateway. These are used while configuring or debugging the system. Regular system operation is done from the IP-DECT server.

Logs

To display CPU or MR logs:

1. Go to Status - > Logs
2. Select CPU or MR
3. Select the desired shelf to display logs on (if the system is in a multi-shelf configuration)

Message Log

Display filter: Shelf 1 CPU notice Application Export Refresh Clear Stream Stop

Show 100 entries Search:

No	Timestamp	Type	Message
0	1970-01-01 00:00:52.803	notice	GATEWAY 2022.1 (ef85ca43b) started
1	1970-01-01 00:00:52.962	notice	kif_scm started
2	1970-01-01 00:00:53.002	notice	kif_link started
3	1970-01-01 00:00:54.089	notice	kif_tsi started
4	1970-01-01 00:00:54.401	warning	kif_scm: IOHandler 'Client Active IO' used 386ms.
5	1970-01-01 00:00:54.401	warning	kif_scm: HandleIO used 386ms [1 I/O events].
6	1970-01-01 00:00:55.343	notice	MediaResource 2022.1 Unversioned directory started
7	1970-01-01 00:00:55.893	warning	GATEWAY Admin 2022.1 (ef85ca43b): Signal [event:0x23 subevent:0x04] dispatch to [Pid:39] used 1127ms. CPU=0
8	1970-01-01 00:00:55.893	warning	GATEWAY Admin 2022.1 (ef85ca43b): HandleSignals used 1127ms [1 signals].
9	2023-10-16 10:54:13.749	notice	kif_mr started

It is also possible to export the logs from this page, by pressing the “Export” button. Exported logs are stored in a .tar file that contains the logs from all the shelves and many other useful information needed when debugging the system.

Link

Displays information about the status of the backplane link between the shelves, in a multi-shelf system.

Link Status

Refresh Reset

Show All entries Search:

Shelf	Tokens	Idle Count	Rx packets	Tx packets	Timeout	Length errors	CRC errors	DEL errors	STX errors	ETX errors	No link	Re-synch	Shelf ID errors	EIAROW	UIAROW
1 (Primary)	3736	0	839	799	0	0	0	0	0	0	0	0	0	0	0
2	3735	0	205	203	0	0	0	0	0	0	0	0	0	0	0
3	3737	0	601	628	0	0	0	0	0	0	0	0	0	0	0

Showing 1 to 3 of 3 entries First Previous 1 Next Last

Inventory

Displays information about the hardware found in the system. The main page lists and details information about each individual shelf.

spectralink

IP-DECT Digital Gateway

Status

Configuration

Firmware

Logout

GeneralLogsLinkInventoryNetworkBase StationMedia ResourcePacket CaptureNetwork Diagnose

Inventory

Refresh

ShowAllentries

Search:

Shelf	Firmware PCS	Backplane PCS	Temperature	Slot 1	Slot 2	Slot 3
1 (Primary)	DEVel	PCS01__	35.0C / 95.0F		MR32	BIF08
2	DEVel	PCS01__	34.5C / 94.1F		BIF08	MR32
3	DEVel	PCS01__	30.5C / 86.9F			BIF08

Showing 1 to 3 of 3 entries

FirstPrevious1NextLast

Clicking on a shelf will display detailed information about the cards found on each shelf.

spectralink

IP-DECT Digital Gateway

Status

Configuration

Firmware

Logout

GeneralLogsLinkInventoryNetworkBase StationMedia ResourcePacket CaptureNetwork Diagnose

Inventory Shelf: 1

Refresh

ShowAllentries

Search:

Slot	Type	HW PCS
CPU	CPU II link	PCS12__
1		
2	MR32	PCS01Bb
3	BIF08	PCS04B__

Showing 1 to 4 of 4 entries

FirstPrevious1NextLast

Network

Displays the current IP and network status for all the interfaces in the system.

spectralink

IP-DECT Digital Gateway

Status

Configuration

Firmware

Logout

GeneralLogsLinkInventoryNetworkBase StationMedia ResourcePacket CaptureNetwork Diagnose

Network

Refresh

ShowAllentries

Search:

Shelf	Slot	Type	IP address	Rx packets	Rx errors	Rx drop	Rx overruns	Tx packets	Tx errors	Tx drop	Tx overruns	Tx collisions
1 (Primary)	CPU	CPU	10.0.0.34	1050	0	0	0	715	0	0	0	0
1 (Primary)	2	MR	10.0.0.66	82	0	0	0	26	0	0	0	0
2	CPU	CPU	192.168.0.1	0	0	0	0	0	0	0	0	0
3	CPU	CPU	192.168.0.1	0	0	0	0	0	0	0	0	0

Showing 1 to 4 of 4 entries

FirstPrevious1NextLast



Note:

CPU 2 and 3 do not have network connections, so all internal communication is done through the backplane.

Base Stations

Displays information of all the Digital Base Stations connected to the Gateway.

spectralink

IP-DECT Digital Gateway

Status

Configuration

Firmware

Logout

General

Logs

Link

Inventory

Network

Base Station

Media Resource

Packet Capture

Network Diagnose

Base Stations

Refresh

Show

All

entries

Search:

No	RPN	Shelf	Slot	Pair	Type	Frequency	TX Power	Firmware	Status	Uptime	Times busy	Reset	Sync err	Active now	Active max	Overall
16	16	1 (Primary)	3	A1	RFP6 8CH	Europe	250mW	PCS16E_	✓✓	0:00:04:16	0	0	0	0	0	0
18	18	1 (Primary)	3	A3	RFP6 8CH	Europe	250mW	PCS16E_	✓✓	0:00:05:41	0	0	0	0	0	0
72	72	2	2	A1	RFP6 8CH	Europe	250mW	PCS16E_	✓✓	0:00:05:28	0	0	0	0	1	1
78	78	2	2	B3	RFP6 4CH	Europe	250mW	PCS16E_	✓✓	0:00:05:06	0	0	0	0	0	0
79	79	2	2	B4	RFP6 4CH	Europe	250mW	PCS16E_	✓✓	0:00:05:14	0	0	0	0	0	0
144	144	3	3	A1	RFP5 4CH	Europe	250mW	PCS12_	✓✓	0:00:39:51	0	0	0	0	1	1
145	145	3	3	A2	RFP6 4CH	Europe	250mW	PCS16E_	✓✓	0:00:04:03	0	0	0	0	0	0
146	146	3	3	A3	RFP5 4CH	Europe	250mW	PCS12_	✓✓	0:00:40:28	0	0	0	0	1	2

Showing 1 to 8 of 8 entries

First

Previous

1

Next

Last

Media Resources

Lists all the Media Resources connected to the system.

spectralink



IP-DECT Digital Gateway



Status

Configuration

Firmware

Logout

General

Logs

Link

Inventory

Network

Base Station

Media Resource

Packet Capture

Network Diagnose

Media Resources

Refresh

Show

All

entries

Search:

No	Shelf	Slot	Firmware	Status	Uptime	IP address	Times busy	Active now	Active max	Overall
-	3	2	-	✗	-	-	-	-	-	-
0	1 (Primary)	2	PCS21Bc	✓	0:00:04:59	10.0.0.66	0	0	0	0

Showing 1 to 2 of 2 entries

First

Previous

1

Next

Last

Status: ✓ Connected to Gateway ✗ Not Connected