Spectralink® KIRK® Wireless Server 400

Installation and Configuration Guide

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Chapter 1: Preface

This guide is intended for qualified technicians who will install, configure and maintain the KIRK Wireless Server 400 (KWS400) Solution.

This guide provides all the necessary information for successful installation and maintenance of the KWS400. For information about the installation and configuration of the KIRK Repeaters and the KIRK Handsets, please download the user guides at www.spectralink.com.

Important Information Before You Begin

This guide assumes the following:

- that users have a working knowledge of PBX operations
- that the PBX is installed and initialized and is working correctly
- that you have a working knowledge of deployment in general
- that a site survey has been conducted and that the installer has access to these plans

Furthermore, you need the information in the following table below to enter the web based Administration Page.

Table 1 *Initial SystemAccess*

Initial System Access KWS 400	
IP address of the KWS400	DHCP assigned or 192.168.0.1 if DHCP server is not available
User Name	admin
Password	ip6000

Note

The KWS400 is pre-configured to use DHCP. If DHCP is not available, it will fall back to static IP address (192.168.0.1) after one minute.

The current IP Address of the KWS400 can be discovered using UPnP.

Enabling UPnP

When the KIRK Wireless devices are set up to DHCP, you can use UPnP to discover the wireless devices. The devices appear under Network and Other Devices as “<device name>-<Serial number> “, for example, KWS400-8442621

UPnP needs to be enabled on your PC.You enable it from the control panel (Win7) under “Network and Sharing Center”, enter “Change advanced sharing settings” and then enter “Turn on network discovery”.

Acronyms

Table 2 *List of Acronyms*

Acronym	Description
AC	Authentication Code
ARI no.	Access Rights Identity - Serial number of the KWS400
DECT	Digital Enhanced Cordless Telecommunications
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
GAP	Generic Access Profile
IP	Internet Protocol
IPEI	International Portable Equipment Identity - Serial no. of the handset - SN
KWS	KIRK Wireless Server
LAN	Local Area Network
LED	Light Emitting Diode
MAC	Media Access Control - hardware address of a device connected to a network
MTU	Maximum Translation Unit
MWI	Message Waiting Indication
NTP	Network Time Protocol
PoE	Power over Ethernet
RSSI	Received Signal Strength Indicator
RTP	Real-time Transport Protocol
SIP	Session Initiated Protocol
WRFP	Wireless Radio Fixed - Wireless Repeater

Chapter 2: Introduction to KIRK Wireless Server 400

In addition to the KWS400, a typical configuration includes a number of the following components:

- Repeaters (optional)
- Handsets and accessories
- KIRK IP Base Station (optional)

The KWS400 has radio enabled.

Figure 1 *Overview of the Whole Solution*

Overview of the KIRK Wireless Server 400 Solution

The following provides an overview of the system capacity of the KWS400.

Table 1 *Overview of System Capacity*

Description	Capacity
Max. number of simultaneous SIP calls via license	12
Max. number of repeaters	3
Max. number of registered handsets via license	30
Max. number of IP Base Stations via license	3

- The KWS400 controls the KIRK IP base stations if available, and manages the IP interface to the PBX.
- The communication protocol between the KWS400 and the PBX is SIP.
- The KWS400 is installed directly on the LAN and must be managed as part of the corporate network.

KIRK Wireless Server

The wireless solution supports two wireless bands and that allows operation in various countries and regions. The KWS400 has a radio enabled. Supported wireless bands are:

- ETSI (1880-1900 Mhz), referred to as 1G8
- USA DECT (1920-1930 MHz), referred to as 1G9, DECT 6.0

Please note that it is not possible to change the predefined band.

KIRK IP Base Station

The KIRK IP Base Station has 12 simultaneous traffic channels (32 Kbit/s). The KIRK IP Base Station controls the traffic in the air and works as the link between the KIRK Handsets and the KIRK Wireless Server 400.

For more information about when to use the KIRK IP Base Station, download the KIRK IP Base Station user guide from:
http://supportdocs.spectralink.com/SpectralinkService/support/global/documents/support/others/products/voice/KIRK_Base_Stations.pdf.

KIRK Repeater

The KIRK Repeater can be used to extend the coverage area in a wireless solution. The wireless repeater is used in areas with limited voice traffic where cabling is difficult. The repeater does not increase the number of traffic channels, but increases the coverage area established with the base station. The use of repeaters is optional.For more information about when to use repeaters, visit www.spectralink.com.

KIRK Handset

The handset is a portable unit compatible with DECT GAP standard, and it is designed to provide the subscriber with most of the features available for a wired phone in addition to its roaming and hand over capabilities.

The KWS400 supports up to 30 registered handsets.

KIRK Maintenance Software

You use the web based user interface to manage the KWS400. From the web based user interface, you can also manage and configure the IP Base Stations and configure user data and SIP settings.

- ServiceTool. The service tool is used for programming the repeater, and for downloading software to the repeater.You can download the ServiceTool application from www.spectralink.com.

Requirements

Environmental Requirements

The installation area must be:

- clean, free of traffic and excess dust, dry, and well ventilated
- within the temperature ranges of 10°C and 40°C/50°F and 104°F
- between 20% and 80% non-condensing relative humidity

Electrical Requirements

The following electrical requirements must be met:

- Power over Ethernet (PoE 802.3af)
- Maximum power supply consumption is 3.0W (IEEE 802.3af class 1 device)

Use a standard PoE adapter or a PoE-enabled port on a switch adhering to PoE 802.3af when connecting the server to a PoE power source.

Use an 8V-DC power supply when using a power supply as power source.

The power supply or PoE must be purchased seperately.

Installation Prerequisites

Before you start the installation, ensure:

- that the following network isavailable:
  - 10/100 Mbit/s Ethernet

  - PoE from IEEE 802.3af and up
- that the PBX supports the following communication protocol:**SIP**

Chapter 3: Installing KIRK Wireless Server 400

Before you install the equipment, ensure that a site planner defines the location of the KWS400.

Types and Numbers

The KWS400 contains RF circuitry that complies with the local band standards: ETSI DECT and USA DECT 6.0. The table below includes a list of available KWS400s and their part numbers.

Table 1 *KIRK Wireless Server 400 Part Numbers*

	Number
KIRK Wireless Server 400 1.8 GHz	02344500
KIRK Wireless Server 400 1.9 GHz	02344501
KIRK IP Base Station 1G8	02337400
KIRK IP Base Station 1G9	02337401
Power supply for KWS400	84642600
PoE Adapter, EU version	02319600
PoE Adapter, UK version	02319601
External Antenna	02319507
PoE Adapter, US version	02319602
PoE Adapter, AU version	02319603
4 CH Multi Cell Repeater 1G8	02334601
2 CH Multi Cell Repeater 1G8	02440000
4 CH Multi Cell Repeater 1G9	02338200
2 CH Multi Cell Repeater 1G9	02441200
Power supply Repeater	84642602

KWS400 Appearance and Components

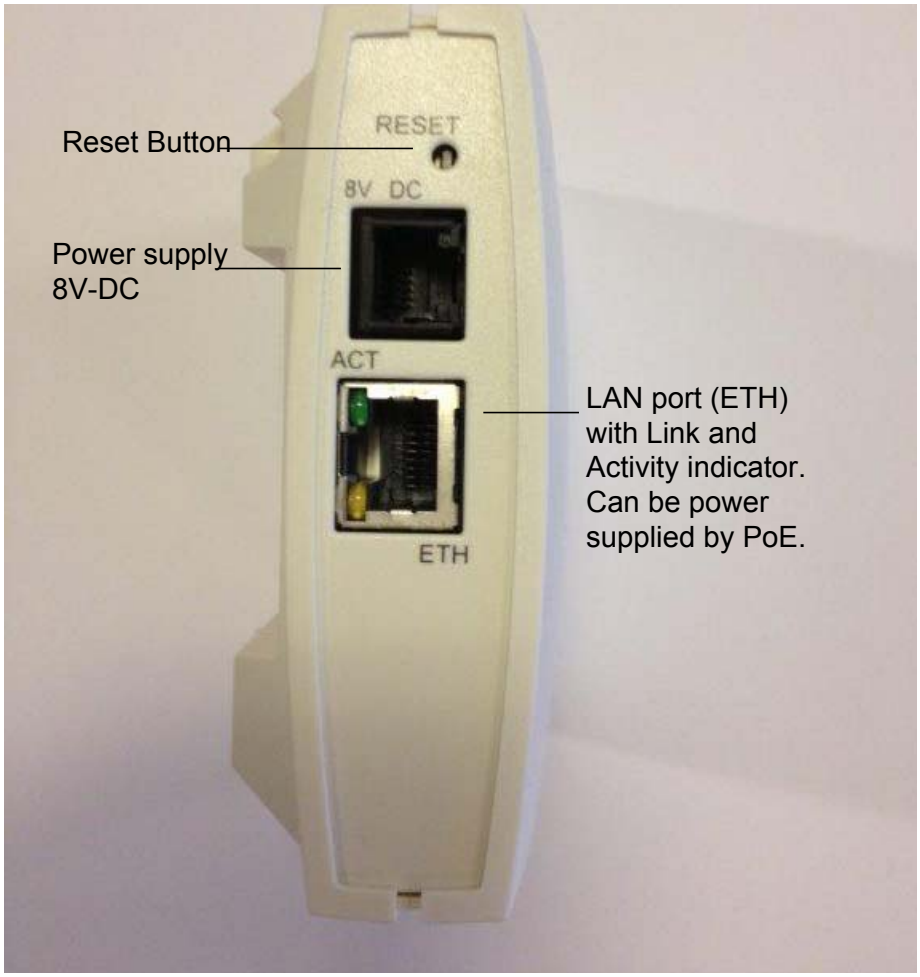
The KWS400 front cover includes the following:

- LED indicating the operating status of the unit

Figure 1 *KWS400 - Front view*

The KWS400 faceplate includes the following:

Figure 2 *KWS400 - Faceplate*



KWS400 LED Indicators

Table 2 *LED Indicator Description - Front Cover*

LED Indicator	Meaning
Steady green	OK and idle
Slow green flashing	OK and active voice call
Red flashing	Error or rebooting

Table 3 *LED Indicator Description - Faceplate*

LED Indicator	Meaning
LINK Indicator - green	Link layer software has established connection
Activity Indicator - yellow	Activity

KWS400 - Reset Button

It is possible to restart or reset the KWS400 by pressing the Reset button on the faceplate of the KWS400.

Table 4 *Reset Button Description*

Press button	Action
Short press (2 to 5 sec.)	System restarts when button is released.
Long press (5 to 9 sec.) until front LED flashes red, then release button	Resets the system to factory default settings (original IP settings and empty user data base) and restarts the system. Firmware version is not affected.

Installing the KWS400

The KWS400 is suitable for mounting indoors on a wall.

1 Mount the KWS400 on the wall, using the anchors and screws provided.
You can also mount the KWS400 upside down.

When you place the KWS400 on the screws, ensure that the screws do not touch the printed circuit board.

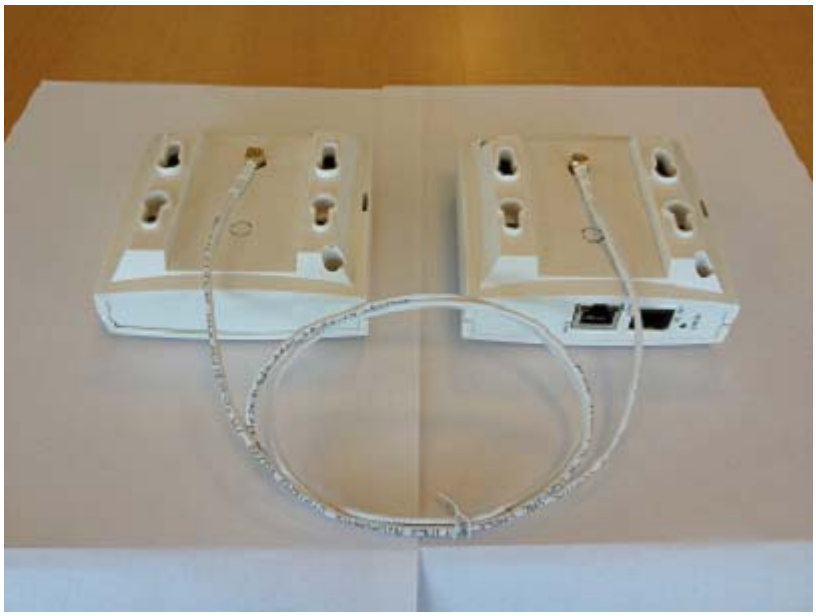
Figure 3 *KWS400 Wall Mounting*

Installing the External Antenna

You connect the external antenna to the KWS400 by removing the brick on the rear side and mounting the cable to the external antenna as shown in the following figure. The external antenna is mounted on the wall in the same way as the KWS400.

For information on how to use and place the external antenna, refer to the deployment guide.

Figure 4 *External antenna*



Left: external antenna Right: KWS400

Chapter 4: Configuring KIRK Wireless Server 400

Note

If additional IP Base stations are added to the system, it is recommended to use a static IP address for the server.

The current IP Address of the KWS400 can be discovered using UPnP

Powering up the KWS400

After installing the KWS400 you need to power up the unit using PoE or PSU. The PSU must be ordered separately: part number 84642600.

How to Access the Administration Page

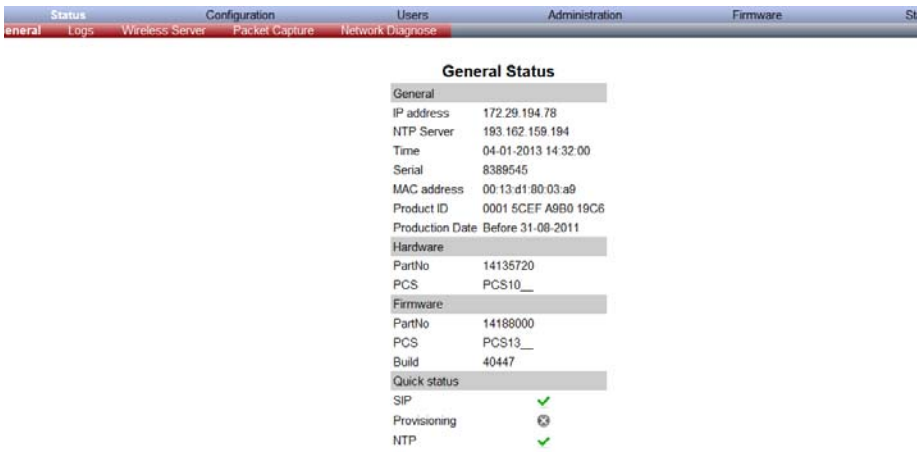
The web based Administration Page is accessed through a standard web browser. To access the web page, you need the following information.

Table 1 *System Access*

Initial System Access KWS400	
IP address of the KWS	DHCP assigned or 192.168.0.1 if DHCP server is not available.
User Name	admin
Password	ip6000

- Point your browser to http://<IP Address>

Figure 1 *Main page of the Administration Page for KWS400*



Configuring Network Settings

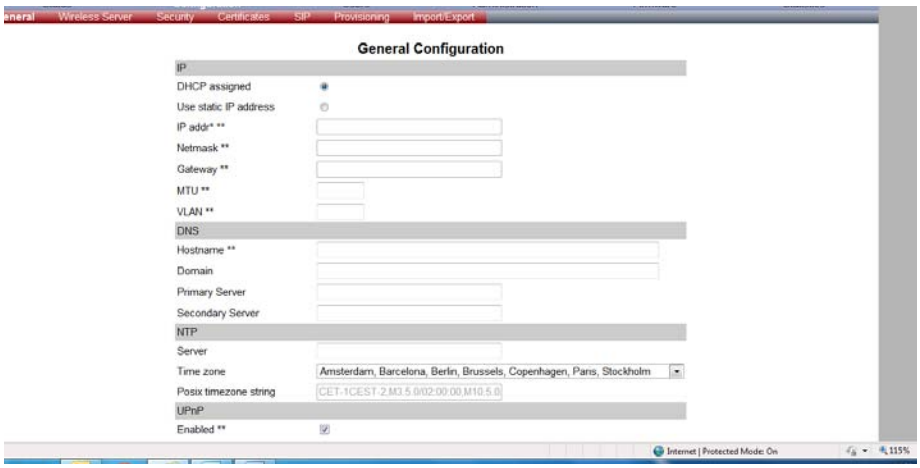
The KWS400 is pre-configured to use DHCP. If DHCP is not available, it falls back to static (192.168.0.1) after one minute.

The current IP Address of the KWS400 can be discovered using UPnP.

Configuration

On the **Configuration/General** page you define the network settings for the KWS400.

Figure 2 *Adm. Page KWS400: Configuration/General page*



1 Click **Configuration**, and then click **General**.

2 Make the preferred changes, and then click **Save**.

IPV4

Select the preferred method: **Use Static IP Address** or **DHCP Assigned**.

If you select DHCP, the IPV4 configuration is completed. Otherwise,specify IPaddress, Netmask, Gateway, and MTU size (optional) according to you network options.

Ethernet

Set the VLAN identifier to match your VLAN (optional). According to IEEE 802.1Q values between 0 and 4094 are valid.

DNS

Specify the hostname of the KWS400 (optional). Must be DNS resolvable.

Specify the network domain and the primary and secondary DNS servers.

NTP

Specify the NTP server IP address or hostname, and set the time zone.

The NTP server is important. If the NTP server is not specified, the Certificatesare not valid and system may not work properly.

UPnP

Enable or disable UpnP.

Enable UPnP broadcast. If you do not enable UPnP broadcast, it may cause unnecessary network broadcast traffic.

Remote Syslog

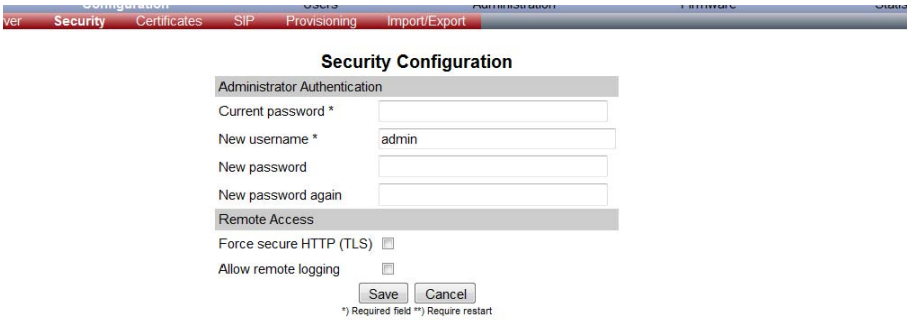
Specify the address of the syslog server, specify the port that is being used, the facility (see RFC5424 for details), and the level of logging that is required.

Changing Administration Password

On the **Security Configuration** page, you can change the password and allow remote logging. It is highly recommended that you change the password.

- Click **Configuration** and then click **Security**.
- Make the preferred changes, and then click **Save**.

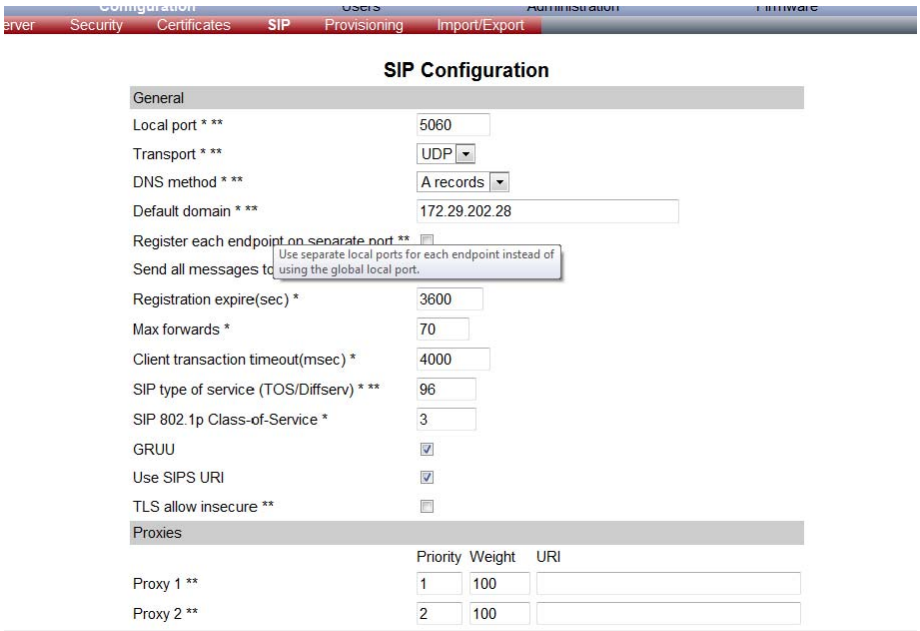
Figure 3 *Adm. Page KWS400: Configuration/Security Configuration page*



SIP Configuration

On the **Configuration/SIP** tab, you define general SIP settings, information about authentication, DTMF signalling, message waiting indication and media.

Figure 4 *Adm. Page KWS400: Configuration/SIP page*



General

Contains the basic SIP settings. In most cases, you only have to change the "Default Domain" to enable interaction with various PBX systems, if your PBX requires special settings, these are described in the installation guides for the specific PBX types (for example, Cisco, Microsoft Lync, and so on).

All other settings can be left as they are.

Proxies

Enter the URI or Host names of the relevant proxies. Set the Priority or Weight to match those of your PBX setup. Priority is between 1-4, and Weight is set to maximum 100 in total if changed from the default setting.

Authentication

Specify if a default user is used for SIP registers. An entry under each user overrides this setting.

DTMF Signaling

Specify if you want to use RTP(rfc2833) and payload type - or SIP INFO and tone duration for DTMF tones. If you choose both, the DTMF tone is send twice. The default settings are: RTP and 96 as payload.

Message waiting indication

Specify whether to enable or disable MWI indication to the handsets. You also set Subscription and time for re-subscription here.

Media

Specify any special requirements to fit your network settings for media, including TOS/Diffserve 802.1P setting or starting port range. The ports increase with one per initiated call.

You can set Codec priority individually, and change the order as desired. Note that some codecs can be added by use of licenses.

SDP settings are also specified here. Note that several advanced settings are not visible unless special licences are loaded on the server.

Call status

Specify if hold tone should be played, status messages should be displayed in the handsets, # ends dialing, and specify if call waiting should be enabled.

Chapter 5: KIRK User and Handset Registration and Subscription

Note

In addition to registering the handsets, you also have to register the users on the SIP-PBX. For registering users on the PBX, refer to the PBX user guide.

Registration and Subscription

When you register a handset, you enter information about the handset settings such as the handset serial number (IPEI), name, etc., in the system database. You use the web based administration page named Users to enter the information.

When you subscribe a handset, you subscribe a registered handset to the system for usage. The subscribstion is carried out using the handset itself. If the handset is not registered in the system database, subscription of the handset is not possible.

Registering KIRK Handsets

When you register a handset, you can either use the web based user page on the KWS4000 or you can use provisioning (see the provisioning guide on www.spectralink.com).

Each handset in the wireless solution must be programmed into the KWS400 before the handset can be used. The IPEI (serial number) is a unique fingerprint of a handset. The serial number is programmed into the handset during the manufacturing process and cannot be changed by field personnel.

The following options are available when you register handsets on a KIRK Wireless Solution:

- Register with IPEI number
- Register without IPEI number
- Auto create of users

Register with IPEI number

To register a handset with an IPEI number, use the web based Administration Page of the KWS400. For each user you have to enter a user name from the PBX system and the IPEI number of the handset. If required, you must also enter SIP information and a subscription Access Code (AC).

Populating the IPEI field:

You can find the IPEI number in three places:

- In the handset menu under “Menu/Status/Firmware Version “,
- On the label back of the handset,
- On the packing box.

To enter the IPEI

Enter the 12 digit IPEI number. The first 5 digits represent the vendor code (05003) and the last 7 digits represent the serial number of the handset (0058725). The last digit is a control digit and can be ignored.

- You must enter the IPEI number as follows: “050030058725”.
- A space is added automatically, when you press Save after the first 5 digits.
- The Username/Extension field must be populated with the URI from your PBX system (for example, Number: 3247 or SIP-URI: John.Doe)

Register without IPEI number

All KIRK Wireless Servers support the registration of handsets without entering the IPEI number,

This is helpful when many similar handsets are deployed because it requires less information on each user.

When you have created the handset with Username/Extension, AC code and SIP information, you subscribe the handset to the DECT system and the handset auto populates the first available user in the database with the IPEI details.

Auto Create Users

This feature is widely used in KIRK Wireless Servers because the administrator does not have to enter the IPEI number manually.

- To enable Auto Create Users, go to the web based **Administration Page** under **Configuration/Wireless Server**, and then select the **Autocreate Users** box.

When the handset is subscribed to the KIRK Wireless Server, the user is created with the IPEI field populated.

Note

All Auto Create user handsets must be manually enabled by the administrator.

Registering Via the Administration Page

To register handsets you use the web based Administration Page of the KWS400.

1 Click **Users** and then click **User List**.

Figure 1 *Adm. Page KWS400: Users/User List page*

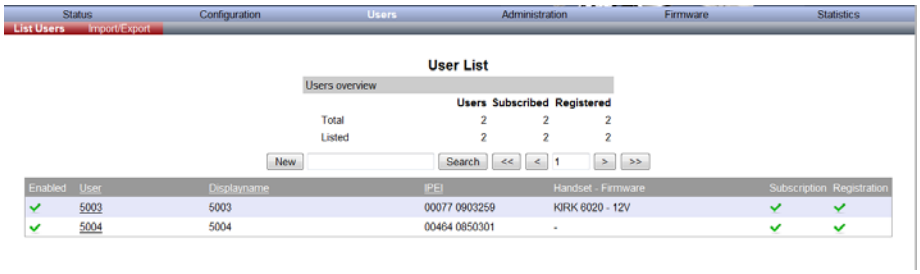
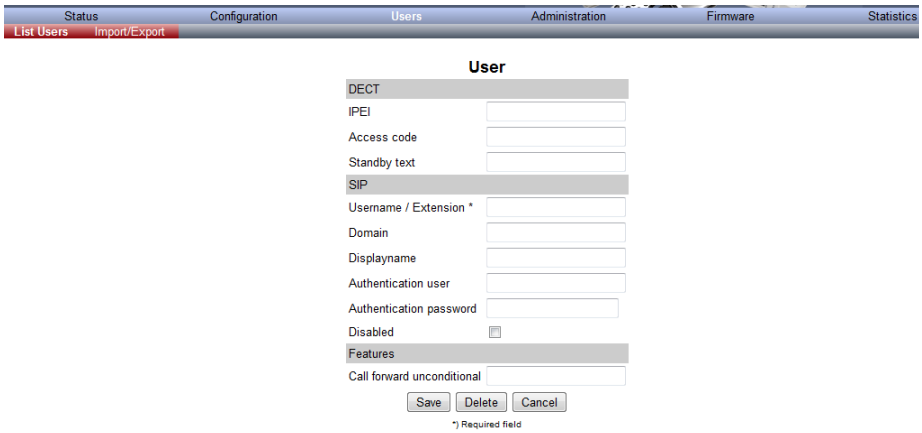


Figure 2 *Adm. Page KWS400: Users/User List/User page*



The data configured for each handset can be split into two categories. DECT data which is necessary for the correct handling of the DECT protocol stack. SIP data which is necessary for the handling of a SIP user agent.

2 In the **IPEI** field, type the IPEI number of the handset (optional).The serial number consist of a five-digit handset type (manufacturer code) and a seven-digit handset number.

3 In the **Access code** field, type the authentication code (AC) (optional)

The authentication code is a subscription password of a maximum of eight digits, defined by the technicians, and can be used when connecting the handset to a KWS400. The authentication code is a subscription pin code for the individual handset.

4 In the **Standby text** field, type a text to be displayed when the handset is idle (optional).

5 In the **Username/Extension** field, type the user part configured in the PBX, for example, 1234 in John Doe<sip:**1234**@somecompany.com>.

6 In the **Domain** field, type the domain part of a SIP URI, e.g. somecompany.com in John Doe<sip:1234**@somecompany.com**> (normally not recommended).

If this is not configured, the default domain configured under SIP settings is used.

7 In the **Display name** field, type the name to be displayed (caller ID), e.g. John Doe in **John Doe**<sip:1234@somecompany.com> (optional).

8 In the **Authentication User** field, type the user name from the SIP register if different from the user name that is configured in the user name or extension field. If the **Authentication User** field is left blank, the input from user name or extension is used. (Optional)

9 In the **Authentication password** field, type the password from the SIP register (optional).

10 In the **Call forwardunconditional** field, type the extension number that calls should be forwarded to unconditionally. This feature is normally handset controlled.

For information on how to subscribe the KIRK Handsets, please refer to the handset user guides at www.spectralink.com.

Subscribing KIRK Handsets

When a KIRK 50-Handset, KIRK 60-Handset, KIRK 70-Handset, or KIRK Butterfly-Handset is subscribed to a KIRK Wireless Server system, the handset is first registered on the system. The remaining part of subscription process is then performed on the handset.

The KIRK Wireless Server function “Enable Subscription” must be enabled before the subscription process can be carried out.

The following subscription options are available:

- Automatic subscription of handsets

- Manual subscription of handsets (create login)

Before subscribing handsets you need to ensure:

- that the handset battery is fully charged
- that the handsets are registered in the system.

Auto Subscription of Handsets

When a handset is powered up the first time, a login screen is displayed. An Access Code (AC) field and a User ID field are displayed. The fields are optional and can be left blank by pressing OK. If the handset is to be subscribed to a specific user on the server, the fields must be filled in.

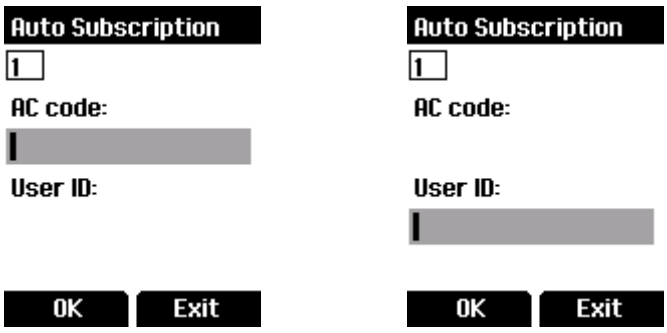
The User ID is the User ID that is entered in the Username/Extension field on the User page in the KIRK Wireless Server.

The AC code is either the AC code that was entered on the User page, or the general AC code that was entered under “Wireless configuration” in the web interface.

To use the Auto Subscription

1 Start up the handset. The menu displays **Auto Subscription**.

2 Enter an **Access Code** and **User ID**, and then press **OK**.



3 The handset subscribes to KIRK Wireless Server.

Note

If more systems are available, the auto subscribe function may not function properly. If the auto subscription process continues to fail, follow he manual handset subscription procedure.

Manual Subscription of Handsets

To create a login, the system must allow subscriptions to be made. If more than one system currently permits subscription, you need to know the ARI Code of the system to which you want to subscribe.

You can subscribe KIRK handsets on up to 15 different systems. Except the KIRK Butterfly handset, which can be subscribed only on 2 systems.

1 Press **Menu** to enter the main menu.

2 Scroll to **Settings** and press **Select**.

3 Scroll to **Advanced** and press **Select**.

4 Scroll to **Login** and press **Select**.

5 Scroll to **Create login** and press **Select**. The handset searches for a system.

6 Scroll to the system ARI number and press **Select**.

7 Enter the **Access Code** if a code has been configured in the system, and then press **OK** to connect to the system.

Subscribing a Handset to Multiple Systems

You can subscribe KIRK handsets on up to 15 different systems. Except the KIRK Butterfly handset, which can be subscribed only on 2 systems.

Note

To be able to log on to a system, handset subscription must be enabled.

Changing to another System Automatically Using Auto Login

Note

Only use Auto Login when systems are separate, with no overlaps.

Note

To activate Auto login your handset must be subscribed to at least two systems.

1. Press **Menu** to enter the main menu.
2. Scroll to **Settings** and press **Select**.
3. Scroll to **Advanced** and press **Select**.
4. Scroll to **Login** and press **Select**.
5. Scroll to **Auto login** and press **Select**.
6. If **Off** is selected, press **Change** to select **On**.

   The handset automatically selects a system.

   The selected system is marked with an **A**.

Changing to Another System Manually

If you would like to change to another system:

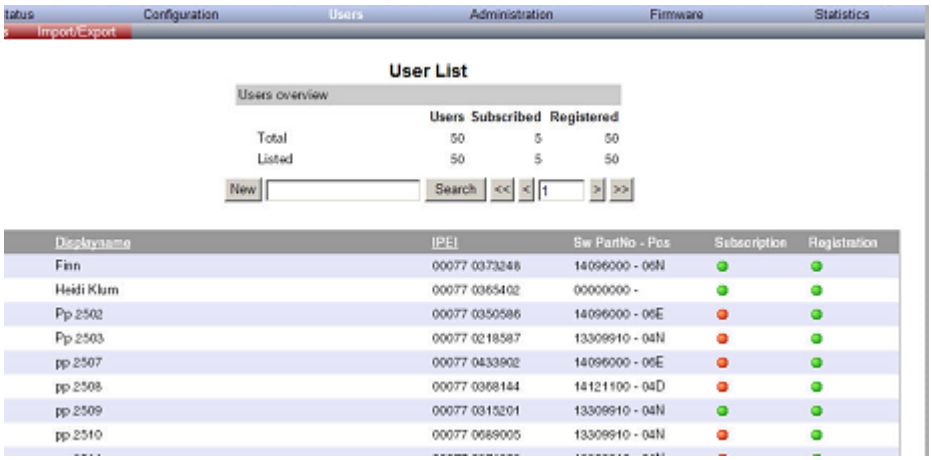
1. Press **Menu** to enter main menu.
2. Scroll to **Settings** and press **Select**.
3. Scroll to **Advanced** and press **Select**.
4. Scroll to **Login** and press **Select**.
5. Scroll to **Select login** and press **Select**.
6. Scroll to the desired login and press **Select**.

Searching for Handset/User Information

You can search for registered user s and handsets through the Administration Page.

1 Click **Users**, and then click **List Users**.

Figure 3 *Adm. Page KWS400: Search for Users/List Users page*



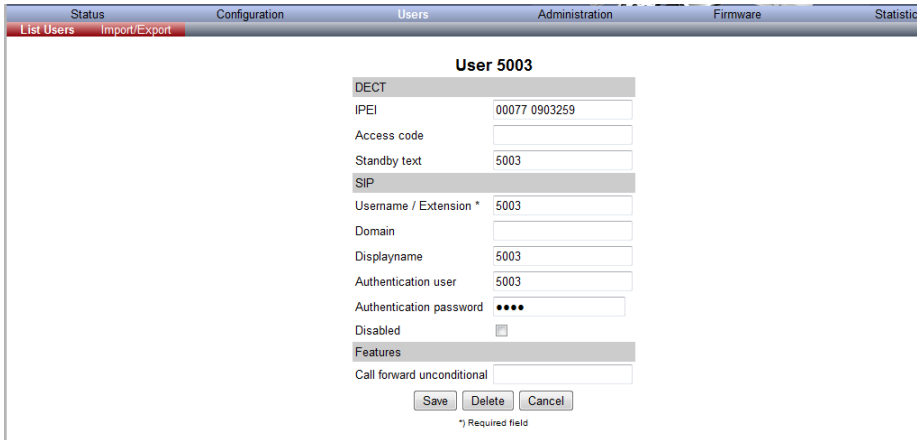
2 Type the beginning of the user, display name or IPEI you want to search for in the text field, and then click **Search**.

Changing or Removing User Configurations

You can change user configurations, such as the authentication code (AC) using the web based Administration Page.

1 Click **Users**, and then click **User List**.

Figure 4 *Adm. Page KWS400: Users/User LIst/User page*



2 Change settings, and then click **Save**.

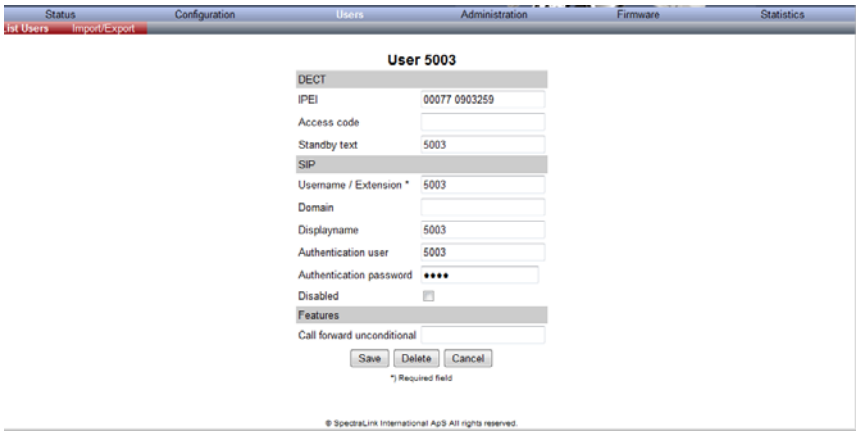
Removing KIRK Handsets from the List (Deregistering)

You can deregister handsets from KWS400. This is necessary when you have to replace the handset due to loss or breakage.

1 Click **Users**, and then click **User List**.

2 Type the beginning of a number or name to search for in the text field, and then click **Search** or select the handset in question by clicking on the user information.
The following page appears

Figure 5 *Adm. Page KWS400: Users/User List /User page*



Importing Handset Registration Data - CSV Format

You can import handset registration data in CSV format. To be able to import the data correctly, you must create a file containing the following information and punctuation:

```
#IPEI,access code,standby text,username,domain,displayname,authenticate
user,authenticate password,local number
```

Note

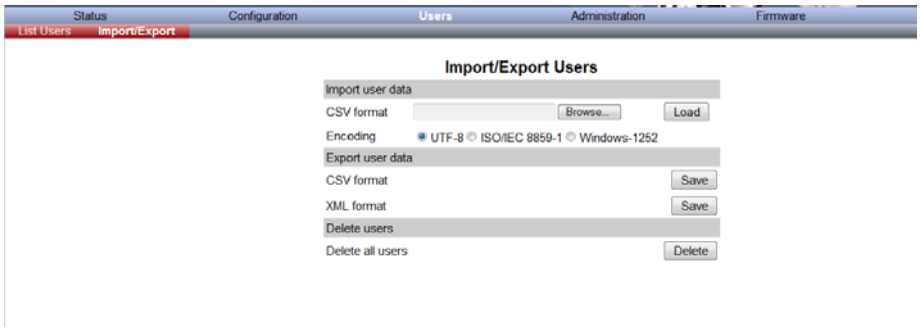
If you want to leave out some of the information such as standby text, you must keep the commas, for example**: #IPEI,access code,username,domain,displayname,authenticate user,authenticate password,local number.**

Figure 6 *Example of Handset Registration Data in CSV Format*

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	#IPEI,access code,standby text,username,domain,displayname,authenticate user,authenticate password,local number													
2	000770000100,,IP6000,2631,,RFP Test,2631,,2631													
3	000770000101,,IP6000,2632,,RFP Test,2632,,2632													
4	000770000102,,IP6000,2633,,RFP Test,2633,,2633													
5	000770000103,,IP6000,2634,,RFP Test,2634,,2634													
6	000770000104,,IP6000,2635,,RFP Test,2635,,2635													
7	000770000105,,IP6000,2636,,RFP Test,2636,,2636													
8	000770000106,,IP6000,2637,,RFP Test,2637,,2637													

1 Click **Users**, and then click **Import/Export**.

Figure 7 *Adm. Page KWS400: Users/Import/Export page*



2 Under **Import User Data**, click **Browse** to find the CSV file with handset registration data.

3 Select the **Encoding** the system requires.

Note

It is not possible to import handset registration data already registered in the system.

Chapter 6: System Management

Reading System Information

Under **Status** it is possible to get general information about hardware version, firmware and message logging. This information is useful in case of problem solving. Accessing the Administration Page of the wireless server provides an overview of the solution.

In the following, you will find information about General Status, Logs, Wireless Server and Packet Capture.

System Information

This page provides general system information such as hardware, firmware and OS Status information.

On the Status/General page you find information about:

- the current firmware and hardware
- MAC Address of the system
- NTP Server; from which IP address the system receives its time information
- Time; time information - if a time server is valid

Figure 1 *Adm. Page KWS400: Status/General page*

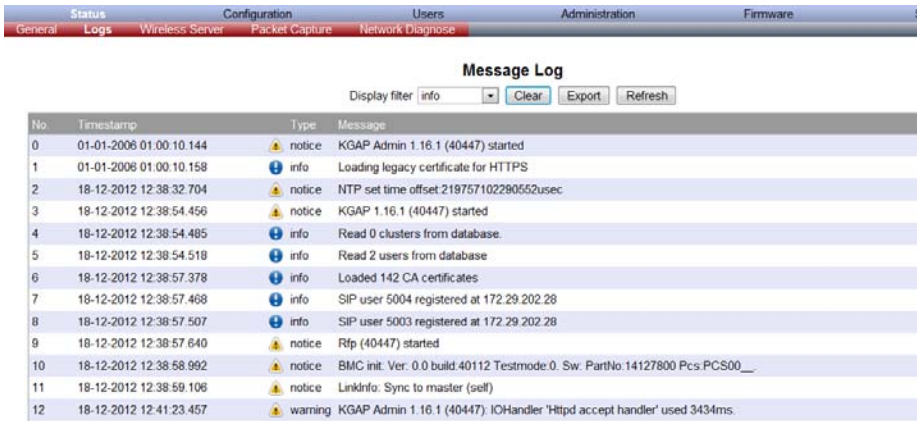
—

Logs Information

This page provides information about the logs.

1 Click **Status**, and then click **Logs**.

Figure 2 *Adm. Page KWS400: Status/Logs page*



2 From the **Display filter** list you can select between **emergency**, **critical**, **error**, **warning**, **notice**, **info** or **debug** depending on the logs you want to see.

3 Click **Save** if you want to save the logs in a file.

Wireless Server Information

This page provides information about the firmware version and ARI code of the KWS400.

1 Click **Status**, and then click **Wireless Server**.

Figure 3 *Adm. Page KWS400: Status/WS page*

Packet Capture

The Packet Capture page is used to create traces in PCAP format for debugging. These traces can be viewed with the Wireshark program (www.wireshark.org).

1 Click **Status**, and then click **Packet Capture**.

Figure 4 *Adm Page KWS400: Status/Packet Capture page*

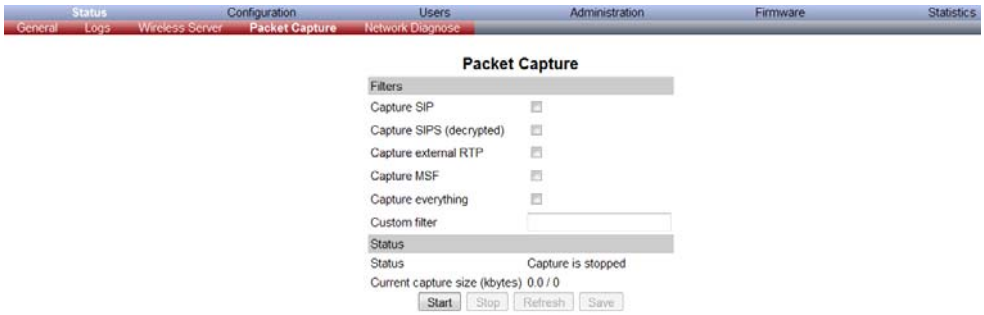


Table 1 *Packet Capture*

Field	Explanation
Packet Capture - Filters	
Capture SIP	Enable this check box to capture SIP signalling.
Capture SIPS (decrypted)	Capture decrypted SIPS(TLS) signaling
Capture external RTP	Enable this check box to capture voice communication. Please that the available memory only allows for short time captures of voice communication
Capture MSF	Enable this check box to capture MSF signalling
Capture every-thing	Enable this check box to capture all network communication
Custom filter	Customize the captured data to a trace by entering a filter in pcap format.

Select the appropriate filters and click **Start**. When finished click **Stop** and then **Save** to save the trace to your PC.

Reading Statistics

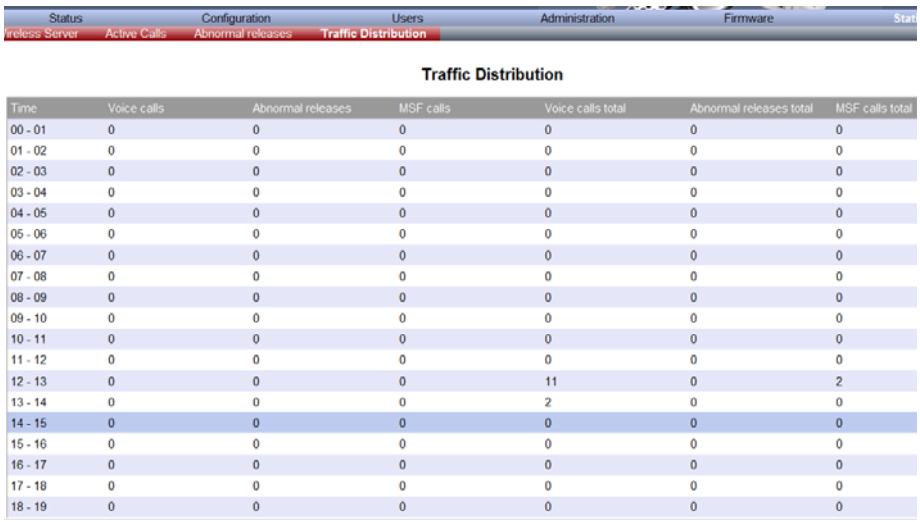
Under **Statistics**, it is possible to read statistic information about the KWS400, about active calls, abnormal releases in the system and traffic distribution. You get an over all overview of how the system is running.

Wireless Server

This page is useful to get information about traffic on the KWS400 such as voice call traffic and message call traffic and it provides a summary of subscription and hand over statistics. It also provides information about the traffic load (Erlang) of the installation.

- Click **Reset Statistics** if you want to delete all statistic traffic information.

Figure 5 *Adm. Page KWS400: Statistics/WS page*



Time	Voice calls	Abnormal releases	MSF calls	Voice calls total	Abnormal releases total	MSF calls total
00 - 01	0	0	0	0	0	0
01 - 02	0	0	0	0	0	0
02 - 03	0	0	0	0	0	0
03 - 04	0	0	0	0	0	0
04 - 05	0	0	0	0	0	0
05 - 06	0	0	0	0	0	0
06 - 07	0	0	0	0	0	0
07 - 08	0	0	0	0	0	0
08 - 09	0	0	0	0	0	0
09 - 10	0	0	0	0	0	0
10 - 11	0	0	0	0	0	0
11 - 12	0	0	0	0	0	0
12 - 13	0	0	0	11	0	2
13 - 14	0	0	0	2	0	0
14 - 15	0	0	0	0	0	0
15 - 16	0	0	0	0	0	0
16 - 17	0	0	0	0	0	0
17 - 18	0	0	0	0	0	0
18 - 19	0	0	0	0	0	0

Active Calls

This page is useful to get statistic information about active calls in the KWS400 installation.

1 Click **Statistics**, and then click **Active Calls**.

Figure 6 *Adm. Page KWS400: Statistics/Active Calls page*

Abnormal Call Releases

This page is useful to get statistic information about abnormal call releases in a KWS400 installation.

1 Click **Statistics**, and then click **Abnormal Releases**.

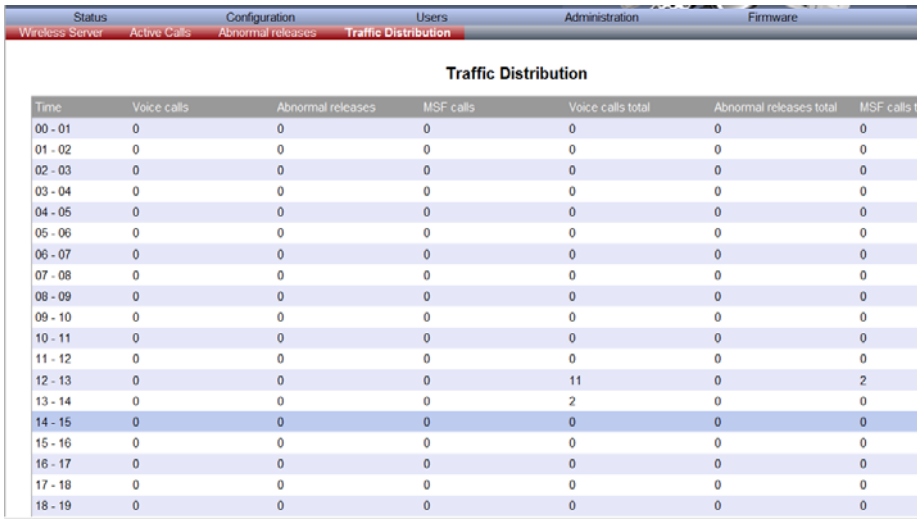
Figure 7 *Adm. Page KWS400: Statistics/Abnormal Releases page*

Traffic Distribution

This page is useful to get statistic information about traffic distribution during the last 24 hours in a KWS400 installation.

1 Click **Statistics**, and then click **Traffic Distribution**.

Figure 8 *Adm. Page KWS400: Statistics/Traffic Distribution page*



Making a Back-Up of the Configuration File

When saving the configuration data you have an overall overview of the KIRK Wireless Server which is useful in case of problem solving.

1 Click **Configuration**, and then click **Import/Export**.

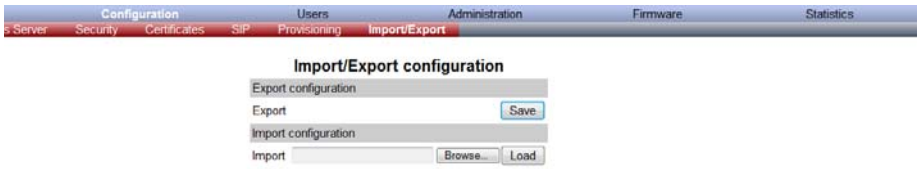
Figure 9 *Adm. Page KWS400: Configuration/Import/Export page*

2 Click **Save**.

Restoring the Configuration File

3 Click **Configuration**, and then click **Import/Export**.

Figure 10 *Adm. Page KWS400: Configuration/Backup/Restore page*



4 Click **Browse**.

5 Select the file in question, and then click **Open**.

6 Click **Load**.

7 Click **OK**.

The configuration file is restored in the system.

Updating the KIRK Wireless Server 400 Firmware

To update the firmware, you load a file to the system. Contact your distributor for the latest firmware.

Note

Do not power off the system during the firmware update process.

To Update the KIRK Wireless Server 400 Firmware

1 Click **Firmware**, and then click **Wireless Server**.

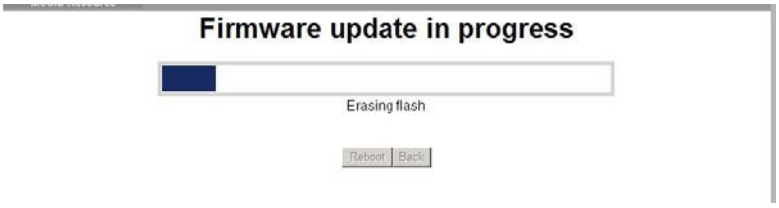
Figure 11 *Adm. Page KWS400: Firmware/WS page*

2 Click **Browse**.

3 Select the file in question, and then click **Open**.

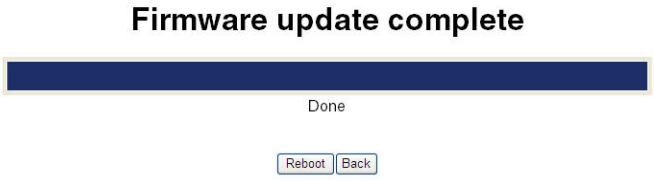
4 Click **Update**, and the firmware is being updated.

Figure 12 *Adm. Page: Firmware Update Progress Bar*



Wait until the system has finished updating.

Figure 13 *Adm. Page: Firmware update completed*



5 Optionally, you can block new calls during a firmware update by clicking **Administration**, and then **Wireless Server**.

Figure 14 *Adm. Page KWS400: Administration/WS page*

6 Under **Service Status** click **Block.**

7 Click **Reboot** to update the KWS400 firmware.

8 If you have blocked new calls during a firmware update, enable new calls again by clicking **Administration**, then **Wireless Server** and then clicking **Allow**.

Reboot is required before the firmware update applies.

Multicell Installation

The KWS400 is in its basic edition a single cell system (one built-in base station in the server).

Additional IP base stations can be added to the KWS400 server to expand the covered area. A license is required to enable the multicell function. Licenses are added under "Administration/License".

Note: no special IP base station is required to function with the KWS400. All KIRK IP base station models can be used.

Up to 3 additional IP base stations can be added to the KWS400 server system along with 3 additional Repeaters making the total available units in a KWS400 Multicell installation to seven (7) including the server itself.

To Add IP Base Stations to the Server

To enable IP base stations for use with the KWS400 server, the IP base station needs to know the IPaddress of the KWS400 server. This can be provisioned by a DHCP server to the IP base stations. See the provisioning guide (part number 14184650) for details. Alternatively, you can access the IP base station Web user interface manually and enter the IPaddress of the KWS400. The Login information is the same as on the KWS400.

Note

When using Multicell function on the KWS400, a Static IP address is highly recommended for the KWS400. IP base stations can still use DHCP options.

Note

The base station tab, “Administration/Basestation”, is only visible when a multicell license has been loaded on to the server.

Synchronization of IP base stations

IP base stations must be synchronized over AIR (sync). A sync chain can be programmed as a serial string from base station 0 to base1 to base2 to base3 or in parallel from base 0 to base1,2,3 or a combination of both. The KWS400 is the Master in the sync chain setup and is by default named 0 (zero)

All synchronization is programmed on the server's web interface under base stations "Administration/Basestation". The first base station number 0 (zero) is the built-in base in the server. The 3 remaining bases appear when they are discovered by the server.

As default action additional base station use the sync master (zero) as sync reference (Parallel sync setup). All IP base stations sync on the KWS400 server. You can change this by selecting the relevant base station and changing the primary/secondary sync field to the base stations that should be the next hop in the sync chain.

Figure 15 *Base Station 0 Configuration*

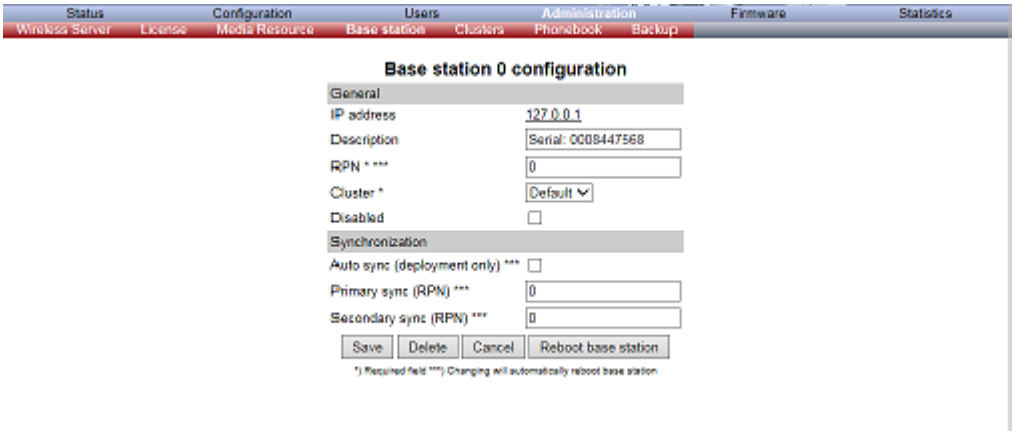


Figure 16 *Base Station Overview*

There are two bases in the KWS400 solution. Base station 1 is Synchronization on base 0 (Zero). Repeaters are not visible in the server, and are add-ons to the system and are not manageable by the system. A repeater is managed directly on the repeater itself using a PC and a repeater programming kit.

Multicell Components

The following components are available in a KWS400 multicell setup. All components are optional. A multicell license is required.

Table 2 *Multicell components*

Component	Amount
KWS400	1
IP Bases	3
Repeaters	3
Multicell license	1

Chapter 7: Regulatory Notices

International Regulatory and Product Information

KIRK Wireless Server 400 is electrically identical (including its RF characteristics) to KIRK IP BASE K005..

CE	**This KIRK product has been marked with the CE mark. This mark indicates compliance with EEC Directives 1999/5/EC. A full copy of the Declaration of Conformity can be obtained from Spectralink Corporation, 2550 55th Street, Boulder CO 80301, USA**

Cesky [Czech]:	Spectralink tímto prohlašuje, že tento KIRK Wireless Server 400 je ve shode se základními požadavky a dalšími príslušnými ustanoveními smernice 1999/5/ES.
Dansk [Danish]:	Undertegnede Spectralink Europe ApS erklærer herved, at følgende udstyr KIRK Wireless Server 400 overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]:	Hiermit erklärt Spectralink Europe ApS , dass sich das Gerät KIRK Wireless Server 400 in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Eesti [Estonian]:	Käesolevaga kinnitab Spectralink Europe ApS seadme KIRK Wireless Server 400 vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English:	Hereby, Spectralink Europe ApS declares that this KIRK Wireless Server 400 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]:	Por medio de la presente Spectralink Europe ApS declara que el KIRK Wireless Server 400 cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]:	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Spectralink Europe ApS ΔΗΛΩΝΕΙ ΟΤΙ KIRK Wireless Server 400 ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Français [French]:	Par la présente Spectralink Europe ApS déclare que l'appareil KIRK Wireless Server 400 est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.

Italiano [Italian]:	Con la presente Spectralink Europe ApS dichiara che questo KIRK Wireless Server 400 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Íslenska (Icelandic):	Hér með lýsir Spectralink Europe ApS yfir því að KIRK Wireless Server 400 er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC
Latviski [Latvian]:	Ar šo Spectralink Europe ApS deklare, ka KIRK Wireless Server 400 atbilst Direktivas 1999/5/EK butiskajam prasibam un citiem ar to saistitajiem noteikumiem.
Lietuviu [Lithuanian]:	Šiuo Spectralink Europe ApS deklaruoja, kad šis KIRK Wireless Server 400 atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch]:	Hierbij verklaart Spectralink Europe ApS dat het toestel KIRK Wireless Server 400 in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]:	Hawnhekk, Spectralink Europe ApS, jiddikjara li dan [il-mudel tal-prodott] jikkonforma mal-htigijiet essenzjali u ma provvedimenti ohrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]:	Alulírott, Spectralink Europe ApS nyilatkozom, hogy a KIRK Wireless Server 400 megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Norsk [Norwegian]:	Spectralink Europe ApS erklærer herved at utstyret KIRK Wireless Server 400 er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.
Polski [Polish]:	Niniejszym Spectralink Europe ApS oswiadcza, ze KIRK Wireless Server 400 jest zgodne z zasadniczymi wymaganiami oraz innymi stosownymi postanowieniami Dyrektywy 1999/5/WE
Português [Portuguese]:	Spectralink Europe ApS declara que este KIRK Wireless Server 400 está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovensko [Slovenian]:	Spectralink Europe ApS izjavlja, da je ta KIRK Wireless Server 400 v skladu z bistvenimi zahtevami in ostalimi relevantnimi dolocili direktive 1999/5/ES.
Slovensky [Slovak]:	Spectralink Europe ApS týmto vyhlasuje, že KIRK Wireless Server 400 splna základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]:	Spectralink Europe ApS vakuuttaa täten että KIRK Wireless Server 400 tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]:	Härmed intygar Spectralink Europe ApS att denna KIRK Wireless Server 400 står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

Explosive Device Proximity Warning

	**Warning. Do not operate your wireless network device near unshielded blasting caps or in an explosive environment unless the device has been modified to be especially qualified for such use**.

Waarschuwing	**Gebruik dit draadloos netwerkapparaat alleen in de buurt van onbeschermde ontstekers of in een omgeving met explosieven indien het apparaat speciaal is aangepast om aan de eisen voor een dergelijk gebruik te voldoen.**
Varoitus	**Älä käytä johdotonta verkkolaitetta suojaamattomien räjäytysnallien läheisyydessä tai räjäytysalueella, jos laitetta ei ole erityisesti muunnettu sopivaksi sellaiseen käyttöön.oen.**
Attention	**Ne jamais utiliser un équipement de réseau sans fil à proximité d'un détonateur non blindé ou dans un lieu présentant des risques d'explosion, sauf si l'équipement a été modifié à cet effet.**
Warnung	**Benutzen Sie Ihr drahtloses Netzwerkgerät nicht in der Nähe ungeschützter Sprengkapseln oder anderer explosiver Stoffe, es sei denn, Ihr Gerät wurde eigens für diesen Gebrauch modifiziert und bestimmt.**
Avvertenza	**Non utilizzare la periferica di rete senza fili in prossimità di un detonatore non protetto o di esplosivi a meno che la periferica non sia stata modificata a tale proposito.**
Advarsel	**ikke bruk den trådløse nettverksenheten nært inntil uisolerte fenghetter eller i et eksplosivt miljø med mindre enheten er modifisert slik at den tåler slik bruk.**
Aviso	**Não opere o dispositivo de rede sem fios perto de cápsulas explosivas não protegidas ou num ambiente explosivo, a não ser que o dispositivo tenha sido modificado para se qualificar especialmente para essa utilização.**
¡Advertencia!	**No utilizar un aparato de la red sin cable cerca de un detonador que no esté protegido ni tampoco en un entorno explosivo a menos que el aparato haya sido modificado con ese fin.**
Varning!	**Använd inte den trådlösa nätverksenheten i närheten av oskyddade tändhattar eller i en explosiv miljö om inte enheten modifierats för att kunna användas i sådana sammanhang.**

	**The WEEE Marking on this equipment indicates that the product must not be disposed of with unsorted waste, but must be collected separately.**

Appropriate RF safety/installation informatio

The product is intended to be installed by authorized personal. The product shall be installed in accordance with FCC rules.

RF Exposure Statement

The EUT is considered as a mobile device according to OET Bulletin 65, Edition – 97 – 01. Therefore distance to human body of min. 20 cm is determined.

The internal / external antennas used for this mobile transmitter must provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. The above warning is inserted for regulatory reasons. If any customer believes that they have an interference problem, either because their KIRK product seems to cause interference or suffers from interference, they should contact their distributor immediately. The distributor will assist with a remedy for any problems and, if necessary, will have full support from Spectralink.

Safety

WARNING!

Only qualified service personnel may install this equipment. The instructions in this manual are intended for use by qualified service personnel only.

Only qualified persons should service the system.

The installation and service of this hardware is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or other persons.

Electrical shock hazards from the telecommunication network and AC mains are possible with this equipment. To minimize risk to service personnel and users, the system must be connected to an outlet with a third-wire Earth.

Service personnel must be alert to the possibility of high leakage currents becoming available on metal system surfaces during power line fault events near network lines. These leakage currents normally safely flow to Protective Earth via the power cord. Therefore, it is mandatory that connection to an earthed outlet is performed first and removed last when cabling to the unit. Specifically, operations requiring the unit to be powered down must have the network connections (exchange lines) removed first.

Important Safety Instructions and Product Information

Before using your telephone equipment, you should always follow basic safety instruction to reduce the risk of fire, electrical shock and injury to persons, and damage to property.

1. Read and understand all instructions
2. Follow all warnings and instructions including those marked on the product
3. Unplug this product before cleaning. Do not use liquid cleaners or aerosol cleaners. Use damp cloth for cleaning
4. Do not install the telephone equipment in the bathroom or near a wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool
5. The product should be operated only from the type of power source indicated on the instructions. If you are not sure of the type of power supply, consult your dealer or local power company.
6. Do not overload wall outlets and extension cords as this can result in fire or electrical shock.
7. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out s that could result in fire, electrical shock, or injury. Never spill liquid of any kind into this product.

8 To reduce the risk of electrical shock or burns, do not disassemble this product. Opening or removing covers may expose you to dangerous voltages, dangerous electrical current, or other risks. Incorrect reassemble can cause electrical shock when the appliance is subsequently used. If the product need repair, consult your dealer.

9 This product does not support connections to outside plant.

10 Refer servicing to qualified service personnel under the following conditions:

- If liquid has been spilled into the product
- If the product has been exposed to rain or water
- If the product does not operate normally when following the operating instructions in the manual. Adjust only those controls that are covered by the operation instructions. Improper adjustment of other controls may result in damage and will often require extensive work by qualified service personnel to restore the product to normal operation.
- If the product has been dropped or cabinet has been damaged
- If the product exhibits a distinct change in performance

Warning

1 Avoid using telephone during an electrical storm. There may be a risk of electrical shock from lightning

2 Do not use the telephone to report a gas leak in the vicinity of the leak

3 Do not place the unit near microwave ovens, radio equipment, or non-ground connected televisions. These appliances may cause electrical interference to the base or handset

4 Installation must be performed in accordance with all relevant national wiring rules

5 Plug acts as Disconnect Device - The socket outlet to which this apparatus is connected must be installed near the equipment and must always be readily accessible

6 The system will not operate in the event of a blackout. Please keep a backup phone for emergencies

Intrinsic safety

Do not install the unit in conditions where there is a danger of electrically ignited explosions.

Exposure to sunlight, heat and moisture

Do not expose the unit to direct sunlight for long periods. Keep away from excessive heat and moisture.

Spare parts and accessories

Use only approved spare parts and accessories. The operation of non-approved parts cannot be guaranteed and may even cause damage.

RF compliance information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the y responsible for compliance could void the user's authority to operate the equipment.

NOTICES

FCC Note: This device complies with 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may may cause undesired operation. Contains: FCC ID: PXA-PK4587.

IC Note: Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. The term "IC:" before the certification /registration number only signifies that the Industry Canada technical specifications were met.
Contains: IC: 4604A-PK4587.

Privacy of communications may not be ensured when using this telephone.

Information to user: The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the y responsible for compliance could void the user's authority to operate the equipment.

LIMITED WARRANTY

This limited, non-transferable warranty is provided to the original purchaser. The product is warranted to be free from defects in materials and workmanship under normal installation, use and service for a period of one (1) year from the date of purchase as shown on the purchaser's receipt.

Our obligation under this warranty is limited to repair or replacement (at our option) of the product or any (s) which are defective provided that the product is returned to the original place of purchase or an authorized service location during the warranty period. Products returned must be accompanied by a copy of the purchase receipt. In the absence of a purchase receipt, the warranty period shall be one (1) year from the date of manufacture. Repair or replacement of the product is your sole and exclusive remedy.

If the product is repaired, reconditioned component s or materials may be used. If the product is replaced, we may replace it with a new or reconditioned product of the same or similar design. The repaired product will be warranted for either (a) 90 days or (b) the remainder of the original one (1) year warranty period, whichever is longer.

This warranty does not apply to the defects outside of our control, including but not limited to acts of God, fire, flood and damage while in transit to service facility. We do not warranty that the product will be compatible with any telephone equipment, systems or y lines.

This warranty shall be void if the product is damaged as a result of defacement, misuse, abuse, neglect, accident, destruction or alteration of the serial number, improper electrical voltages or currents, repair, alteration or maintenance by any person or y other than our authorized service facility, or any violation of instructions furnished by us.

This warranty is also void if this product is removed from the country in which it was purchased by the original purchaser, if it is used in a country in which it is not registered for use, or if it is used in a country for which it was not designed. Due to variations in telephone systems and communications laws, this product may be illegal for use in some countries. We assume no responsibilities for damages or penalties incurred resulting from the use of this product in a manner or location other than that for which it was intended.

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Chapter 8: Open Source Software Notice

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This offer is valid for a period of three (3) years from the date of the distribution of this product by Spectralink (Denmark).

Figures

Tables

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