UNIFY Harmonize your enterprise

OpenStage WL3
Wireless Service Gateway (WSG)

Installation and Operation Manual

A31003-M2000-J104-1-7631

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Our Quality and Environmental Management Systems are implemented according to the requirements of the ISO9001 and ISO14001 standards and are certified by an external certification company.

Reference No.: A31003-M2000-J104-1-7631

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Contents

1 Introduction

NOTE: This document is used for installation and configuration of the product. It is also used for administration, maintenance and troubleshooting. These activities require good knowledge about functionality and limitations, both on module and system level, and also knowledge about how systems, modules and parameters interact.

1.1 About the Product

OpenStage WL3 Wireless Service Gateway (WSG) is a web-based tool. In combination with WiFi systems it offers typical wireless services such as access to central phonebook and centralized device management. It also offers basic messaging services as web messaging, messaging handset to handset (SMS) and messaging protocols.

NOTE: The software uses open-source components and the source code can be downloaded from the web site: oss.ascom-ws.com.

1.2 Abbreviations and Glossary

Central Phonebook	A Phonebook stored in a database in the control module or reached from the control module.
Company Phonebook	A Phonebook that is uploaded to a handset from the Device Manager. The entries are locked for editing in the handset.
Contacts	The name of the phonebook in a handset.
CSV file	Comma Separated Value: A file with data, where values in each row are separated by a delimiter, which can be a comma, a semicolon or a tab.
Device	A VoWiFi handset developed to work together with WSG and the Device Manager application. Device is used as a general term in this document.
DHCP	Dynamic Host Configuration Protocol
EAP	Extensible Authentication Protocol
FTP	File Transfer Protocol

GUI	Graphical User Interface
Language file	Language file for handset on WSG. Language file for WSG uses XML (eXtensible Markup Language.).
LDAP	Lightweight Directory Access Protocol
Number	Settings for the complete set of parameters of a single device, tied to a specific identity.
OAP	Open Access Protocol: Ascom defined XML based messaging and alarm protocol.
OA-XML	The Open Access-XML protocol defines messages in XML format. WSG contains a OAP interface for sending and receiving messages defined by the OA-XML protocol.
OTA	Over the Air
Parameter definition file	Defines the parameters for a handset.
PDM	Portable Device Manager
PKCS#12	A cryptography standard, defining a file format used to store keys and certificates.
RTLS	Real Time Location System
WSG	OpenStage WL3 Wireless Service Gateway.
TFTP	Trivial File Transfer Protocol, a simple protocol to transfer files
Unite system	Unite is the Ascom name for the Ascom Professional Messaging system. The Unite communication protocol is used for communication between WSGs in systems with more than one WSG.
UNS	Unite Name Server: Module component that holds the Unite number plan and Unite destinations
VoWiFi	Voice over Wireless Fidelity: is a wireless version of VoIP and refers to IEEE 802.11a, 802.11b, 802.11g, or 802.11n network.
WiFi	WiFi is a term developed by the Wi-Fi Alliance® to describe wireless local area network (WLAN) products that are based on the Institute of Electrical and Electronics Engineers' (IEEE) 802.11 standards. Today, most people use WiFi as a reference to wireless connectivity.
WLAN	Wireless LAN

1.3 How to Use this Document

This sub chapter includes references to other chapters/documents with more detailed information regarding following activities:

- Installation and basic configuration
- Extended configuration
- Central Phonebook administration
- Daily operation

References for Installation and Basic Configuration

- For installation and basic configuration, see the following chapters:
  - Chapter 2: Installation and Configuration Steps on page 13
  - Chapter 3: General on page 19

References for Extended Configuration

See chapters:

- Chapter 5.4: LDAP Parameter Setup on page 64
- Chapter 10: Open Access Protocol (OAP) on page 139
  See also Function Description for Open Access Protocol (OAP).
- Chapter 4.4: Module Redundancy on page 49

Central Phonebook Administration

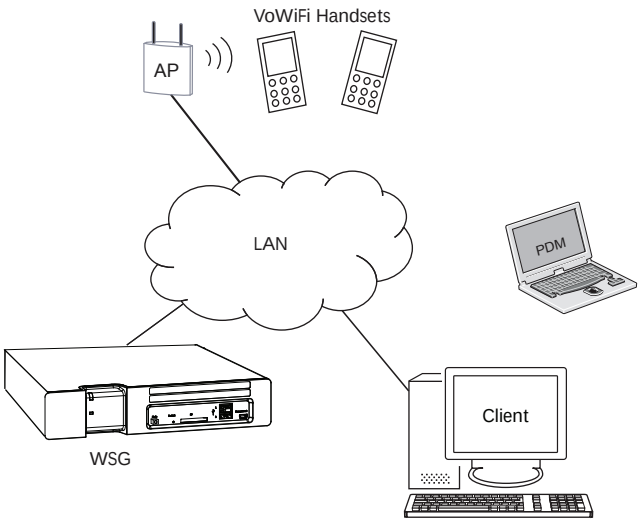
- For administration of the central phonebook, refer to Chapter 4.1: Manage Central Phonebook Entries on page 33.

1.4 Included in the delivery

- WSG hardware including a 230 V power cable
- Getting started document

1.5 Technical Solution

Figure 1 WSG in a system.



The WSG runs on the hardware and is configured via a web interface using a computer (client) connected to the Local Area Network (LAN).

1.6 Requirements

Refer to the Data Sheet for WSG.

2 Installation and Configuration Steps

Figure 2 Initial installation and configuration.

NOTE: The installation of the products hardware is described in the Installation Guide for WSG.

After installing the hardware, the basic configuration is easily made using the Setup Wizard. The setup wizard includes all basic settings needed to get the WSG up and running.

2.1 Information required for the Setup

Make sure the following information is available:

- MAC address – found on a label on the WSG's rear side and in the application's GUI in the Setup Wizard.
- The module key – found on the license certificate or on the WSG's rear side
- Network parameters – ask your network administrator
- License number – found on the license certificate
- IP address to connected system (if connected via IP)
- LDAP properties, if an LDAP server is used for Central Phonebook requests (optional)

2.2 Accessing the WSG

2.2.1 Getting Started

When accessing the WSG the first time, follow the instructions in the Getting Started and safety Leaflet PM000021, or the Installation Guide for WSG.

NOTE: The IP address must not change during operation because renew of IP address via DHCP is not handled. Other equipment connected to this product also expects a fixed IP address in some cases. If the IP plan is changed, this product must be restarted to update the IP address. Otherwise the system will not function properly.

2.3 Basic Configuration Steps

Figure 3 The Setup Wizard.

As long as the WSG is not configured, the Setup Wizard will start automatically when logging on from a web browser.

1. Enter the address to the WSG in a web browser.
2. Click “Setup Wizard” on the Start Page.
3. Enter the appropriate login credentials.

User ID:	admin	sysadmin
Password:	changeme	setmeup

The default passwords can be changed later on.

The setup wizard will open and help you with the basic configuration. The setup wizard includes the following settings:

- Network setup – can be set manually or via DHCP
- License number – the type of license determines the functionality
- Date and time properties/settings – for time stamps on activities

- Central Phonebook properties – database to use when searching (local phonebook on the module, or LDAP server).
- LDAP properties – (only visible if LDAP is selected in the Central Phonebook properties)
- Digit Manipulation Properties – information on how to convert telephone numbers (only visible if LDAP is used as database)
- Passwords – change from default to site specific passwords

2.4 Manage Central Phonebook Entries

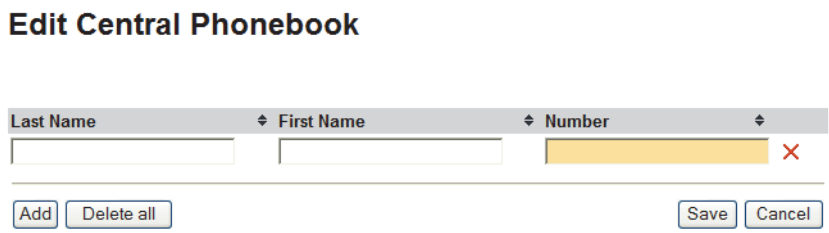
NOTE: This section is only applicable if a local database was selected in the Setup Wizard.

The phonebook entries can be added manually or by importing a CSV file. If the local database Local - 2000 View only is to be used, the CSV file is required to add the entries.

2.4.1 Add Entries to the Central Phonebook

The central phonebook supports entries with character encoding UTF-8 (for example Russian characters and Swedish characters).

1. Click “Phonebook” on the start page.
2. Select Phonebook > Edit on the Configuration page.
3. Click “Add”.



1. Enter the following settings in the text fields:

Setting	Description
Last Name:	The family name

First Name: The first (given) name

Number: The telephone number

2. To add additional rows click “Add” again.
3. Click “Save”.

2.4.2 Import entries from CSV file

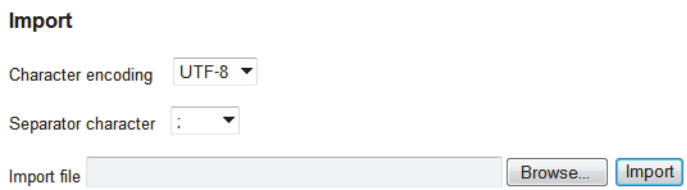
The CSV file to be imported to the phonebook should have the following format with either “;“ or “,“ as delimiter (as in the example below) or TAB:

```
First name 1;Last name 1;Phone number 1
First name 2,Last name 2,Phone number 2
```

NOTE: When importing a Central phonebook file in CSV format, existing entries are deleted.

---

1. Click “Phonebook” on the start page.
2. Select Phonebook > Import/Export in the menu on the Configuration page.



3. Select the character encoding of the file in the Character encoding drop-down list. NOTE: It is important that you select the same character encoding that the file is saved as. If not, the entries will be corrupted after the file has been imported.
4. Select separator for the CSV file.

   Different separators may be used in a delimiter-separated file. Currently, the module supports import of files with the separators semicolon, comma or TAB.
5. Click “Browse” to locate the CSV file in the system.
6. Click “Import”.

2.5 Optional Settings

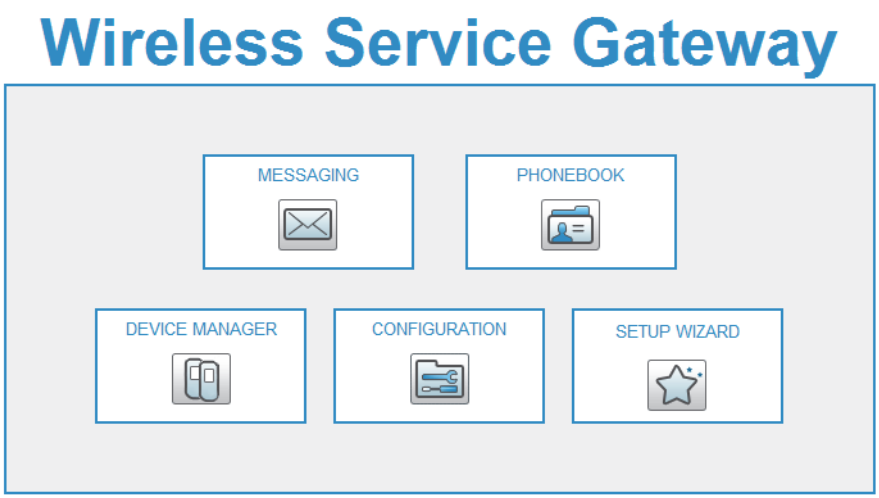
- Set Language – it is possible to translate the user interface language, refer to Chapter 13.1: Customize the Language on page 146.
- Open Access Protocol (OAP) – makes it possible to communicate with other systems that is connected to the module. Refer to Chapter 10: Open Access Protocol (OAP) on page 139.
- Digit Manipulation – makes it possible to set the way telephone numbers are converted in telephone number lists. See Chapter 5.5: Digit Manipulation in Central Phonebook on page 67.
- Redundancy – makes it possible to set up a pair of WSGs for redundancy. Refer to Chapter 4.4: Module Redundancy on page 49.

3 General

3.1 Graphical User Interfaces (GUI's)

3.1.1 Start Page

Figure 4 The Start Page



The start page has entrances to different applications. Different applications also requires different authentication levels as shown in <Link>table 1 on page 19.

Table 1

Applications	**Authentication levels (user name/password)**
Phonebook, see Chapter 4.1: Manage Central Phonebook Entries on page 33. Describes how to handle phonebook entries.	user/password admin/changeme sysadmin/setmetup
Device Manager, see Chapter 6: Device Manager on page 73. Describes device management.	user/password admin/changeme sysadmin/setmetup
Configuration, see Chapter 3.1.3: Configuration Page on page 21. Setup page for the module settings.	admin/changeme sysadmin/setmetup

Setup Wizard, see Chapter 2.3: Basic Configuration Steps on page 14. The first time and as long as the module is not configured, the Setup wizard will start automatically.	admin/changeme sysadmin/setmetup

The default authentication levels and passwords can be changed, see Chapter 3.2: Authentication Levels and Default Password on page 22.

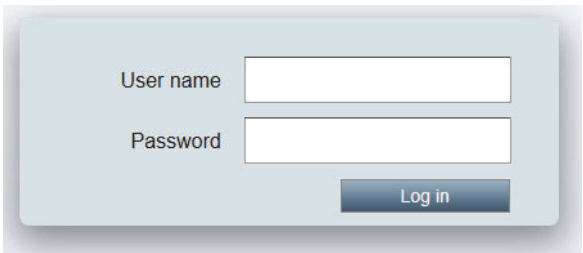
3.1.2 Login Page

When clicking an application that requires login credentials, the WSG redirects you to a Login page. Once logged in, you will remain logged in until you close the web browser or by clicking "Log out" in the WSG´s web interface.

If you are logged in to an application and then navigate to another application requiring a higher authentication level than the prior application, you will be prompted to log in again.

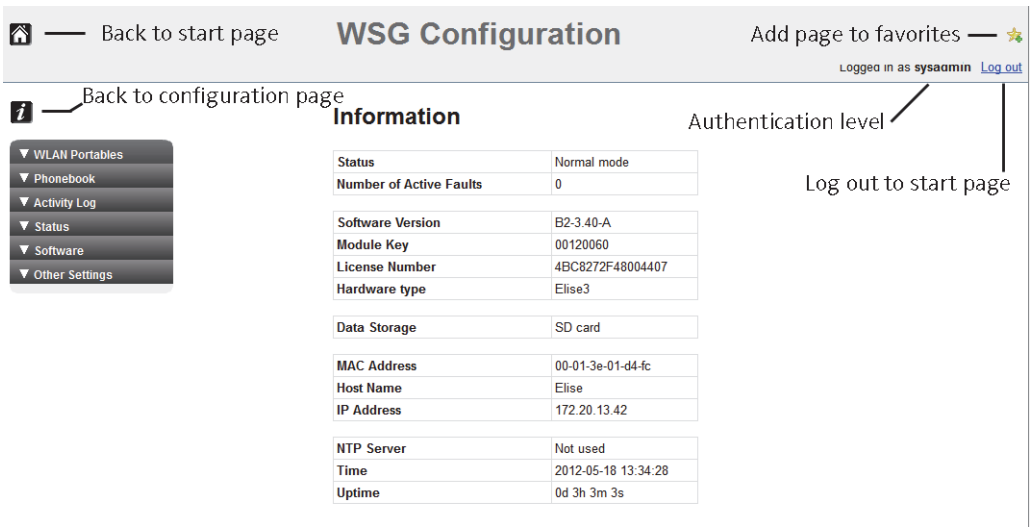
For example; you log in to the Phonebook application as user, and then navigate to the Setup Wizard. In this case, you will be prompted to log in again due to a higher authentication level (admin or sysadmin) is required for that application.

Figure 5 Login page in the WSG



3.1.3 Configuration Page

Figure 6 The Configuration page



With system administrator or administrator rights you will be able to access the complete configuration page from the Configuration- and Phonebook buttons on the start page. Links to documentation are also found on the Configuration page.

Use the symbol if you want to return to the start page without logging out. Using the "Log out" link will also send you back to the start page but you will be logged out as well.

System information is shown on the Configuration top page, for example host name, IP address and MAC Address.

3.1.4 Advanced Configuration page

The Advanced Configuration page is reached from the Configuration page (under Other Settings).

Figure 7 The Advanced Configuration Page

3.2 Authentication Levels and Default Password

The product has five different authentication levels:

- User rights are required for the administration of the phonebook. Default user name and password are “user” and “password”.
- Administrator rights are required for the setup, the configuration and administration, simple troubleshooting and changing passwords (except for the sysadmin password). Default user name and password are “admin” and “changeme”.
- System Administrator rights is used for advanced troubleshooting. It gives access to all administration pages and the permission to change all passwords. Default user name and password are “sysadmin” and “setmeup”.
- Auditor rights gives basically the same access as Administrator rights, but without permission to alter values. There is no access to the setup wizard or the Device Manager. Default user name and password is “auditor” and “readonly”.

Different levels of password policy can be set in, see Chapter 3.3.2: Set Password Policy on page 25.

Functionality matrix

The following matrix shows which functionality that can be used by the different authentication levels.

	anonymous	user	admin	sysadmin	auditor
Phonebook administration	No	Yes	Yes	Yes	No
View configuration settings	No	No	Yes	Yes	Yes
Configuration Access to the setup wizard	No	No	Yes	Yes	No
Access to the Device Manager.	No	Yes	Yes	Yes	No
Change passwords	No	No	Yes*	Yes	No

*Admin cannot change password for sysadmin.

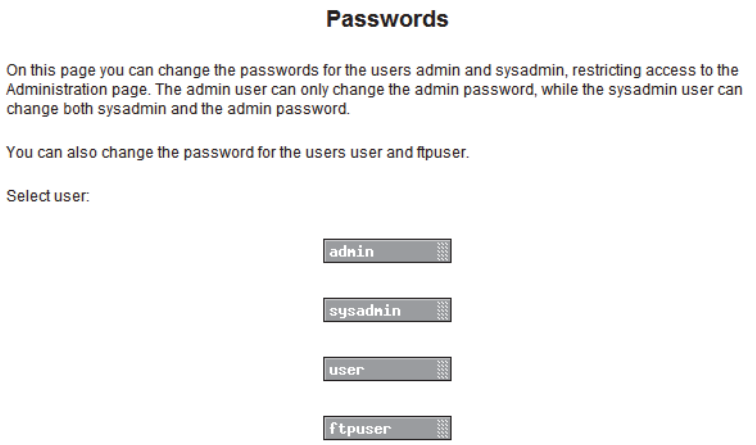
3.3 Password Settings

The default passwords for the different type of users; sysadmin, admin etc., can be changed and it is also possible to specify the password complexity, such as length and number of character types. Passwords can be changed in both the Setup Wizard and on the Advanced Configuration page, but the password complexity (password policy) can only be changed on the Advanced Configuration page.

3.3.1 Change Passwords

Different passwords can be set for different users.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu in the on the Configuration page.
3. Under Security, click “Change Passwords” in the menu on the Advanced Configuration page.

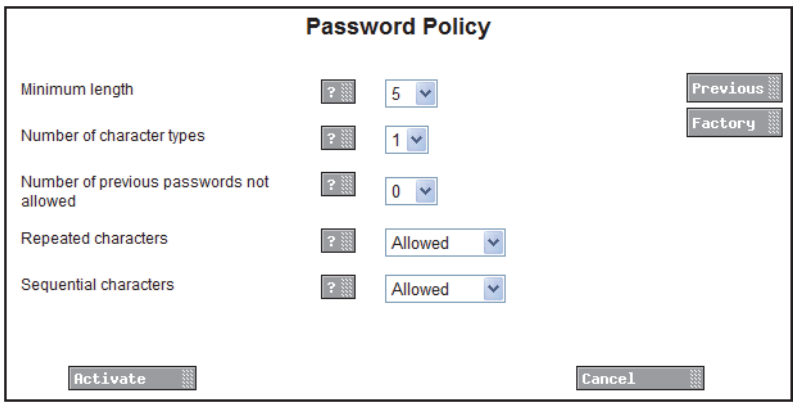


4. Click the user to change password for.
5. Enter your user name and password. Enter the new password and confirm the password.
6. Click “Ch. Passwd”.

3.3.2 Set Password Policy

The required password complexity can be set.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu in the on the Configuration page.
3. Select “Password Policy” under Security in the menu on the Advanced Configuration page.



4. Select password policy.
5. Click “Activate”.

It is also possible to select previous or factory default settings.

3.4 System Security Settings

Security settings, such as not allowing HTTP and FTP access, disabling NETBIOS and increasing the security by using Certificates might be needed if required by the customer.

3.4.1 Web Access Security Settings

You can determine if the WSG only should be accessed via HTTPS and FTPES to establish a secure connection between your client and the WSG. Information sent between the client and the WSG cannot be seen by any third-party. The HTTPS and FTPES require a certificate.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu in the on the Configuration page.
3. Select “Web Access” under Security in the menu on the Advanced Configuration page.

4. Select if Secure Mode shall be enabled or not.
5. Click “Activate”

It is also possible to select previous or factory default settings.

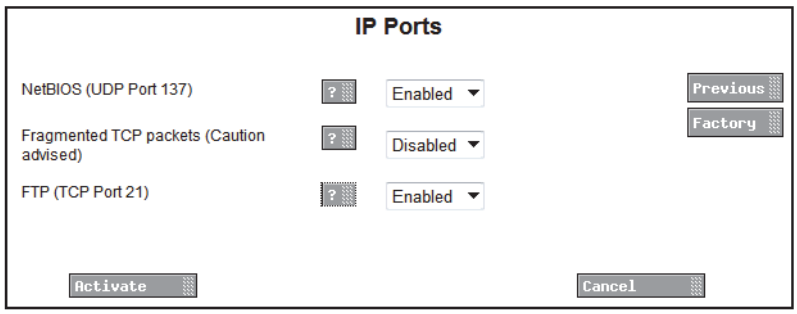
3.4.2 NetBIOS Port

You can determine if the NETBIOS port (UDP 137) shall be open or closed. The NETBIOS makes it possible to access the WSG with the NetBIOS name “elise-XXXXXXXX”, where XXXXXXXX is the module key number. If the port is closed, only the WSG’s IP address can be used to access the WSG.

The NetBIOS port is default enabled but can be disabled if needed for security reasons.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu on the Configuration page.

3. Select “IP Ports” under Security in the menu on the Advanced Configuration page.



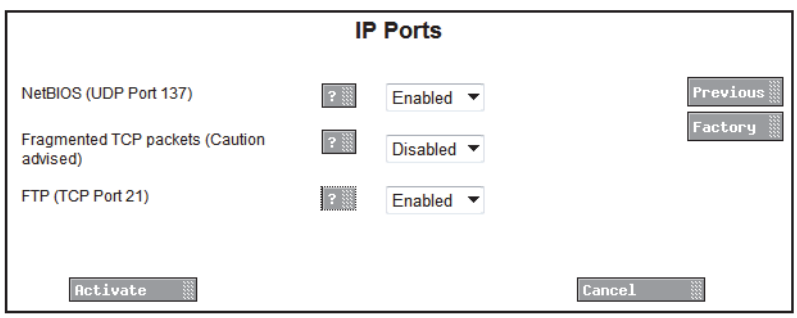
4. Select if the port should be closed (disabled) or open (enabled) in the NetBIOS (UDP Port 137) drop-down list.
5. Click “Activate”.

3.4.3 Fragmented TCP Packets

You can determine if the module shall allow that IP packets is broken into several smaller packets, which then can be transmitted an reassembled at the final destination.

If the IP network only allows packets with 1500 bytes, the packets will be dropped if not fragmenting is allowed. If fragmentation is allowed in the IP network, the parameter needs to be enabled in module.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu on the Configuration page.
3. Select “IP Ports” under Security in the menu on the Advanced Configuration page.



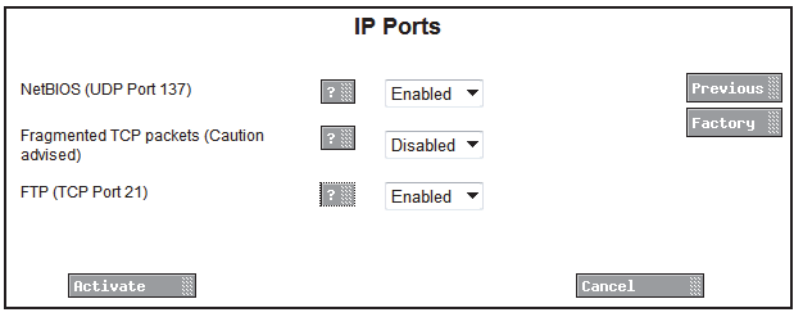
4. Select “Enabled” in the Fragmented TCP packets (Caution advised) drop down list.

5. Click “Activate”.

3.4.4 FTP Port

You can determine if it shall be possible to access the FTP area or not. The FTP area can only be accessed when the FTP port is open.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration.Select “IP Ports” under Security in the menu on the Advanced Configuration page.



3. Select if the FTP port shall be open (enabled) or not (disabled) in the FTP (TCP Port 21) drop-down list.
4. Click “Activate”.

3.4.5 Certificates

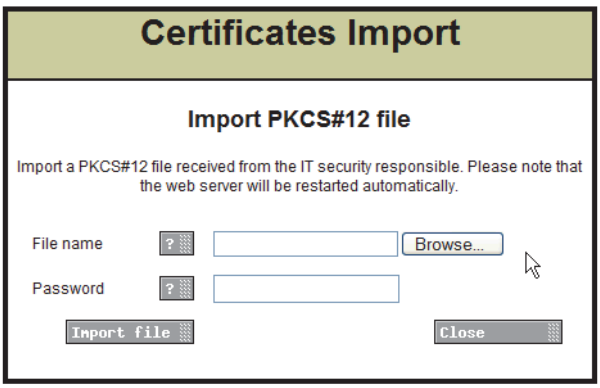
Certificates are used to increase security by encryption. A self-signed digital certificate is created during the first start-up. This certificate is issued for the module’s MAC address. A certificate can also be imported or created in the module.

Import certificates

Certificates can be imported to the WSG. These certificates may be created by a system administrator with IT security responsibility. The WSG uses PKCS#12 files, which include keys and certificates. Consult your IT responsible to obtain the PKCS#12 file.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu in the on the Configuration page.

3. Click “Import” under Certificates in the menu.



4. In the Certificates Import window, you can locate a certificate file. Enter file name and a valid password. The certificate is tied to a specific password which should be delivered with the file.
5. Click “Import file”. The file is imported to the module.
6. Click “Close”.

When starting, there may be a warning about the security certificate. This warning can be ignored.

Create certificate

It is possible to create certificates in the module. For instructions on how to create a PKCS#12 file, follow this instruction:

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu in the on the Configuration page.
3. Click “Create” under Certificates in the menu.

4. Enter valid parameters for your certificate file in the Create Self Signed Certificate window. “Validity” and “Common name” are mandatory.

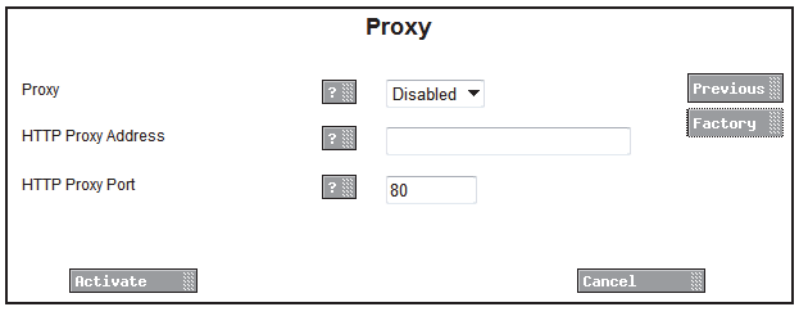
   Due to security reasons, some characters in the ASCII-table are not allowed to use
   in the fields “Common Name”, “Organization Unit”, “Organization”, “Locality”, “State or Province” and “Country” when creating a certificate.
   Among these are: [,], (,), {, }, $, &, \, |, *, ", `, ', ?, ~, >, <, ^, \n, \r.

5. Click “Create Certificate”.

3.5 Proxy Settings

If your corporate network is using a proxy server, the WSG must send all outgoing requests through the proxy server to be able to send the requests outside the corporate network.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration.
3. Select “Proxy” under Security in the menu on the Advanced Configuration page.



4. Enter/Select the following:

Proxy:	Determines if the proxy settings below is to be used
HTTP Proxy Address:	The address to the proxy server
HTTP Proxy Port:	The port the proxy server is listening at

3.6 Demonstration Mode

Demonstration Mode makes it possible to run the product for two hours with almost full functionality of the application.

The Demonstration Mode can be set from the application's Configuration page or manually by using the Mode button. The module will automatically return to previous license and parameters (without restart) after 2 hours.

Demonstration Mode is indicated by the Status LED with yellow slow flashing light. If any application encounters problems during Demonstration Mode, the Status LED will however show red slow flashing light instead. The Mode button LED shows blue fixed light.

From the application's Configuration page:

1. Click "Configuration" on the start page.
2. Select Other Settings > Demonstration Mode in the menu on the Configuration page.
3. Click "Activate".
4. Exiting before the 2 hours have passed, is done by clicking "Deactivate".

Using the Mode button:

1. Press and hold the Mode button for 10 seconds.

4 Basic Configuration

The basic configuration requires system administrator or administrator rights. With user rights you will only be able to access and configure the Central Phonebook. Refer to Chapter 3.2: Authentication Levels and Default Password on page 22.

4.1 Manage Central Phonebook Entries

The central phonebook makes it possible for users to search and find phonebook entries from a handset in the system. The entries can be added manually (Chapter 4.1.1: Add Entries to the Central Phonebook on page 33) or by importing a file containing the entries (Chapter 4.1.3: Import Entries to the Central Phonebook from a CSV File on page 35).

4.1.1 Add Entries to the Central Phonebook

The entries in the central phonebook can be filled in manually. The central phonebook supports entries with character encoding UTF-8 (for example Russian characters and Swedish characters).

1. Click “Phonebook” on the start page.
2. Select Phonebook > Edit on the Configuration page.
3. Click “Add” and enter the information needed in the text fields as described below.

4. Enter the following settings in the text fields:

Setting	Description
Last Name:	The family name
First Name:	The first (given) name
Number:	The telephone number

5. To add several rows click “Add” again.
6. Click “Save”.

Sorting Entries in the Central Phonebook

The entries in the Central phonebook can be sorted on Last Name, First Name or Number by clicking the arrows in the list’s title bar.

4.1.2 Delete Entries

1. Click “Phonebook” on the start page.
2. Select Phonebook > Edit in the menu on the Configuration page.

A) Delete a single Entry:

1. Locate the entry to be deleted and click the button in the same row.
2. Click “Save”. The entry is deleted.

B) Delete several Entries:

1. Click “Delete All”.

   All entries in the list will be crossed over and the icon will be displayed to the right of each entry. If you want to keep an entry just click the icon and the changes will be discarded for that entry.
2. Click “Save”. All entries marked with a blue arrow are deleted.

4.1.3 Import Entries to the Central Phonebook from a CSV File

The CSV file to be imported to the Central phonebook shall have the following format:

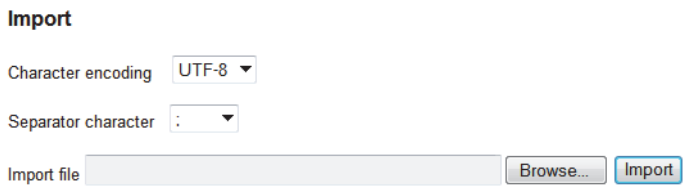
```
First name;Last name 1;Telephone number
```

Different separators may be used, see below:

NOTE: When importing a Central phonebook file in CSV format, existing entries are deleted.

---

1. Click “Phonebook” on the start page.
2. Select Phonebook > Import/Export in the menu on the Configuration page.



3. Select the character encoding of the file in the Character encoding drop-down list. NOTE: It is important that you select the same character encoding that the file is saved as. If not, the entries will be corrupted after the file has been imported.
4. Select separator for the CSV file.

   Different separators may be used in a delimiter-separated file. Currently, the module supports import of files with the separators semicolon, comma or TAB.
5. Click “Browse” to locate the CSV file in the system.
6. Click “Import”.

4.1.4 Export the Central Phonebook to a CSV File

The complete Central phonebook can be exported to a CSV file for backup reasons. The exported file will be saved with the character encoding UTF-8.

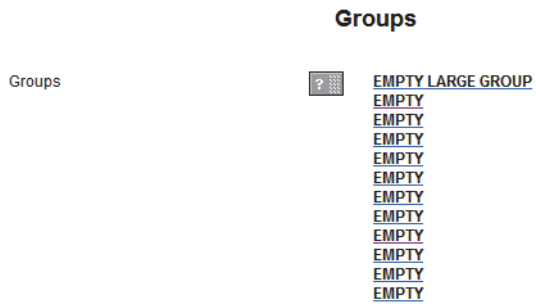
1. Click “Phonebook” on the start page.
2. Select Phonebook > Import/Export in the menu on the Configuration page.
3. Click “Export”.
4. Click “Save” in the window that opens.
5. Enter a name of the file, and select in which folder the file should be saved.
6. Click “Save”.

4.2 Create Messaging Groups

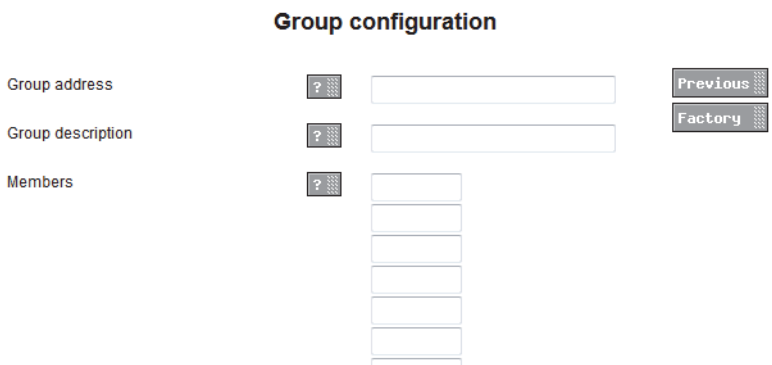
Messaging Groups in the WSG makes it possible to send one message to several handsets. 30 groups with 15 handsets in each group, and one group with 50 handsets can be created. Messaging Groups can also be used to send Push-to-talk (PTT) messages to a group of handsets. In this case, PTT parameters must also be set in the handset that shall initiate the PTT message. Refer to the handset's Configuration Manual for more information about the parameters.

Each group is given an address, either a name or a number, and a description. Then the addresses of the handsets, that should be included in the group, are added.

1. Click "Configuration" on the Start page.
2. Select Messaging Groups > Edit in the menu on the Configuration page.



3. Open the group to be configured by clicking on its name (default EMPTY).



4. Enter the following settings:

Setting	Description
Group address:	ID for the group, can be a name* or a number
Group description:	Description of the group.
Members:	Add members/handsets to the group

*If it should be possible to send messages from a handset in the Cordless Telephone System, the address has to be a number.

4.3 Status

On these pages, information on active faults or stored faults can be shown.

4.3.1 Active Faults

Active Faults page is where the last 100 received active persistent fault logs are listed. For more information about the fault log, refer to Chapter 4.3.4: Fault Log on page 41.

1. Click “Configuration” on the Start page.
2. Select Status > Active Faults, in the menu on the Configuration page.

   The following information is shown for each fault:

   - Time when the fault occurred
   - Level of the fault:
     - Critical error
     - Error
     - Warning
   - Description of the fault, as defined in the module
   - Type of module
   - IP address and host name of the module that generated the fault

By expanding the fault in the list, additional information about the fault is shown containing:

- Fault ID
- This is used to reference a persistent fault when it later is reset
- Fault code
- Description of the fault code
- Extended address information showing the system, bus type and module address
- In the figure below the system is 00, the bus type is 1 and the module address is 0A.

Persistent faults will remain in the list until the module sends a status message confirming that the module is working properly again. It is also possible to delete the fault in the list by clicking the icon ×.

NOTE: If the IP address or license is changed in the module, the faults reported for the previous IP address/license will remain since no confirmation can be received. These faults must be manually deleted.

The active faults list page has to be manually updated by clicking the “Update Page” link uppermost on the page.

4.3.2 Reset the Error Relay

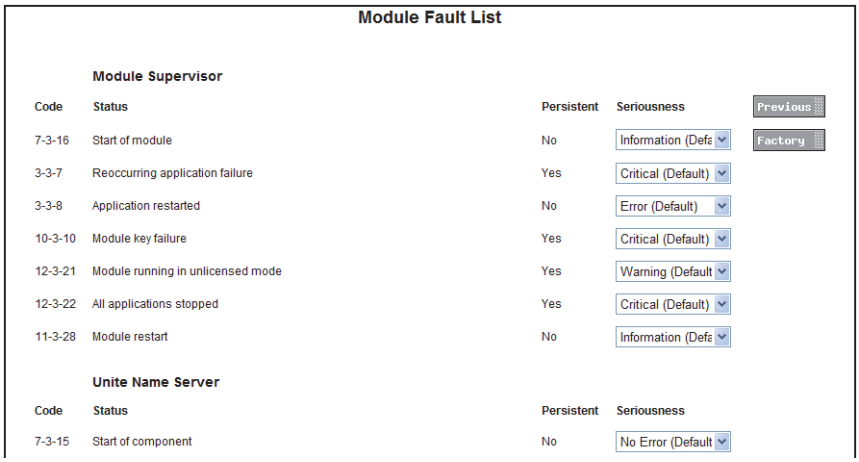
The error relay can be reset manually from the Active Faults page.

1. Click “Configuration” on the start page.
2. Select Status > Active Faults in the menu on the Configuration page.
3. Click “Reset” button.

4.3.3 Level of Seriousness for different Fault Types (Module Fault List)

A module fault list exists which shows codes and statuses etc. for each module in the system. The level of seriousness can be changed for different fault types in the logs.

1. Click “Configuration” on the Start page.
2. Select Other Settings > Advanced Configuration, in the menu on the Configuration page.
3. Click the “Troubleshoot” button and select “Module Fault List” in the menu.



4. Select level of seriousness in the drop-down list for the code(s) for which you want to change level.

4.3.4 Fault Log

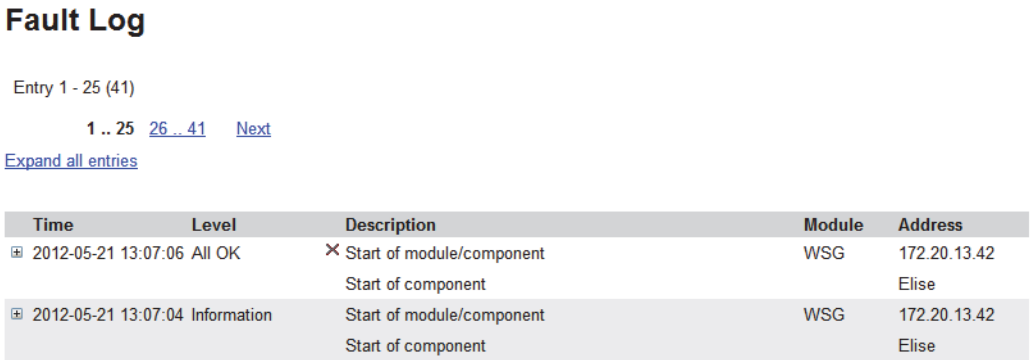
The fault log is a centralized log file and shows a complete log of the faults in the system. Every time a fault message is generated in the system, information about the fault is written to the log file. The maximum number of entries in the log file is 1050. When the log file is full, the 50 oldest entries are removed.

1. Click “Configuration” on the Start page.
2. Select Status > Fault Log in the menu on the Configuration page.

   The first 25 log entries are shown. To get the following 25 log entries, click the “Next” link.

   The following fault levels exist in the log:

   - Information
   - Individual reset
   - All OK
   - Critical error
   - Error
   - Warning



Symbols used in the Fault Log

Symbol	Description
	Active persistent fault
	Persistent fault that has been handled
	Reset message, no fault exists

To get more detailed information about the events, the log entries can be expanded by clicking the “Expand all entries” link. Single log entries can be expanded by clicking the individual “+” icon.

4.3.5 Administer the Fault Log

The Fault log can be exported in a CSV (Comma Separated Values) file format. The log can be cleared from non-active faults and a timeout can also be set to block repeated faults, that is, the fault will be discarded and no actions will be executed.

1. Click “Configuration” on the Start page.
2. Select select Other Settings > Administer Fault Log, in the menu on the Configuration page.

Export the Fault Log in CSV format

1. Click “Export”.
2. Click “Save” in the dialog window and enter the file name (default name statuslog.csv) and the file path.

Remove all non-active faults from the Fault Log

1. Click “Clear”.
2. Click “Yes” in the dialog winMdow to remove all non-active faults from the status log file.

Set a Timeout to block the Fault log from repeated faults

1. Enter the timeout in minutes (0-1000 minutes), the default value is 10 minutes.

   If no Status Logs should be blocked, set the timeout to 0.
2. Click “Set timeout” to save the setting.

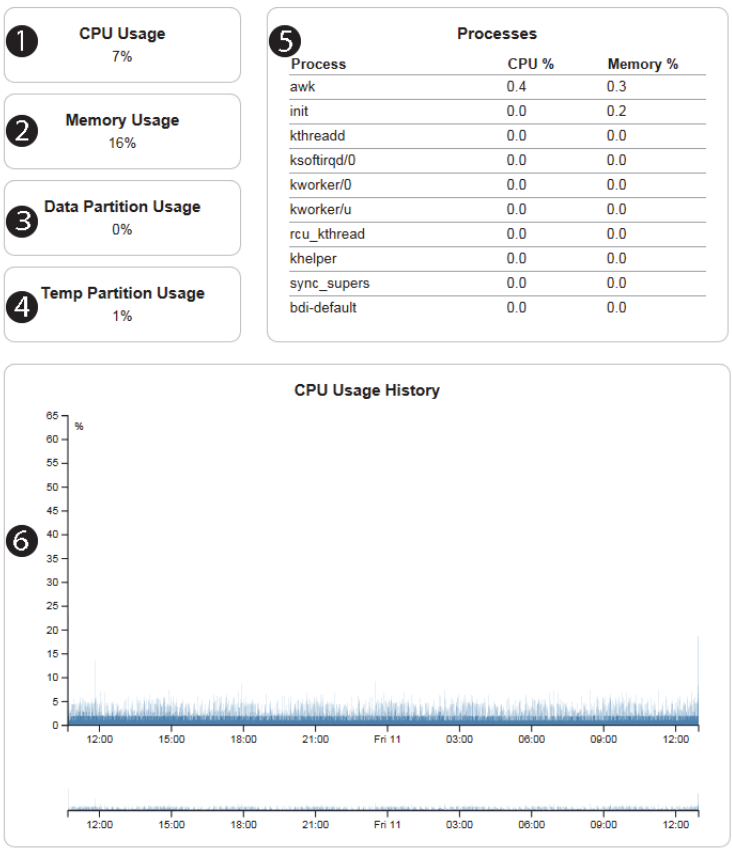
   An incoming fault will now be handled the first time it is received and then blocked during the set timeout.

4.3.6 Module Performance Overview

Information about the module's CPU usage and memory usage can be shown. This information can for example be used for the following purposes:

- View history of CPU usage the latest 24 hours (approximately)
- Test module performance in a new installation at a site
- Troubleshooting (for example to view why the module is running slow)

1. Click "Configuration" on the start page.
2. Select Status > Module Performance.



- (1) Shows the average usage of CPU.
- (2) Shows the current RAM usage.
- (3) Shows the current usage of non-volatile memory (internal memory or SD card).
- (4) Shows the current usage of the disk partition where the applications on Unite CM temporarily store files.

- (5) Shows the CPU usage and memory usage currently used by each process. The ten processes that use most CPU are shown the list sorted by CPU usage (descending order).
- (6) Shows history of CPU usage. The upper graph is a detailed view of the lower graph.

NOTE: The graph is not supported by Internet Explorer 8 or lower.

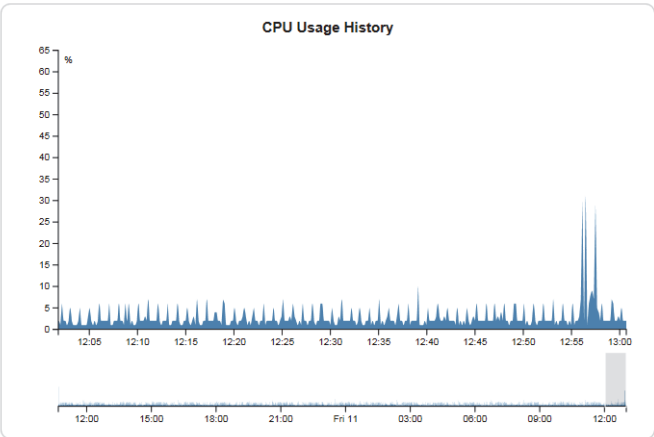
NOTE: The usage information is not refreshed automatically. However, the information is refreshed each time the page is visited.

View graph details

The details in the lower graph can be shown by marking a part in the lower graph as follows:

Hover the cursor over the lower graph until the cursor changes to + and then mark the part of the graph to be viewed. The marked part in the graph is indicated by a gray square.

Figure 8 Example of part of graph that is marked



Approximate 24 hours of CPU usage history can be shown.

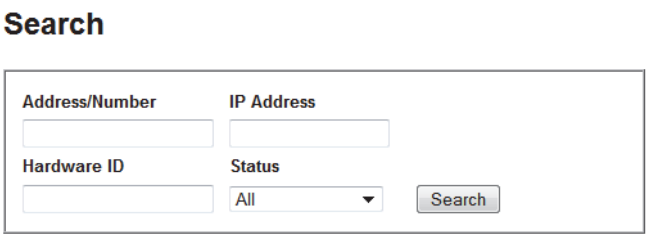
4.3.7 WLAN Handsets

Handset Administration gives you the possibility to list all handsets that are registered in the system, search for a specific handset, or a range of handsets.This is intended to facilitate troubleshooting.

The pages can be customized by changing the number of handsets shown on the search result list.

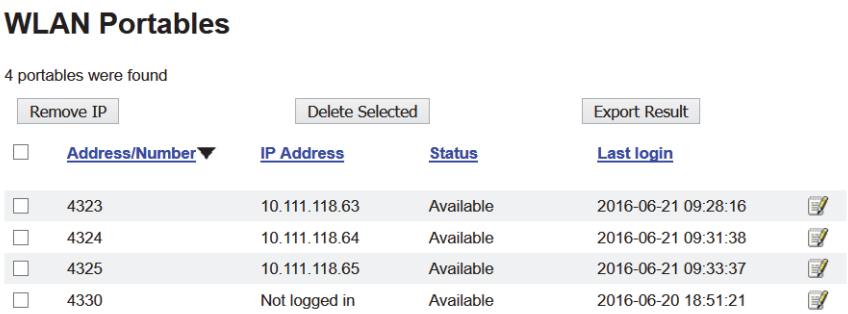
Show all Registered VoWiFi Handsets

1. Select “Configuration” on the Start page.
2. Click “WLAN Handsets” in the menu on the Configuration page.
3. Do one of the following:
   - Click “Search” to search for registered VoWiFi handsets based on different search criterias. For example Address/Number, IP address, Hardware ID (often the MAC address) or the Status of the handset. The Search page opens.



   - Click “List all” to show all registered VoWiFi handsets.

4. The search result can be sorted by address/number, IP address, status or last login. Click the name of the column to be sorted.



   - Address/Number – shows the number of a handset
   - IP Address – shows the IP address of a handset that is logged in to WSG.

- Status – shows if a handset is available or absent.
- Last login – shows the time of the latest received keep-alive (i.e “relogin”) message sent from a handset. How often the handset sends this message determines by the relogin time configured in WSG.

NOTE: NOTE: This time should not be mixed up with the Last login time shown in the Device Manager. The time in the WLAN Portable GUI is updated each time a keep-alive message is received, but the time in the Device Manager is only updated if the handset is restarted, or if the handset relogins due to lost connection to WSG.

Save a list with all Registered VoWiFi Handsets

The search result list can be exported to a comma separated file.

1. Click the “Export Result” button.
2. Select “Save”. Enter a file name and the location where the file shall be stored, and click “Save”.

Remove IP Address or Delete a VoWiFi Handset

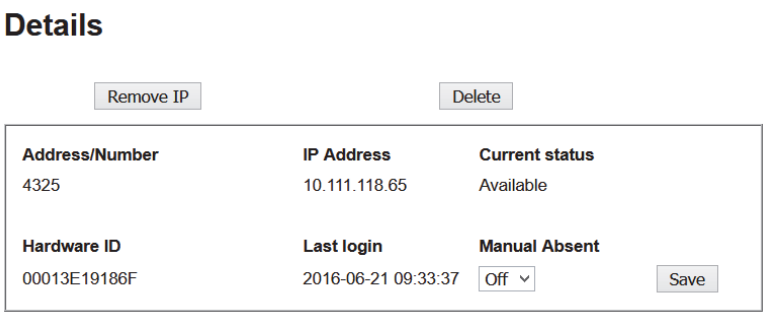
1. Select the handset(s) check box in the search result list.
2. Click “Remove IP Address” or “Delete Selected”.
   - Remove IP Address

     Used for refreshing the address of a handset.
   - Delete Selected

     Used for removing numbers not in use.

Show Handset Details

Click the icon  in the search result list. All details of the chosen handset are viewed.



4.3.8 Change the Handset Absent Status

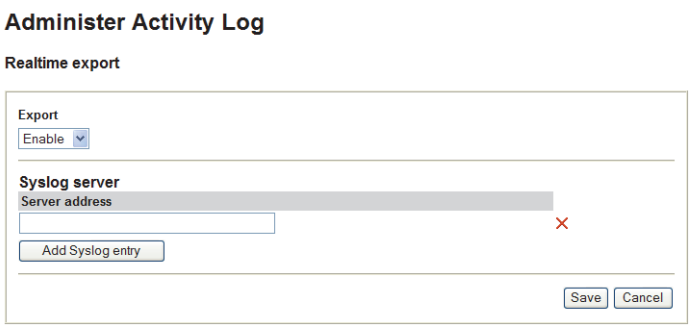
It is possible to change the Manual Absent status of the VoWiFi handsets.

1. View all handsets, refer to Chapter 4.3.7: Show all Registered VoWiFi Handsets on page 46.
2. Click the icon to view handset details, see <Link><Italic> Show Handset Details above.
3. In the Manual Absent drop-down list, select “On” or “Off”.

4.3.9 Export Activity Logs to a Syslog Server

Activities in the module are logged and can be exported to a Syslog Server where the logs can be managed and analyzed. Messages are sent to the syslog server every time an activity occur in the module. Example of activities are: An SMS has been sent to a handset, an alarm has been received from a handset, an error has occurred in the module etc. Syslog is a simple protocol (SYStem LOG protocol) for transmitting event messages and alerts text across an IP network. The activities are sent as text messages from the module to the Syslog Server. The IP address to the Syslog Server must be set in the module. The activities can be exported to 5 syslog servers in parallel.

1. Click “Configuration” on the Start page.
2. Select Activity Log > Log Export in the menu on the Configuration page.
3. Select “Enable” in the drop-down list.
4. Click the “Add Syslog entry” button.
5. Enter the Syslog Server’s IP address in the text field.
6. Click “Save”.



4.4 Module Redundancy

A redundant system consists of an active module and a standby module. When setting up the redundancy in the system, the primary WSG will act as an active module, and the secondary WSG will act as a standby module. If the active module goes down, the system will automatically switch to the standby module that becomes an active module. The modules will indicate that the system no longer is redundant since no data synchronization between the modules can be done.

CAUTION

A redundant system does not replace a backup of a WSG.

Prerequisites

In order to set up module redundancy in the WSG, the following requirements must be fulfilled:

- The WSG must use the same type of SD memory card.
- The secondary WSG must be an empty one, i.e. without any licenses or settings.
- Three static IP addresses. Ask your network administrator to obtain the IP addresses.
  TIP: See also <Link><Italic>Prepare IP addresses.

Prepare IP addresses

NOTE: It is assumed that your system already have one WSG installed and that an additional WSG will be installed in order to set up a redundant system.

The three static IP addresses will be used as follows;

- two IP addresses will be used by the primary- and secondary WSG.

- the third IP address will be used by the equipment (for example Access Points) to communicate with the active WSG when the system has become redundant. In this document, the third IP address will be called "virtual IP address".

NOTE: If a firewall is used between a redundant WSG and an application/system connected to that WSG, the IP port 3217 (UDP) has to be open for communication for the primary-, secondary- and virtual IP addresses.

The equipment that communicates with WSG must have the WSG's IP address configured. To avoid changing the WSG's IP address in the equipment, follow the instructions below:

Network without DCHP Server

1. Replace the IP address in the origin WSG with the static IP address to be used by the primary WSG. The replaced IP address can now be used as virtual IP address by the external equipment.
2. Make sure the other WSG to be used as secondary module has been assigned correct IP address.

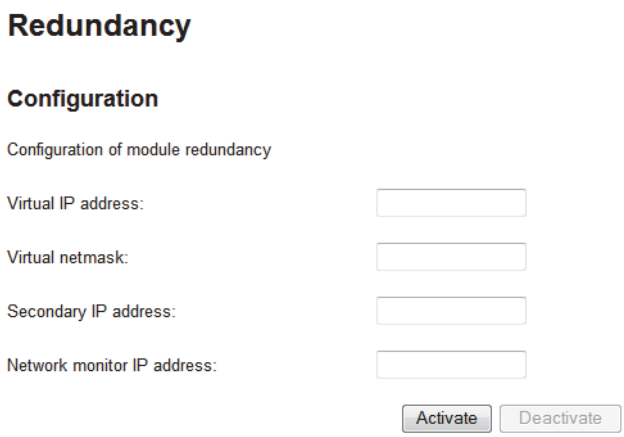
Network with DCHP Server

3. Make sure that the origin IP address of the WSG no longer is reserved to the WSG's MAC address. Note that the IP address still must be available but not reserved to a specific MAC address. If needed, consult your network administrator. This IP address will be used as virtual IP address later on.
4. Ask your network administrator to reserve a new static IP address to the origin WSG that later on will be used for the primary module. The IP address must be reserved to the module's MAC address.
5. Ask your network administrator to reserve a static IP address for the WSG to be used for the secondary module. The IP address must be reserved to the module's MAC address.

4.4.1 Configure Module Redundancy

Do the following on the WSG to be used as primary module:

1. Click “Configuration” on the start page.
2. Select Other > Redundancy on the Configuration page.



NOTE: If this is the very first time module redundancy shall be activated, make sure that both SD memory cards are fully formatted (FAT32) before inserting them in the modules. If this is a re-activation, make sure that the SD memory card of the secondary module is fully formatted (FAT32) before inserting it in the secondary module.

3. In the Virtual IP address text field, enter the virtual IP address.
4. In the Virtual netmask text field, enter the netmask of virtual IP address.
5. In the Secondary IP address text field, enter the IP address of the secondary WSG.
6. In the Network monitor IP address text field, enter the IP address of the equipment to be used as network reference. The WSG will check that it has connection to the network by sending ICMP (Internet Control Message Protocol) ping inquiries to this equipment every second. If you do not want you use a network reference, set the IP address to 127.0.0.1.

NOTE: It is highly recommended to use network monitoring when the modules are connected to different switches to avoid "split brain" behavior. See Appendix D: Network Monitoring in a Redundancy System on page 181.

7. Click "Activate".

NOTE: Once "Activate" is pressed, it is not possible to undo the activation of the module redundancy. However, it is possible to deactivate the module redundancy by clicking "Deactivate" and then click "Really deactivate". The module will reboot immediately. The GUI will not be updated automatically when the reboot is done. Update the GUI by clicking the "F5" button on your keyboard.

8. Click "Reboot" or "reboot later".

The WSG will now reboot and copy data from its internal flash memory to the SD memory during the start up sequence. This can take up to 3 minutes. The GUI will not be updated automatically when the reboot is done. Update the GUI by clicking the "F5" button on your keyboard. Note that Primary will be stated in the GUI's upper left corner when the module is up and running again.

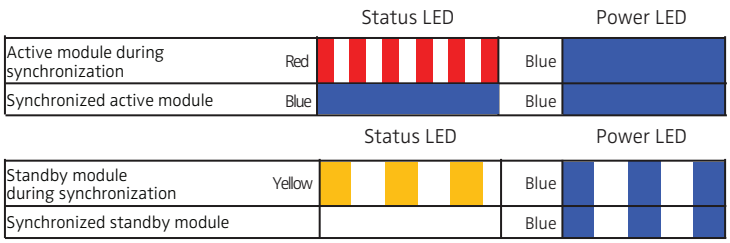
CAUTION

When the module redundancy has been activated, you must not remove the SD memory cards since the modules will use these as data storage instead of the internal flash memory. The primary WSG will continue to use the SD memory card as data storage even if the redundancy is deactivated.

When the data has been copied, the primary WSG sends configuration settings to the secondary WSG that in turn reboots to apply the settings. After the reboot, the data will be synchronized with the secondary WSG's SD memory card. It can take up to one hour to synchronize all data to a SD memory card with 1 GB capacity the first time. During this time, the primary WSG is fully operational.

The LEDs on each WSG indicate the status of the synchronization.

Figure 9 LEDs showing the status of synchronization



It is also possible to view the synchronization status via the GUI. Use the virtual IP address to access the active module and the secondary IP address to access the standby module. In the GUI of the primary WSG, Primary is shown in the upper left corner. In the GUI of the standby module, Secondary is shown in the upper left corner.

Additionally, information such as synchronization status is also shown.

- Synchronizing - The synchronizing is in progress. Additionally, the amount of data (in percentage) that has been synchronized is also shown.
- Data in sync - The data in both WSG are identical. The system is redundant when this status is shown.
- Data out of sync - The modules are not synchronized. This is shown for example if the connection to the other module is lost.

When the system has become redundant, the virtual IP address will be used by the WSG that currently is active. Note that no configuration can be done on a WSG that is in standby mode.

4.4.2 Redundancy Test

1. Unplug the active module's power cord from the power source.

The standby module will now start up to become an active module which takes up to 60 seconds before all applications are up and running.

The Status LED flashes (red)  indicating that the system no longer is redundant since the connection to the primary module (former active module) is lost.

When the standby module has become active, the Power LED changes to steady blue but the Status LED is unchanged as long the system is not redundant.

2. Enter the secondary module using the virtual IP address. Note that Secondary is stated in the upper left corner indicating that this module currently is the active module.
3. Select Status > Active Faults on the Configuration page. The log shows for example that the secondary module is active and that the primary module has failed. Other faults might also be shown.
4. Perform an action to ensure that the active module works properly. For example send a message to a handset to check if it receives the message.
5. Connect the primary module and check if the secondary module starts to synchronize with the primary module. A completed synchronization is indicated as follows;

- On the secondary module; the Status LED and the Power LED will be steady blue as long the module acts as an active module.
- On the primary module; the Status LED is turned off and the Power LED will still flash blue as long the module acts as a standby module.
- The synchronization status on both modules will be changed to Data in sync when the data is synchronized.

After the test, it is recommended to switch back to the primary module again. See Chapter 4.4.4: Fallback to the Primary WSG on page 55.

NOTE: When switching between primary- and secondary WSG, it might take a while before devices appear in the Device Manager. The parameter Device relogin time determines the maximum time the devices have to re-login to the Device Manager. See Chapter 7: Device on page 123.

4.4.3 Restrictions on an Active Secondary Module

A secondary module that has become active, has redistricted functionality as follows:

- The secondary module can only be up and running as active module for 30 days without a repaired primary module connected. It is strongly recommended to switch back to the primary one as soon as possible due to restrictions apply on the secondary one.

For example; if the secondary module is shut down day 10, it can still use the remaining twenty days when it is started again.

CAUTION

If the repaired primary module is not connected within 30 days, the secondary module will become a standby module which means that no module is active.

- It is not possible to disable the module redundancy
- It is not possible to perform a backup restore
- It is not possible to add a license
- It is not possible to run the Wizard

- It is not possible to activate the Demonstration Mode

4.4.4 Fallback to the Primary WSG

When a secondary WSG has become an active one, it will switch back to the primary WSG when the secondary one goes down. It is possible to manually switch back to the primary WSG when it is in standby mode after repair.

NOTE: The network monitoring setting might affect the fallback behavior, see Appendix D: Fallback behavior when network monitoring is not used on page 182.

NOTE: If you for some reason reboot the secondary module via the GUI, the primary module will not take over as active module. However, if the secondary module is not up and running again after 3 minutes, the primary module will become active.

On the secondary module, do as follows:

1. Click “Configuration” on the start page.
2. Select Other > Redundancy on the Configuration page.
3. Click the "Fallback to primary module" button.

NOTE: NOTE: It is only possible to press the button if the data has been synchronized with the primary module.

The primary module will now act as a active module and the secondary module will act as a standby module.

NOTE: When switching between primary- and secondary WSG, it might take a while before devices appear in the Device Manager. The parameter Device relogin time determines the maximum time the devices have to relogin to the Device Manager. See Chapter 7: Device on page 123.

4.4.5 Access Troubleshooting Pages

If a module fails or it does not work as expected, the logs on the Troubleshooting page can give you information about the status of the module.

Troubleshooting page on active module

1. Click “Configuration” on the start page.
2. Select Other > Advanced Configuration on the Configuration page.
3. Click the “Troubleshoot” button on the Advanced Configuration page.
4. Click “View Info Log” or “View Complete Log”.

Troubleshooting page on standby module

Click the “Troubleshoot” link on the Standby page.

NOTE: When entering the Troubleshoot page on a synchronized standby module without any errors, "License Error" and "Module Error" are shown. This is normal and no action is required.

4.4.6 Deactivate Redundancy

NOTE: This setting can only be performed on the primary module.

---

1. Click “Configuration” on the start page.
2. Select Other > Redundancy on the Configuration page.
3. Click the "Deactivate" button.
4. Select one of the following:
   - Click "Cancel deactivate" to undo the deactivation.
   - Click "Really deactive" to perform the deactivation. Both WSGs will now reboot immediately. The GUI will not be updated automatically when the reboot is done. Update the GUI by clicking the "F5" button on your keyboard.
5. Do one of the following:

- If the IP address was changed in the modules: Change the IP address in the former primary WSG to its origin IP address. NOTE: If DCHP server is used, ask your network administrator to reserve the IP address to the module's MAC address.
- If the IP address was changed in the equipment with configured WSG IP address, change to the origin IP address.

CAUTION

Do not remove the SD memory card from the WSG that acted as primary module. The SD memory card on that module will still be used as storage even when the module redundancy has been deactivated.

CAUTION

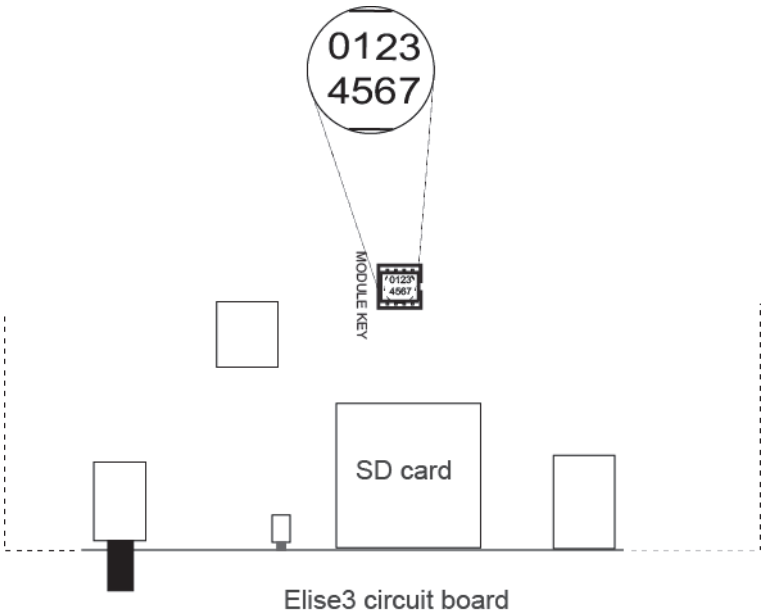
The secondary WSG module will revert back to factory settings and use internal flash as storage after redundancy has been deactivated.

4.4.7 Replacement of Broken WSG in a Redundant System

This section describes how to replace a broken (i.e. hardware fault) primary module in a redundant system.

The broken primary module:

1. Disconnect the power source and other cable connections from the primary module.
2. Untighten the four screws on the backside of the module by using a torx (T-10) screwdriver.
3. Open the housing by pulling top cover towards the backside of the module.
4. Remove the module key.



The replacement module:

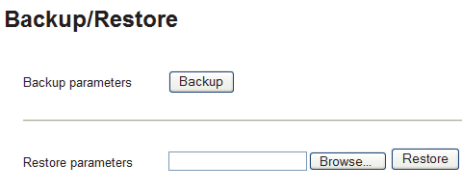
5. Untighten the four screws on the backside of the module by using a torx (T-10) screwdriver.
6. Open the housing by pulling top cover towards the backside of the module.
7. Replace the module key with the one from the broken module.
8. Connect the power source and other cable connections to the primary module.
9. Insert a SD card into the module. NOTE: The vendor and capacity must be identical as the SD card inserted in the secondary module.
10. Run the Setup Wizard to configure network settings and license settings.
11. Configure the module redundancy, see <Link><Italic>4.4.1 Configure Module Redundancy.

When the primary module is up and running, it will synchronize with the secondary module, that currently is the active one.

4.5 Back up the Configuration

This instruction is used to backup the Device Manager database and the configuration of the WSG. The backup file is saved in a proprietary file format and cannot be edited. Save it in a place where you can easily find it for a restore.

1. Click “Configuration” on the start page.
2. Select Other Settings > Backup/Restore, on the Configuration page.



1. Click “Backup”.

A backup of the current configuration is created and the File Download window opens.

2. Click “Save”. The Save As window opens.
3. Select a location, enter a file name, and save the file.

4.6 Restore the Configuration

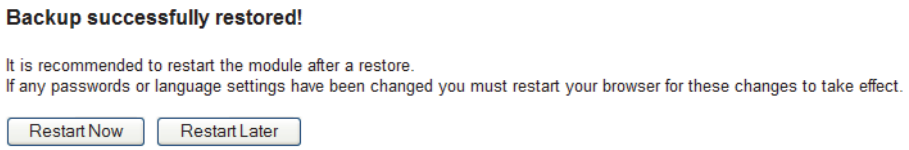
When restoring the configuration, all applications and services are terminated until the WSG is up and running after a restart. When WSG is restored, all changes made since the last backup is discarded.

NOTE: A backup of a newer software should not be restored on an older software because the configuration of the new software might not be compatible with the old software. However, a backup of an old software can be restored on a newer software.

---

1. Click “Configuration” on the start page.
2. Select Other Settings > Backup/Restore, on the Configuration page.
3. Click “Browse” and select the backup file.
4. Click “Restore”. The text “Backup successfully restored!“ will be displayed and inform you when the restore is ready.
5. Click “Restart Now” to reboot, else click “Restart Later”. If the IP address has been changed, the module needs to be restarted for the settings to take effect.

   A restart will take a couple of minutes and during that time the module cannot be reached.



5 Central Phonebook Configuration

The Central Phonebook makes it possible for users to search and find phonebook entries in a local database or in an LDAP server, from a handset in the system.

For information about entering phonebook entries, see Chapter 4.1: Manage Central Phonebook Entries on page 33.

NOTE: If an LDAP connection to a central phonebook is used, all settings needed are done in the setup wizard but can also be done from the Advanced Configuration page.

5.1 Technical Specification

The local database has defined limitations while most of the limitations for the LDAP server depends on the LDAP server used, see table below.

	Local Database	**LDAP Server**
Max. No. of phonebook entries:	500/2000	Server dependent
Max. No. of characters in family name:	20	Server dependent
Max. No. of characters in first name:	20	Server dependent
Max. No. of digits in telephone number:	20	Server dependent
Max. No. of returned entries / request:	25	25
Handsets that can access the phonebook:	Depends on handset type.	

5.2 Change the Phonebook Address

The default Call ID for accessing the phonebook is “999999”.

When the Unite Name Server (UNS) is set to forwarding mode, the phonebook Call ID must exist in the module that the requests are sent to. Any change of the Call ID and/or IP address must be made in that module. If the default address is used, no changes are needed.

When the UNS is set to stand-alone mode, do as follows to change the address:

1. Click “Configuration” on the Start page.
2. Select Other Settings > Advanced Configuration in the menu on the Configuration page.
3. Select “Phonebook” in the menu on the Advanced Configuration page.
4. Click “Call ID Setting”.
5. Enter the new Call ID for the phonebook, that is, the Call ID the handsets are using to access the Central phonebook. Check that the Call ID does not conflict with any of the handsets in the system.
6. If the phonebook is located on another module, enter the IP address to that module.

5.3 Select Central Phonebook Database

Select which database to use for telephone numbers; “Local - 500 Editable”, “Local - 2000 View only”, or “LDAP”.

- If the default local database is selected the entries must be added, either manually or imported from a CSV file, see chapters 4.1.3 on page 35 or 4.1.4 on page 36.
- If LDAP server is selected, continue in chapter Chapter 5.4: LDAP Parameter Setup on page 64.

To set database to use for the Central phonebook, do as follows:

1. Click “Configuration” on the Start page.
2. Select Other Settings > Advanced Configuration in the menu on the Configuration page.
3. Select “Phonebook” in the menu on the Advanced Configuration page.
4. In the Database for lookups field, choose between “Local - 500 Editable”, “Local - 2000 View only”, or “LDAP”.

If “Local - 2000 View only” is chosen, the “Add” and “Delete all” buttons are not visible in the Edit Phonebook pages.

5.4 LDAP Parameter Setup

The Lightweight Directory Access Protocol (LDAP) is an application protocol for querying and modifying directory services running over TCP/IP. The WSG starts an LDAP session by connecting to an LDAP server. Then it sends operation requests to the server, and the server sends responses in return.

An LDAP directory is a tree of directory entries and follows the structure below:

- An entry consists of a set of attributes.
- An attribute has a name and one or more values.

Each entry has a unique name; the distinguished name (DN). DN consists of its relative distinguished name (RDN) constructed from some attribute(s) in the entry, followed by the parent entry's DN. Think of the DN as a full filename and the RDN as a relative filename in a folder.

An entry can look like this:

dn: cn=John Ericson,dc=company,dc=com

cn: John Ericson

givenName: John

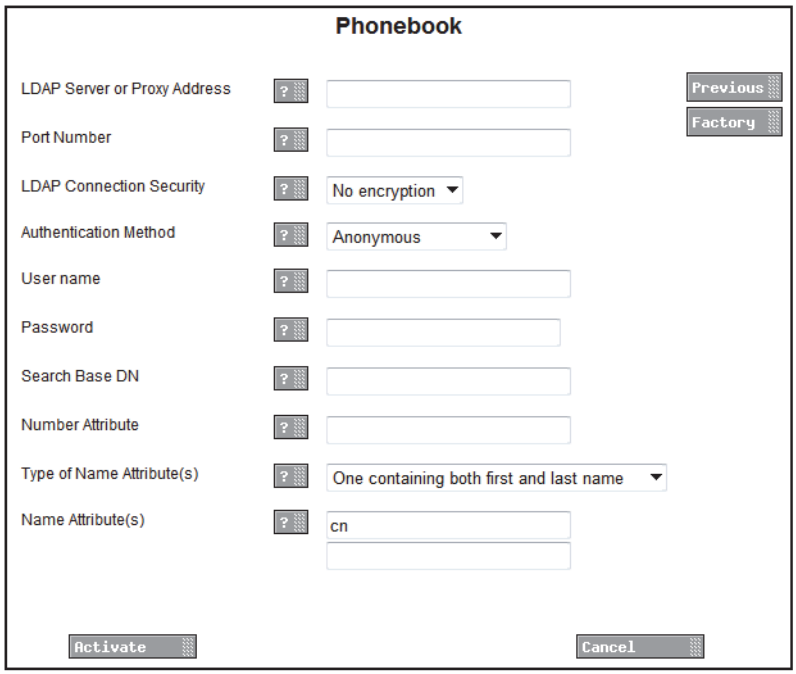
sn: Ericson

telephoneNumber: +1 888 555 6789

mail: john@company.com

dn is the name of the entry; it is not an attribute nor part of the entry. “cn=John Ericson” is the entry's RDN, and “dc=company, dc=com” is the DN of the parent entry. The other lines show the attributes in the entry. Attribute names are typically mnemonic strings, like “cn” for common name, “dc” for domain component, “mail” for e-mail address and “sn” for surname. .

1. Click the LDAP settings link.



2. In the LDAP Server or Proxy Address field, enter the IP address or DNS address to the LDAP server.
3. In the Port Number field, enter the port number used by the LDAP server. If the field is leaved empty, port 389 will be used for non-encrypted connection, and port 636 will be used for encrypted connection (LDAP over SSL, called LDAPS).
4. In the LDAP Connection Security drop-down list, select if the connection to the LDAP database is to be encrypted.
5. In the Authentication Method drop down list, select how to authenticate to the LDAP server.

NOTE: If the authentication method SASL/DIGEST-MD5 is selected, the IP address for primary DNS server must be entered in the DNS server field on the Network setup page. Otherwise it is not possible to authenticate with the LDAP directory Microsoft Active Directory 2003.

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1. In the User name field, enter the user name used for logging on to the LDAP server. It is a good idea to create a new user in the domain with access for the LDAP server.
2. In the Password field, enter the password used for logging on to the LDAP server.

3. In the Search Base DN field, enter the user entries' parent DN. (The distinguished name for all users common entry.)
4. In the Number attribute field, enter the name of the attribute that holds the telephone numbers.
5. In the Type of Name Attribute(s) drop down list, select the appropriate option.
6. The option depends on if the name is stored in a single attribute or if it is split into two different attributes.
7. In the Name Attribute(s) field, enter name(s) of the attribute(s) containing first name and family name. If two attributes are used, enter the first name on the first line and the family name on the second line.

5.5 Digit Manipulation in Central Phonebook

When importing telephone numbers it is sometimes necessary to automatically change the way a number is written according to preset conditions.

Depending on where a number is situated, the module can alter the number that is returned in a phonebook query. If, for example, the queried number is situated within the same local exchange, the telephone number is considered to be an internal number and the number is stripped from superfluous international prefixes, etc.

Telephone number standards

There are several standardized ways of writing telephone numbers.

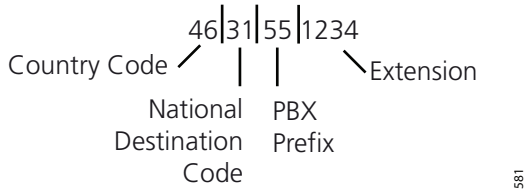
The following formats are currently supported:

Format	Comment
+4631559300	E.164 international standard, and E.123
(031)-559300	E.123 local number
+46(031)559300	National prefix + national destination code in parentheses
+46(0)31559300	National prefix in parentheses
+46(31)559300	Canonical address format
4631551234	Digits only. Conversion is controlled by setting maximum lengths of internal and national numbers.

Examples

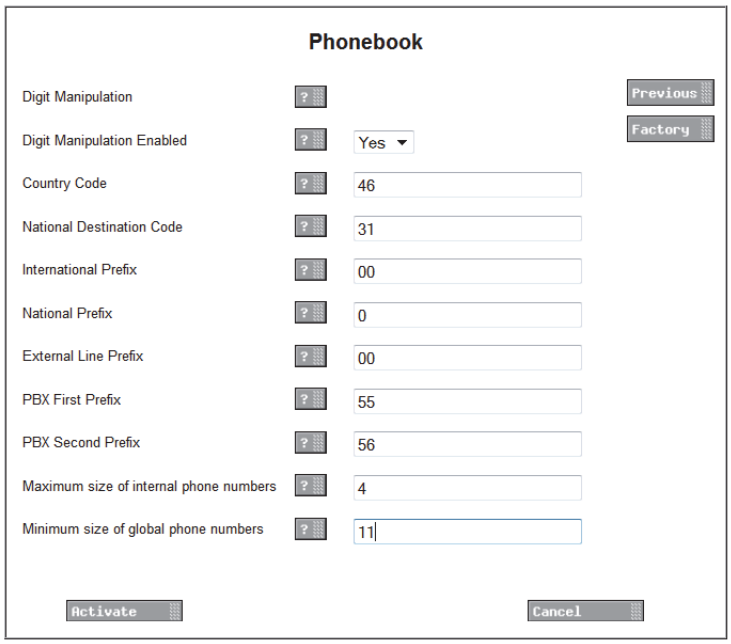
The following figure shows the elements of a telephone number, +46(31)551234 (in canonical format), used in the parameter descriptions below.

Figure 10



Example of how a telephone number is built up from different prefixes and extensions.

Figure 11 Example of Digit Manipulation Settings



The following examples illustrate how digit manipulation works in different queries. The queries are considered to be done from within +463155xxxx (local exchange), see also figure above.

- Example 1: The query is within the same local exchange.

  Queried number: 551234

  Digit manipulation identifies 55 as the local exchange prefix and strips 55 from the number.

  Resulting number: 1234

- Example 2: The query is within the same city (area code), but outside the local exchange.

  Queried number: 031612500

  Digit manipulation identifies 0 as National Prefix and 31 as National Destination Code, strips 031 from the number and adds 00 for external line.

  Resulting number: 00612500

- Example 3: The query is within the same country, but not in the same city.

  Queried number: 035158115

  Digit manipulation identifies 0 as National Prefix and 35 as National Destination Code and adds 00 for external line.

Resulting number: 00035158115

- Example 4: The query is within another country.

  Queried number: +4781530555

  Digit manipulation identifies “+47” as an international call, skips the “+”, and adds 00 for external line prefix and 00 for international prefix.

  Resulting number: 00004781530555

- Example 5: Size of internal number.

  Queried number: 1234

  Digit manipulation identifies that the number of digits in the telephone number is equal to the number of digits entered as “maximum size of internal phone numbers”.

  Resulting number: 1234

- Example 6: Size of global number.

  Queried number: 47815305555

  Digit manipulation identifies that the number of digits in the telephone number is equal to the number of digits entered as “minimum size of global phone numbers”, then adds 00 for external line prefix and 00 for international prefix.

  Resulting number: 000047815305555

Digit Manipulation Settings

The parameters for digit manipulation can be set via the Configuration page.

1. Click “Configuration” on the Start page.
2. Select Other Settings > Advanced Configuration in the menu on the Configuration page.
3. Select “Phonebook” in the menu on the Advanced Configuration page.
4. Click "Digit Manipulation Settings".

The following parameters can be configured for digit manipulation:

- Digit Manipulation Enabled

  The digit manipulation function can be enabled and disabled. If the function is enabled, the parameters below apply, otherwise they do not apply.

- Country Code

  The Country Code is the prefix to be used when dialling to a particular country from another country. The country code is what follows after the + in a telephone number.

  The value is used to identify the country code in the number and remove it when it is not needed.

- National Destination Code

  The National Destination Code (NDC) is what follows after the country code in a telephone number.

  The value is used to identify the NDC in the telephone number and remove it when it is not needed.

- International Prefix

  The International Prefix is used to dial a call from a particular country to another country. This is followed by the country code for the destination country.

  This value is used to replace the + character when an international call is made.

- National Prefix

  National Prefix is used to make a call within a country from one city to another. The national prefix is followed by the national destination code for the destination of the call.

  This value is used for two purposes:

  – To identify the national prefix in the number and remove it when it is not needed.

  – To change a number when the destination is another city.

- External Line Prefix

  External Line Prefix is what needs to be dialled before the number to reach the public network.

  The value is used to change the telephone number if it is identified as an external number.

- PBX First Prefix

  PBX First Prefix is what precedes an internal number to create an external number.

  This value is used to compare with the phonebook number to decide whether the number is internal or external.

- PBX Second Prefix

  Points out an additional prefix to be handled in the same way as “PBX First prefix”.

- Maximum size of internal telephone numbers

  Used for numbers that starts with a digit instead of “+” or “(“. If the number is longer than this value, it is considered to be an external number.

- Minimum size of global telephone numbers

Used for numbers that starts with a digit instead of “+” or “(“. If the number is equal to or longer than this value, it is considered to be a global number.

6 Device Manager

NOTE: Make sure that the Device Manager is configured to communicate with the interface (for example WLAN) the devices are connected to. If not, the devices will not appear in the Device Manager. See Chapter 7.1: Device Management Setup on page 123.

The Device Manager can manage large sets of devices and contains a solution for:

- Centralized software upgrade on a set of devices and configuration of devices
- Central database storage for all device settings
- Upgrade of license for handset

In the Device Manager, much of the work is done with Devices, Numbers and Templates.

6.1 Description

This section gives a description of the Device Manager application in the WSG and how it is intended to be used.

6.1.1 Device Manager terminology

This section gives a brief description of the basic terminology in the Device Manager.

Device	A handset that can be connected to the module.
Number	The complete settings for a single device.
Template	General settings for a specific device type. A template can be applied to several Numbers of the same device type.
License	Licensed functionality for a device.
Tabs	In the Device Manager there are different views, or tabs. In these tabs, the information for devices, Numbers, templates and licenses are shown.
Parameter definition file	A file including all possible settings for a certain device type. Templates are created from parameter definition files.
Software	The software used in devices. The device software can be updated via the module.
Version	Parameter definition files and device software are indicated by versions.
Package file	A file that can contain other files, such as parameter definition files, software files and template files.
Importing	Different types of files can be imported. Note that if a software file should be imported, it may have been delivered in a package file.
Associate	Before being able to synchronize parameters between the WSG and devices, it is necessary to associate a Number with the device. Association includes all parameters. If it exists on that device type, it also includes Contacts.
Assign	It is possible to assign a Number to a device that has not yet been assigned a Number in the Device Manager. Assign includes only the parameters defining the Number.

6.1.2 How to use the Device Manager

The following list is a short description to give a basic understanding on how to use the Device Manager with devices. It is not intended to be used as a work flow description.

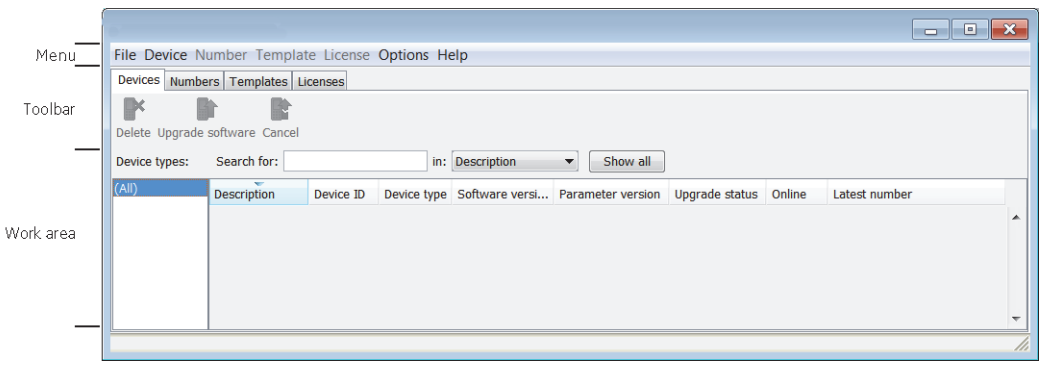
- Import a parameter definition file of the corresponding device type to Device Manager.
- Create a template from the parameter definition file.
- Add a device to the Device Manager.
- Create a new Number for the corresponding device type.
- Upgrade the software of a device
- Associate the Number with the device.

Refer to applicable manual for a description of the work flow.

6.1.3 Device Manager GUI

The Device Manager window has a menu bar, a toolbar and a work area. The toolbar has different tabs and when a tab is selected the available device types will be shown in the left hand pane of the work area. The right pane shows devices, numbers, templates, or licenses already configured.

Figure 12 Device Manager Window



The upper part of the work area has search fields with different search criterias for each tab.

Sort and Filter the Lists

By default, the lists are sorted as follows:

- Devices tab – sorted by Device ID
- Numbers tab – sorted by Number
- Templates tab – sorted by Name
- Licenses tab – sorted by Device ID

To sort the list by any other column, click the appropriate column heading. To reverse the sort order, click the column heading again. The sorting order is indicated by an up or down arrow in the column heading.

By default, the list in each tab shows all available Devices, Numbers or Templates, but it is possible to filter the list by selecting the desired device type in the left hand pane of the work area.

6.1.4 Color coded Information

Color coding for lists in tabs

- If the version number is shown in red, the Device Manager has found no parameter definition files supporting that device type.
- If the version number is shown in dark red, the parameter definition file is compatible, but does not have exactly the same version as the device.

Color coding for parameter and template editing

In the parameter and template editing windows, the following color coding is used:

Color	Context	Description
Black	General	Normal
Dark blue	For templates and parameter editing	Parameter has been edited during the current session
Purple	For templates	The parameter is included in the template (checked)
Red	For templates and parameter editing	Value not valid
Turquoise	For templates and parameter editing	The value differs from the default value

6.1.5 Navigation

For keyboard short-cuts, see Appendix B: Device Manager Keyboard Shortcuts on page 177.

6.1.6 Tabs

The Device manager has different views, or tabs:

- Devices tab
- Numbers tab
- Templates tab
- Licenses tab

Each tab shows information about devices, Numbers, templates, or licenses. Some information overlaps, for example Device ID, which is tied to both a specific device and to a specific Number. Different menus are accessible in the different tabs.

Devices Tab

The Devices tab shows all devices configured at the site in a detailed list. The following information can be displayed (see also <Link>figure 12 on page 75):

- Description – optional information of a Number that can be added by the user. For example, the user of the device.
- Device ID – the unique identifier of the device.
- Device type – the device model.
- Software version – shows the version of the software in the device.
- Parameter version – shows the version of the parameters in the Number.
- Upgrade status – might show one of the symbols shown in table 2 below.
- Online – shows if the device is connected to the Device Manager. The symbol ✓ indicates a connected device.
- Latest Number – shows the latest known Number for a device.
- The columns order can be changed and the application will keep the changes.

Table 2 Upgrade status symbols

 – software upgrade in progress.
It is also possible to see a progress bar when the device is being upgraded.

 – software upgrade Pending, Request sent, or Accepted (a green arrow).

 – software upgrade Scheduled or Retrying.

 – the last upgrade Failed or Aborted (a red broken arrow).

– “Completed”, no symbol is shown

NOTE: A software upgrade should be done on one device to start with. If successful, the remaining devices can be updated in one operation.

- IP address - shows the IP address of the latest logged in device (e.g VoWiFi handset).
- Serial number - shows the serial number of the latest logged in device.

Numbers Tab

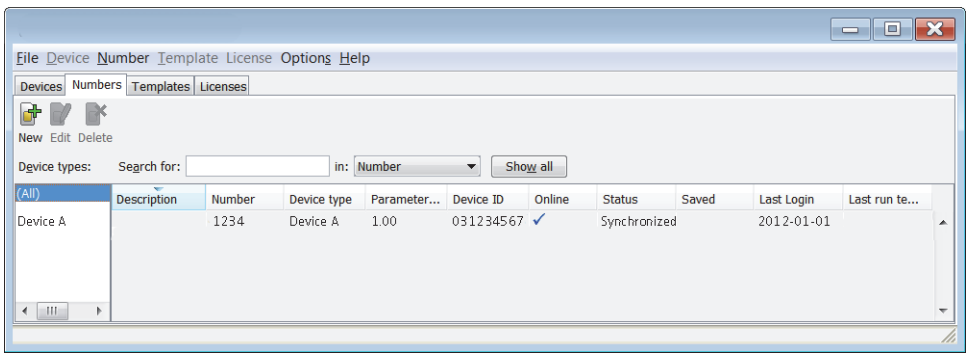
The Numbers tab shows all Numbers configured at the site in a detailed list. Following columns are displayed:

- Description – optional information of a Number that can be added by the Device Manager user. For example, the user of the number.
- Number – the unique identifier of the Number. The identifier is unique for that device type.
- Device type – the device model the Number is intended for
- Parameter version – shows the version of the parameters in the Number
- Device ID – the unique identifier of the device that the Number is associated to
- Online – shows if the device the Number is associated to is online. The ✓ symbol indicates an online device
- Status – shows the parameter synchronization status. A Number can also be queued for synchronization. Several different indications are used, for example Synchronizing, Sync queued, Save queued, Synchronized, etc. When the Number is offline, the database status is shown; Synchronized or Not synched.
- Saved – shows if the Number’s parameters have been stored in the database. The ✓ symbol indicates that the parameters have been stored

- Last login – shows the date and time the device was last online in the Device Manager/logged in to Device Manager.
- Last applied template – indicates which template that was last applied for that Number

The columns order can be changed and the application will keep the changes.

Figure 13 The Numbers tab showing a list of Numbers in a system.

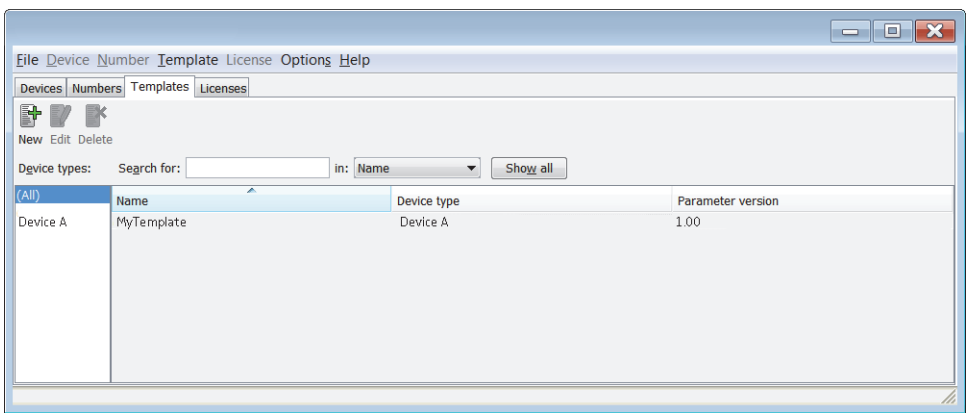


Templates Tab

The Templates tab shows all templates in a detailed list. The following columns are displayed:

- Name – the name of the template
- Device type – the device model the template is intended for
- Parameter Version – shows the parameter version

Figure 14 The Templates tab in the Device Manager

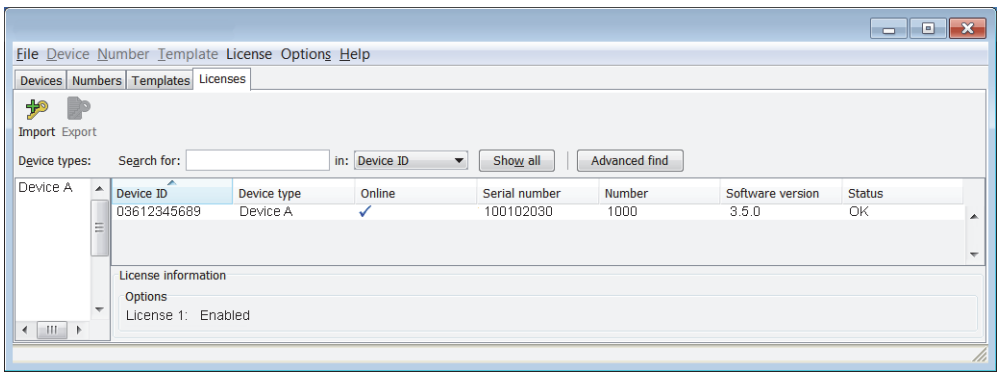


Licenses Tab

The Licenses tab shows all devices configured at the site in a detailed list (see figure below). The following columns are displayed:

- Device ID – the unique identifier of the device.
- Device type – the device model.
- Online – shows if the device is connected to the Device Manager. The ✓ symbol indicates that the device is online
- Serial number – the number identifying the device hardware
- Number – The Number associated with the device.
- Software version – shows the version of the software in the device
- Status – shows the license synchronization status for the devices.
  Examples of status that can be shown are:
  “Sending” means that WSG is sending license information to the device.
  “Server failure” means that there is some kind of error with the communication between the WSG and the license server.
  “License too old” – The device has a newer license than WSG. A refresh has to be done.
  “Needs update” – An attempt to move a license from one handset to another has been made, but the latest license does not exist in the handset.

Figure 15 The Licenses tab in the Device Manager.



6.2 Logging On to the Device Manager

NOTE: When an attempt is made to start the Device Manager, a dialog window is displayed with a warning that the program's digital signature cannot be verified. The text is displayed in the language used in the computer's operating system. Click "Run" (or the equivalent term in the operating system language).

NOTE: Ten clients can be logged in at the same time, but to avoid conflicts make sure that only one at a time is updating Numbers.

1. Log on to the module.
2. Enter User name and Password and click "OK".
3. Click "Device Manager" on the start page.

6.2.1 Closing the Device Manager

In the File menu, click "Exit". The Device Manager shuts down.

6.3 Templates

By using a template, the same configuration can easily be applied to many devices simultaneously. Templates are also an efficient way to give good control over which changes that are applied to each device.

Templates enable configuration of all aspects of a handset from sound volume to keypad shortcuts.

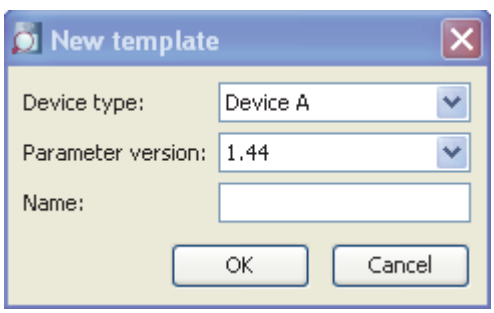
Your supplier can provide example templates for different PBXs. The handset will have full functionality towards the PBX even without such a template. By using such a template, though, the handset will be customized for that PBX with menu options for PBX specific functions such as Callback.

NOTE: The device settings are unexchangeable between device types. For example, a template for device type Device A can only be used on that device type, and not on a different device type (e.g. Device B), and vice versa.

6.3.1 Create a Parameter Template

It is usually desirable to create a customized parameter template that can be applied to all devices of a certain device type.

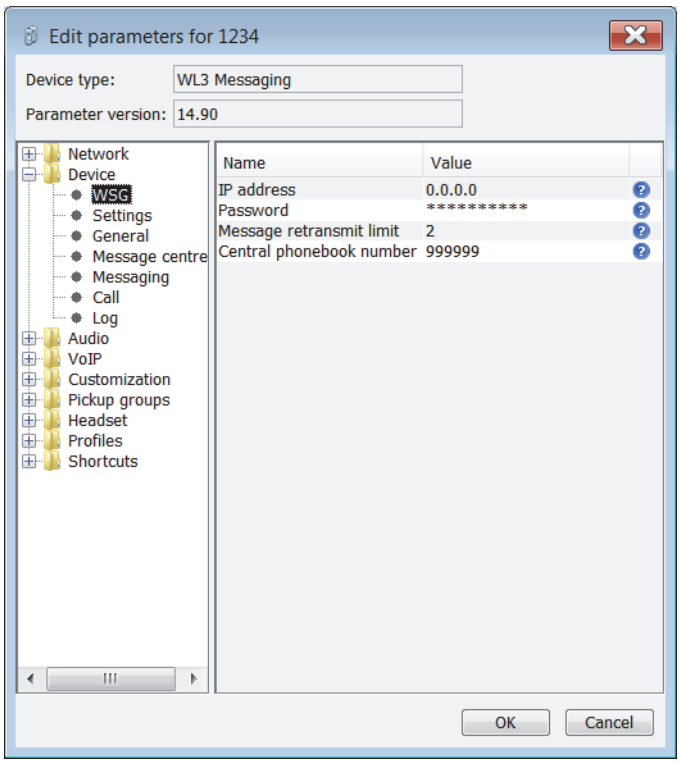
1. Select the “Templates” tab and click “New”. The Create template dialog opens.



2. Select device type and parameter version, type in a name for the template, and click “OK”. The view switches to the Edit Template parameter view.

NOTE: If you cannot find your device type and/or parameter version in the list, the Device Manager needs to be updated with new parameter definition files, see Chapter 6.7.3: Import Parameter Definition Files on page 112.

Figure 16 Edit Template parameter view.



3. Select the parameters you want to be saved in the template by selecting the check box to the left of each parameter.
4. Change the parameters to the desired values.
5. Click “OK”.

6.3.2 Save a Device Configuration as a Template

It is possible to use an already configured device and save it as a template. The template will contain configuration data and will not include contacts and other personal data if it is a handset.

This template can be used as a backup if you later want to restore the configuration of the device, or as a template to be applied on a number of devices.

1. Some parameters are user specific. If it is decided to apply this type of template to several handsets, it is recommended to exclude the following parameters:
   - Owner ID - A text string specified in standby mode. The parameter is located directly under “Settings”.
   - Phone lock PIN code - The security code used to unlock the keypad. The parameter is located under Settings > Locks.
2. Open the Device Manager.
3. Select the Numbers tab and select the handset you want to save as a template.
4. Right-click and select “Use as a template...”. Enter a descriptive name for the template.
5. The Edit template window is opened. By default, all parameters are selected and are saved when clicking “OK”.
6. If one or more parameters should be excluded, remove them by clearing the check box next to the parameter.
7. Click “OK”.

NOTE: When the Edit template window is opened from the “Use as template” command, an extra drop-down list is shown in the bottom left corner. This setting decides which parameters that shall be copied from the Number. If “All parameters” is selected, the synchronization time will be longer.

It is also possible to create a template from a handset that is online but not stored in the database. The template will contain all parameters for the device except for those that are Number specific.

6.3.3 Rename a template

1. Select the “Templates” tab.
2. Select the template you want to rename. The selected row is highlighted.
3. In the Template menu, select “Rename...” or right-click and select “Rename...”. The Rename template dialog opens.
4. In the Rename template dialog, enter a new name in the New name text field.
5. Click “OK”. The dialog window closes and the new name appears in the list.

6.3.4 Copy a template

1. Select the “Templates” tab.
2. Select the template you want to copy. The selected row is highlighted.
3. In the Template menu, select “Copy...” or right-click and select “Copy...”. The Copy template dialog opens.
4. In the dialog window, enter a new name in the New name text field.
5. Click “OK”. The dialog window closes and the new template appears in the list.

6.3.5 Edit a template

1. Select the “Templates” tab.
2. Select the template you want to edit. The selected row is highlighted.
3. In the Template menu, select “Edit...” or right-click and select “Edit...”. The Edit template window opens.
4. In the Edit template window, edit the parameters that shall be edited.
5. Click “OK”.

6.3.6 Delete a template

1. Select the “Templates” tab.
2. Select the template you want to delete. The selected row is highlighted.
3. In the Template menu, select “Delete”, or right-click and select “Delete”, or press the Delete button. The Delete template dialog opens.
4. Click “Yes”. The dialog window closes and the template is deleted.

6.3.7 Upgrade a template

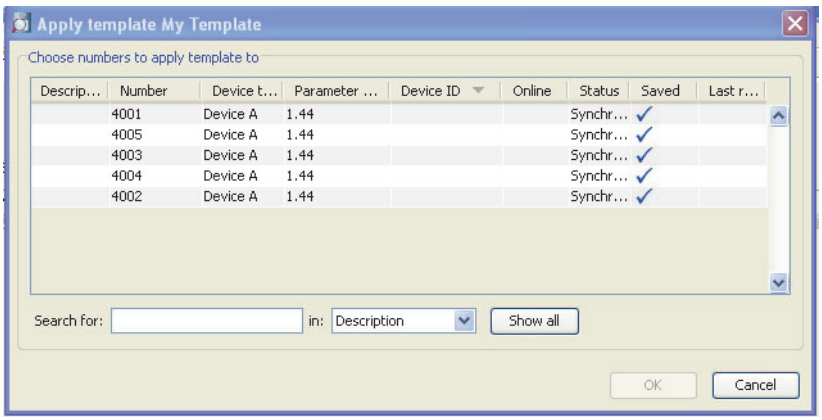
NOTE: In order to upgrade a template, the new parameter version must have the same major version as the old parameter version. For example, upgrading from 25.8 to 25.9 works, but not upgrading from 25.8 to 26.x.

---

1. Select the “Templates” tab.
2. Select the template you want to upgrade. The selected row is highlighted.
3. In the Template menu, select “Upgrade...” or right-click and select “Upgrade...”. The Upgrade template dialog opens.
4. Select the parameter version to upgrade to.
5. Click “OK”. The template is upgraded and the dialog window closes

6.3.8 Apply a template

1. Select the “Templates” tab.
2. Select the template you want to use. The selected row is highlighted.
3. In the Template menu, select “Apply to...” or right-click and select “Apply to...”. The Apply template window opens.



4. If needed, select search parameters or click “Show all”.
5. Select Number(s) to apply the template on.
6. Click “OK”. The template is applied and the dialog window closes.

6.4 Numbers

NOTE: The device settings are unexchangeable between device types. For example, a number for device type Device A can only be used on that device type, and not on a different device type (e.g. Device B), and vice versa.

6.4.1 Create New Numbers

1. Select the “Numbers” tab.
2. In the Number menu, select “New...”. Alternatively, right-click in the Numbers list and select “New...”.
3. In the Device type drop-down list, select device type.
4. In the Parameter version drop-down list, select the parameter version.
5. In the Template drop-down list, select template to run on the Number. This is optional and therefore “None” can be selected.
6. In the Prefix field, enter the Number’s prefix (if needed).
7. Select one of the following options:
   - To create a single Number, select the Single option and enter the call number. Click “OK”.
   - To create a range of Numbers, select the Range option. Enter the start call number, end call number, and click “OK”.

   NOTE: Note: The maximum range that can be added at a time is 100 Numbers.

6.4.2 Save a Number to Database

An online device can be saved to the database.

1. Select the “Numbers” tab.
2. Select the Number.
3. In the Number menu, select “Save”. Alternatively, right-click the Number and select “Save”

Tip: An online device can automatically be enabled and saved (default), see Chapter 6.9.1: Automatically enable new Devices Settings on page 122 for more information.

6.4.3 Enter/Edit Description of a Number

It is possible to enter information about a Number. For example, the user of the number or the location of the device.

1. Select the “Numbers” tab.
2. Select the Number.
3. In the Number menu, select “Enter description”. Alternatively, right-click the Number and select “Enter description”.
4. Enter an appropriate description and click "OK" to save the setting.

6.4.4 Certificate Handling for VoWiFi Handset

NOTE: This function is applicable for some VoWiFi handsets only.

Certificate(s) is used for authorizing a VoWiFi handset to access a WLAN system using Extensible Authentication Protocol (EAP).

There are two types of certificates: Root certificate and client certificate.

The VoWiFi handset uses the root certificate to control if the WLAN system is trusted. If the system is trusted, the handset send its client certificate to show that it is authorized to access and log on to the system.

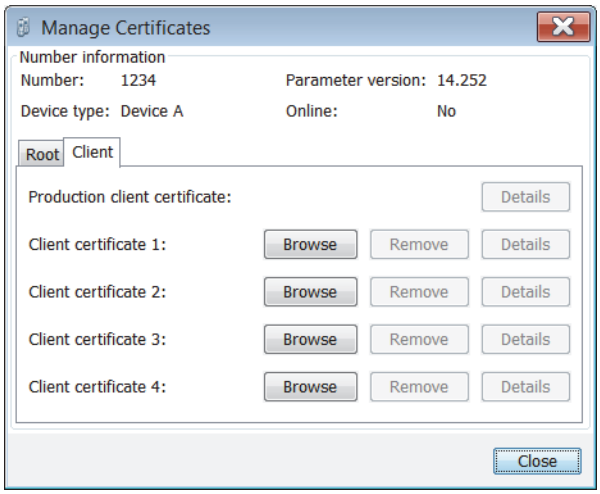
The root- and the client certificate contain a public key, but the client certificate also contains a private key.

The following must be done to be able to use certificates:

- Import certificates to handset
- Select which client certificate to use by setting an EAP client certificate parameter, see the Configuration Manual for the VoWiFi handset.

Import Certificate

1. Select the “Numbers” tab.
2. In the Number menu, select “Manage certificates”. Alternatively, right-click the handset in the Numbers list and select “Manage certificates”.



3. Click the Root- or the Client certificate tab depending on which certificate to be managed.
4. Click “Browse“ and locate the certificate file to be imported.
5. If the certificate is passport protected, an Enter Password dialog opens. Enter the password and then click “OK”.

A Confirm Certificate window opens showing the details of the certificate.

6. Import the certificate to the handset by clicking “Yes“.

If needed, repeat step 3 - 5 for importing additional certificates.

View Certificate Details

1. Select the “Numbers” tab.
2. In the Number menu, select “Manage certificates”. Alternatively, right-click the handset in the Numbers list and select “Manage certificates”.
3. Click the “Root” tab or the “Client” tab depending on which certificated to be viewed.
4. Select the certificate to view by clicking the corresponding “Details“ button.

A Certificate details window appears showing the details of the certificate.

Remove Certificate

1. Select the “Numbers” tab.
2. In the Number menu, select “Manage certificates”. Alternatively, right-click in the handset in the Numbers list and select “Manage certificates”.
3. Click the “Root” tab or the “Client” tab depending on which certificated to be removed.
4. Select the certificate to remove by clicking the corresponding “Remove“ button.
5. Click “Yes“ to confirm the deletion.

The certificate is now removed from the handset.

6.4.5 Parameter Transfer between a Device and the Device Manager

When a device is connected, it is synchronized with the associated Number in the Device Manager, see Chapter 6.5.2: Synchronize a Device on page 100.

NOTE: When parameters have been edited and the device is synchronized, only the edited parameters will be sent to the device.

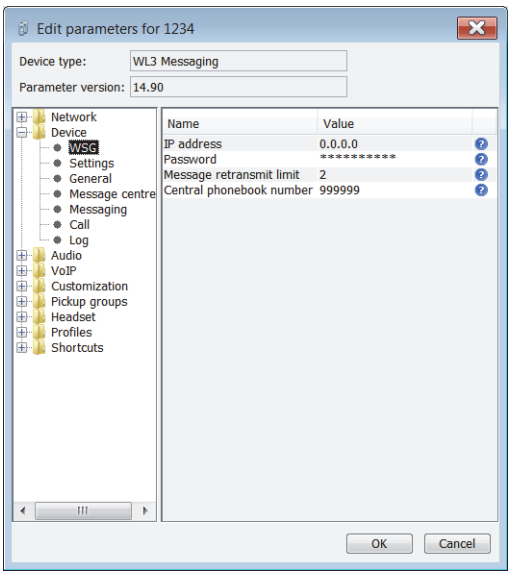
6.4.6 Edit Parameters for a Number

The Edit parameters window shows the set of parameters relevant to the Number that is being edited. The parameter groups are organized in a tree structure in the left pane, with the parameters in the current node in the right pane. The parameter list has one column with the parameter name, and another column shows the parameter value. This can be for example a numerical value, a boolean value, or text. Clicking the icon will give a short description of the selected parameter.

1. Select the “Numbers” tab. The Number view opens.
2. Select the Number. The selected row is highlighted.
3. Click “Edit” in the Number menu. Alternatively, right-click and choose “Edit”, or double-click the Number.

   The Edit Parameters for <Number> window opens, where <Number> is the ID of the current Number.

Figure 17 Editing parameters



4. In the left pane, select parameter.
5. On the Value row, make the changes.

   When a parameter has been edited, the name of the node to which the parameter belongs changes to a blue color.

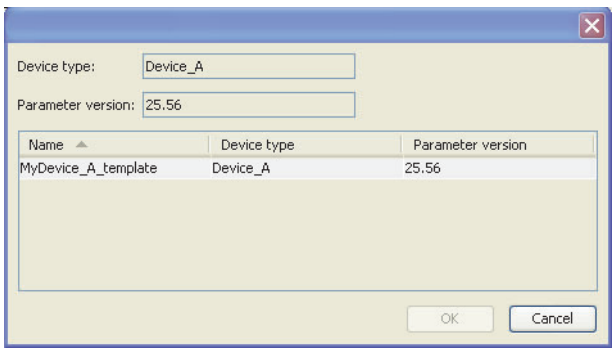
   (Click “Cancel” if you want to undo all parameters edited since your last save and return to the main window.)
6. Click “OK” to save the changes.

NOTE: When you save the parameters, they are automatically sent to the device if it is online.

6.4.7 Apply Template to Numbers

If a template has been created for a device type, it can be used to set the parameter values for a range of devices, or a single device.

1. Select the “Numbers” tab. The Number view opens.
2. Select the Number(s) you wish to apply the template on.
3. In the Number menu, click “Apply template...”. Alternatively, right-click the Number in the Number list and select “Apply template...” from the menu that opens.



4. Select a template from the Template list.
5. Click “OK”.

   If the parameters in the database have been edited but not yet sent to the device it is indicated with “Not synched” or “Update queued”.

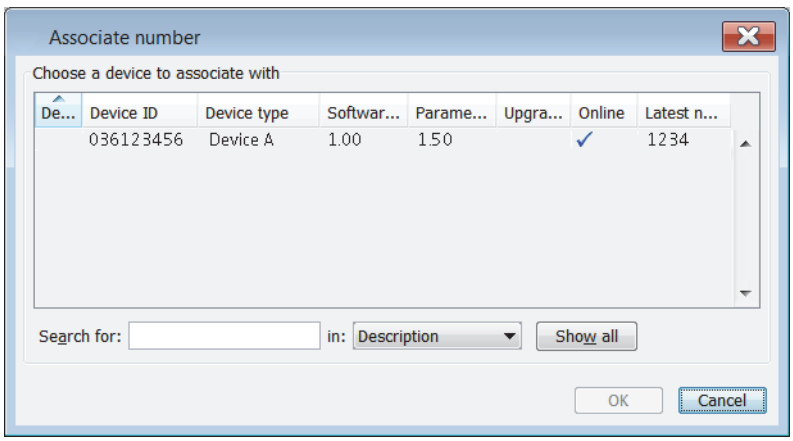
If the Number has not been associated with a device, it is now possible to do so. Connect a device and associate it with a Number in the database. The parameters will automatically be sent from the Device Manager to the device. See chapter <Link><Italic>6.4.8 Associate a Number with a Device .

6.4.8 Associate a Number with a Device

Before being able to synchronize parameters between the Device Manager and a device, it is necessary to associate a Number with the device. It is possible to enter several Device IDs in advance and to associate them with a Number at a later moment.

See also Chapter 6.5.6: Assign a Number to a device on page 101 and Chapter 6.5.5: Add a new Device on page 101.

1. Select the “Numbers” tab.
2. In the Number menu, select “Associate with device...”. The Associate Number dialog opens.



3. Select the device you want to associate with in the list.
4. Click “OK”.

If the selected device is online, it will immediately be updated with the selected Number. If the selected device is not online, it will be updated the next time it is online.

It is possible to associate several Numbers with several devices simultaneously.

6.4.9 Delete a Number in the Site Database

1. Select the “Numbers” tab.
2. Select the Number you want to delete. The selected row is highlighted.
3. In the Number menu, select “Delete” or right-click and select “Delete”.
4. Click “Yes” in the Delete Number dialog.

The dialog window closes and the Number is deleted from the list.

6.4.10 Rename a Number

1. Select the “Numbers” tab.
2. Select the Number you want to rename. The selected row is highlighted.
3. In the Number menu, select “Rename...” or right-click and select “Rename...”. The Rename number dialog opens.
4. In the “New prefix” field, enter a new prefix (if needed)
5. In the “New number” field, enter a new Number.
6. Click “OK”. The dialog window closes and the new Number appears in the list in the Numbers tab.

6.4.11 Copy a Number

When a Number is copied, the parameter settings and device type for that Number will be copied to a new specified Number.

1. Select the “Numbers” tab.
2. Select the Number you want to copy. The selected row is highlighted.
3. In the Number menu, select “Copy...”, or right-click and select “Copy...”. The Copy Number dialog opens.
4. In the “New prefix” field, enter a new prefix (if needed).
5. In the “New number” field, enter a new Number.
6. Click “OK”. The dialog window closes and the new Number appears in the list in the Numbers tab.

6.4.12 Import Contacts

NOTE: The number for the handset must be saved, see Chapter 6.4.2: Save a Number to Database on page 88.

Import Contacts From File

A file containing contacts can be imported to Device Manager and synchronized with a device. This can for example be useful when you want to transfer contacts from legacy devices to newer devices.

NOTE: When importing the file, the entries (if any) in the device will be replaced by the entries in the file. Additionally, the import works only if the receiving device can store all entries included in the file.

1. In the Device Manager, select the Numbers tab.
2. Select a number.
3. In the Number menu, select Import contacts > From file. Alternatively, right-click the device and select Import contacts > From file from the menu that opens.
4. Find and select a file containing contacts (.txt or .csv. Click “Open”.

The contacts in the imported file are synchronized with the handsets.

Import Contacts From Number

You can make a copy of a device’s contact list and paste it to another device’s contact list directly. This means that you do not need to save the contact list temporarily on for example your computer.

NOTE: The import works only if the receiving device can store the entire contact list of the device you are importing from. Additionally, the Company phonebook contacts included in the Call contact list are not transferred to the other handset using this feature. To upload the Company phonebook, see Chapter 6.7.8: Upload Company Phonebook on page 115.

1. In Device Manager, select the Numbers tab.
2. Select a number.

3. In the Number menu, select “Import contacts” > “From number”. Alternatively, right-click the Number in the Number list and select “Import contacts”> “From number” from the menu that opens.
4. Select a number.
5. Click “OK”. The contacts are now imported to the handset.

6.4.13 Export Contacts to a File

Contacts can be exported from a handset to a csv-file. The contacts can then be transferred to another handset by importing the file, as described in chapter Chapter 6.4.12: Import Contacts on page 97.

1. In the Numbers tab, select the handset whose contacts you want to export.
2. In the Number menu, select "Export contacts". Alternatively, right-click the handset and select "Export contacts" from the menu that appears.
3. An Export contacts window opens.
4. Enter a descriptive file name and click "Save".

6.5 Devices

A device is a handset developed to work together with the Device Manager. See the manual for respective device.

All work with devices is performed from the Devices view.

- Devices can be added by connecting the device to the system, or use the “Add device” function.
- The information for a Number from one device can be transferred to a new device.
- Devices can be reset to factory settings.
- Devices can be updated with new software.

6.5.1 Add Devices

NOTE: Before connecting a device to the Device Manager, make sure the connection is set up according to the instructions in the device´s User Manual.

If a range of new devices are to be added, the easiest way is to:

1. Create a template with all common parameter settings. See Chapter 6.3.1: Create a Parameter Template on page 82.
2. Add a range of Numbers and run the template. See Chapter 6.4.1: Create New Numbers on page 88 and <Link><Italic>6.4.7 Apply Template to Numbers.
3. Edit the parameters and change individual settings. See Chapter 6.4.6: Edit Parameters for a Number on page 91.
4. Connect the devices and associate them with the Numbers in the database. See Chapter 6.4.8: Associate a Number with a Device on page 95.

A single device can be added in the same way.

6.5.2 Synchronize a Device

When parameters have been changed in a device, the device is synchronized with the Number saved in the database. During the synchronization, changed parameters in the device are uploaded to the Device Manager, and parameters changed in the Device Manager are sent to the device.

If a parameter has been changed in both the device and the Device Manager, the setting made in the Device Manager will take precedence.

1. When a device is connected to the system running the Device Manager, and if the Number is saved, and it has a parameter definition, the device is automatically synchronized.

While synchronizing, a progress bar and a text is shown in the Numbers view.

6.5.3 Delete a Device

1. Select the “Devices” tab.
2. Select the device you want to delete. The selected row is highlighted.
3. In the Devices menu, select “Delete” or right-click and select “Delete”.
4. Click “Yes” in the Delete Device dialog.

The dialog closes and the device is deleted from the list.

NOTE: A device that is online cannot be deleted.

6.5.4 Replace a Device

If a device shall be replaced with a new device, it is possible to transfer its associated Number including settings to the new device. The new device must be of the same device type as the old one.

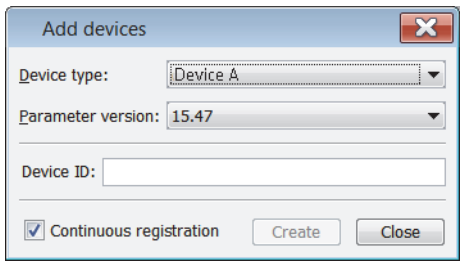
1. If the device to be replaced is still working, make sure that it is synchronized.
2. Shut off the old device or make a factory reset.
3. Connect the new device to the Device Manager.
4. Associate the new device to the Number associated to the old device according to the instructions in Chapter 6.4.8: Associate a Number with a Device on page 95. The Number will no longer be associated with the old device.

6.5.5 Add a new Device

It is possible to enter several new Device IDs in advance into the Device Manager for later association.

In order to simplify input when handling many devices a bar code reader can be used. The bar code reader should send a carriage return after each item, but it is not necessary. If carriage return is not sent, it is necessary to click “Create” after each read item.

1. Select the “Devices” tab.
2. In the Device menu, select “Add device”. The Create devices dialog opens.



3. Select Device type and Parameter Version.
4. Enter a Device ID for the device, manually or by using a bar code reader.
5. The “Continuous registration” box can be used to select whether the “Create devices” dialog shall close after clicking “Create” or if it shall still be open.
6. If the bar code reader does not send carriage return, click “Create”.
7. Repeat 4 to 6 if more devices are to be created, otherwise click “Close”.

6.5.6 Assign a Number to a device

It is possible to assign a Number to a device that has not yet been assigned a Number in the Device Manager. This feature can be used if parameters have been changed on the device prior to connection to the Device Manager.

NOTE: Assign shall not be done on a device that already has a Number.

---

1. Select the “Devices” tab.
2. Select the device you want to assign a Number for.
3. Select Device >Assign number in the menu. A new window opens.

4. Enter a new number in the New number field. New prefix is optional. Click “OK”.

   The new Number appears in the list in the Numbers tab.

NOTE: Some devices need to be restarted for the new numbers to be shown.

6.5.7 Enter/Edit Description of a Device

It is possible to enter information of a device. For example, the description can be used to describe a location of a device.

1. Select the “Device” tab.
2. Select the device.
3. In the Device menu, select “Enter description”. Alternatively, right-click the device and select “Enter description”.
4. Enter an appropriate description and click "OK" to save the setting.

6.5.8 Restart of Devices

If supported by the devices, they can be restarted when they are online in the Device Manager. This feature, for example, can be used if you want to perform a controlled restart of several devices simultaneously.

1. Select the "Devices" tab.
2. Select the devices you want to restart.
3. Select Device > Restart device...
4. Select when the restart request should be sent to the devices.
   - Immediately — the request is sent to the devices directly
   - Later (server time zone) — the request is sent to the devices on a specified date and time.
     NOTE: If the time zone at your current location differs from the time zone used by the module, select date and time that follows the time zone in the module.

     For example:
     The current date and time at your current location are 20 May 2014 12:00 (GMT) and the current date and time in the module are 20 May 2014

10:00 (GMT -02:00). The upgrade should be performed 20 May 2014 20:00 (GMT) meaning that "20 May 2014 18:00" (GMT -02:00) should be selected in this case.

5. Select when request should be activated, that is, when the devices should be restarted.
   - Immediately — the devices are restarted directly
   - When idle — the devices are restarted when the devices are in idle mode.
   - When idle in charger — the devices are restarted when they are put in a charger and are in idle mode.

6. Click "OK".

6.5.9 Factory Reset

Factory reset means that the device parameters will be reset to factory settings. The Number in the database that is associated with the device will not be affected.

NOTE: The device must be online.

---

1. Select the “Devices” tab.
2. Select the device(s) to be reset.
3. Click “Factory reset” in the Device menu. Alternatively, right-click on the device and select “Factory reset”.
4. A message saying “Do you want to reset the selected device(s) to factory defaults?” will appear.
5. Click “Yes”.

6.6 Licenses

Device licensing offers a possibility to view, manage and upgrade licenses of devices. In the Licenses tab, devices are listed. If a device is selected in the list, the status of the license options for the selected device is displayed.

Note that some tasks include using the license web and the details of how to work with the license web are not described here.

The following features are described:

- Upgrade licenses, “Import” and “Export”
- Manual synchronization of licensing information, “Refresh”
- Move license from one device to another
- View license options

The following licensing features are not done with the Device Manager and are therefore not described in this document:

- How to work with the license web
- How to purchase licenses
- Manual license upgrade in the handset

6.6.1 License Upgrade alternatives

These are the alternatives for upgrading licenses on devices:

- Automatic license upgrade
  Used when the WSG has an Internet connection to the license server, see <Link><Italic>6.6.2 Automatic License upgrade.
- License upgrade using export/import
  Used when the WSG does not have an Internet connection, see <Link><Italic>6.6.3 Export and Import Licensing information.
- Manual license upgrade
  Used to enter the license key manually in the handset, see the configuration manual for the corresponding handset. In this case, the WSG is not used.

6.6.2 Automatic License upgrade

NOTE: This feature requires an Internet connection. The communication is done via HTTPS and normally via port 443.

The first time a device logs in to the Device Manager, the WSG asks the license server for the latest license for the device. When the device logs in at a later time, there is no automatic check for licenses. If changes have been made, a manual upgrade must be done by selecting Refresh, see Chapter 6.6.7: Refresh License on page 108.

In order to get a purchased license for a device, a connection with the license server is made. The WSG automatically receives the serial number from the device, sends it to the license server which returns a license key that the WSG sends to the device. The device upgrades and the correct license information is shown in the WSG and the device.

6.6.3 Export and Import Licensing information

In order to upgrade licenses on devices when the WSG does not have an internet connection to the license server, the following is done:

- The information needed for licensing of a device is exported from the Device Manager to a file, seeChapter 6.6.3: Export Licensing information on page 105.
- The file is used to purchase license upgrades on the license web.
- From the license web, a license file containing the license keys for the device is generated
- The license file is imported to the Device Manager, seeChapter 6.6.3: Import Licenses on page 106
- The Device Manager communicates the license key (included in the license file) to the device
- The device upgrades according to the license options

Export Licensing information

The information needed for licensing of a device can be exported to a file. This file can be used to generate licenses for the device.

1. Select the licenses tab.
2. Select the device(s) that shall be licensed.
3. In the License menu, select “Export”. The Export devices for licensing window opens. Select a proper name for the file and click “Save” to save the file.

Import Licenses

After a license has been purchased, a file containing the license information can be generated from the license web. This license file can be imported to the Device Manager.

1. In the File menu, select Import > “Licenses...”. A File Browser window opens.
2. Select the license file(s) to be imported (*.xml).
3. Click “Open”.

   The license file(s) are imported.

6.6.4 View License options

It is possible to view which license options that exist on a device.

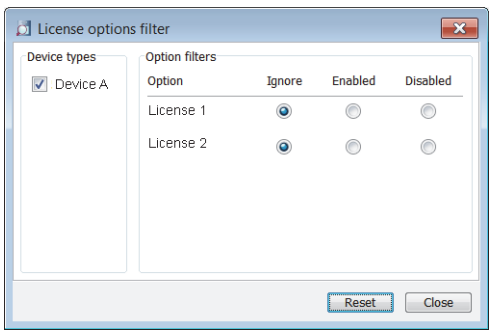
1. Select the License tab.
2. Select a device.

In the bottom of the work area, the available license options of the device are listed and whether the options are enabled or not.

6.6.5 Filter License options

It is possible to search and select devices which have same license options. The selected devices can be upgraded with additional licenses by exporting a product information file to the License Web (seeChapter 6.6.3: Export Licensing information on page 105). The advantage to select devices with same license options is that additional licenses can be applied for the devices simultaneously.

1. Select the License tab.
2. Click “Advanced find“. A dialog window opens.



3. Under Device types, select device(s).
4. Under Option filters, select the status of the license option(s) that shall be common for the selected devices.
   - Ignore - show all devices independent of license options.
   - Enabled - show devices with a certain license option enabled.
   - Disabled - show devices with a certain license option disabled.

The search result is updated directly when selecting devices and license options. In addition, the icon is also displayed next to the Advanced find button to indicate that the search result is filtered.

5. When clicking Close, the filtered search result will still be displayed. When clicking Reset, the filter is removed and all devices are displayed.

6.6.6 Move License

This feature can for example be used if your device is broken and you want to move the license to another device.

NOTE: This feature requires an Internet connection to access the license server.

1. Select the Licenses tab.
2. Select the device whose license shall be moved. The selected row is highlighted.
3. From the License menu, select Move license. The Move license dialog window appears.
4. Select the device that shall receive the license. Click “OK”.

If no devices are shown in the Move license window, there are no devices that are selectable to move the license to.

If the device type of the device that received the license is still unchanged in the Device Manager, select this device and do the following:

5. From the License menu, select Refresh to complete the transfer of the license. The device type of the device is now updated in Device Manager.

6.6.7 Refresh License

If a device is already registered in the Device Manager and new license has been purchased from the license web, the information needs to be updated. By doing a Refresh, the device license information in WSG is synchronized with the information in the license server and transferred to the device.

NOTE: This feature requires a connection to the license server.

1. Select the License tab.
2. Select device(s).
3. In the License menu, select “Refresh”. The correct license is fetched from the license server, sent to the device and displayed in the Device Manager.

6.6.8 Remove Devices from the License View

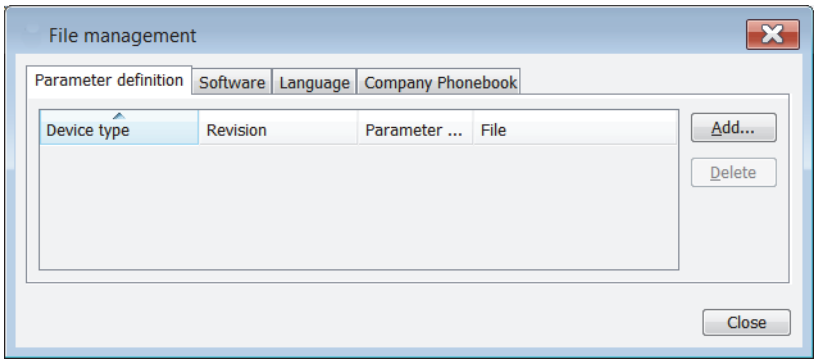
This command removes devices from the Licenses tab view.

1. Select the “Licenses” tab.
2. Select the device(s) that shall be removed from the list. The selected row(s) are highlighted.
3. In the License menu, select “Delete” or right-click and select “Delete”.
4. Click “Yes” in the Remove device dialog. The dialog closes and the device is removed from the list.

6.7 File management

This chapter covers file management for parameter definition files, software files, language files and company phonebook files.

Figure 18 The File Management Window



Import and export of templates and Numbers is described in Chapter 6.8: Import/ Export Numbers and Templates on page 120. Import of translation files is described in Chapter 13.1.4: Import Language File on page 149.

The parameter definition file holds the definitions of all parameters for a specific version of a Number's parameter set. Updated software and new parameter definition files for devices and Numbers can be added to the Device Manager, see Chapter 6.7.3: Import Parameter Definition Files on page 112 and Chapter 6.7.4: Import new Software for Devices on page 113.

If there is a naming conflict when importing, a warning message is displayed.

6.7.1 Definition File Version – Parameter Version

Both definition files and device software include parameters and are indicated by a version number.

NOTE: The version of the definition file matches the version of the device software.

If a device is updated with a new parameter version it does not always demand a new definition file. An old definition file can often be used but if new parameters have been added in the new parameter version, these parameters will not be editable. The release note will tell you if a new definition file is needed to match the new parameters.

Example

If a parameter version for a Number is 2.5, then a parameter definition file with a version between 2.0 and 2.5 is required.

6.7.2 Import a Package File

A package file may include different types of files, such as software files, parameter definition files and/or template files. If the package does not include a certain file, it can be imported separately. See Chapter 6.7.3: Import Parameter Definition Files on page 112, Chapter 6.7.4: Import new Software for Devices on page 113, and/or Chapter 6.8.2: Import Templates on page 120.

1. In the File menu, select “File management”.
2. Select the Parameter definition tab or Software tab and click “Add”.
3. Select the package file (.pkg) to be imported and click “Open”.

The files included in the package are now imported. If needed, select the Parameter definition tab or Software tab to view the corresponding imported files (if any).

If template(s) has been imported, it can be viewed by clicking “Close“ and then selecting the Template tab.

4. Click “Close”.

6.7.3 Import Parameter Definition Files

Updated parameter definition files are distributed by your supplier.

NOTE: Parameter definition files (.def) are mainly included in package files (.pkg) distributed by your supplier, see <Link><Italic>6.7.2 Import a Package File.

---

1. In the File menu, click “File management”. The File management window opens.
2. Click the Parameter definition tab.
3. Click “Add”. The Import files window opens.
4. Select the definition files to be imported.
5. Only files with a corresponding extension are shown, such as .def and .pkg.
6. Click “Open”.
7. Check that the newly imported definition files appear in the list.
8. Click “Close”.

If a definition file for a certain device type already exists in the database and an attempt is made to import a definition file with the same parameter version but with a lower revision, the file will not be imported. But if a new definition file with the same parameter version with a higher revision is imported, the old file will be replaced with the new imported file.

For each update of a parameter definition file, the revision is increased. An update does not necessarily affect the parameter version.

The following columns are displayed:

- Device type – the device model.
- Revision – the revision number of the definition file. Used to determine which definition file is the most recent.
- Parameter version – shows the version of the parameters in the definition file. Used to determine compatibility with device software.
- File – the name of the imported definition file.

6.7.4 Import new Software for Devices

Updated software files are distributed by your supplier.

NOTE: Software files (.bin) are mainly included in package files (.pkg) distributed by your supplier, see Chapter 6.7.2: Import a Package File on page 111.

---

1. In the File menu, click “File management”. The File management window opens.
2. Click the “Software” tab.

   The following columns are displayed:

   - Device type – the device model.
   - Version – the version number of the software file. Used to determine which software file is the most recent.
   - Parameter version – shows the version of the parameters in the definition file. Used to determine compatibility with device software.
   - File – the name of the imported software file.

3. Click “Add”. The Import files window opens.
4. Select the software files to be imported.
5. Only files with a corresponding extension are shown, such as .bin and .pkg.
6. Click “Open”.
7. Check that the newly imported software files appear in the list.
8. Click “Close”.

6.7.5 Import Language files for Devices

For adding a new language to a device, a language file (.lng) distributed by your supplier must be imported to the Device Manager and then uploaded to the device.

1. In the File menu, click “File management”. The File management window opens.
2. Click the “Language” tab.
3. Click “Add”. The Import files dialog opens.

4. Select the language files to be imported.
5. Click “Open”.
6. Check that the newly imported language files appear in the list.
7. Click “Close”.

To apply the language for a device, see Chapter 6.7.7: Upload a Language to a Device on page 114.

6.7.6 Import Company Phonebook files

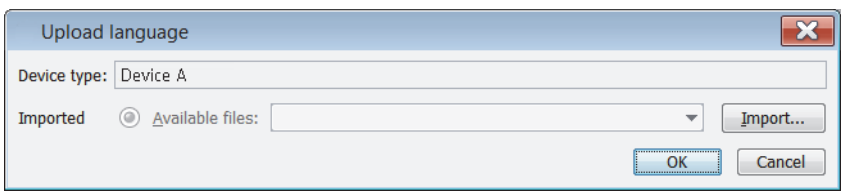
It is possible to import a phonebook file for later use.

1. Select File > File management, in the menu. A new window opens.
2. Click the “Company Phonebook” tab.
3. Click “Add”. The Import files dialog opens.
4. Select the company phonebook files to be imported.
5. Click “Open”.
6. Check that the newly imported company phonebook files appear in the list.
7. Click “Close”.

6.7.7 Upload a Language to a Device

A language can be uploaded to portable devices that support Language Upload. Note that upload of languages is not available in demonstration mode.

1. Select the “Devices” tab.
2. Select the device(s) to upload a language to. It is possible to select several devices, but only devices of the same Device Type can be selected.
3. Select Device > Upload Language, in the menu. A new window opens.



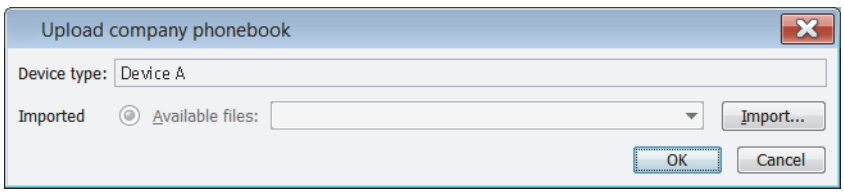
4. Do one of the following:
   - If needed; import the language file (.lng) to be used by clicking “Import...”, locate the file, and click “OK”. In the Available files: drop-down list, select which language to upload.
   - Enter the URL where the language file is located.
5. Click “OK”. The language is uploaded to the device.

6.7.8 Upload Company Phonebook

It is possible to upload a company phonebook to portable devices that support Company Phonebook Upload.

Upload of Company Phonebook is not available in Demonstration mode.

1. Select the “Devices” tab.
2. Select the handsets to upload a company phonebook to. It is possible to select several devices, but only devices of the same Device Type can be selected.
3. Select Device > Upload company phonebook, in the menu. A new window opens.



4. Select which company phonebook to upload.
5. Click “OK”. The company phonebook is uploaded to the device.

6.7.9 Upgrade a Device with new Software

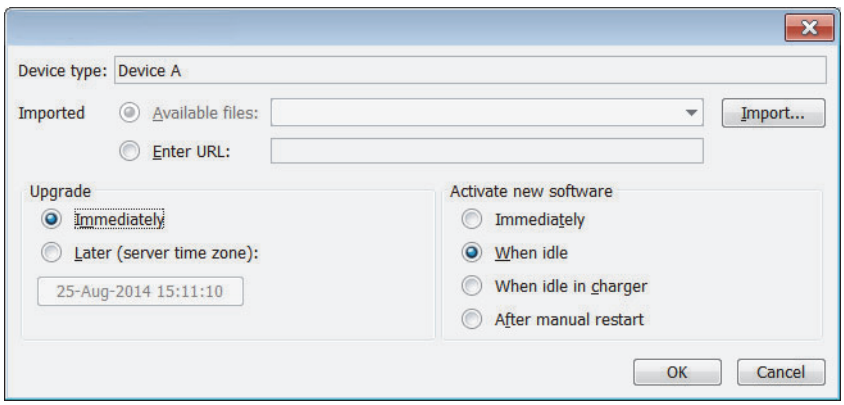
Devices can be upgraded with new software. Note that upgrade of device software is not available in demonstration mode.

1. Connect a device to the system.
2. Select the “Devices” tab.
3. Select device(s) to upgrade in the list. A selected row is highlighted. It is possible to select several devices, but only devices of the same Device Type can be selected.

NOTE: A software upgrade should be done on one device to start with. If successful, the remaining devices can be updated in one operation.

Tip: By using Ctrl and/or Shift several devices can be selected simultaneously.

4. Select Device > Upgrade software, in the menu. Alternatively, right-click and choose “Upgrade”, double-click the desired device, or click the “Upgrade” button in the toolbar. The Upgrade software window opens.



5. In the Upgrade software window the following fields are shown:
   - Device type – shows the model of your device.
   - Imported area:

   – Available files contains previously imported software files (see Chapter 6.7.4: Import new Software for Devices on page 113); the latest used software file is selected by default.

   – Enter URL text field gives you a possibility to enter a path to a URL.

   – Import... is used to import new software.

NOTE: When upgrading devices with imported software, up to 10 devices can be upgraded simultaneously. When upgrading devices with software obtained via URL, up to 20 devices can be upgraded simultaneously.

- Upgrade area:
  – Immediately will start upgrade immediately
  – Later (server time zone) will start a scheduled upgrade on the specified date and time
  NOTE: If the time zone at your current location differs from the time zone used by the module, select date and time that follows the time zone in the module.

  For example:
  The current date and time at your current location are 20 May 2014 12:00 (GMT) and the current date and time in the module are 20 May 2014 10:00 (GMT -02:00). The upgrade should be performed 20 May 2014 20:00 (GMT) meaning that "20 May 2014 18:00" (GMT -02:00) should be selected in this case.

- Activate new software area:
  – different selections depending on when the new software shall be activated (Immediately, When idle, When idle in charger or After manual restart).

6. If the software to be used for software upgrade is not available, it needs to be imported. If so, click “Import...”. The Import software dialog opens. Locate the file and click “Open”. The file is imported to the Device Manager.

   It is recommended to use Enter URL:[1] if the software is stored on an external server and should not be imported to the Device Manager.

7. Select software to be used in the upgrade in the Available files text box.

8. Click “OK”. The Upgrade software window closes.

   The software will be downloaded to the device. For some device types, a progress bar in the Status column for the device shows the progress of the download.

   To cancel the upgrade, click “Cancel upgrade” in the Device menu. Alternatively, right-click the device in the device list and select “Cancel upgrade”.

1.It is recommended to open a web browser and enter the URL (for example http://myserver/kathy_v1.5.7.bin). Make sure that the web browser asks you to save or open the correct file. Copy the URL and paste it in the Upgrade software dialog.

The device will restart automatically after a successful download.

NOTE: A switched off device is upgraded when restarted.

6.7.10 Delete Parameter Definition Files

1. In the File menu, click “File management”. The File management window opens.
2. Click the Parameter definition tab.
3. Select the definition files to be deleted.
4. Click “Delete”.
5. In the Delete files dialog, click “Yes”.
6. Click “Close”.

6.7.11 Delete Software

1. In the File menu, click “File management”. The File management window opens.
2. Click the Software tab.
3. Select the software to be deleted.
4. Click “Delete”.
5. In the Delete files dialog, click “Yes”.
6. Click “Close”.

6.7.12 Delete Language File for Devices

1. In the File menu, click “File management”. The File management window opens.
2. Click the Language tab.
3. Select the language to be deleted.
4. Click “Delete”.
5. In the Delete files dialog, click “Yes”.
6. Click “Close”.

6.7.13 Delete Company Phonebook File

1. In the File menu, click “File management”. The File management window opens.
2. Click the Company Phonebook tab.
3. Select the company phonebook to be deleted.
4. Click “Delete”.
5. In the Delete files dialog, click “Yes”.
6. Click “Close”.

6.8 Import/Export Numbers and Templates

This section describes import and export of Numbers and templates.

The purpose of importing and exporting Numbers and Templates is to be able to move Numbers and Templates to another site or to use at a later time. It is also possible to move between PDM Windows Version and Device Manager.

The parameter configuration in Numbers can be exported to a file. This file can be used by the supplier to pre-program devices before delivery to the customer.

If there is a naming conflict when importing a template, the new template is imported and the old template is deleted. If there is a Number conflict when importing Numbers, an error message is displayed.

NOTE: The device settings are unexchangeable between device types. For example, a number or template exported from device type Device A can only be used on that device type (i.e. Device A), and not on a different device type (e.g. Device B), and vice versa.

6.8.1 Import Numbers

7. In the File menu, click “Import > Numbers...”. An Import numbers window opens.
8. Select the Number files (*.xcp) to be imported.
9. Click “Open”.
10. The number(s) will be imported.

6.8.2 Import Templates

A template may be imported from another system. Updated Template files may be distributed by your supplier.

1. In the File menu, click “Import > Templates...”. An Import templates window opens.
2. Select the Template files (*.tpl) to be imported.
3. Click “Open”.
4. The template(s) will be imported.

6.8.3 Export Numbers to a File

It is possible to configure Numbers for a site and export the settings to a file. One or several Numbers can be selected.

The exported file can then be used when producing new devices for the customer.

1. Select the “Numbers” tab. The Numbers view opens.
2. Select the Number(s) to be exported.
3. In the Number menu, click “Export”.
4. The “Export Numbers” window opens. By default the file will be saved in the My documents folder with the name EliseSite.xcp. You can select another name and folder.
5. Click “Save”.

6.8.4 Export Templates to a File

It is possible to export templates to a file. One or several templates can be selected.

1. Select the “Templates” tab. The Templates view opens.
2. Select the template(s) to be exported.
3. In the Template menu, click “Export”.
4. The Export templates window opens. By default the file will be saved in the My documents folder with the name Templates.tpl. You can select another name and folder.
5. Click “Save”.

6.9 Other Settings

6.9.1 Automatically enable new Devices Settings

By default, when a new device logs in, it is automatically enabled and saved in the WSG's database.

NOTE: The WSG license determines the number of devices that can be enabled simultaneously in the Device Manager. If logging in more devices than allowed, they will be disabled in the Device Manager. The devices must be enabled in order to configure them.

When a single WSG is used, the Automatically enable new devices function should normally be enabled. But if Device Management is distributed over multiple WSGs in a system, the function shall be disabled; if the function is enabled, devices will be enabled and saved on all WSGs running device management. This will cause synchronization problems and the logged in devices will consume license positions on each WSG.

To disable automatic enabling of new devices, do as follows:

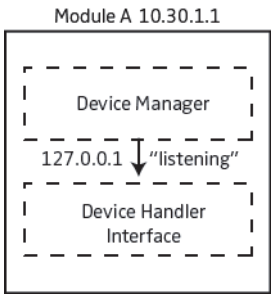
1. Select Options > Preferences, in the menu. A new window opens.
2. Uncheck the "Automatically enable new devices" check box.
3. Click "OK".

7 Device

7.1 Device Management Setup

This setting determines which Device Handler interface the Device Manager should listening to. When a device logs in to the interface, the device appears in the Device Manager GUI.

7.1.1 Example 1: All devices log in a single WSG



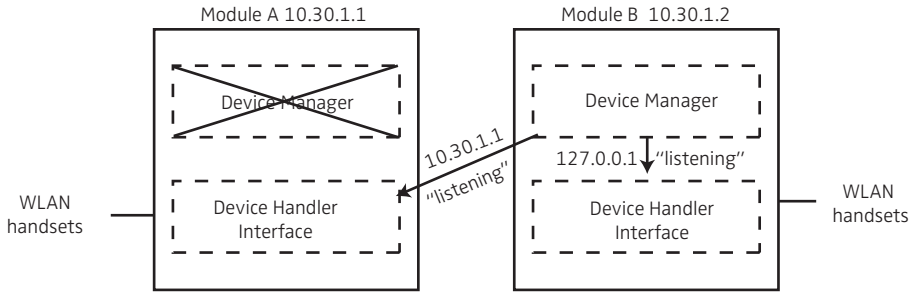
The WSG has a Device Manager enabled. All devices that log in to the local Device Handler interface should appear in the WSG's local Device Manager.

In this case the WSG points at its local Device Handler interface. The Device Manager is listening to the interface for logged in devices, that will appear in the Device Manager GUI.

Configuration in Example 1

1. From the Start page, click Configuration.
2. Select Other Settings > Advanced Configuration.
3. Click Device Management.
4. In the WSG, enter the following:
   - For WLAN handsets, enter 127.0.0.1/WLAN
5. 5 Click Activate.

7.1.2 Example 2: Devices log in to different WSG



The Device Manager in WSG A is disabled, but enabled in WSG B. The devices that logs in to WSG A and the devices that log in to WSG B should appear in the Device Manager of WSG B. In this case, the WSG B should point at its local Device Handler and also point at the Device Handler of WSG A.

The Device Manager is listening to the interfaces for logged in devices, that will appear in the Device Manager GUI.

Configuration in Example 2

1. From the Start page, click Configuration.
2. Select Other Settings > Advanced Configuration.
3. Click Device Management.
4. In the WSG B, enter the following:.
   - For WLAN handsets 10 - 99, enter 10.30.1.1/WLAN
   - For WLAN handsets 100 - 199, enter 127.0.0.1/WLAN

   NOTE: The Device Management fields in WSG A should be left empty.

5. Click Activate.

7.2 Device Relogin Time

All devices send keep alive messages to WSG to remain logged in. How often the devices should send the messages can be configured. E.g. if the relogin time is set to 10 minutes, the devices should send a keep alive message every tenth minute.

If a device does not send a keep alive message before the relogin time expires, the device will be considered as logged out.

NOTE: A short device relogin time implies a higher security but it also loads the system.

7.2.1 Relogin Time for VoWiFi Handsets

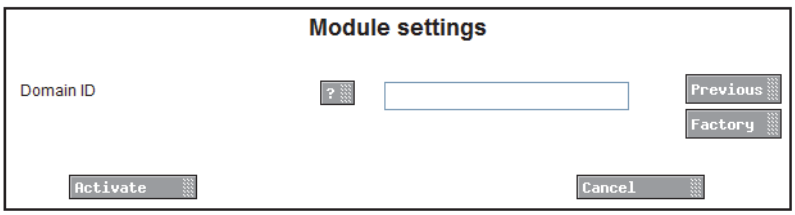
1. Click “Configuration” on the Start page.
2. Select Other Settings > Advanced Configuration in the menu in the on the Configuration page.
3. Click “WLAN System” under WLAN Interface on the Advanced Configuration page.
4. Enter how often (in minutes) the device should send a keep alive message in the Device relogin time field. Legal values: 10 - 1440.
5. Click "Activate".

7.3 Service Discovery

7.3.1 Service Discovery Domain ID

Service Discovery allows automatic detection of WSGs, devices and services on a network without prior configuration. WSGs, services and devices that shall belong to a certain WSG must be set to the same domain ID.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration on the Configuration page.
3. Under Other, click “Service Discovery” in the menu on the Advanced Configuration page.
4. In the Domain ID field, enter the Service Discovery Domain ID.
5. Click “Activate”.



7.3.2 Enable/Disable Service Discovery for VoWiFi Handsets

This setting determines if the devices can log in to the Device Manager using Service Discovery. Service Discovery allows automatic detection of devices and services on a network without prior configuration. WSG and the devices, that shall belong to that WSG have to be set to the same Domain ID.

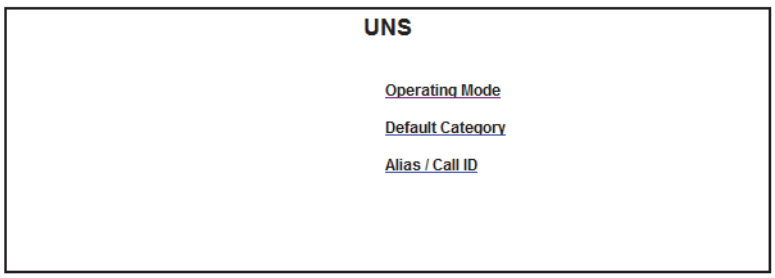
1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu in the on the Configuration page.
3. Click “WLAN System” under WLAN Interface on the Advanced Configuration page.
4. In the Enable service discovery? drop-down list, select "Yes" if the handsets use service discovery to find the Device Manager.
5. Click "Activate".

8 Additional System Settings

8.1 Unite Name Server (UNS)

The UNS in the WSG is used to resolve addresses into complete destinations. The module can be configured to send all requests to the local UNS (stand-alone mode) or to forward all requests to a centralized UNS (forwarding mode). In forwarding mode, the local UNS will only be used if the centralized UNS cannot resolve the address.

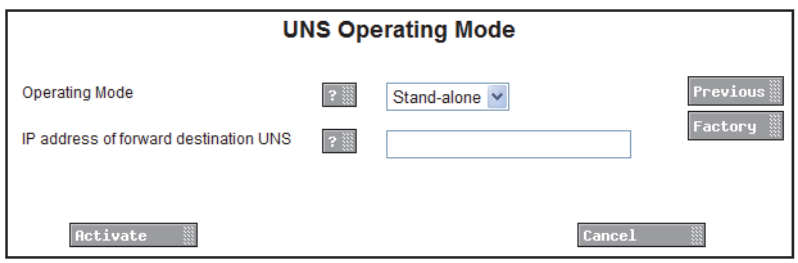
1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration on the Configuration page.
3. Under Other, click “UNS” in the menu on the Advanced Configuration page.



8.1.1 UNS Operating Mode

Operating mode is changed in systems with a Unite CM only.

1. To set Operating mode, click “Operating mode”.

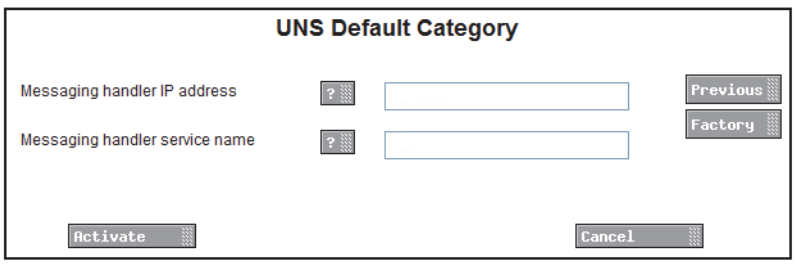


2. In a system with a Unite CM, set operating mode to Forwarding and enter the Unite CM IP address.
3. Click “Activate”.

8.1.2 Default Category

The UNS Default Category is used to decide where messages from the WSG should be sent. The messaging handler is default set to localhost (127.0.0.1) which is the internal message group handler in the module. This can be changed if you want to use a messaging handler in another module. This parameter is changed for example if your system is connected to another WSG.

1. Click “Default Category”.

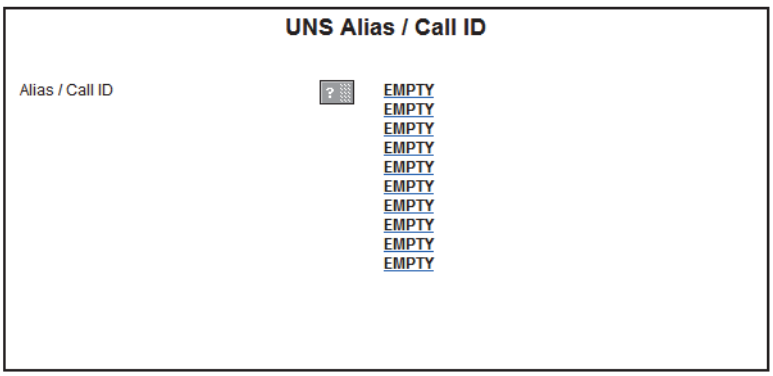


2. Enter values for Messaging handler IP address and Messaging handler service name. Default service name is OAP, which is used to send messages to OScAR.
3. Click “Activate”.

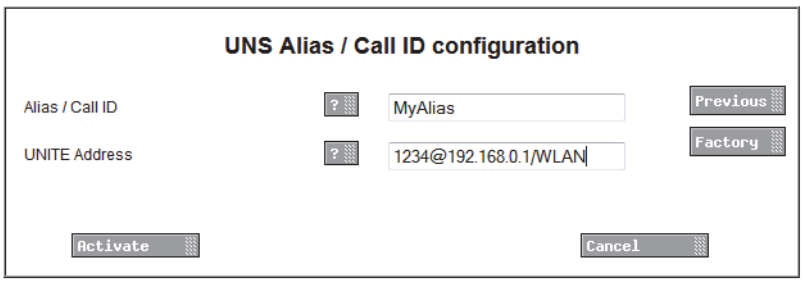
8.1.3 Alias / Call ID

Alias can be used when there are numbers that do not belong to the default category.

1. To set Alias, click “Alias / Call ID”.



2. Click one of the links.



3. Enter settings for UNS Alias / Call ID.

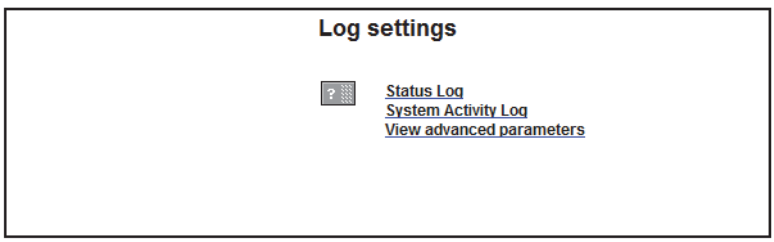
In this example, a message that is addressed to “MyAlias” will be sent to the handset with extension 1234 in the WLAN system that is connected to the WSG with the address 192.168.0.1.

4. Click “Activate”.

8.2 Logging

Status information can be stored locally, but can also be sent to a central log. The System Activity Log can store “activities” such as messages, alarms, faults etc. Activity logging is useful for troubleshooting. Default the Status- and System Activity logs are stored locally but they can also be sent to another WSG.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration on the Configuration page.
3. Under Other, click “Logging” in the menu on the Advanced Configuration page.

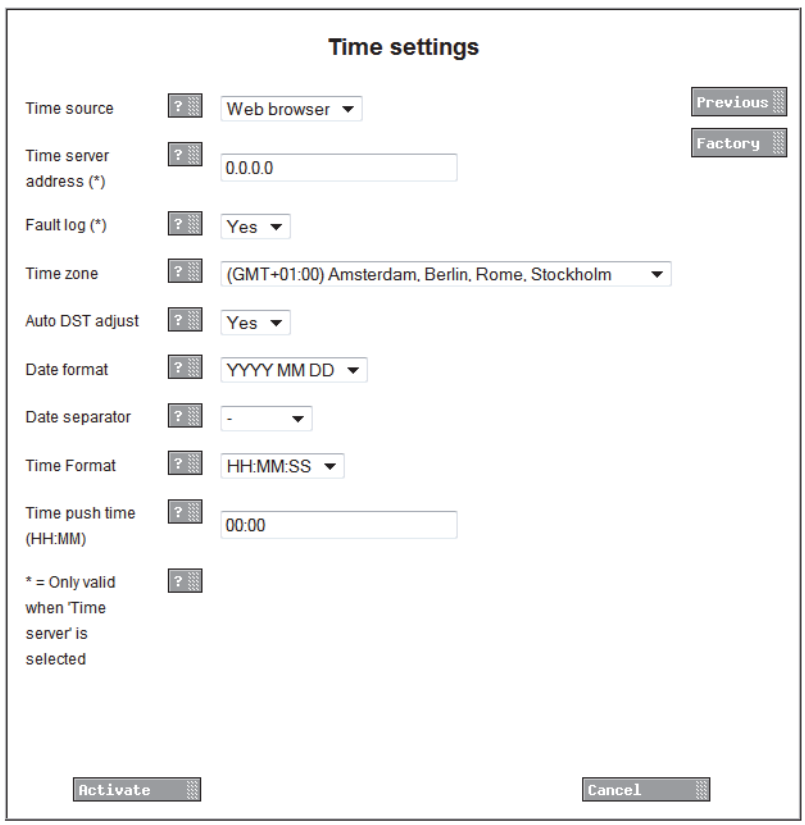


4. Click “Status Log”, “System Activity Log” or “View Advanced parameters”.
5. In the selected log page, enter settings. Click “Activate”.

8.3 Time Settings

It is possible to select where to fetch the time from, such as a web browser or a time server.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration on the Configuration page.
3. Under Time, click “Settings” in the menu on the Advanced Configuration page.



4. The following parameters can be set (some of these parameters can also be set in the setup wizard):
   - Time source – Where to fetch the time, web browser or NTP server
   - Time server address – IP address to NTP server
   - Fault log – Create fault log for time server faults
   - Time zone – Current time zone
   - Auto DST adjust – Automatic adjustment for daylight saving time

- Date format – Which date format to use
- Date separator – Which character to use to separate the date fields
- Time Format – Which time format to use
- Time push time – When to update all interfaces within the module

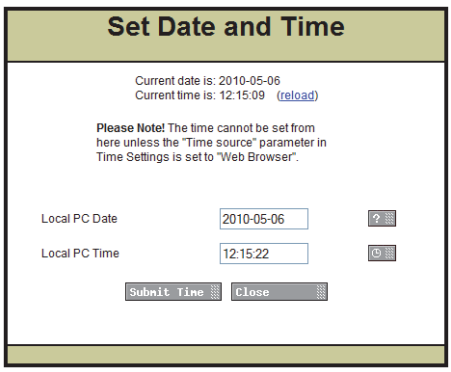
5. Click “Activate”.

For additional information, see also the Installation Guide for your product.

8.3.1 Manual Time Setting (if Web browser is Time Source)

If Web browser has been selected as time source, the time must be set manually. Otherwise this setting shall not be done. The setting can also be done in the setup wizard.

1. Under Time, click “Set time”

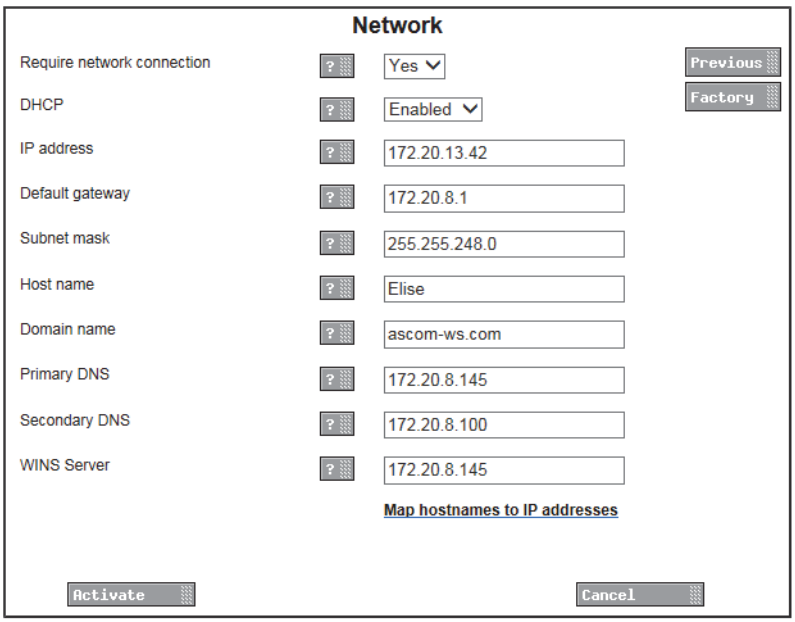


2. Enter date and time.
3. Click “Submit time”.

Date and time can also be set in the setup wizard.

8.4 Network Settings

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration on the Configuration page.
3. Under Common, click “Network” in the menu on the Advanced Configuration page.



4. The following parameters can be set (some of these parameters can also be set in the setup wizard):
   - Require network connection – Controls if the module needs a connection to the network to start up. This can be useful if you want configure the module before connecting it to a network.
   - DHCP – Controls whether static or dynamic IP address shall be assigned to this hardware. If DHCP is enabled, only the host name below is applicable.
   - IP address – Sets the IP address for the module
   - Default gateway – Sets the IP address to a Gateway on the LAN
   - Subnet mask – sets the network mask that is to be used. If this parameter is set to 0.0.0.0 it means that the Gateway never will be used.
   - Host name
   - Domain name – Sets the desired domain name for the module

- DNS Server – Sets the IP address to a DNS if one exists. If no DNS Server is present on the network, set this parameter to 0.0.0.0.
- WINS Server – sets the IP address to a Primary WINS Server if one exists.
- If no WINS Server is present on the network, set this parameter to 0.0.0.0.
- Configure hosts.

For additional information, see also the Installation Guide for your product.

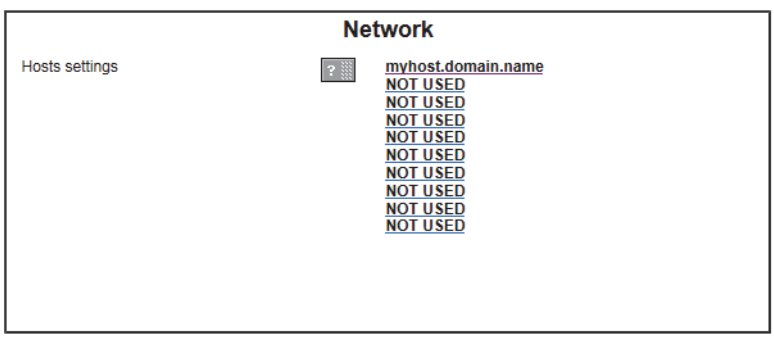
5. Click “Activate”.

8.4.1 Hostname Mapping

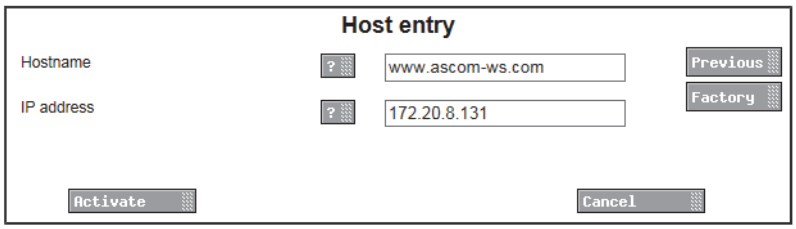
The Unite module has a hostname list that can be used for mapping up to ten hostnames to their IP addresses. The Unite module looks first in the hostname list, and if a matching hostname is found, the IP address mapped to that hostname is used to establish a connection. If no matching hostname is found in the list, the Unite module sends a request to the DNS server (if any).

The hostname list can be used if no DNS is available, or if the DNS server cannot resolve certain hostnames for some reason.

1. Click "Configuration" on the start page.
2. Select Other Settings > Advanced Configuration on the Configuration page.
3. Click "Network" under Common on the Advanced Configuration page.
4. Click "Map hostnames to IP address".
5. Click "NOT USED" to add a new hostname to the list. If you want edit a hostname, click the link labelled as the hostname.

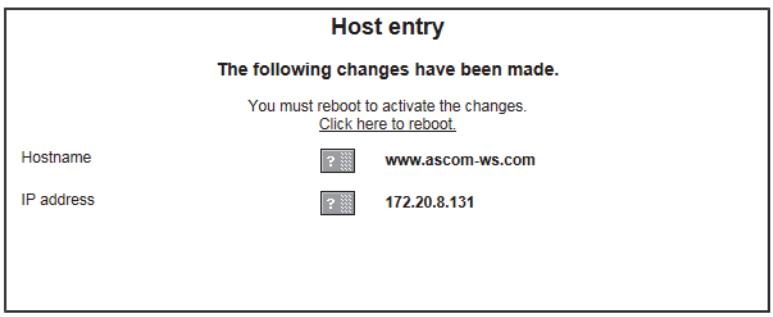


6. In the "Hostname" field, enter the hostname to be resolved, e.g. "www.mycompany.com".
7. In the "IP address" field, enter the IP address that shall be mapped to the hostname.



8. Click "Activate".

   The Unite module must reboot to apply the setting. Click the link "Click here to reboot" and then click "Reboot". The module will reboot immediately. The GUI will not be updated automatically when the reboot is done. Update the GUI by clicking the "F5" button on your keyboard.



NOTE: Reboot can be done once after all hosts configured.

8.5 Setting the License Number

The license number is normally set in the setup wizard but it can also be set on the Advanced Configuration page.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration on the Configuration page.
3. Under Common, click “License” in the menu on the Advanced Configuration page
4. Enter the license number and click “Activate”.

8.5.1 Reboot

The module can be rebooted on the Advanced Configuration page.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration on the Configuration page.
3. Under Common, click “Reboot” in the menu on the Advanced Configuration page
4. Click the “Reboot” button.

NOTE: If the Reboot page is reloaded, this will trigger another reboot.

---

9 Absence Handling

9.1 Absence Handling in the VoWiFi System

See also Chapter 4.3.7: WLAN Handsets on page 46.

9.1.1 Sort on Handset Status

A list with all handsets can be created.

1. Click “Configuration” on the start page.
2. Select WLAN Handsets > List All on the Configuration page.
3. Click the name of the column (in this case, "Status") to sort the list on handset status.

9.1.2 Search on Handset Status

It is possible to search for handsets with selected status.

1. Click “Configuration” on the start page.
2. Select WLAN Handsets > Search in the menu on the Configuration page.
3. Enter the optional search parameters Address/Number, IP Address, Hardware ID and Status. To view absent portables, select “All absent” or “Manual Absent”.

10 Open Access Protocol (OAP)

This function makes it possible for customer applications to communicate with other connected systems, for example the Cordless Telephone System. The protocol that is used for communication is called Open Access Protocol (OAP).

Refer to the Function Description for Open Access Protocol (OAP) for more information about the protocol and when it can be used.

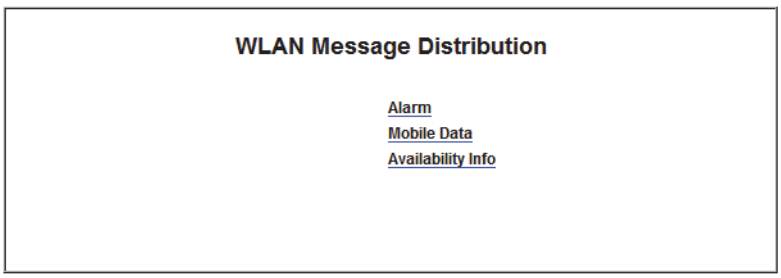
10.1 Configuration

The Message Distribution lists for the different interfaces have to be configured to send the information to the OAP Server, in order to give the client access to the information. The address of the OAP Server is xxx.xxx.xxx.xxx/OAP.

Configuration Example

The WLAN Interface should be configured to send User Data to the OAP Server.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu on the Configuration page.
3. Under WLAN Interface, click “Message Distribution” in the menu on the Advanced Configuration page.
4. Select “Alarm”.

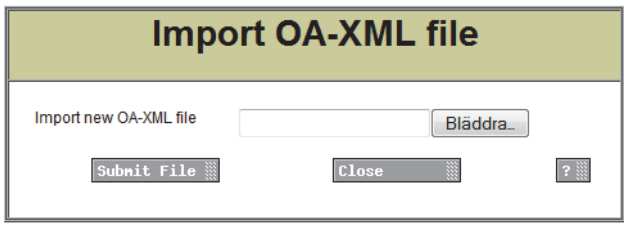


5. Enter the address xxx.xxx.xxx.xxx/OAP in one of the address fields.
6. Click “Activate”.

10.2 Importing a new OA-XML file

It is possible to import new services, and update existing services, by importing a new OA-XML file to the module. The OA-XML description and OA-XML schema documents will also be updated when a new file is imported.

1. Select “OA-XML” in the menu on the System Setup page. The Import OA-XML file opens.



2. Click “Browse” and locate the file.
3. Click “Submit File”.

New services are added to the OAP list on the System Information page. The Protocol version in the list shows the currently installed OA-XML version.

NOTE: The new service will only be shown in System Information if there is a valid license for the service.

---

11 WLAN Interface

11.1 Handset Registration

To be able to register, each VoWiFi handset must be programmed with the IP address of the WSG used, refer to the Configuration Manual for respective VoWiFi handset.

11.2 Shared Phones

When using shared phones all VoWiFi handsets authenticates with passwords. The password can be a common password for all users or the call number.

11.3 WLAN System

WLAN system handles the VoWiFi handset relogin time and authentication. A handset is considered to be logged out if it has not made a relogin within a certain time. Call diversion display text, Extended activity logging are also enabled in this view.

To find settings for WLAN System, do as follows:

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu in the on the Configuration page.
3. Select “WLAN System” under WLAN Interface in the menu in the on the Advanced Configuration page.
    - Device relogin time (minutes)

      The time before a handset must relogin is set in minutes and when this time is exceeded the handset will be considered unreachable. This is the maximum time it takes for a handset to reconnect after installing a new or updating the WSG.
      Note that a short relogin time implies a higher service/security but it also loads the system.
    - Call Diversion Display Text

Text specified in the “Call Diversion Display Text” text field is, if enabled, added to the display text when a call diversion takes place. By entering the character “%”, the original call ID will be included in the display text on the place where the character is entered. Note that some characters are special characters that are not visible.

- Enable Extended Activity Log

  Enable Extended Activity Log for intermediate logs, for more information see the Function Description, Activity logging in Unite document.

- Authentication Method

  The very first time a VoWiFi handset logs in, it must authenticate itself with a password. The password is then stored in the handset for future authentication. The WSG Server has two authentication alternatives; “Common password” and “Number as password”.

- Common Password

  A common password can be specified in the WSG, and this password is then used for all VoWiFi handsets in the system. If the common password field is left empty, the handset must send an empty password for authentication.

- Allow Forced Login?

NOTE: The function is only valid when the authentication method is set to “Common password” or to “Number as password”. See <Link>• <Italic>Authentication Method on page 142.

Forced login allows a user to login with a call number that already is in use. The handset that already is logged in will then be unregistered.

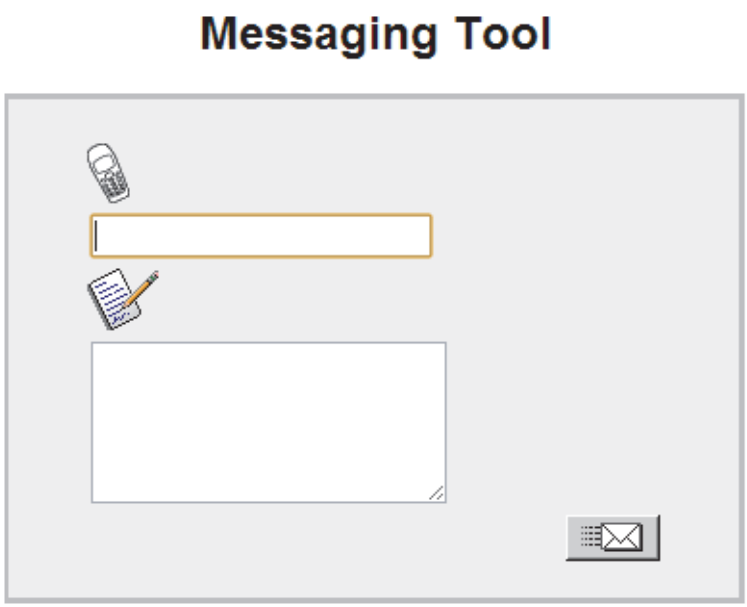
12 Messaging Operation

Creating and sending messages via the Messaging Tool requires no password and can be done by any user in the system.

12.1 Create and Send Messages via the Messaging Tool

The Messaging Tool GUI is displayed without additional license.

Figure 19 Messaging Tool GUI.



1. Click “Messaging” on the start page. The Message Tool opens.
2. Enter Call ID in the upper text field.
3. Enter message in the bottom text field.
4. Click  . The message is sent to the receiver.

13 Administration of Language and User Interfaces

All text shown in the user interface is default in English, but a copy of the language can be translated and imported to the module. Several languages can be added. The default English language is not possible to edit or remove. The supplied user interface can also be modified to suit the individual customer requirements concerning functionality.

Basic changes that can be made are:

- Translate or adapt text (refer to Chapter 13.1.2: Translate/Edit the Language on page 147)
- Modify the user interface to suit the customer's image (refer to Chapter 13.2: Customize the User Interface (GUI) on page 151)
  - Limit the number of characters included in the message text.
  - Add company logo and/or modify the GUI to suit the customer's image

---

NOTE: The user interface only supports the Latin-1 character set.

For the best screen appearance

Windows standard screen settings, using normal font size, are recommended. The recommended screen resolution is 1024 x 768.

How to edit

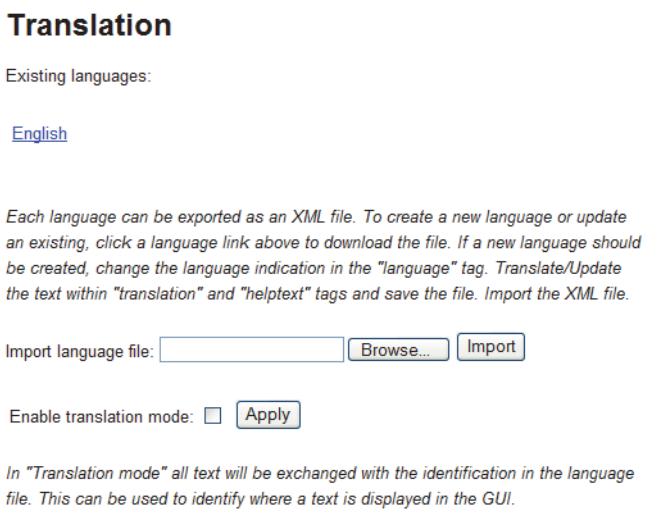
The code is thoroughly commented to make it easy to understand, and can be edited with a simple text or HTML editor. Basic HTML, Java Script, and CSS knowledge is recommended.

NOTE: Do not use an intelligent html editor like Frontpage or Dreamweaver, as it might corrupt the html code.

13.1 Customize the Language

13.1.1 Export a Language for Translation/Editing

1. Click “Configuration” on the start page.
2. Select Other Settings > Set language in the menu in the on the Configuration page.
3. Click the “Import/Export Language” button. The Translation page opens.



4. Click an existing language link to create or update languages. An XML file is generated and the File Download window opens.
5. Save the file for translation or editing purposes. The file can be saved in any name during the translation.

13.1.2 Translate/Edit the Language

In the downloaded language file, there are numerous tags but only the translation of two tags and one attribute are mandatory:

- <language id=”English”>
  The “id” attribute is the text that appears in the drop-down list. Change “English” to the name of your translated language here.
- <translation>
  Text displayed in menus, on buttons, tabs etc. Translated text can be added inside the tags.
- <helptext>
  On-line help text. Translated text can be added inside the tags.

Below is an example of a language file (just showing two buttons with help text, for simplicity).

Figure 20 Example of a language file (.xml).

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<translations>
 <language id="English" type="complete">
  <app id="Alarm Manager">
   <text id="ACTION_TYPE_SELECTOR">
    <translation>Action Type</translation>
    <helptext>Select which type of action to take.</helptext>
   </text>
   <text id="ACTIVATE_EHCONF_OK">
    <translation>Activation of configuration OK.</translation>
   </text>
   <text id="ALARM_TYPE_SELECTOR">
    <translation>Alarm Type</translation>
    <helptext>The alarm type that should be triggered. </helptext>
   </text
  </app>
 </language>
</translations>
```

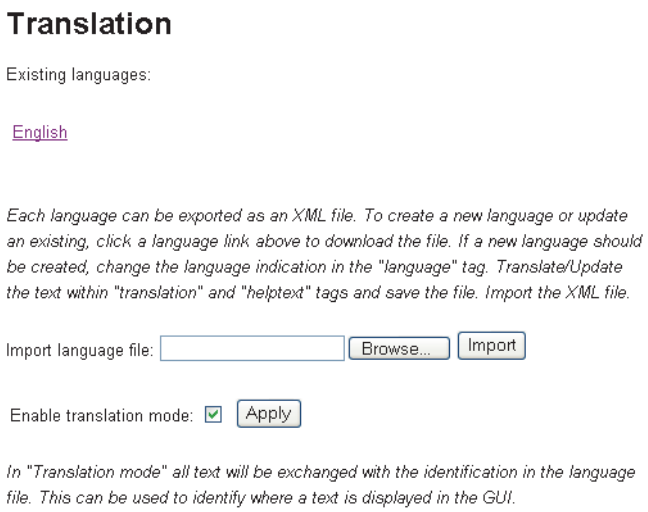
079

13.1.3 Show Pages in Translation Mode

All texts, buttons, menus etc. are identified with labels (for example TEXT_TRANSLATION_TITLE). With the translation mode function it is possible to view the label for each button, menu etc. This can be helpful when translating the language file. For not losing one´s bearings during the translation it is a help to open two windows and view one of them in translation mode and the other in normal mode.

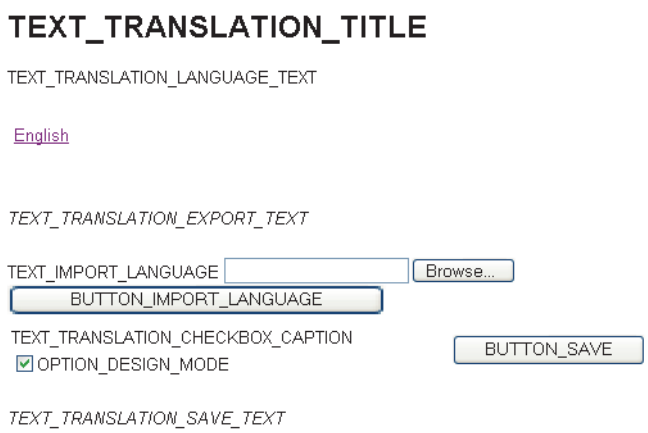
1. Select the “Enable translation mode” check box in the Import/Export Language page, and click “Apply”.

Figure 21 Translation page in normal view



All the labels on the pages are shown, see example below.

Figure 22 Translation page in translation mode



To return to standard view:

1. Clear the OPTION_DESIGN_MODE box.
2. Click “BUTTON_SAVE”.

13.1.4 Import Language File

When the file is translated, it must be imported to the module.

1. Click “Configuration” on the start page.
2. Select Other Settings > Set language in the menu in the on the Configuration page.
3. Click the “Import/Export Language” button. The Translation page opens
4. Click “Browse” to locate the translated file, and then click the “Import” button.

The name of the translated language (the language “id” attribute) will appear as a link in the Existing Language list and can be downloaded for editing purposes.

13.1.5 Delete Language File

On the Translation page, click the ✕ icon to the right of the language you want to remove. Note that it is not possible to remove the default language.

13.1.6 Select Language

Translated languages (the language “id” attribute) are shown together with the default language “English” in the language drop-down list in the Language page.

1. Click “Configuration” on the start page.
2. Select Other Settings > Set language in the menu in the on the Configuration page.

3. Select language in the drop-down list and click “Permanent”.

To change language for this session only, that is, for this browser window until closed, click “Temporary”.

13.2 Customize the User Interface (GUI)

The module has an FTP area with default 50 MB disk space. The disk space can be set in the interval 5 MB up to 150 MB.

The free space can be used for storing files and folders, for example, a customized user interface for sending messages.

13.2.1 Change the Size of the FTP Area

This is a secured setting and before it can be activated it must manually be confirmed by pressing the mode button on the module.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu on the Configuration page.
3. Under Common, click “FTP area” in the menu on the Advanced Configuration page.
4. Fill in required size between 5 – 150 MB and click “Activate”.
5. You will be prompt to confirm the change by pressing the mode button.
6. Press the mode button on the module.
7. Click “Activate” to save the changes.
8. Click the mode button to return to normal mode immediately or wait 10 minutes for the module to return automatically. Any secured setting can be activated within the 10 minutes period.

The module needs to be restarted for the changes to take effect.

13.2.2 Files for Translation/Editing

1. Log on to the module via an FTP client. Note that how to log on can differ between different FTP clients.[1]

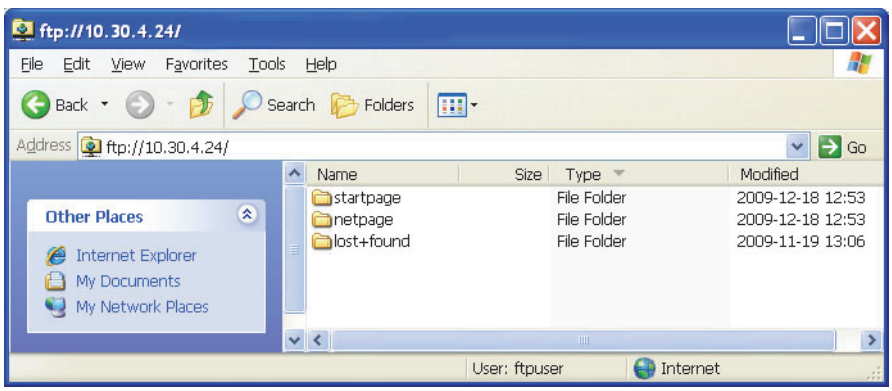
   Default username is “ftpuser” and default password is “changemetoo”. xxx.xxx.xxx.xxx is the host name.

   Examples:

   - Windows Explorer: fill in “ftp://username:password@xxx.xxx.xxx.xxx” in the address field.
   - Firefox: fill in “ftp://xxx.xxx.xxx.xxx” in the address field and log on with “username” and “password”.

NOTE: When secure mode is enabled, only secure access via HTTPS and FTPES are allowed. HTTP is automatically redirected to HTTPS, and FTP access is not allowed. The FileZilla Client freeware (not included) supports FTPES. See Chapter 3.4.1: Web Access Security Settings on page 26.

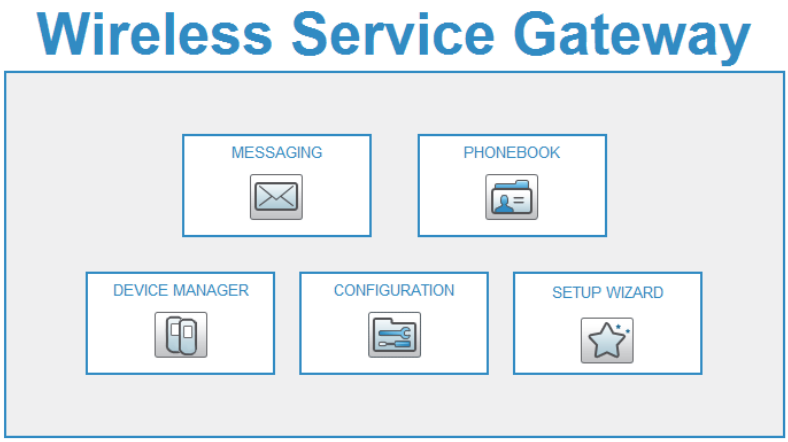
The files located in the Start page, including GIFs and CSS, can be downloaded/ copied to a folder on your hard disc.



1.Internet Explorer is not an FTP client. It can be used for viewing but not for transferring files.

13.2.3 Default Start Page GUI

Figure 23 Start page default user interface (index_template)



A copy of the default Start page is stored in the start page folder on the module's FTP area. The start page copy index_template, is an html file that can be copied and edited. The start page can also be replaced with a completely new user interface.

When the edited or new html file is saved as index.html and placed in the Start page folder on the module's FTP area, it will replace the default start page.

13.2.4 Upload the Files to the module's FTP Area

Upload/paste all updated files (including GIFs and CSS) to the FTP area.

NOTE: When secure mode is enabled, see Chapter 3.4.1: Web Access Security Settings on page 26, only secure access via HTTPS and FTPES are allowed. HTTP is automatically redirected to HTTPS, and FTP access is not allowed. The FileZilla Client freeware (not included) supports FTPES.

---

1. Log on with an FTP client. Note that how to log on can differ between different FTP clients.[1]

   Default username is "ftpuser" and default password is "changemetoo". xxx.xxx.xxx.xxx is the host name.

   Examples:

   - Windows Explorer: fill in "ftp://username:password@xxx.xxx.xxx.xxx" in the address field.
   - Firefox: fill in "ftp://xxx.xxx.xxx.xxx" in the address field and log on with "username" and "password".

2. Copy the files and paste them into the FTP area.

1.Internet Explorer is not an FTP client. It can be used for viewing but not for transferring files.

13.3 Test the New User Interface

It is recommended to test the customized user interface as follows, for example:

- If a company logotype is added, check that it looks all right and that the module opens quickly. If it opens slowly, minimize the picture file size and save it as “interlaced” to decrease wait time for the image.
- Check that all text is correctly translated.
- Check that the phonebook opens and that the entries are correct.
- Send a message.
- Check that the “message history status” is received and displayed.

13.4 Update the User Interface after a new Release

When a new version of the module's software is released, there might be changes in the user interface that need to be translated.

1. Import your old translated file to the module that has been updated with new software. New text and buttons in the user interface are shown in English.
2. Click the language file link and save it.
3. Open the file. All tags that are not translated are marked with the comment:

   ```
   <!-- The text identifier below couldn't be translated -->
   ```

4. Translate the new text and import the translated file again.

14 Software Administration

Besides the software administration via the WSG's Configuration page, it is also possible to administer the software via the module's Boot Mode GUI. This is described in the Installation Guide for WSG. The Boot Mode GUI is typically used if no software is installed on the module or if it is not possible to access the software.

Adding software for devices is done from the Device Manager application.

14.1 Add Device Software to the Device Manager

1. Click "Device Manager" on the start page.
2. Upload definition files. The definition files are usually included in a package file. See Chapter 6.7.3: Import Parameter Definition Files on page 112 for more information. The package files may also contain software for the devices (.bin) and templates (.tpl). You may have to contact your supplier for the latest updates.

How to work with Numbers is described in Chapter 6.4: Numbers on page 88.

14.2 Upgrade the Boot Software

For instruction on how to upgrade the WSG hardware with new Boot software (autoupdate.bin) refer to the Installation Guide for WSG.

14.3 Software Information

All information about the installed software is shown in this view. Two software versions can be installed on the module.

1. Click "Configuration" on the start page.
2. Select Software > Information in the menu on the Configuration page.

The software name, versions, the date they were installed and also which version that currently is running are shown.

14.4 Switch Software

If two software versions are installed on the WSG you can switch between them. When switching to another software, the WSG takes a backup of the current running software. That backup is used if you want to go back to the previously run software later on and keep the previous settings.

14.4.1 Switch software in a non-redundant system

This section describes how to switch software when module redundancy is disabled.

1. Click “Configuration” on the start page.
2. Select Software > Switch in the menu on the Configuration page.
3. Under Select settings, select one of the following:
   - Keep previous settings – uses the last configuration of the software you want to switch to. This option is only available if that software has been used before.
   - Copy Current settings – copies the configuration of the current software to the software you want to switch to. This option is only available if both software are of the same type.

     NOTE: If switching to an older software version of the same type, this option should not be selected because the configuration of the current software might not be compatible with the older software.
   - Use factory default settings – restores to factory configuration in the software you want to switch to.

     IMPORTANT: All configurations and files will be replaced by the ones made/installed in the factory, except the current network configuration.
4. Click “Switch”.

14.4.2 Switch software in a redundant system

This section describes how to switch software when module redundancy is enabled.

You can only switch software when both Software 1 is identical and Software 2 is identical on the both WSG. Additionally, both WSG must be also be synchronized.

NOTE: If you switch software from a secondary WSG that is active, the primary one becomes active and the secondary one enters standby mode when the system is up and running after the reboot.

---

1. Click “Configuration” on the start page.
2. Select Other Settings > Redundancy in the menu on the Configuration page.
3. Click “Switch software”.

14.5 Install New Software

It is recommended to always perform a backup before installing new software, see <Link><Italic>14.5.1 Create a Software Backup. After the software installation see also Chapter 13.4: Update the User Interface after a new Release on page 156.

Make sure that no Device Manager client is open and it is also important that no ftp client is logged in to the module.

The information stored in the database will not be overwritten when new software is installed.

NOTE: It is not recommended to use the module's Management port when installing software.

---

1. Click "Configuration" on the start page.
2. Select Software > Installation in the menu on the Configuration page.
3. Select software (.pkg) to upload. The software will replace the not running software.
4. Select "Switch immediately" if you want to run the new software.
5. Select "Copy current settings" if you want the new software to inherit the settings currently used. This selection will have no effect if the software type is different than the currently used software. The module will always start up using factory settings if the software type differs.
6. Click the "Start Installation" button.

14.5.1 Create a Software Backup

The complete configuration of the current software on the module and the files on the FTP-area are included in the backup.

1. Click "Configuration" on the start page.
2. Select Software > Installation in the menu on the Configuration page.
3. Click the "Backup" button.

Note that the backup will contain configuration for the running software only.

15 Troubleshooting

15.1 General Troubleshooting

15.1.1 Log files

When troubleshooting it is always a good idea to examine the log files, since they provide additional information that may prove useful. The first log to examine is the Fault log found under Status on the Configuration page, but when reporting an error to your supplier more advanced logs might be needed. Always include the appropriate log file.

To find Info log and Error log:

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu on the Configuration page.
3. Click the “Troubleshoot” button on the Advanced Configuration page.
4. Click “View Info Log” or “View Error Log”.

15.1.2 The Module does not Start

To use the module’s GUI, the computer must confirm to the requirements listed in Chapter 1.6 Requirements on page 12. If you do not have the correct software versions installed, contact your system administrator.

15.1.3 Firewall Issues, or No Indication of Connected Device

If there is a firewall between the module and any devices, the firewall may need some configuration to allow communication. See Appendix A Used IP Ports on page 175 for a description of used ports.

15.1.4 Unable to Access FTP Area

Make sure the client is set in active mode.

Example for Internet Explorer:
In the menu, select Tools -> Internet Options... -> Advanced. Under “Browsing”, uncheck the “Use Passive FTP (for firewall and DSL modem compatibility)” check box.

When secure mode is enabled, see Chapter 3.4.1 Web Access Security Settings on page 26, only secure access via HTTPS and FTPES is allowed. HTTP is automatically redirected to HTTPS and FTP access is not allowed. The FileZilla Client freeware (not included) supports FTPES.

15.2 Troubleshooting Guide

This section lists a number of possible faults, probable causes and suggested actions.

15.2.1 Troubleshooting for the Device Manager

Fault	Probable cause	Action or comment
• It is not possible to edit any parameters after logging on to the system.	The user is logged on as auditor.	Close the browser session and re-log on as admin or sysadmin.
• The system does not have the correct time.	– Configuration error, no time server configured.	Configure the system to connect to a time server.
	– The time server is configured but is offline.	Restore connection to time server.
	– The web browser is selected as time source but the time has not been set by the user.	Set the time via the advanced configuration.

Fault	Probable cause	Action or comment
• Device does not show up in the Device Manager	-The connected interface (for example WLAN) is not up and running	Check the status of the interface. Starting up mode is indicated during start of applications. If an application has lost connection to a required resource it is indicated as application problem mode. An Application problem is always shown as a persistent fault in the Status log (see Chapter 8.2 Logging on page 130). NOTE: If the information on the Configuration page shows Normal mode, it is not necessary to check the System information. 1. Click “Configuration” on the start page. 2. Select Other Settings > Advanced Configuration in the menu on the Configuration page. 3. Click “Troubleshoot” button on the Advanced Configuration page. 4. Select “System information” in the menu.
• Some devices report device busy in the Device Manager when the user is trying to change device parameters. • Software download is stuck in pending.	The device is occupied with some action that the device cannot combine with parameter synchronisation.	No action needed. The Device Manager will synchronize the changes when possible.
	– Multiple devices are currently being updated.	There is a limitation in the Device Manager on the number of simultaneous software downloads. All devices are placed in a queue and will be upgraded in time. No action needed. Download will start in time.

Fault	Probable cause	Action or comment
• File downloads retrying.	The device is currently unavailable (device out of range, network problem)	No action needed. The download will start when the device comes in range again.
• Software downloads rejected.	The device is already updated with a new software but not yet restarted on the new software. This is due to selected activation time in previous software update i.e. “When idle in charger” or “After manual restart“.	Restart the device manually and restart the download.
• Software in Device Not Recognized/ Synchronization Fails	The parameter definition file is not compatible with the device.	In the Devices tab, check the parameter version for the device. If the parameter version is highlighted with red, a package file (.pkg) including the software file and definition file with that parameter version, must be imported to the module.
• Software downloads are aborted.	Wrong file selected for download to devices (External web server).	– Make sure that the URL to the desired software is correct and retry. – Make sure that the file is intended for that device.
• Communication failure to device.	The device did not respond in an expected way. The reason could be temporary communication problems caused by coverage problems or network problems.	Repeat the action after a while to see if it is possible to communicate with the device.

Fault	Probable cause	Action or comment
• No connection available for the Device Manager GUI.	– Max number of Device Manager GUI's has been reached.	Close the other Device Manager GUI to open new. A maximum of three Device Manager GUIs can be connected.
	– The Device Manager server side is restarted due to reconfiguration.	No Action, the server will be up within a few minutes.
	– The Device Manager is temporarily unavailable due to restore of database.	No Action, the server will be up soon.
	– The network is preventing the GUI from connecting to the server.	No action.
• All devices log out after restore of a backup.	The backup is older than the devices´ "Device relogin time".	No action. All devices will re-login within "device relogin time" (see device handling).
• The parameter version is displayed in bright red in the Device Manager GUI.	There are no compatible .pkg files imported to the system.	Import a .pkg file suitable for the device. The .pkg file is provided by the supplier.
• The parameter version is displayed in dark red in the Device Manager GUI.	The version of the imported .pkg files are not 100% compatible with the device.	Import a .pkg file suitable for the device. The .pkg file is provided by the supplier.
• The parameter version of the Number in the Numbers tab is higher than in the parameter version of the device in the Devices tab.	The device has been downgraded to a previous software version with lower parameter version.	No action needed. This is not an error. The parameter version will be the same after a software upgrade has been performed on device.
• No numbers are visible of the selected device type in the Number tab.	The search field is red. Current search returns no hit.	Alter search or use "show all" to reset search to default.
• "Go to device" is dimmed out for a device in the device view.	The selected device has no number associated to it.	– Assign a new number to the device. – Associate a new or existing number to the current device

Fault	Probable cause	Action or comment
• The handset is not visible in the Number tab.	– The handset has no number associated.	Assign or associate a number to the device.
	– The device is offline and not saved as number.	Bring the device online. Save the number in order to make it possible to edit the number when it is offline.
• Number creation of desired device type is not possible.	The .pkg file for the desired device type is not imported to the Device Manager.	Import the .pkg file for the desired device type. The file is provided by the supplier.
• It is not possible to apply a template at creation of new number.	No compatible template for the desired device exists.	Create a new template or upgrade an existing template and retry.
• Fault message Device Manager: Running-application problem (Error relay: Database init in progress) is shown after software upgrade of the WSG.	You have upgraded the WSG with a software that uses another database structure for the Device Manager than the previous installed software version.	The WSG needs to re-configure the database used by the Device Manager after the upgrade. The time it takes to re-configure the database depends on number of parameters, devices, phonebook entries, and numbers saved in the database. It can take up to several hours.

15.2.2 General Troubleshooting for the WSG

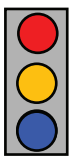
This part of the Troubleshooting Guide lists possible faults that are not connected to the Device Manager

Fault	Probable cause	Action or comment
• It is not possible to edit the Central Phonebook.	– The phonebook is configured to be read-only.	Edit the external phonebook file and re-import it to the Central Phonebook.
	– The phonebook is configured to use a LDAP server	Access the LDAP server and alter the desired entry. After “commit”, the new data will be available for the Central Phonebook.
• Import of language to the configuration GUI fails.	The language file has the wrong format.	Export the default language to set the format and edit the language file.
• Set language fails.	– The language file might be faulty.	Export the language files and compare hem. Make sure that the <language id= tag is unique for each file.
• The log files are flooded with log entries.	The log settings are set to a detailed level.	Change the log settings in Advanced configuration > Troubleshoot > System information.
• Several functions of the system does not start.	– There is not a valid license.	Enter a valid license and restart the module.
• Module key and MAC address are not shown in the System Information on the Troubleshooting page on a standby module of a redundant system.	The standby module in a module redundant system cannot display this information in the System Information on the Troubleshooting page.	Known limitation in a module redundant system. To see module key and MAC address, go to the main page on the standby module.

15.3 Built-in tools

The hardware has different LEDs to indicate the status and besides that the possibility to show active faults and logging the faults via the GUI.

Tools	Description
LEDs	The LEDs show different colors to determine type of information and have different flashing frequency for showing the priority



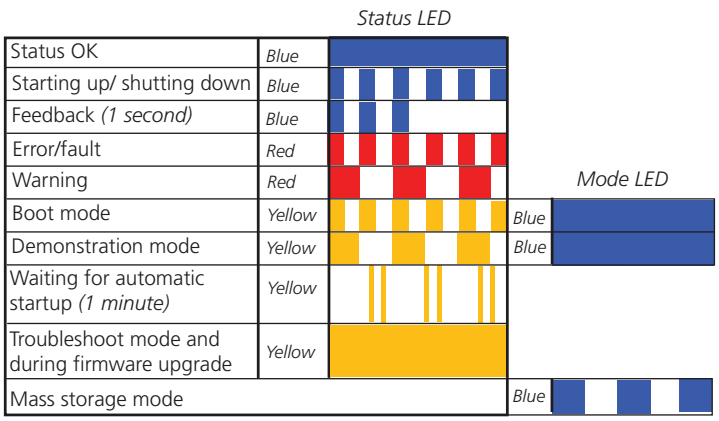
colors

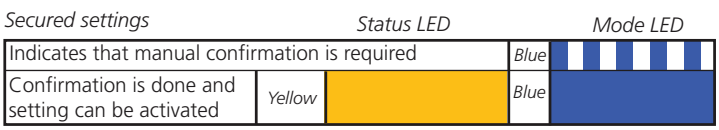
Red	Fault indication
Yellow	Mode indication
Blue	Normal operation (OK)

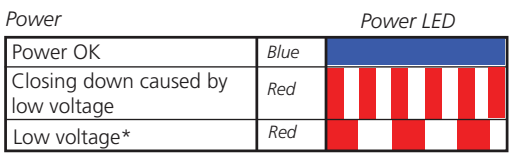
Flashing frequency

Fixed light	indicates normal state
Slow flashing light	indicates medium attention
Quick flashing light	indicates high attention

Flashing patterns







* also used if the Power parameter conflicts with the actual setup.

Demonstration Mode:	Demonstration Mode is activated by pressing the Mode button for 10 seconds. The module will then run with full functionality for 2 hours, it then returns to the configured license! If it works in Demonstration Mode and not in normal operation you probably have a license problem.
Active faults:	Refer to Chapter 4.3.1 Active Faults on page 39.
Fault logging:	Refer to Chapter 4.3.4 Fault Log on page 41 and Chapter 4.3.5 Administer the Fault Log on page 43.
System Information:	See 15.4 Advanced Troubleshooting below.

15.4 Advanced Troubleshooting

The Advanced Configuration page (requires system administrator rights) includes advanced troubleshooting. Snapshots of selected logs or a complete log can be viewed.

1. Click “Configuration” on the start page.
2. Select Other Settings > Advanced Configuration in the menu on the Configuration page.
3. Click the “Troubleshoot” button on the Advanced Configuration page.
4. In the left menu on the Troubleshoot page you can view logs and find detailed information about the system.

- Specify Information to Log

Standard debug is set by default but this can be extended and show more details.

1. Click “System Information” in the left menu.
2. Enable desired logs and click “Activate”.

- Send Test Message

The Troubleshoot page also includes the possibility to send test messages.

1. Click “Send Test Message” in the left menu.
2. Enter Call ID and click “Send Message”.

15.5 What to consider when replacing a module

- IP Address
- License
- Module key
- Remember where cables were connected

15.6 Technical Support

For technical support please contact your local representative.

16 Related Documents

Data Sheet, Elise3	TD 92678GB
Installation Guide, WSG	TD 93041EN
Data Sheet, OpenStage WL3 Wireless Service Gateway - WSG	TD 92972EN
Function Description, Open Access Protocol (OAP)	TD 92978EN

Appendix A: Used IP Ports

This section describes IP ports that can be used when a connection between a server and a client is established. It is always the client that initiates a connection by sending a request to a well-known (fixed) port used by the application/unit on the server. Each time a client initiates a connection it is assigned a temporary (i.e. ephemeral) port number to use for that connection. Additionally, the client sends its temporary port number to the server so the server know which port it should respond to. These temporary port numbers are assigned in a random way within the port range 1025 - 65535.

NOTE: If a firewall is used, the well-known port (fixed) must be available for communication in the network.

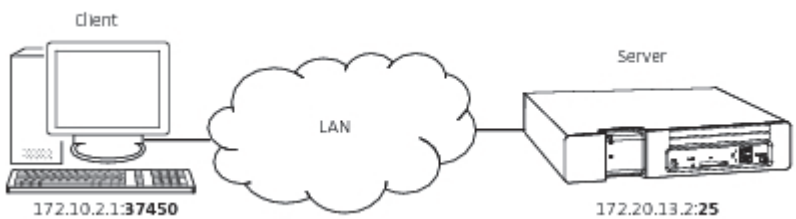
The table below describes the well-known port used by the application/unit acting as server.

Example 1:

In this example the FTP area on the WSG should be accessed. An FTP client installed on a computer is used to access the FTP area. In this case, the WSG acting as a server and the computer acting as a client.

Port 21 is a well-known one for FTP requests and port 37450 is a temporary one assigned to the client.

Figure 1 WSG acting as a server



Example 2:

In this example, the WSG should obtain time and date from an external source acting as a NTP server. In this case, the WSG is acting as a client since it initiates the connection to the NTP server.

Port 123 is a well-known one for NTP requests and port 65000 is a temporary one assigned to the client.

Figure 2 WSG acting as a client

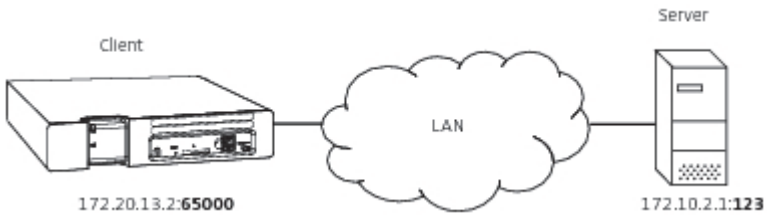


Table 1 IP ports used by applications/units acting as server

Port	Application or unit	Transport protocol
20–21	FTP	TCP
53	Domain Name Server (DNS) License Web Server communication	UDP
68	DHCP	UDP
80	Web traffic (HTTP) License Web Server communication	TCP
113	Authentication	TCP
123	Network Time Protocol (NTP)	UDP
443	HTTPS License Web Server communication	TCP
514	Syslog Syslog messages	UDP
1321–1322	OAP Server	TCP
8080	HTTP	TCP
33000–33001	VoWiFi handset Communication	TCP

Appendix B: Device Manager Keyboard Shortcuts

The following table shows the shortcuts that can be used in the Device Manager.

B.1 General

Short-cut	Description
Ctrl + H	Open the File management window
Ctrl + Tab	Switch tab
Alt + F4	Close the application

B.2 Devices

Shortcut	Description
Ctrl + N	Add a new device
Enter	Upgrade the selected device(s)
Delete	Delete the selected device(s)
Ctrl + F	Find a device
Ctrl + Enter	Open the Properties window for the selected device

B.3 Numbers

Shortcut	Description
Ctrl + N	Add a new Number
Enter	Edit the selected Number
Ctrl + C	Copy the selected Number
F2	Rename the selected Number
Ctrl + S	Save the selected Number to the database
Delete	Delete the selected Number from the database
Ctrl + F	Find a Number

B.4 Templates

Shortcut	Description
Ctrl + N	Add a new template
Enter	Edit the selected template
Ctrl + C	Copy the selected template
F2	Rename the selected template
Delete	Delete the selected template
Ctrl + F	Find a template

B.5 Licenses

Shortcut	Description
Delete	Remove the selected device(s) from the license view
Ctrl + F	Find a device

Appendix C: File types

In this appendix, the different file extensions that are used in the module are explained. System files are not described

.

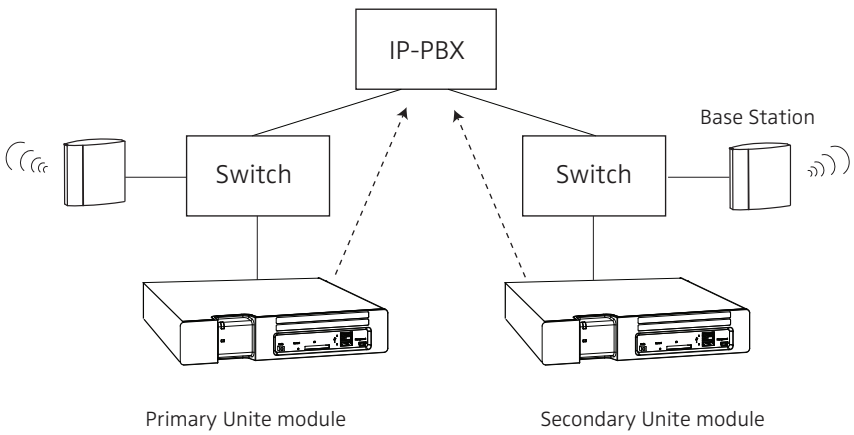
File type	Extension	Description
Software file	bin	Software for devices
Company Phonebook file	cpb	Company Phonebook file for handsets.
Parameter Definition file	def	Including all possible settings for a certain device type for a certain version.
Language file	lng, or xml	Language file for handsets or the WSG. Language file for the module uses XML (eXtensible Markup Language.).
Package file	pkg	Archive that can include different file types such as parameter definition files (.def), software files (.bin) and template files (.tpl).
Template file	tpl	Contains one or more exported templates.
Number file	xcp	Exported Numbers.

Appendix D: Network Monitoring in a Redundancy System

In a redundant system, both the primary WSG and the secondary WSG can check if they have connection to the network by sending ICMP inquiries to an optional equipment in the same network. It is recommended to use the equipment that is centrally installed in the network, for example an IP-PBX. See the example below for more information.

If the active WSG loses the connection to the network, the standby WSG will become active instead.

Figure 1 Illustration of using a centralized equipment as network reference

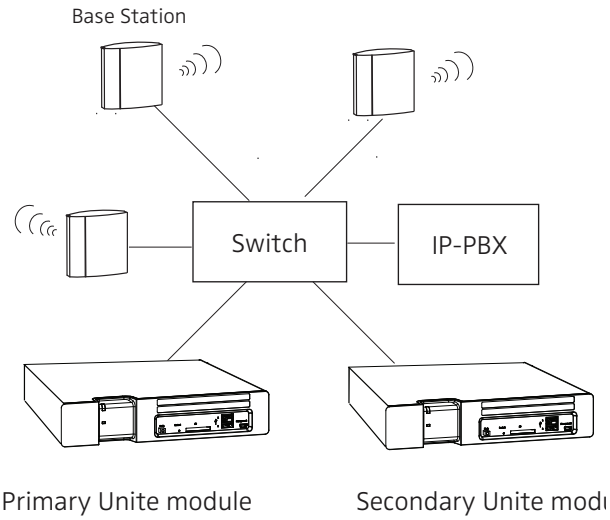


In <Link>figure 1, both the primary WSG module and the secondary WSG are using the IP-PBX as network reference since it is centrally installed in the network.

NOTE: The use of the network monitor function is optional[1], but it is strongly recommended to use when the modules are connected to different switches. If the function is disabled and the modules cannot communicate with each other, both modules might become active since they consider that the other module has failed. The result is that the one part of the system will write data to the primary WSG, and the other part will write data to the secondary WSG. This behavior is called “split brain behavior”.

1.By setting the Network monitor IP address to 127.0.0.1 disables the function.

Figure 2 Illustration of a network where no network monitoring is required.



If the primary WSG and secondary WSG are connected to the same switch (see <Link>figure 2), no equipment (for example an IP-PBX) is needed as network reference. If the secondary WSG do not receive any response from the primary WSG, the primary WSG has actually failed and the secondary WSG becomes active.

D.1 Fallback behavior when network monitoring is not used

If the primary WSG loses the connection to the LAN (the power source is still connected), the secondary WSG takes over as an active one. When the primary WSG is reconnected to the LAN, the system switches back to the primary WSG immediately.

If the primary module fails for other reasons than LAN disconnection, the secondary module will also take over, but the system will not switch back to the primary module automatically when it is repaired. In that case, fallback to the primary module has to be done manually.

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