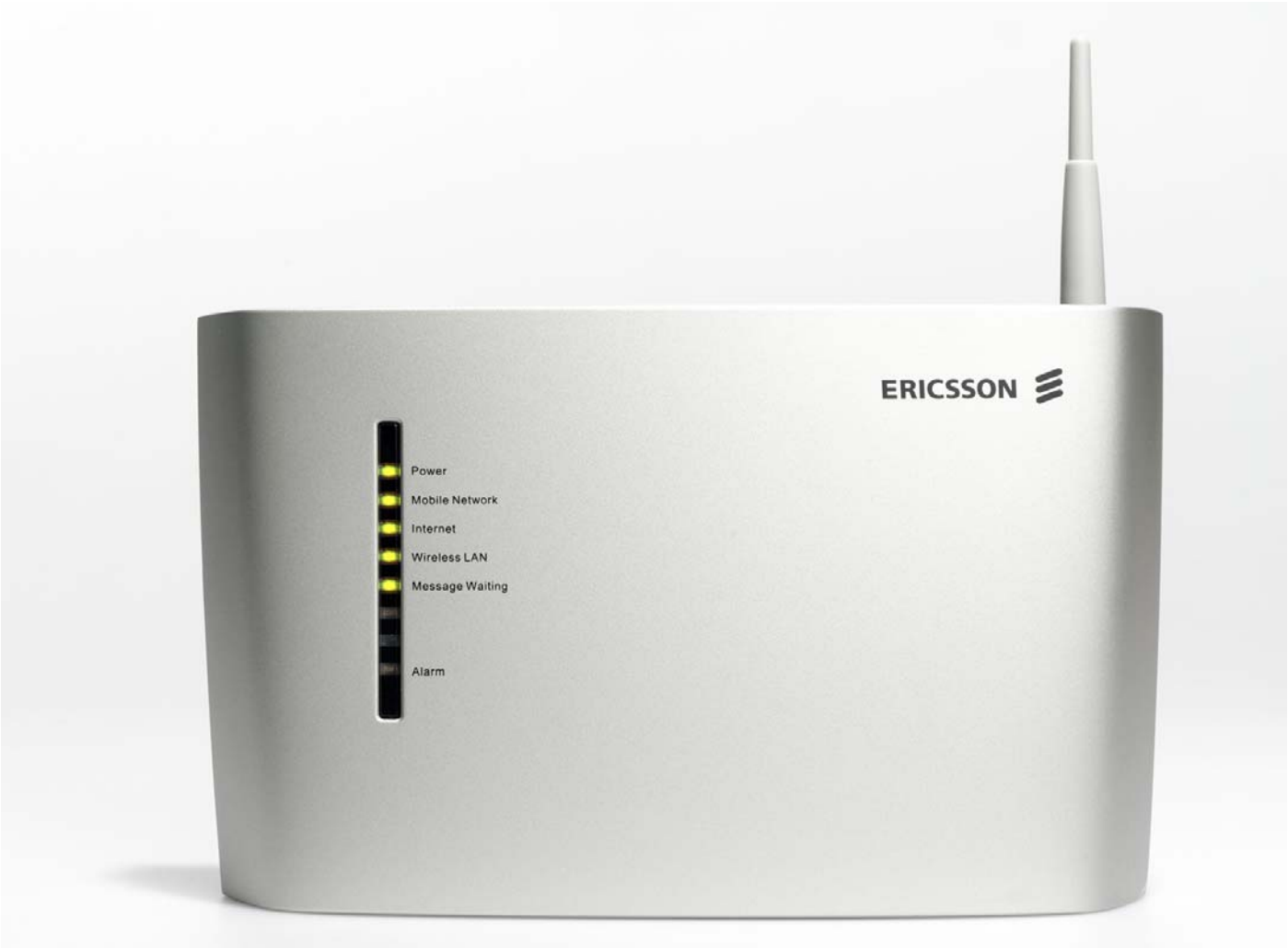
Ericsson W25

Fixed Wireless Terminal for WCDMA/HSDPA Mobile Networks

User's Guide



ERICSSON

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User's Guide

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Contents

1 Introduction

This chapter describes the structure of this guide and gives a brief product overview.

1.1 Structure of this Guide

This User's Guide contains information that is needed to configure and manage the Ericsson W25 Fixed Wireless Terminal (FWT). The following chapters are included:

- **Chapter 1** – "Introduction" – provides information about this guide and gives a brief product overview.
- **Chapter 2** – "Battery" – includes information about how to handle battery installation and charging.
- **Chapter 3** – "Telephony and Fax" – includes information about the telephony and fax function. It also includes instructions on how to enter the SIM authentication codes via a telephone handset.
- **Chapter 4** – "Configuration and Management" – provides detailed information about how to perform configuration and management of the Ericsson W25.
- **Chapter 5** – "PC Configuration" – gives instructions for configuring your computers to work with the Ericsson W25.
- **Chapter 6** – "Trouble-Shooting" – tells you how to solve a number of issues that could occur during installation, configuration, and use of the Ericsson W25.
- The **Glossary** includes abbreviations and explanations to technical terms used in this guide.

1.2 Product Overview

The Ericsson W25 FWT is an advanced small office and home router with wireless Internet access. The key benefits of the product are:

- **Wireless Broadband Services at Reliable High Speed**
  The Ericsson W25 uses WCDMA/HSDPA radio access to provide high-speed data capabilities to the local network.

- **Broad range of Voice Services**
  The Ericsson W25 includes voice capabilities accessed over standard analog telephone line interfaces. Network services such as Prepaid Subscription, CLIP, Call Waiting, Call Barring, Call Forwarding, and Multiparty Conference Calls are supported.

- **Fax**
  The Ericsson W25 has a fax functions over IP (T.38) using packet switched connection. Connect an ordinary fax to the Phone/Fax outlet on the back of the unit and the fax will work without further configurations. The operator needs to support a fax function over IP.

- **Advanced Networking**
  The Ericsson W25 supports an advanced local network setup. It provides IP routing, Ethernet switching, DHCP service, and NAT.

- **File and Printer Sharing**
  Network storage and printing are supported through USB connection of up to two mass storage devices and one printer at the same time.

- **Local Wireless Access with High-level Security**
  The Ericsson W25 is a WLAN access point for the wireless local network including WEP, WPA, and WPA2 with pre-shared keys for WLAN security.

Figure 1 Example of Ericsson W25 Network Connections

For more information about the Ericsson W25, see **www.ericsson.com/fwt**

1.2.1 Indicators and Connectors

The Ericsson W25 is equipped with six status indicators located on the front panel of the unit. A general description of each indicator is provided in the following table (from top to bottom):

Table 1 Front Panel Indicators

Text	Status	Description
Power	Green	Mains powered.
	Red	Battery powered.
	Unlit	Power is off.
Mobile Network	Green	Connection to a UMTS network.
	Red	Connection to a GSM network.
	Flashing	Searching for a connection.
	Unlit	No connection to the mobile network.
Internet	Green	Connection to Internet established.
	Unlit	No Internet connection.
Wireless LAN	Green	The Wireless LAN is active.
	Unlit	The Wireless LAN is inactive.
Message Waiting	Flashing	New voice mail message(s) received.
	Unlit	No new voice mail messages.
Alarm	Red	Various error conditions specified on the W25 **Overview** web page.
	Unlit	No error.

The Ethernet LAN connectors (**LAN1**- **LAN4**) on the connectors' panel have two built-in indicators each.

The left indicator shows the speed of data traffic between the Ericsson W25 and the connected client. If the speed is 100 Mbps, the indicator is green. When the indicator is unlit, the speed is 10 Mbps.

The indicator to the right is green when a LAN connection is established and flashes to show data traffic activity.

The connectors on the Ericsson W25 are positioned as shown in the following illustration:

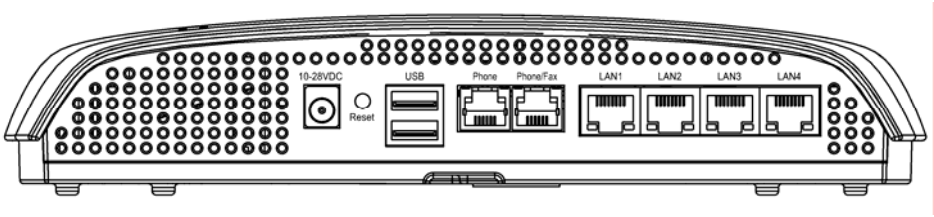


Figure 2 Connectors panel

A description of each connector is provided in the table below (from left to right):

Table 2 Connectors

Label	Description
10-28 VDC	Power input for connecting the power supply adapter.
Reset	Button used to restore the Ericsson W25 configuration to factory default settings. The following procedure resets all configurable values back to factory default, including the Ericsson W25 login user name and password. 1. Disconnect the power cable from the W25 unit. If the battery is used as power supply, remove battery before the reset. 2. Press and hold the **Reset** button with the tip of a pen and then reconnect the power cable. Keep the button pressed for at least 20 seconds. 3. The Ericsson W25 restarts and comes online with the factory default settings.
USB	USB connectors, for connecting Ericsson the W25 to a USB printer.
Phone	Telephone connector, for connecting the Ericsson W25 to one telephone. Max three telephones can be connected in a series to avoid telephone functions interruptions.
Phone/Fax	Telephone/Fax connector, for connecting the Ericsson W25 to one telephone or one fax.
LAN 1 - 4	Ethernet LAN connectors (RJ45), for connecting the Ericsson W25 to client PCs or an Ethernet switch/hub.

2 Battery

The Ericsson W25 can be fitted with a rechargeable battery to provide redundancy in case of a power failure. When main powered, the Ericsson W25 will keep the battery charged.

Note: The battery is not fully charged when delivered. The charging time for an empty battery is about 4 hours. The battery will not charge if the environment temperature is above 40 degrees Celsius, due to over heating protection.

2.1 Installation of the Battery

The battery is available as an accessory and is facilitated within the unit. Insert the battery into the battery compartment and connect the battery cable into the unit's connector.

2.2 Battery Function

If a power failure occurs the unit will automatically switch over to battery operation. In order to extend the battery time only voice services will be available. Data services, such as USB, Ethernet and Wireless LAN functions will be unavailable. Power indicator is red when powered by battery.

The unit’s stand by time is up to 8 hours if no telephone calls are made. Talk time is up to 3 hours. Battery time depends on mobile network signal strength, battery age, and environmental temperature.

3 Telephony and Fax

The Ericsson W25 can be connected to a telephone and/or a fax via the Phone or Phone/fax outlet on the back of the Ericsson W25 unit. The telephony and the fax will work without any further configurations. The operator needs to support a fax function over IP.

If you experience problems see the trouble shooting sections 6.5 – “Telephony Service not Working” or 6.6 – “Fax Service not Working”.

Note: Allow approximately two minutes for the W25 startup.

3.1 SIM Authentication

The service provider provides you with a SIM card. This SIM card contains information about the subscription and is normally protected by a PIN (Personal Identification Number) and a PUK (Personal Unblock Key) code.

Note: Emergency calls (i.e. 112 or 911) can always be made, even without a SIM card or the correct PIN code.

Normally, you have to enter the PIN to activate the Ericsson W25 Internet and voice services. In some cases however, authentication is not required and it is possible to use the services without entering any PIN.

Follow the instructions in the **Quick Installation Guide** and insert the SIM card into the Ericsson W25. When the installation is finished, you can either enter the PIN via a phone connected to the Ericsson W25, or via the Ericsson W25 internal web pages (see section 4.3.1 – “Internet Access” or 4.4.2 – “Authentication”).

Follow the steps below to enter the PIN using a phone connected to the Ericsson W25. The “PIN required” and “PUK required” tones are described in *Table 3 – “Information Tones”* on the next page.

1. Pick up the telephone handset. If you hear the dial tone, you do not need to enter any PIN. If you hear the specific “PIN required” tone, proceed to step 2.

2. Dial ***** **<PIN>** #

   If the PIN is correct, you will hear the normal dial tone, which indicates

that the voice service is activated and that it is possible to make phone calls.

If the PIN is incorrect, you will hear the “PIN required” tone again. Repeat step 2.

Note: If three attempts have been made with an incorrect PIN, the SIM card is blocked and you will hear a new tone, indicating that the PUK is required to unblock the SIM card.

To unblock the SIM card, dial the following sequence:

*** <PUK> * <new PIN> * <new PIN> #**

If the PUK is correct and the new PIN codes agree, you will hear the normal dial tone, which indicates that the voice service is activated and that it is possible to make phone calls. Remember the new PIN for future use.

If the PUK is incorrect or the new PIN codes do not agree, you will hear the “PUK required” tone again. Repeat the “unblock SIM card” sequence above.

Note: If ten attempts have been made with an incorrect PUK, the SIM card is permanently blocked and a new SIM card is required. Contact your service provider.

3.2 Information Tones

The Ericsson W25 generates information tones in your telephone handset, thus providing the same characteristics as the one given by the traditional fixed line network.

The following table describes the nature of the unique information tones you will get when using the Ericsson W25.

Table 3 Information Tones

Name	Nature	Description
PIN required	▬▬▬▬▬ 50 ▬▬▬▬▬ 50 200 200 Repeating 200 ms tone at regular 50 ms intervals.	SIM authentication is required to enable the voice service.
PUK required	▬▬ 50 ▬▬ 50 50 50 Repeating 50 ms tone at regular 50 ms intervals.	The SIM card is blocked. The PUK and a new PIN are required to unblock the SIM card.

4 Configuration and Management

Follow the instructions in the **Quick Installation Guide** to install the Ericsson W25. When the installation is finished, the Ericsson W25 internal web pages are available for configuration and status control. This chapter provides detailed information about configuration and management of the Ericsson W25 using the web pages.

The Ericsson W25 web user interface is available in four languages; English, German, Spanish and French. Click on corresponding country flag on the left hand in the web user interface to change to preferred language.

The Ericsson W25 supports the following web browsers:

- Internet Explorer® 5.0 or higher
- Safari® 1.3 or higher
- Firefox® 1.0 or higher
- Opera® 8 or higher

4.1 Accessing Internal Web Pages

Start a web browser and type **http://192.168.1.1** in the **Address** (URL) field. The Ericsson W25 **User login** page is displayed.

Note: If you change the Ericsson W25 internal IP address, you have to use the new address to access the web pages.

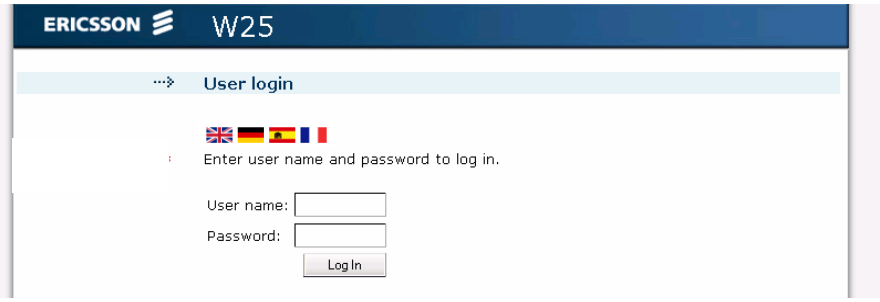


Figure 3 User Login page

The default login user name and password are both “user”. You are recommended to change the password, see section 4.2.1 – “Changing Password”.

Type **`user`** in both the **User name** and **Password** fields. Click **Log In**. The **Overview** page is displayed:

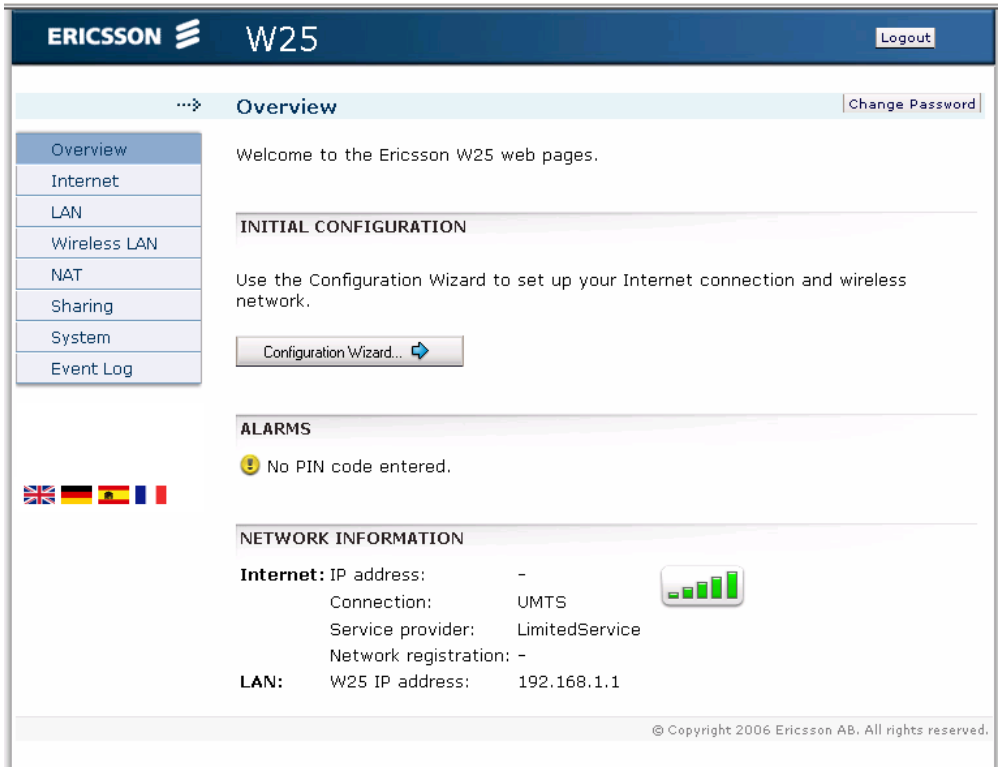


Figure 4 Overview page

The left-hand menu includes configuration topics described one by one in the following sections.

Apart from the links menu to the left, each web page includes a **Logout** button to make it possible to log out whenever it is desired.

If the web pages are not used for 15 minutes, you are automatically logged out. This is preceded by a notification, displayed on top of the page one minute before the logout.

4.2 Overview Page

The **Overview** page includes the possibility to change password, the entrance to the Configuration Wizard (see section 4.3 – “Configuration Wizard”) alarm information, and basic network information.

4.2.1 Changing Password

The default Ericsson W25 login password is “user”. You are recommended to change the default password.

1. Click **Change Password** on the **Overview** page. The **Change Password** page is displayed:

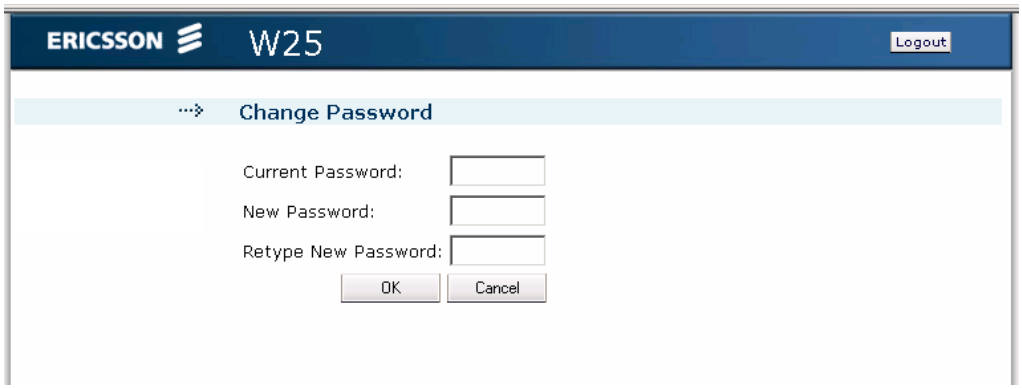


Figure 5 Change Password page

2. Type the old password in the **Current Password** field. If it is the first time you change password, the old password is **`user`**.
3. Type the new password in the **New Password** and **Retype New Password** fields.

   Note: The password is case-sensitive (distinguish between uppercase and lowercase letters) and can include up to eight characters (letters and/or numbers).

4. Click **OK**.

4.2.2 Alarms

Alarms are generated when it is impossible to send or receive data. The alarms are displayed in the **Alarms** section on the **Overview** page. If there are no alarms currently detected the text "`No alarms detected`" is displayed. If an alarm is detected, the **Alarm** indicator on the Ericsson W25 front panel is lit (red), and the corresponding cause is displayed according to the table below:

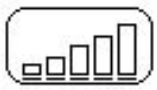
`No SIM card detected`	There is no SIM card inserted, or the SIM card is incorrectly inserted correctly.

Invalid SIM card inserted	The inserted SIM card is not valid
No PIN code entered	No PIN code has been entered to activate the Internet and voice services.
Incorrect PIN code entered	The entered PIN code is not the correct one.
SIM card blocked	The SIM card is blocked. The PUK is required to unblock the SIM card.
SIM card permanently blocked	The SIM card cannot be unblocked. A new SIM card is required.
Alarm detection not working	The Ericsson W25 alarm detection function is not working.
Unknown alarm	The Ericsson W25 cannot identify the alarm.

4.2.3 Network Information

The **Network Information** section on the **Overview** page includes a selection of the Internet and LAN settings. These are also displayed on the **Internet** and **LAN** pages respectively.

The **Internet** information includes connection status and basic settings. Details about the following items are displayed:

	The mobile network (UMTS or GSM) signal quality available at the Ericsson W25 location. This signal quality affects the performance of the unit. If two or more bars are green, the connection is usually acceptable.
IP Address	The IP address automatically assigned to the Ericsson W25 by the mobile network.
Connection	The radio access technique currently used to enable Internet access. It can be HSDPA, UMTS, EDGE, or GPRS.
Service provider	The name of or other reference to the mobile network operator.
Network registration	The current mobile network registration status: - Not registered, not searching - Registered, home network

```
- Searching
- Registration denied
- Unknown
- Roaming
- Limited Service
```

The **LAN** (Local Area Network) section includes information about the following item:

W25 IP Address The LAN IP address of the Ericsson W25.

4.3 Configuration Wizard

The Configuration Wizard guides you step by step through the basic setup of the mobile network connection and optionally for the Wireless LAN access point.

Click **Configuration Wizard…** on the **Overview** page to start the wizard. The first page of the wizard; **Internet Access: SIM Authentication** is displayed:

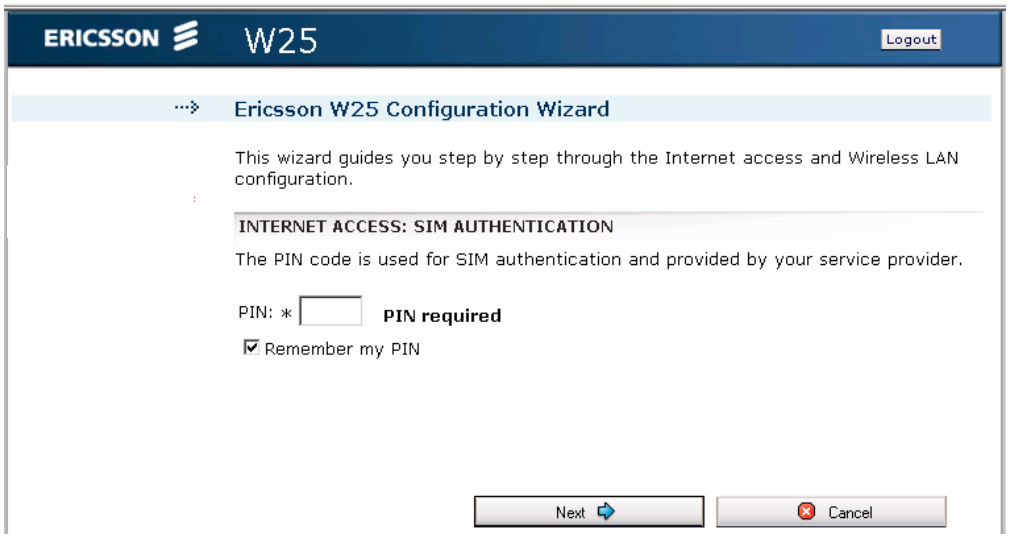


Figure 6 Internet Access: SIM Authentication page

4.3.1 Internet Access

The first part of the Configuration Wizard includes Internet authentication. Depending on the current Internet service setup, the requests on authentication may differ. The service provider provides the required authentication details.

Note: Only enter details that you have received from your service provider and leave other fields empty.

SIM Authentication

The service provider provides you with a SIM card. This SIM card contains information about the subscription and is normally protected by a PIN (Personal Identification Number) and a PUK (Personal Unblock Key) code.

Note: Emergency calls (i.e. 112 or 911) can always be made, even without a SIM card or the correct PIN code.

Normally, you have to enter the PIN to activate the Ericsson W25 data and voice services. In some cases however, authentication is not required and it is possible to use the services without entering any PIN.

You can either enter the PIN via a phone connected to the Ericsson W25 (see section 3.1– “SIM Authentication”) or via the Ericsson W25 internal web pages.

To enter the PIN via the Configuration Wizard, type the PIN in the **PIN** field on the **Internet Access: SIM Authentication** page, see Figure 6. Thereafter, you can select the **Remember my PIN** check box. This makes SIM authentication automatic and you will not have to enter the PIN in case of a system restart. Click Next to proceed.

Unblock SIM card

If three attempts have been made with an incorrect PIN, the SIM card is blocked. The PUK is required to unblock the card. Click **Unblock SIM**. The **Unblock SIM** page is displayed:

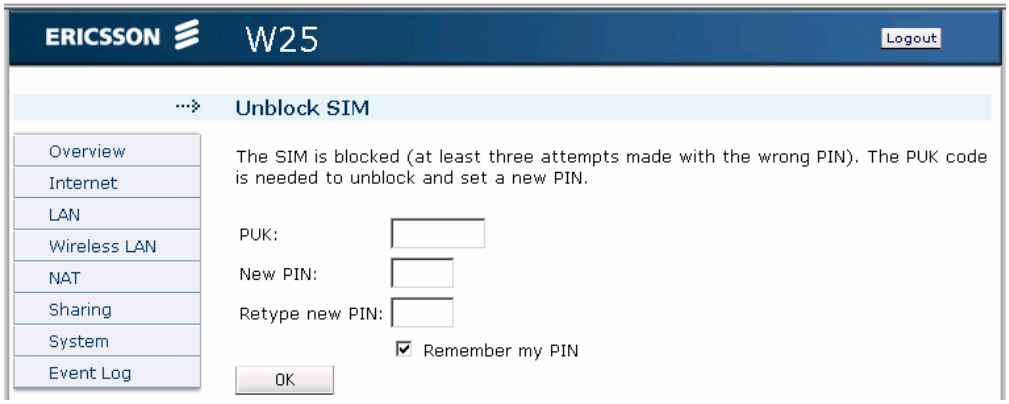


Figure 7 Unblock SIM page

Type the PUK in the **PUK** field and type a new PIN in the **New PIN** and **Retype new PIN** fields. Click **OK**. The **Internet** page is displayed. Go to the **Overview** page and click **Configuration Wizard…** to restart the wizard.

Note: If ten attempts have been made with an incorrect PUK, the SIM card is permanently blocked, and a new SIM card is required.

APN

An APN (Access Point Name) is a reference to the Internet access point on the service provider's network. It usually has the format <name.service_provider.country>. Different APNs for the GSM (2G) and UMTS (3G) networks may be required.

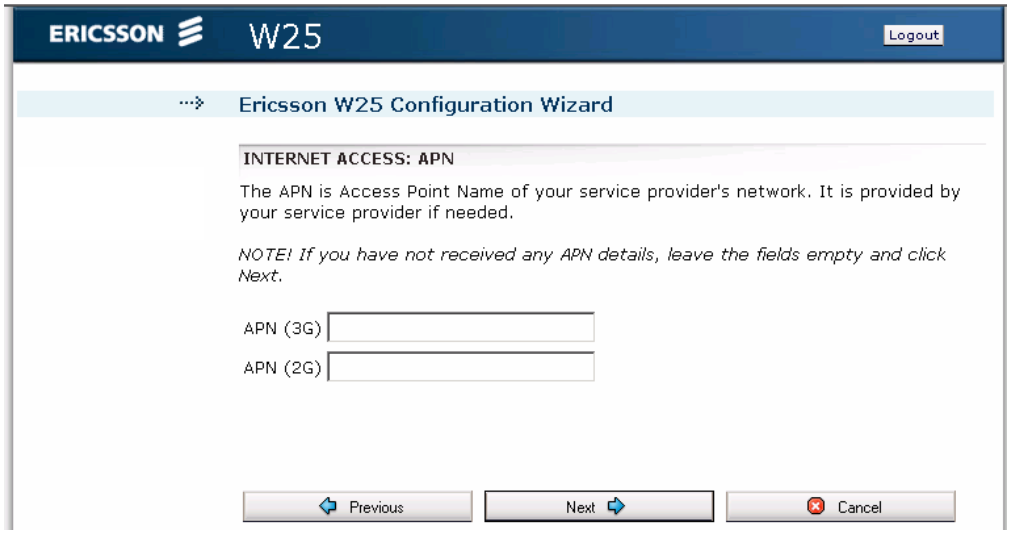


Figure 8 *Internet Access: APN page*

Type the APN(s) in the **APN (2G)** and **APN (3G)** fields on the **Internet Access: APN** page. Click **Next** to proceed.

PPP User Authentication

The PPP (Point-to-Point Protocol) Internet mode may require individual user authentication.

Note: If you have not received any PPP Authentication details from your service provider, leave the fields empty and click next.

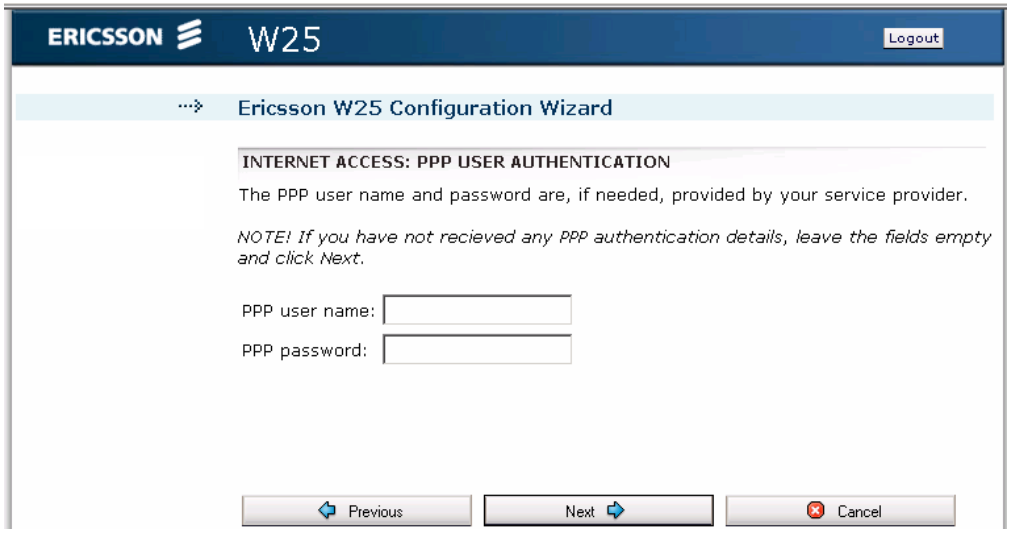


Figure 9 *Internet Access: PPP User Authentication page*

Type the **PPP user name** and **PPP password** fields on the **Internet Access: PPP User Authentication** page. Click **Next** to proceed.

4.3.2 Wireless LAN Access

The second part of the Configuration Wizard includes configuration of the Wireless LAN (WLAN). A Wireless LAN is a local network that communicates through wireless connections.

Note: The wireless setup typically requires configuration of both the Ericsson W25 and the wireless clients. For more information about configuring wireless clients, see 5.2 – “Wireless LAN Settings”.

Access Point

The Ericsson W25 is a WLAN Access Point (AP) for the local network providing the wireless client(s) with Internet and LAN access.

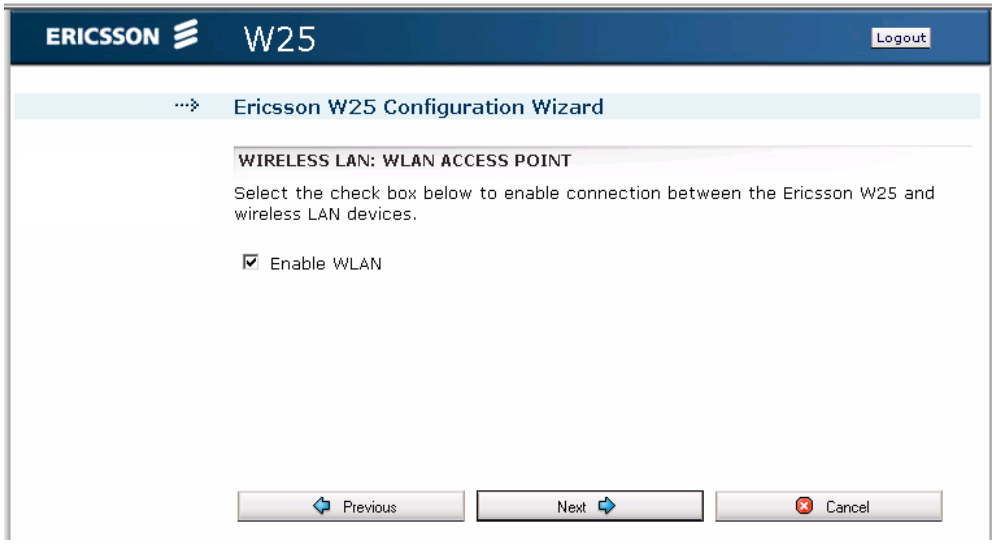


Figure 10 Wireless LAN: WLAN Access Point page

To enable connection of one or more wireless devices to the Ericsson W25, select the **Enable WLAN** check box on the **Wireless LAN: WLAN Access Point** page and click **Next** to proceed. The **Wireless LAN: Region** page is displayed, see Figure 12.

Note: The WLAN interface will not be activated until the complete configuration details are entered.

If you are not going to set up any Wireless LAN, just click **Next** on the **Wireless LAN: WLAN Access Point** page. The last page of the wizard, where you can review and confirm your settings, is displayed:

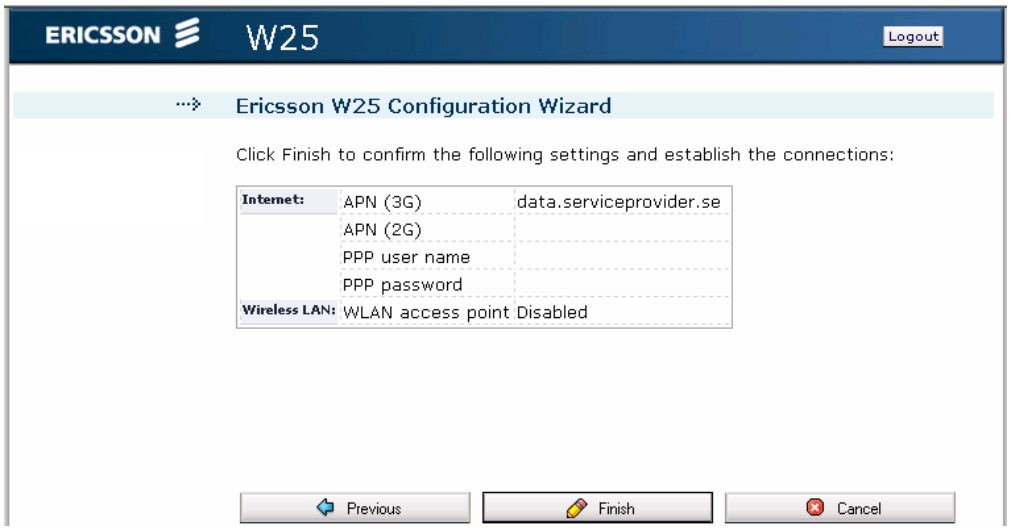


Figure 11 Confirm page

Confirm the settings by clicking **Finish**.

Region

To make sure the Ericsson W25 operates on correct radio frequencies according to local regulations, you have to state in which region you reside. After this you cannot select any radio channel that would be against the regulations.

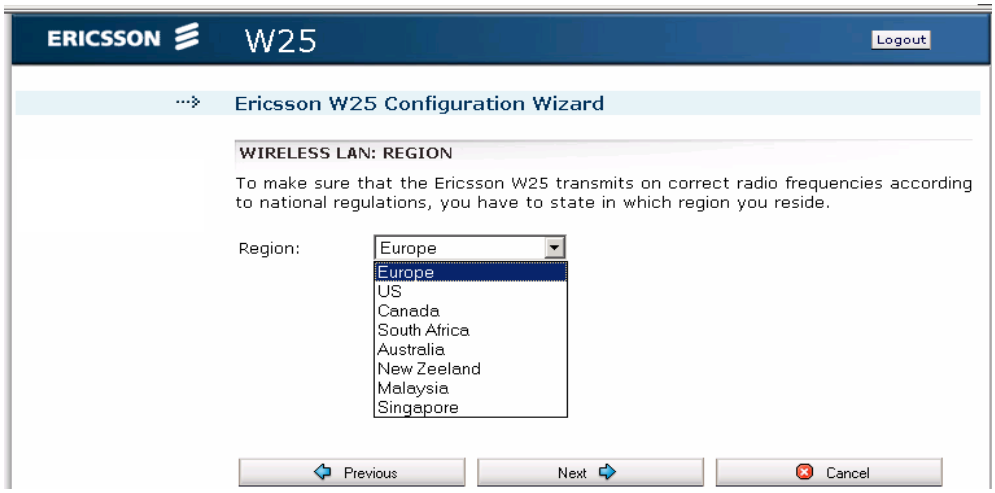


Figure 12 Wireless LAN: Region page

Select your country domain from the **Region** list on the **Wireless LAN: Region** page and click **Next** to proceed.

Channel Selection

The maximum number of regulatory channels to use for wireless communication is 13. Available channels depend on local regulations. You can select one of the available channels yourself, or let the Ericsson W25 automatically select a channel.

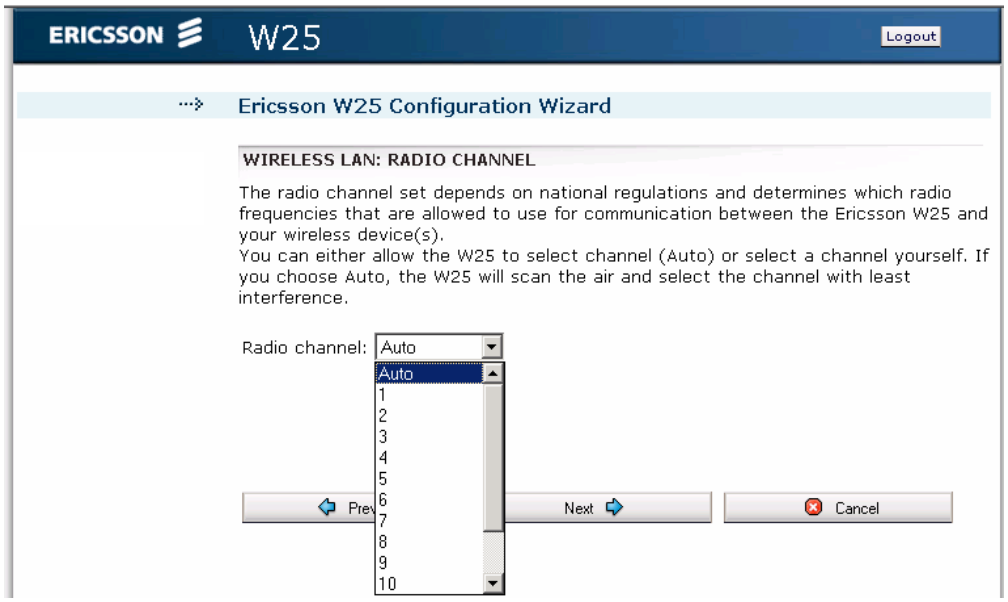


Figure 13 Wireless LAN: Radio Channel page

Select either **Auto** (recommended) or a channel number from the **Radio channel** list on the **Wireless LAN: Radio Channel** page. Click **Next** to proceed.

Network Name

All devices on the local wireless network share a common Service Set IDentifier (SSID) or network name. This name is required to establish connection between the Ericsson W25 and the wireless client(s), and to distinguish the wireless network from any other(s) that may be in use nearby. Only devices configured with the same network name as the one set on the Ericsson W25 can obtain access to it.

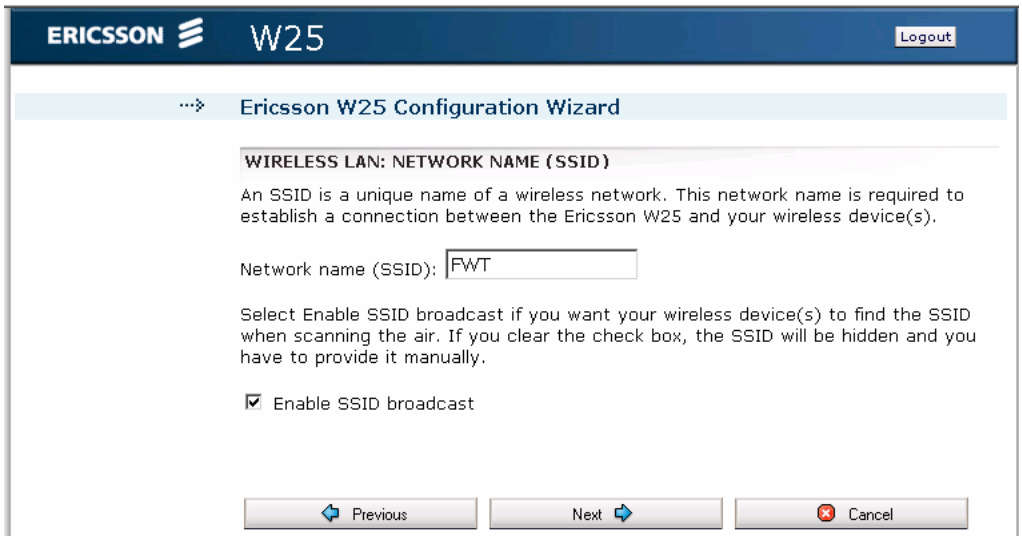


Figure 14 Wireless LAN: Network Name (SSID) page

The network name is case-sensitive (distinguish between uppercase and lowercase letters) and can be changed to any combination of numbers (0 – 9), letters (a – z), and hyphens (-) with a maximum length of 32 characters. Type the new name in the **Network name (SSID)** field on the **Wireless LAN: Network Name (SSID)** page.

If the SSID broadcast option is enabled, your local wireless device(s) will find the network name when scanning the air. If the option is disabled, the network name is hidden and has to be manually provided to the wireless device(s). To disable network name broadcast, clear the **Enable SSID broadcast** check box on the **Wireless LAN: Network Name (SSID)** page.

Click **Next** to proceed.

Authentication

The wireless data transmissions can be protected from potential intruders and eavesdroppers through standard authentication and encryption methods. Authentication is used to restrict access to the wireless network. Encryption is the translation of data into a form that cannot be easily understood by unauthorized users. The encrypted data can only be sent and received by users with access to a private encryption key.

WEP (Wired Equivalent Privacy) is considered to be a low security option. WEP encrypted data is translated into blocks of either 64 bits length or 128 bits length.

WPA (Wi-Fi Protected Access) and its successor WPA2 are the most reliable security options. WPA encryption uses the Temporal Key Integrity Protocol (TKIP) while WPA2 encryption follows the Advanced Encryption

Standard (AES). AES offers a higher level of security and is approved for sensitive corporate and government data transmission.

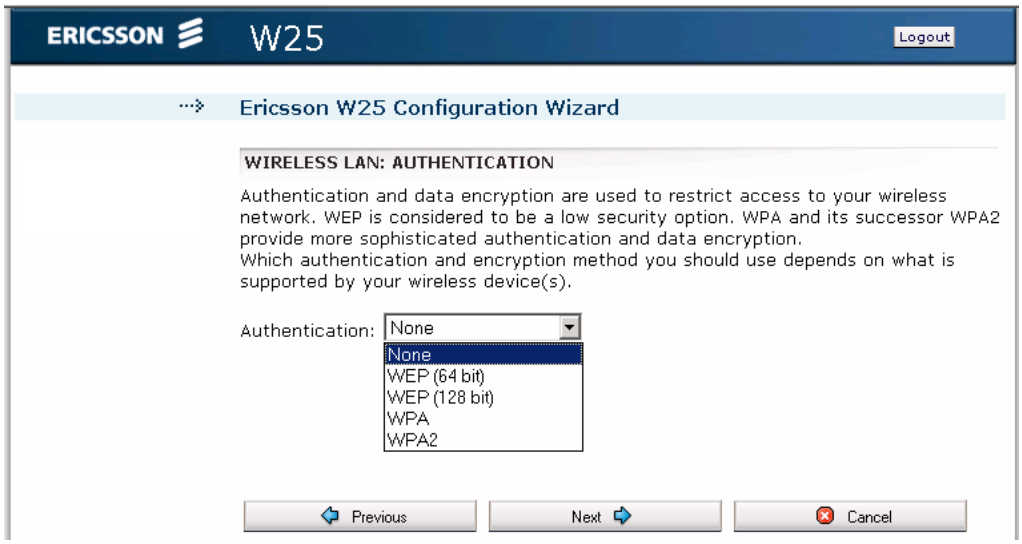


Figure 15 Wireless LAN: Authentication page

Note: Make sure that the operating system(s) and Wireless LAN interface(s) of the wireless client(s) support the selected authentication method.

Select one of the authentication methods from the **Authentication** list on the **Wireless LAN: Authentication** page. Click **Next** to proceed.

If you select **None**, the last page of the wizard, where you can review and confirm your settings, is displayed:

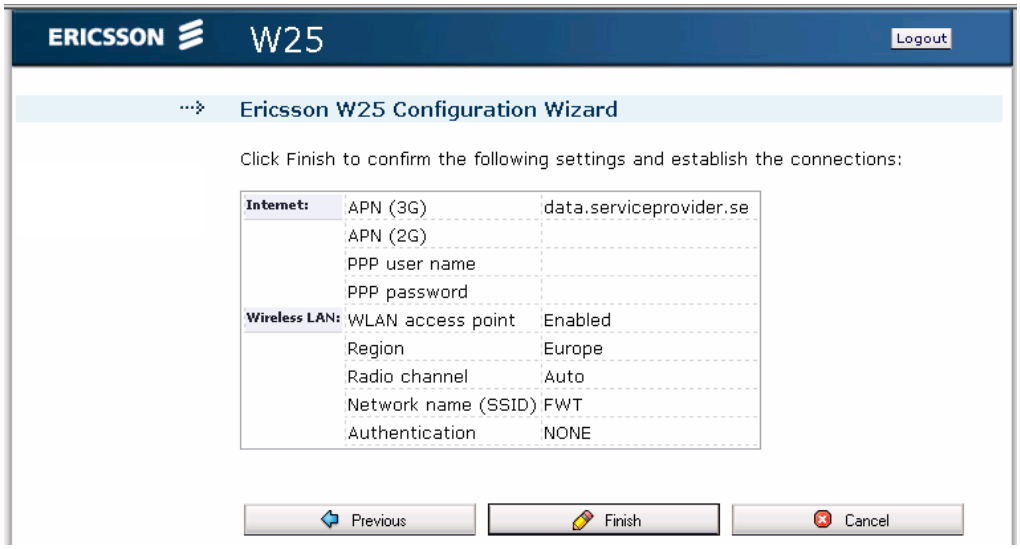


Figure 16 Confirm page

Check the information on this page and click **Finish** to confirm the settings.

If you select **WEP (64 bit)**, the **Wireless LAN: WEP (64 BIT)** page is displayed, see Figure 17.

If you select **WEP (128 bit)**, the **Wireless LAN: WEP (128 BIT)** page is displayed, see Figure 18.

If you select **WPA**, the **Wireless LAN: WPA** page is displayed, see Figure 19.

If you select **WPA2**, the **Wireless LAN: WPA2** is displayed, see Figure 20.

WEP Encryption Key

The WEP encrypted data can only be sent and received by users with access to a private encryption key. This means that each device on your wireless network has to be configured with the same key as the Ericsson W25 in order to allow encrypted data transmissions.

A 64-bit data encryption key includes 10 characters. A 128-bit data encryption key includes 26 characters. Only the hexadecimal numbers 0 to 9 and letters A to F are allowed.

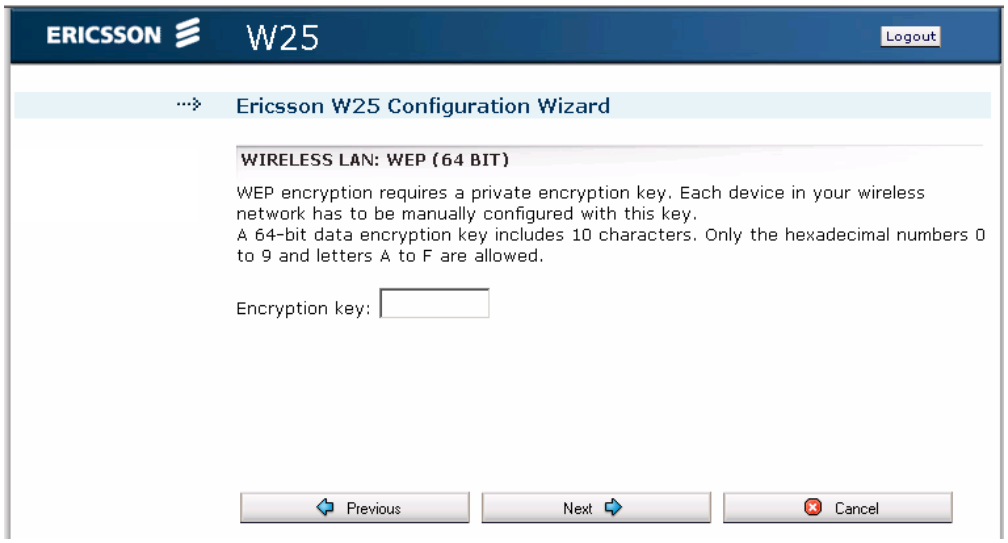


Figure 17 Wireless LAN: WEP (64 BIT) page

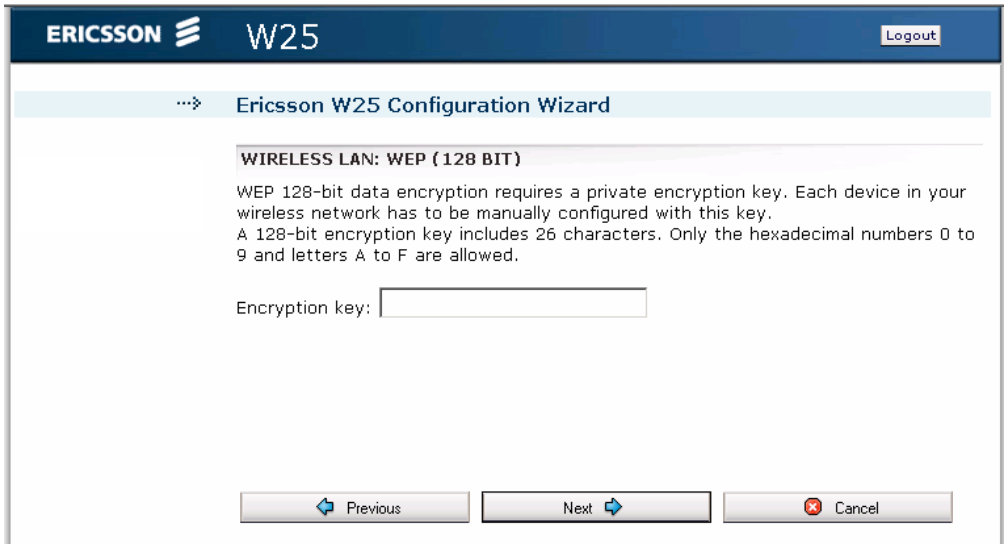


Figure 18 Wireless LAN: WEP (128 BIT) page

Fill in the **Encryption key** field on the **Wireless LAN: WEP (64 BIT)** page or the **Wireless LAN: WEP (128 BIT)** page. Click **Next** to proceed.

WPA/WPA2 Passphrase

WPA and WPA2 authentication and encryption require a passphrase. Each device on your wireless network has to be configured with the same passphrase as the Ericsson W25. The encryption master key is derived from the passphrase and the network name (SSID) of the device.

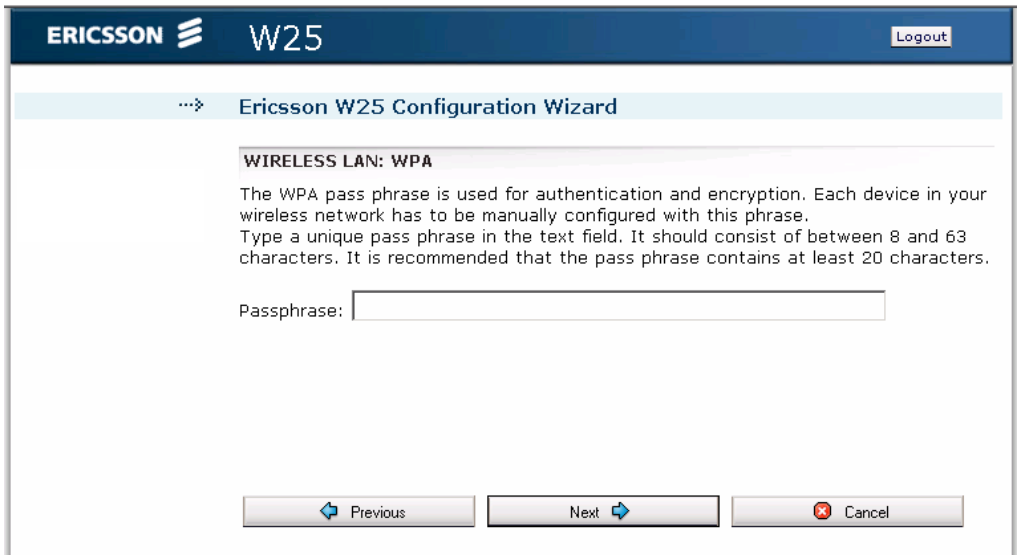


Figure 19 Wireless LAN: WPA page

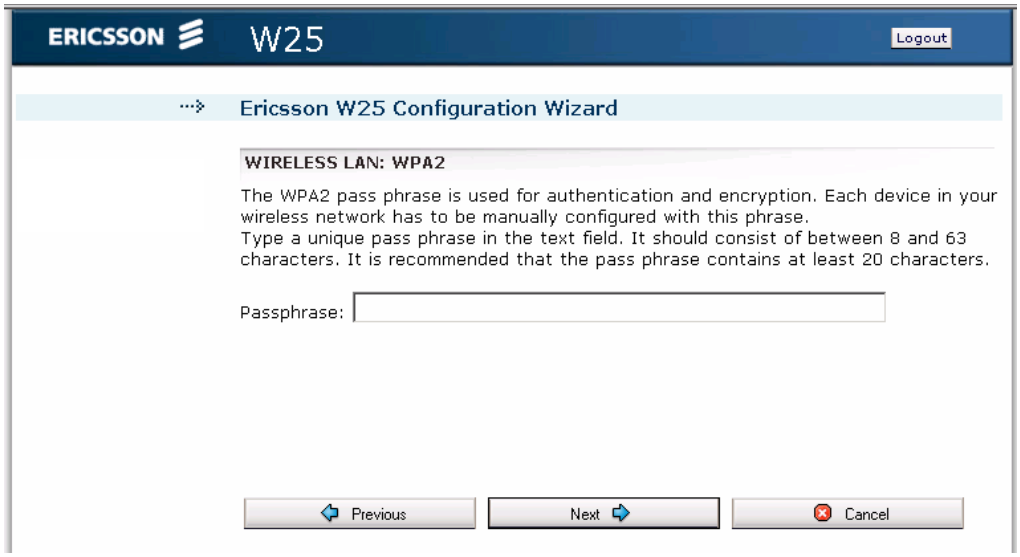


Figure 20 Wireless LAN: WPA2 page

On the **Wireless LAN: WPA** or **Wireless LAN: WPA2** page, type a unique passphrase in the **Passphrase** field. A WPA or WPA2 passphrase is case sensitive and consists of between 8 and 63 optional characters. It is

recommended that the passphrase contains at least 20 characters. Click **Next** to proceed.

Confirming Settings

On the last page of the Configuration Wizard, the Internet and Wireless LAN settings are displayed:

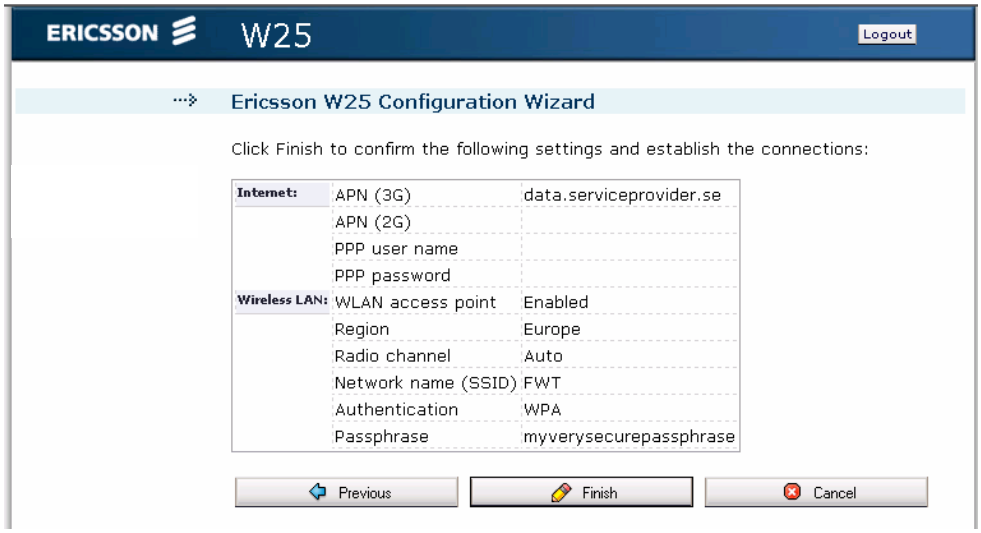


Figure 21 Confirm page

Confirm the settings by clicking **Finish**.

4.4 Internet

The Ericsson W25 connects to the Internet through mobile (radio) communication using the UMTS (3G) network. If the UMTS network is not available, the GSM (2G) network is used as fall-back. Connection details are displayed on the **Internet** page:

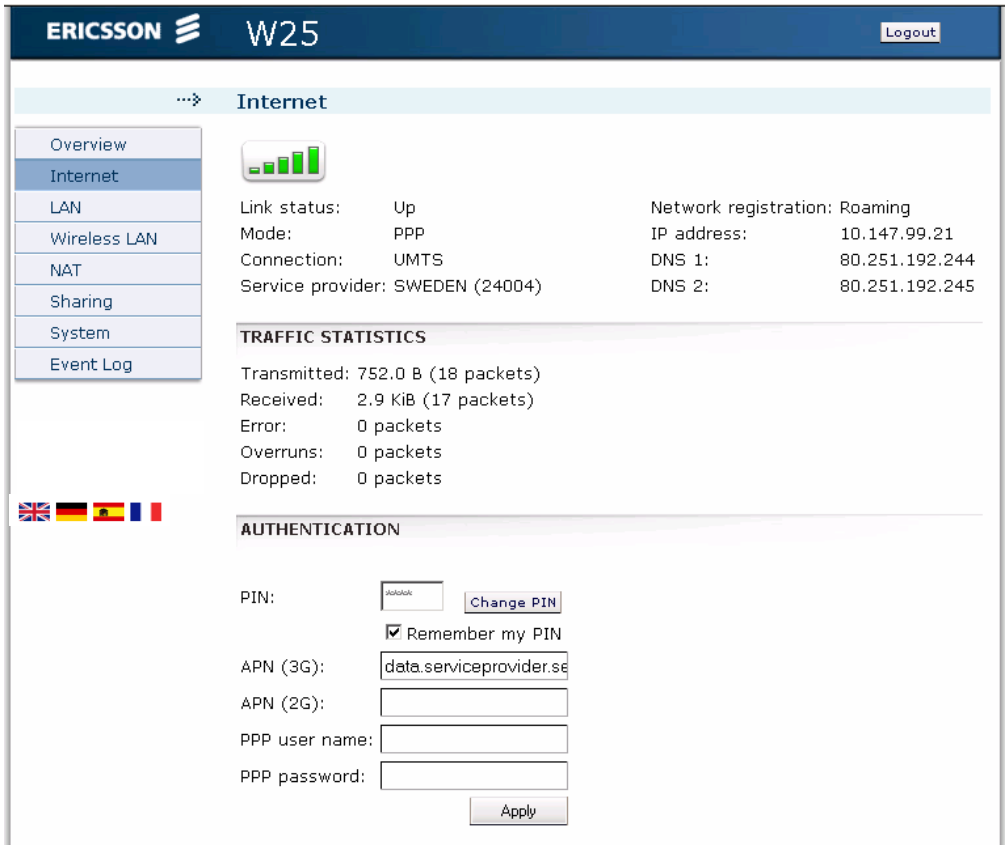


Figure 22 Internet page

The following information is displayed on the **Internet** page:

The mobile network (UMTS or GSM) signal quality available at the Ericsson W25 location. This signal quality affects the performance of the unit. If two or more bars are green, the connection is usually acceptable.

Link Status The Internet access status, either `Up` or `Down`. If the link is up, connection is established.

Mode The protocol used for the Internet data traffic: `PPP` (Point-to-Point Protocol).

Connection The radio access technique currently used to enable Internet access. It can be `HSDPA`, `UMTS`, `EDGE`, or `GPRS`.

Service provider	The name of, or other reference to the mobile network operator.
Network registration	The current mobile network registration status, which can be one of the following: - Not registered, not searching - Registered, home network - Searching - Registration denied - Unknown - Roaming - Limited Service
IP Address	The IP address automatically assigned to the Ericsson W25 by the mobile network.
DNS 1	The IP address to the primary DNS server.
DNS 2	The IP address to the secondary DNS server.

4.4.1 Traffic Statistics

The **Traffic Statistics** section includes information about the following items:

Transmitted	The total size (and number) of transmitted data packets.
Received	The total size (and number) of received data packets.
Error	The number of invalid data packets.
Overruns	The number of packets lost due to too many incoming data packets.
Dropped	The number of dropped data packets.

Note: The data size and packet counters have the upper limits of 4 GiB and 2^{32} packets (more than 4 billion packets). When these limits have been reached, the counters wrap around to zero.

4.4.2 Authentication

Internet access requires authentication of the Ericsson W25. Depending on the current Internet service setup, the authentication requests may differ. Your service provider provides the Ericsson W25 SIM card and details needed for authentication.

The following authentication details may be required:

PIN	The Personal Identification Number, which is used for SIM authentication.
Remember my PIN	If enabled, SIM authentication is automatic and you will not have to enter the PIN in case of a system restart.
APN (3G)	The 3G Access Point Name, which is a reference to the UMTS Internet access point on the service provider's network. The APN usually has the format <name.service_provider.country>.
APN (2G)	The 2G Access Point Name, which is a reference to the GSM Internet access point on the service provider's network. The APN usually has the format <name.service_provider.country>.
PPP user name	The Point-to-Point Protocol Internet mode user name, which is used for user authentication.
PPP password	The Point-to-Point Protocol Internet mode password, which is used for user authentication.

If you have not used the Configuration Wizard for configuration of Internet access, or authentication is required because of a reset to factory default configuration, fill in the **PIN**, **APN (2G)**, **APN (3G)**, **PPP user name**, and **PPP password** fields. For automatic SIM authentication in case of a system restart, select the **Remember my PIN** check box. Click **Apply**.

Note: Only enter requested details that you have received from your service provider and leave other fields empty.

Unblocking SIM Card

If three attempts have been made with the wrong PIN, the SIM card is blocked. The PUK is required to unblock the card. Click the **Unblock SIM** button that will be displayed beside the **PIN** field. The **Unblock SIM** page is displayed:

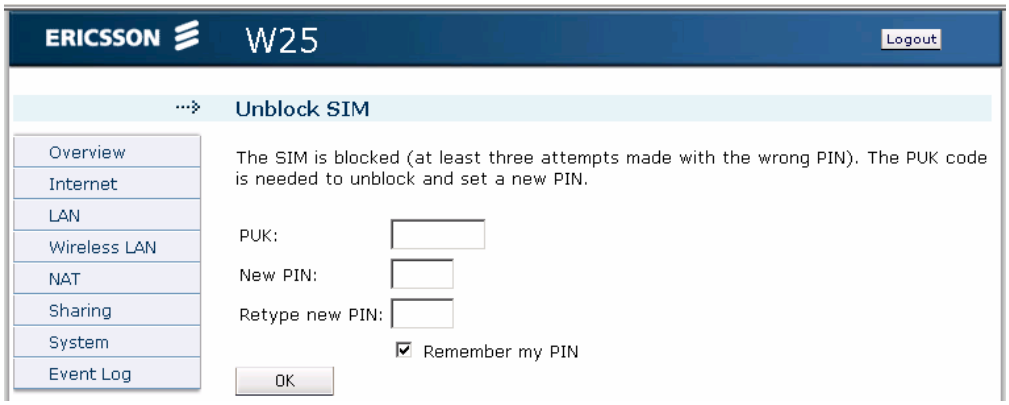


Figure 23 Unblock SIM page

Type the PUK in the **PUK** field and type a new PIN in the **New PIN** and **Retype new PIN** fields. Click **OK**.

Note: If ten attempts have been made with an incorrect PUK, the SIM card is permanently blocked, and a new SIM card is required.

Changing Authentication Details

If SIM authentication is verified, you cannot edit the **PIN** field. To change PIN, click **Change PIN**. The **Change PIN** page is displayed:

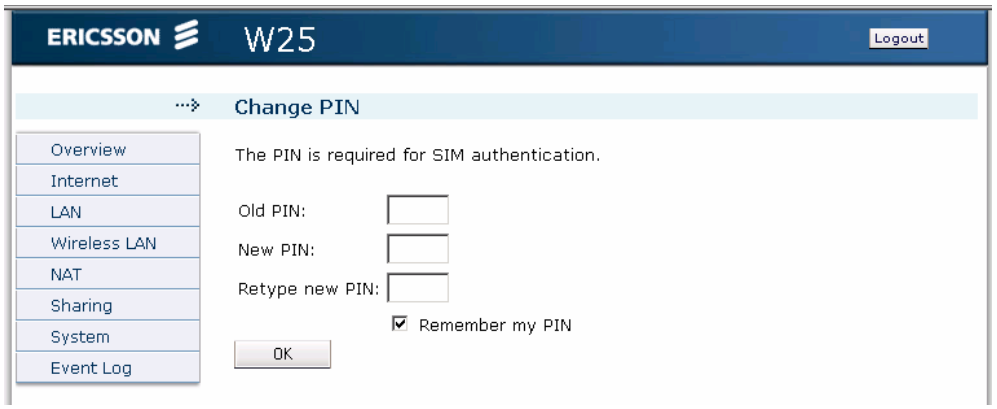


Figure 24 Change PIN page

Type the current and new PIN in the corresponding fields and click **OK**.

If you want to change the APN, PPP user name, or PPP password, type the new value in the corresponding field on the **Internet** page and click **Apply**.

4.5 LAN

The LAN (Local Area Network) configuration includes the details of the connections between the Ericsson W25 and other local devices.

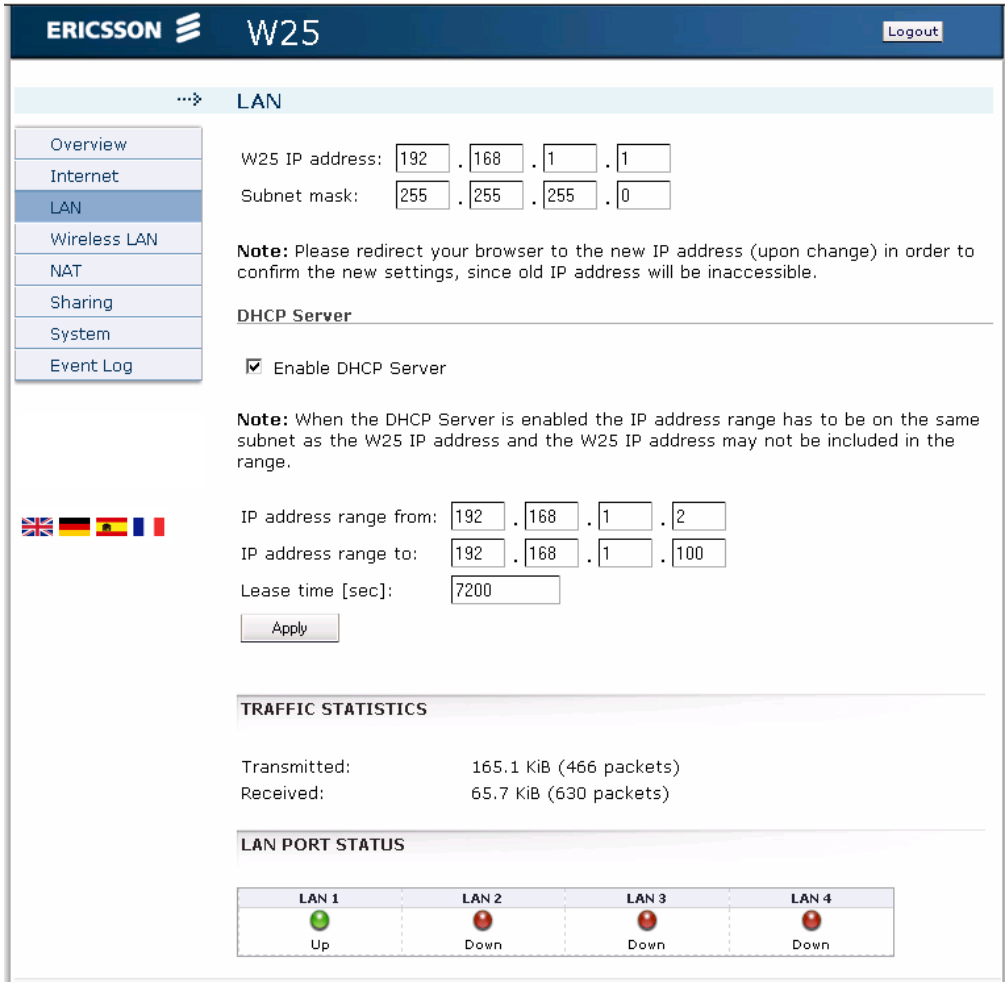


Figure 25 LAN page

The following information and configuration options are displayed on top of the **LAN** page:

W25 IP address	The LAN IP address of the Ericsson W25.
Subnet mask	The subnet mask, which determines the range of IP addresses on the subnet.

If you want to change the W25 IP address, make sure that the new address is not included in the DHCP server IP address range, displayed in the **DHCP Server** section. The default range is 192.168.1.2 – 192.168.1.100.

Before you change the W25 IP address or subnet mask you also have to make sure that the DHCP server IP address range is included in the new subnet. If you want to change the subnet not to include the DHCP IP address range, you first have to disable the DHCP server.

If port forwarding is configured, those settings have to be removed before changing the W25 IP address or subnet mask. For information, see section 4.7.3 – “Port Forwarding”.

To change the W25 IP address or subnet mask, type the new value in the corresponding field and click **Apply** to save the settings.

Note: If you change the LAN IP address while connected to the Ericsson W25 web pages through a web browser, you will be disconnected. You have to redirect the web browser to the new address in order to confirm the new settings. Type the new LAN IP address in the **Address** (URL) field and press the ↵ key.

4.5.1 DHCP Server

The Ericsson W25 incorporates a DHCP (Dynamic Host Configuration Protocol) server that assigns dynamic IP addresses to local clients. The IP addresses are collected from a predefined range of available addresses. The default address range is suitable for most local networks.

The DHCP server uses the concept of a "lease”, that is the amount of time that a given IP address will be valid for a specific device. If the lease time expires and the device is still connected, the lease is automatically renewed.

The following configuration options are displayed in the **DHCP server** section on the **LAN** page:

Enable DHCP server	If this check box is selected the DHCP server is working, otherwise it is turned off.
IP address range from	The first IP address in a range of IP addresses that can be assigned to the LAN clients.
IP address range to	The last IP address in a range of IP addresses that can be assigned to the LAN clients.
Lease Time [sec]	The IP address lease time; a value between `60` and `2147483647` seconds.

To disable the DHCP server, clear the **Enable DHCP server** check box.

Note: If you want to configure your connected devices with static addresses, make sure that the addresses are outside the DHCP server IP address range.

To change the range of available addresses, change the IP addresses in the **IP address range from** and **IP address range to** fields.

Note: - The DHCP server IP address range has to be on the same subnet as the Ericsson W25 LAN IP address.

- The IP address range must not include the Ericsson W25 IP address.

- If port forwarding is configured, those settings have to be removed before changing the DHCP server IP address range. For information, see section 4.7.3 – “Port Forwarding”.

In the **Lease time [sec]** field, enter the time (in seconds) you want the LAN device to lease the IP address before it is reassigned.

Click **Apply** to save the settings.

4.5.2 Traffic Statistics

The following information is displayed in the **Traffic Statistics** section on the **LAN** page:

Transmitted	The total size (and number) of transmitted data packets on the LAN.
Received	The total size (and number) of received data packets on the LAN.

Note: The data size and packet counters have the upper limits of 4 GiB and 2^{32} packets (more than 4 billion packets). When these limits have been reached, the counters wrap around to zero.

4.5.3 Port Status

The **Port Status** table shows the connection(s) to the **LAN** (**1** - **4**) ports on the Ericsson W25 unit. The status for each port is green (connection) or red (no connection).

4.6 Wireless LAN

A Wireless LAN (WLAN) is a local network that communicates through wireless connections. The Ericsson W25 is a WLAN Access Point (AP) for the local network providing wireless client(s) with Internet and LAN access.

The WLAN settings are displayed on the **Wireless LAN** web page. To ensure the security of your Wireless LAN, you are recommended to change the default settings.

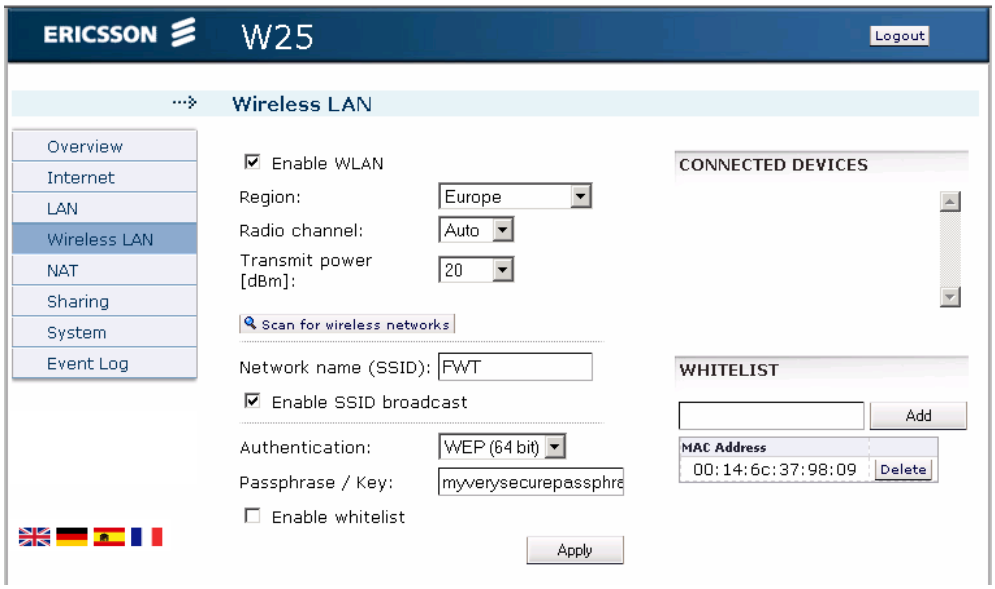


Figure 26 Wireless LAN page

To enable the Ericsson W25 AP features providing the local wireless device(s) with Internet and LAN access, select the **Enable WLAN** check box on the **Wireless LAN** page and click **Apply**.

Note: The wireless setup typically requires configuration of both the Ericsson W25 and the wireless clients. For more information on configuration of wireless clients, see section 5.2 – “Wireless LAN Settings”.

There are 13 regulatory radio channels predefined for the transportation of data in a Wireless LAN. Local regulations determine which of these channels that can be used by the Ericsson W25.

The following settings concerning radio frequencies are displayed and possible to modify on the **Wireless LAN** page:

Region	The country domain, which is one of the following:
	`Europe`
	`US`
	`Canada`
	`South Africa`
	`Australia`
	`New Zeeland`
	`Malaysia`
	`Singapore`

Radio channel	The radio channel for Wireless LAN communication, either `Auto` (default) or `1-13`.
Transmit power [dBm]	The radio transmission level that determines the signal strength: `0-20` Default is 20.

To make sure the Ericsson W25 operates on correct radio frequencies according to local regulations, you have to state in which region you reside. After this you cannot select any radio channel which would be against the local regulations. Select your country domain from the **Region** list on the **Wireless LAN** page.

Use the **Radio channel** list to select which one of the allowed radio channels to use, or select `Auto` to let the Ericsson W25 automatically select a channel (recommended). If you want information about adjacent wireless networks to make your choice, click **Scan for wireless networks**. The **Scan for wireless networks** page is displayed:

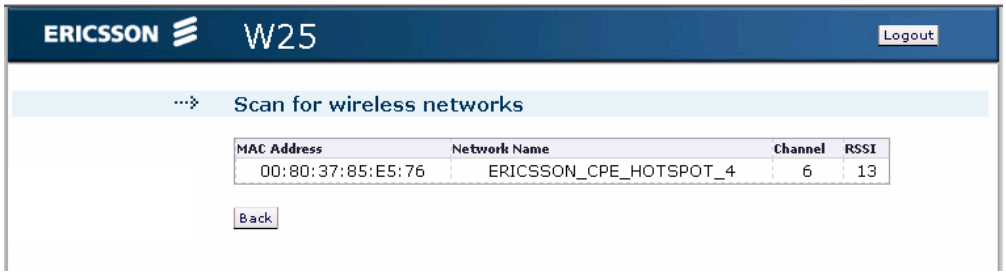


Figure 27 Scan for wireless networks page

When the scanning is finished, the following information about identified wireless networks is displayed:

MAC Address	The MAC address of the access point of the wireless network.
Network Name	The name of the wireless network.
Channel	The radio channel used by the wireless network.
RSSI	The radio signal strength.

Use this information to decide which channel to use for the Ericsson W25 wireless network. Click **Back** to return to the **Wireless LAN** page where you can select this channel.

To avoid interference with other wireless networks, the transmit power level can be reduced. If you want to change the transmit power level according to your specific conditions, select an appropriate level from the **Transmit power [dBm]** list.

All devices on the local wireless network share a common Service Set IDentifier (SSID) or network name. This name is required to establish connection between the Ericsson W25 and other wireless device(s) and to distinguish the wireless network from any other(s) that may be in use nearby. It ensures that only devices configured with the same network name as the one set on the Ericsson W25 can obtain access to it.

The following settings concerning the network name are displayed and can be modified on the **Wireless LAN** page:

Network name (SSID)	The name of the wireless network.
Enable SSID broadcast	If this check box is selected the network name will be broadcasted.

The network name is case-sensitive (distinguish between uppercase and lowercase letters) and can be changed to any combination of numbers (0 – 9), letters (a – z), and hyphens (-) with a maximum length of 32 characters. Type the new name in the **Network name (SSID)** field.

If the SSID broadcast option is enabled, the local wireless client(s) will find the network name when scanning the air. If the option is disabled, the name is hidden and has to be manually provided to the wireless client(s).

To disable network name broadcasting, clear the **Enable SSID broadcast** check box on the **Wireless LAN** page.

The wireless data transmissions can be protected from potential intruders and eavesdroppers through standard authentication and encryption

methods. Authentication is used to restrict access to the wireless network. Encryption is the translation of data into a form that cannot be easily understood by unauthorized users. The encrypted data can only be sent and received by users with access to a private encryption key.

The following authentication methods are supported by the Ericsson W25:

WEP

WEP (Wired Equivalent Privacy) is considered to be a low security option. The data is encrypted into blocks of either 64 bits length or 128 bits length. The encrypted data can only be sent and received by users with access to a private encryption key. Each device on your wireless network has to be manually configured with the same key as the Ericsson W25 in order to allow encrypted data transmissions.

WPA and WPA2

Note: Windows 2000 Service Pack 1, 2 & 3 does not support WPA/WPA2.

WPA (Wi-Fi Protected Access) and its successor WPA2 are considered to be the most reliable security options. WPA encryption uses the Temporal Key Integrity Protocol (TKIP) while WPA2 encryption follows the Advanced Encryption Standard (AES). AES offers a higher level of security and is approved for sensitive corporate and government data transmission.

WPA and WPA2 authentication require a passphrase. Each device on your wireless network has to be manually configured with the same passphrase as the Ericsson W25. The encryption master key is derived from the passphrase and the network name (SSID) of the device.

The following Wireless LAN authentication details are displayed and can be modified on the **Wireless LAN** page:

Authentication	The authentication method, which can be one of the following:
	`None`
	`WEP (64 bit)`
	`WEP (128 bit)`
	`WPA`
	`WPA2`

Passphrase / Key	The WEP 64-bit data encryption or 128-bit data encryption key *or* the WPA or WPA2 authentication and encryption passphrase.
Enable whitelist	If this check box is selected, only wireless device

Authentication The authentication method, which can be one of the following:
`None`
`WEP (64 bit)`
`WEP (128 bit)`
`WPA`
`WPA2`

added to the whitelist are allowed to access the Ericsson W25.

Select an authentication method from the **Authentication** list.

Note: Make sure that the operating system(s) and Wireless LAN interface(s) of the wireless client(s) support the selected authentication method.

If you have selected WEP (64 bit) or WEP (128 bit), type the key for encryption in the **Passphrase / Key** field. A 64-bit data encryption key includes 10 characters. A 128-bit data encryption key includes 26 characters. Only the hexadecimal numbers 0 to 9 and letters A to F are allowed.

If you have selected WPA or WPA2, type the passphrase for authentication and encryption in the **Passphrase / Key** field. A WPA or WPA2 passphrase is case sensitive and consists of between 8 and 63 optional characters. For security reasons, you are recommended to use a passphrase that contains at least 20 characters. The passphrase is case sensitive.

Click **Apply** to save the settings.

4.6.1 Connected Devices

The **Connected Devices** list includes the MAC (Media Access Control) addresses of all wireless devices currently connected to the Ericsson W25.

To find out about the MAC address of a PC using Microsoft Windows, open a command prompt and type **`ipconfig /all`**. A list of system properties is displayed. The MAC address is found on the `Physical Address` row.

4.6.2 Whitelist

The Whitelist is a list of up to 20 WLAN client MAC addresses that are allowed to access the Ericsson W25. A MAC address is the unique hardware number of a device. It has the form of xx:xx:xx:xx:xx:xx, where x is a hexadecimal number 0 to 9 or letter A to F.

To add a client to the whitelist, copy a MAC address from the **Connected Devices** list or type the client's MAC address in the **Whitelist** field on the **Wireless LAN** page and click **Add**. Click **Apply** to save the settings.

4.7 NAT

The Network Address Translation (NAT) service provides the LAN devices with Internet access. All communication from the LAN to the Internet appears to come from the IP address of the Ericsson W25. In this way, details about the local devices remain private and it is not possible to access a local device directly from the Internet.

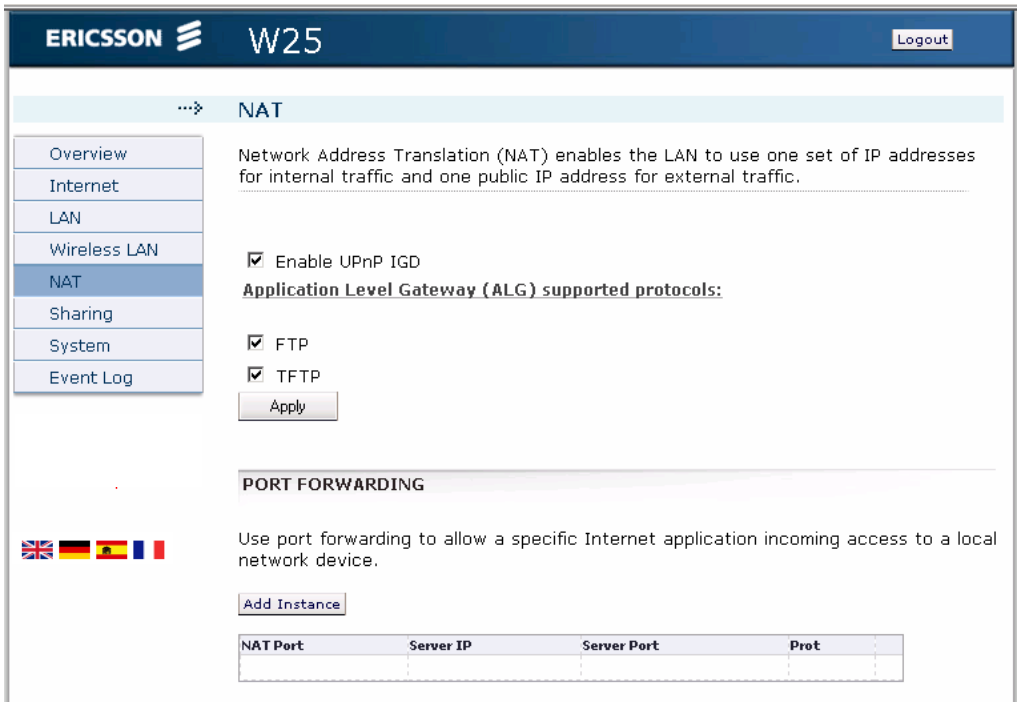


Figure 28 NAT page

4.7.1 UPnP IGD

The Ericsson W25 supports the Universal Plug and Play (UPnP) Internet Gateway Device (IGD) standard. UPnP IGD is used to provide automatic port forwarding allowing communication between certain Internet applications and the local network. When UPnP IGD is enabled, programs like MSN Messenger® and most network enabled games are allowed to pass the NAT service.

To disable UPnP IGD, clear the **Enable UPnP IGD** check box on the **NAT** page and click **Apply**.

4.7.2 Application Level Gateways

From a security perspective, certain Internet applications, for example FTP applications that open additional ports upon transfer, are especially problematic to handle. An Application Level Gateway (ALG) provides a translation and transportation service for such a specific application. Incoming data packets are checked against existing NAT and packet filtering rules, IP addresses are evaluated and a detailed packet analysis is performed. If necessary, the contents of a packet are modified and if a secondary port is required, the ALG will open one. The Ericsson W25 includes ALG support for the following applications:

Table 4 ALG Supported Applications

Application	**Protocol**	**Port number**
File Transfer Protocol (FTP)	TCP	21
Trivial File Transfer Protocol (TFTP)	UDP	69

The ALG for each application does not require additional configuration. The supported ALGs can be enabled and disabled individually. To disable an ALG, clear the corresponding check box on the **NAT** page and click **Apply**.

4.7.3 Port Forwarding

Port forwarding is used to allow an external user to access a service residing on a server connected to the LAN (to cross NAT-border). It enables access to servers on the LAN from Internet (e.g. Web server) and also enables applications to work from the LAN (e.g. games, voice and chat) to the Internet.

When a computer on the Internet sends data to the public IP address of Ericsson W25, it needs to know what to do with the data. Port Forwarding tells Ericsson W25 which computer on the local area network to send the data to.

Note: Port forwarding requires a public IP address of the Ericsson W25. The Ericsson W25 IP address is displayed on the **Internet** page. A private IP address usually begins with `10`, `172`, or `192`. In this case, no incoming access from the Internet is allowed. For more information on public and private IP addresses, contact your service provider.

Adding an Instance

To add a new port forwarding instance, click **Add instance** in the **Port Forwarding** section on the **NAT** page. The **Add Portforwarding Instance** page is displayed:

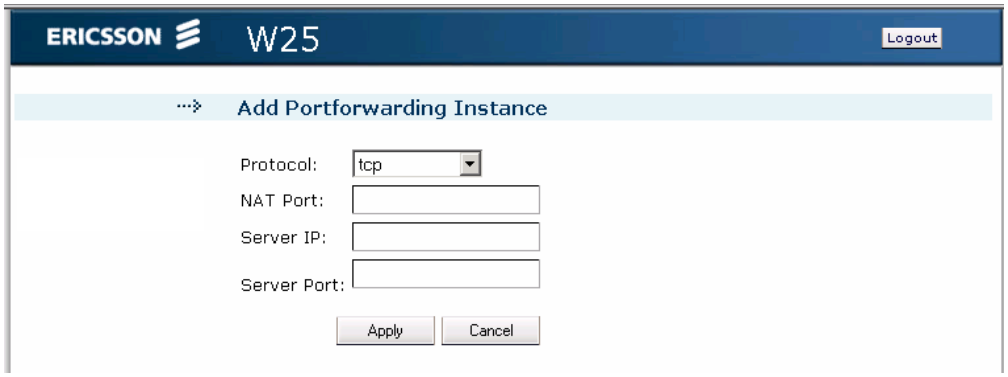


Figure 29 Add Portforwarding Instance page

Type the **Protocol**, **NAT Port**, **Server IP**, and **Server Port** fields and click **Apply**.

When one or more port forwarding instances are added, the following details are displayed for each instance in the **Port Forwarding** table on the **NAT** page:

Protocol	The data traffic protocol; `UDP` or `TCP`.
NAT Port	The NAT port number on Ericsson W25 that the data traffic is allowed to be transported on.
Server IP	The IP address of the destination unit.
Server Port	The destination port, which identifies the type of service that is directed, for example web service on port 8080.

Example – Port Forwarding

In the following example, port forwarding is used to allow incoming access (from WAN) to an internal web server (on LAN/WLAN). The TCP protocol is used for data traffic. NAT port 80 on Ericsson W 25 is open and the destination computer on the LAN has appointed the Server port (8080) and the Server IP address (192.168.1.101).

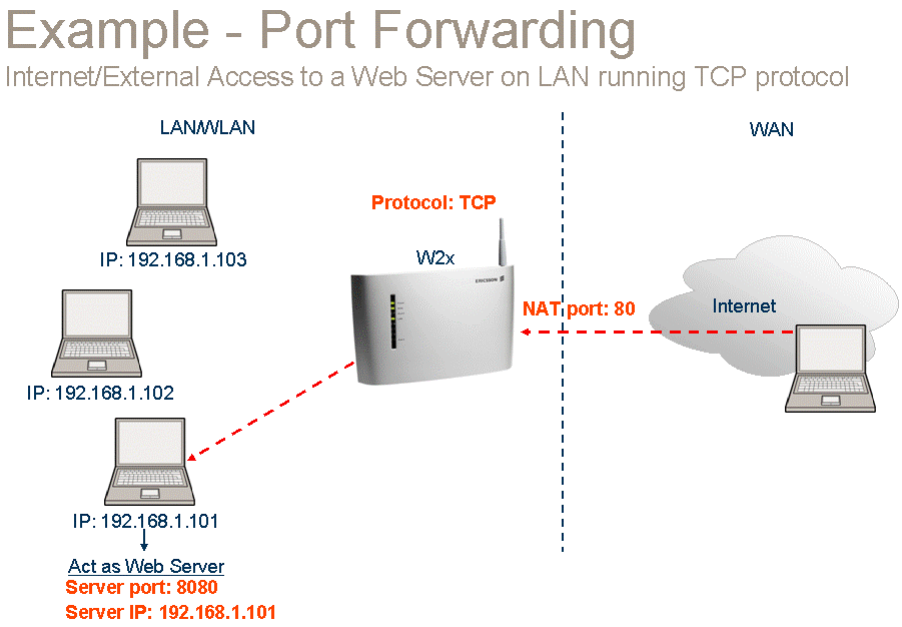


Figure 30 Example – Port forwarding

Below are some examples of common applications and corresponding Server Port they use for network access. The NAT port has often the same value as the Server value. Exceptions are made when the same applications are used on many clients on the LAN/WLAN, where each Server IP value needs to be unique and differ from the NAT port value.

Application	**Server Port**
MSN Messenger®	6901
Unreal Tournament 2004®	7777, 7778, 7787, 28902
NetMeeting®	1720, 1503
Quake III®	27669 (+1 for each player)

Note: If multiple ports or port ranges are required, create a new port entry for each port or port range.

Editing an Instance

To edit a port forwarding instance, click **Edit** in the **Port Forwarding** section on the **NAT** page. **The Edit Portforwarding Instance** page is displayed.

To delete a port forwarding instance, click **Delete** in the **Port Forwarding** section on the **NAT** page.

Change one or more value(s) in the **Protocol**, **NAT Port**, **Server IP**, or **Server Port** field(s) and click **Apply**.

4.8 Sharing

The Ericsson W25 supports local network storage and printing sharing. It is possible to have two USB storage devices or a USB storage device and a USB printer connected to the Ericsson W25 at the same time. When an external hub is connected, the Ericsson W25 supports connection of up to two storage devices and one printer at the same time.

The printer can be accessed from all computers connected to the local network (WLAN/LAN).

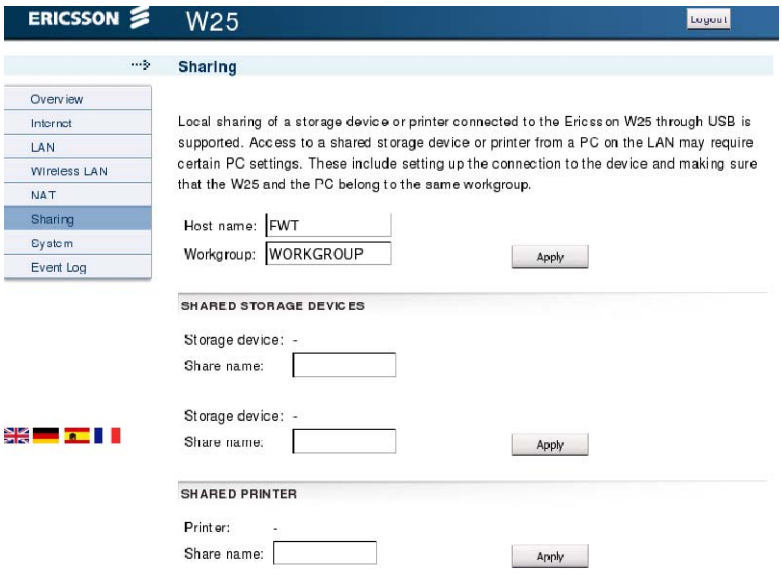


Figure 31 Sharing page

To access a shared file on the USB memory stick or a printer from a PC on your LAN, you need the following information, displayed on the **Sharing** page.

Host name	The name of the Ericsson W25 on the local network.
Workgroup	The name of the group of devices sharing the same resources on the local network.

To change the host name or workgroup, type the new name in the corresponding field and click **Apply**.

For information about setting up a connection from a PC to a shared device, follow the instruction in section 5.3.3 – “Setting Up a Connection to a Storage Device” or section 5.3.4 – “Accessing a Shared Printer”.

4.8.1 File Sharing

The Ericsson W25 supports USB connection of up to two mass storage devices at the same time. The included files are shared with all devices on the local network (LAN/WLAN). All local users have full access to the shared files. To access shared files from a PC using Windows 2000 or XP, follow the instructions in section 5.3.2- “Accessing a Shared USB Mass Storage Device”.

Note: If the mass storage device contains more than one partition, only the first partition is shared.

Information about file sharing device(s) is displayed on the **Sharing** page:

Storage device	The manufacturer name of the device.
Share name	The name of the shared resource on your local network.

To give a file sharing device a specific name, type this name in the corresponding **Share name** field and click **Apply**.

4.8.2 Printer Sharing

Information about the shared printer is displayed on the **Sharing** page:

Printer	The manufacturer name of the printer.
Share name	The name used to identify the printer from another computer over the network.

To give your network printer a specific name, type this name in the **Share name** field and click **Apply**. If a share name has more than 12 characters or has embedded spaces, the share will not be visible to Windows 95, 98 or ME (Windows Millennium) clients.

The share name is used to access the printer from a PC. To access a shared printer from a PC using Windows 2000 or XP, follow the instructions in section 5.3.4- “Accessing a Shared Printer”.

4.9 System

The **System** page includes system information and management functions, used to update and restore the Ericsson W25.

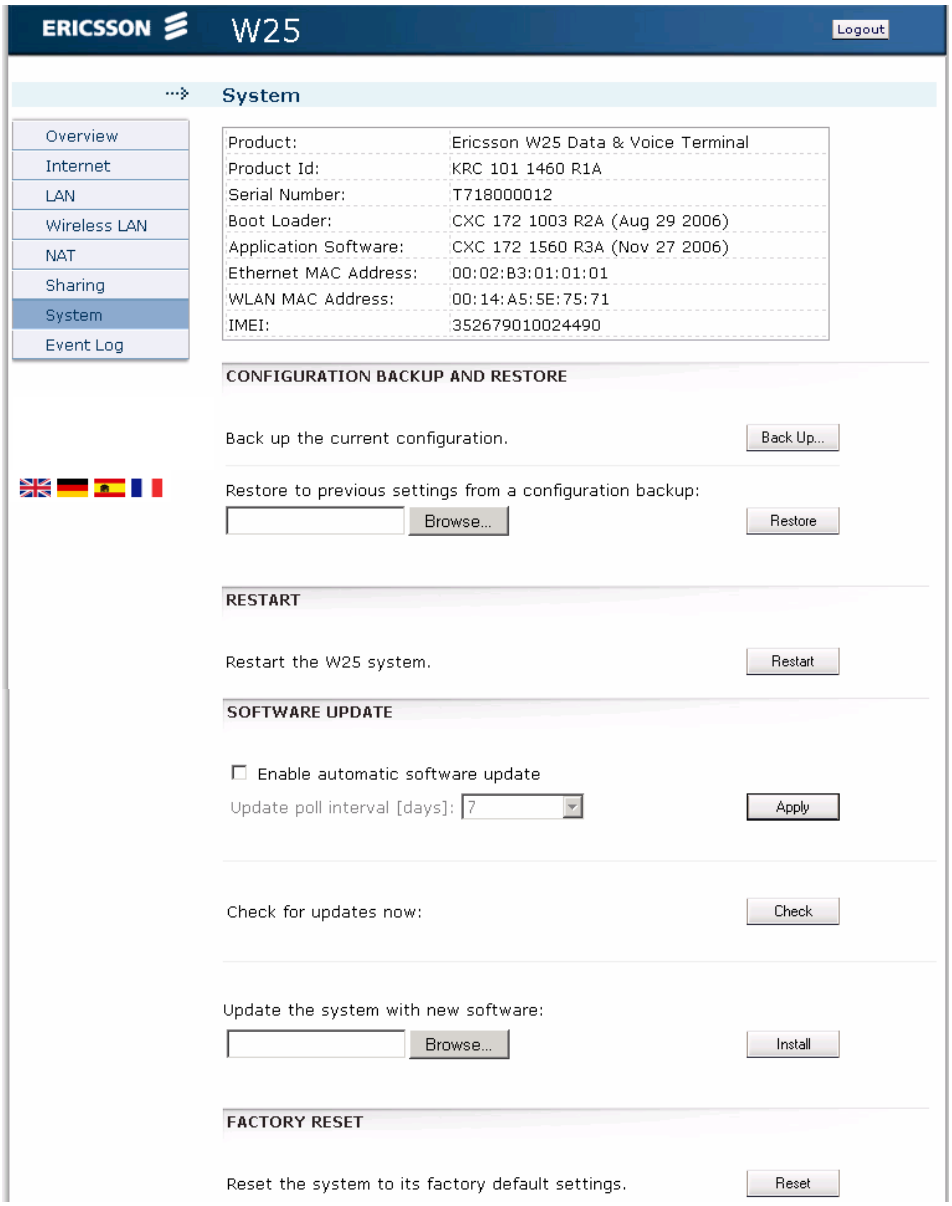


Figure 32 System page

4.9.1 Configuration Backup and Restore

The Ericsson W25 configuration can be restored to factory default settings, see section 4.9.4 – “Factory Reset”, or to any previous configuration locally stored in a backup file.

Backing Up a Configuration

It is possible to back up a configuration that you want to save for future purposes.

To back up a configuration, click **Back Up…** in the **Configuration Backup and Restore** section on the **System** page. Follow the instructions on the screen to select a location for the configuration file.

Note: Do not modify a configuration file. If you do, the file will be invalid and not accepted if you want to make a restore.

Restoring a Configuration

If you wish to revert to previous settings, you can perform a configuration restore from a previously stored backup file.

Note: Do not modify a configuration file. If you do, the file will be invalid and not accepted if you want to make a restore.

To restore from a configuration file, click **Browse…** in the **Configuration Backup and Restore** section on the **System** page. Follow the instructions on the screen to locate the configuration file. The selected file will be displayed in the text field to the left of the **Browse…** button.

Click **Restore** to restore the configuration from the backup file. A confirmation message is displayed.

4.9.2 Restart

To restart the Ericsson W25, click **Restart** in the **Restart** section on the **System** page. The Ericsson W25 is restarted. The restart does not result in any configuration changes.

4.9.3 Software Update

New Ericsson W25 software versions can be either automatically or manually installed.

Automatic Software Installation

Automatic software update is supported through remote management. If there is a software image available for download the upgrade process is initiated. To enable automatic software update, select the **Enable**

automatic software update check box and choose an appropriate interval from the **Update poll interval [days]** list. Click **Apply** to save the settings.

Installing new Software from File

If your service provider provides a new software version for your Ericsson W25, you are recommended to upgrade the Ericsson W25.

To check for new software versions, click **Check** in the **Software Update** section on the **System** page. The following page is displayed:

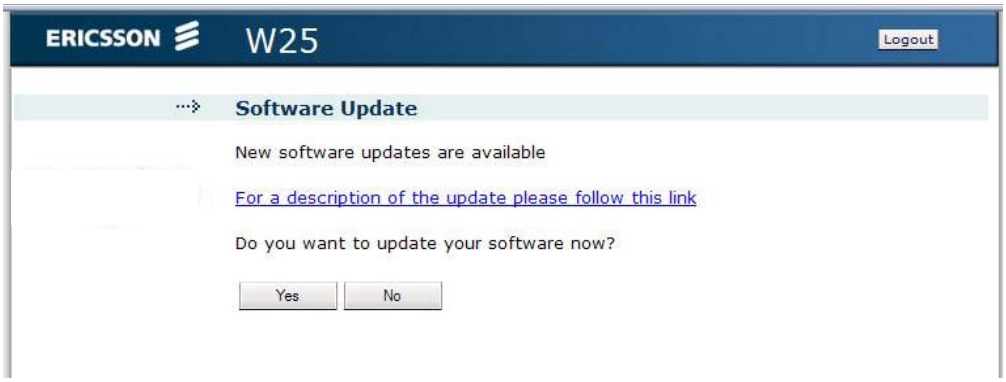


Figure 33 Results from a check for software updates page

Click For a description of the update please follow this link to get information about the software version or click **Yes** to install the new version. If you click **Yes** the update is initiated and the following page is displayed:

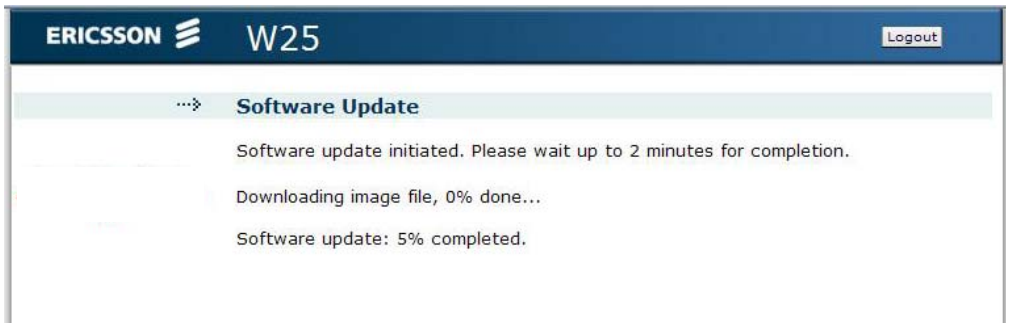


Figure 34 Software Update initiated page

The information on this page is updated every tenth second. When the upgrade is finished, click **Restart** to restart the Ericsson W25.

To install new software from a local file, make sure that the new software file is available on your PC. Then click **Browse...** in the **Software Update**

section. Follow the instructions on the screen to locate the configuration file. The selected file will be displayed in the **Update the system with new software** field.

Click **Install** to upgrade the Ericsson W25 with the new software version. The **Software Update** page is displayed and updated every tenth second during the upgrade. See the information and Figure 33 above.

4.9.4 Factory Reset

The Ericsson W25 configuration can be reset to factory default settings or to any previous configuration locally stored in a backup file, see section 4.9.1 – “Configuration Backup and Restore”.

To reset the configuration to factory default settings, click **Reset** in the **Factory Reset** section.

4.10 Event Log

On the **Event Log** page, a list of the Ericsson W25 logs is displayed:

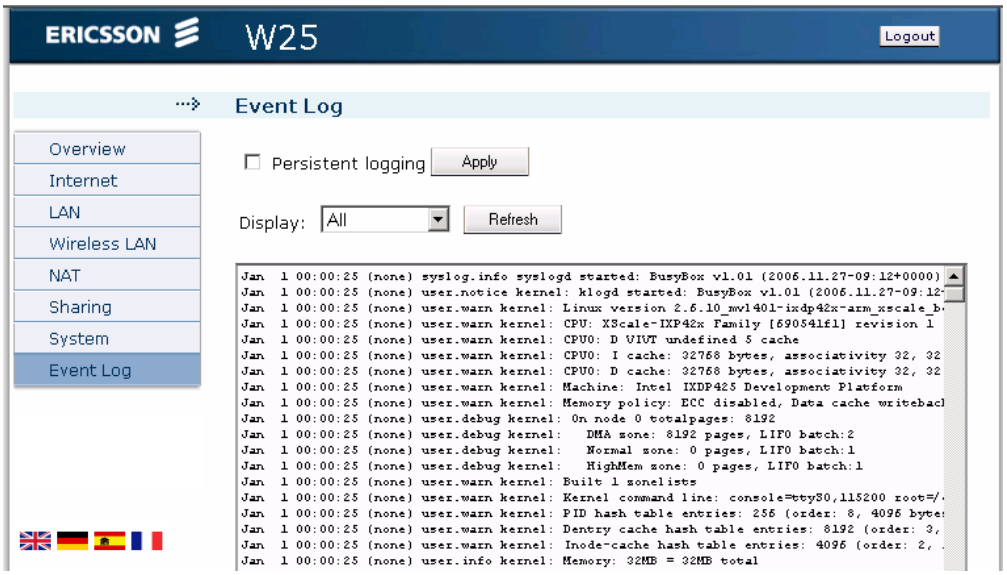


Figure 35 Event Log page

Each row in the log list displays the time and date when an alarm occurred, the type of alarm, and a brief statement indicating its cause.

If persistent logging is enabled, the logs will remain after a system restart. To enable this feature, select the **Persistent logging** check box on the **Event Log** page and click **Apply**.

To view only a selection of the logs in the list, select a filter level from the **Display** list. Available log levels are **Alarm** and **All**. The **Alarm** log level corresponds with the **Alarm** indicator on the Ericsson W25 unit and the information in the **Alarms** section on the **Overview** page.

Click **Refresh** to update the list with new information. The most recent logs are listed at the bottom of the list.

Note: If the actual time is not available, the timestamp is set to “Jan 1 00:00:00” when the Ericsson W25 is restarted. This will change to actual time when available.

5 PC Configuration

The connection to the Ericsson W25 may require specific PC configuration. This chapter includes instructions on how to configure Internet Protocol (IP) settings as well as establish wireless connection(s) with the Ericsson W25. The descriptions include examples from Windows XP and 2000. If you use another operating system, refer to the system documentation or online help.

5.1 IP Settings

The Ericsson W25 automatically assigns the IP settings to your PC(s). You only need to configure the PC(s) according to the instructions below to accept the information. In some cases however, you may want to configure IP settings manually. See section 5.1.2 – “Configuring Static IP Address”.

If you have connected your LAN PC(s) to the Ericsson W25, follow the instructions that correspond to the operating system installed on your PC in the following sub-sections.

If you want to allow wireless PCs to access your device, you also have to follow the instructions in section 5.2 – “Wireless LAN Settings”.

5.1.1 Obtaining IP Settings Automatically

Follow the instructions that correspond to the operating system installed on your PC.

Windows XP

1 In the Windows task bar, click the **Start** button, and then click **Control Panel**. The **Control Panel** window is displayed.

2 If you are using Category View, Click **Network and Internet Connections** and then **Network Connections**. If you are using Classic View, double-click **Network Connections**. The **Network Connections** window is displayed.

3 Double-click the icon corresponding to your network interface card (NIC). This icon is usually labeled **Local Area Connection**. The **Local Area Connection Properties** window is displayed with a list of currently installed network items.

4 Select **Internet Protocol TCP/IP** and ensure that the check box beside the text is selected. Click **Properties**.

5 In the **Internet Protocol (TCP/IP) Properties** window, select **Obtain an IP address automatically** and **Obtain DNS server address automatically**.

6 Click **OK** twice to confirm your changes and close the windows, and then close the **Control Panel** window.

Windows 2000

First, check for the IP protocol and, if necessary, install it:

1. In the Windows task bar, click the **Start** button, point to **Settings**, and then click **Control Panel**.

2. Double-click the **Network and Dial-up Connections** icon.

3. In the **Network and Dial-up Connections** window, right-click the **Local Area Connection** icon, and then click **Properties**.
   The **Local Area Connection Properties** dialog box is displayed with a list of currently installed network components. If the list includes **Internet Protocol (TCP/IP)**, then the protocol has already been enabled. Skip to step 11.

4. If **Internet Protocol (TCP/IP)** does not display as an installed component, click **Install…**.

5. In the **Select Network Component Type** dialog box, select **Protocol**, and then click **Add…**.

6. Select **Internet Protocol (TCP/IP)** in the **Network Protocols** list, and then click **OK**.
   You may be prompted to install files from your Windows 2000 installation CD or other media. Follow the instructions to install the files.

7. If prompted, click **OK** to restart your computer with the new settings.

Next, configure the PCs to accept IP information assigned by the Ericsson W25:

8. In the Windows task bar, click the **Start** button, point to **Settings**, and then click **Control Panel**.

9. Double-click the **Network and Dial-up Connections** icon.

10. In the **Network and Dial-up Connections** window, right-click the **Local Area Connection** icon, and then click **Properties**.

11. Select **Internet Protocol TCP/IP** and ensure that the check box beside the text is selected. Click **Properties**.

12. In the **Internet Protocol (TCP/IP) Properties** dialog box, click the Obtain an IP address automatically option button. Also click the Obtain DNS server address automatically option button.

13. Click **OK** twice to confirm your changes and close the windows, and then close the **Control Panel** window.

5.1.2 Configuring Static IP Address

Most users need not to configure static IP settings. Automatic configuration is appropriate in most cases.

For information about static IP configuration, see the operating system documentation or online help.

Note: Make sure that the IP address of the client is on the same subnet as the Ericsson W25. The IP address range of the Ericsson W25 subnet is displayed on the **LAN** page.

5.2 Wireless LAN Settings

This section provides a general description of what is required to make your wireless devices work with the Ericsson W25.

Before you follow the instructions below, you need to configure the Ericsson W25 Wireless LAN settings, see section 4.6 – “Wireless LAN”.

5.2.1 Siting the Wireless PC

The coverage of the Wireless LAN depends on a number of factors, including the distance between the Ericsson W25 and the PC and the occurrence of obstacles, such as walls and electrical equipment.

Guidelines on siting the hardware components of your wireless network are provided by your Wireless LAN interface provider.

5.2.2 Installing the Wireless LAN Interface

Each PC on your Wireless LAN must be fitted with a Wireless LAN interface, such as a wireless network card. You also have to install the corresponding driver files for your particular Wireless LAN interface on your

PC. The driver files and instructions on how to install them are provided together with the interface.

5.2.3 Configuring PC Access to the Ericsson W25

The configuration steps below will vary depending on both the operating system and the Wireless LAN interface installed on the PC. These steps provide a basic outline. For specific instructions, refer to the documentation provided with your Wireless LAN interface.

Configure the following wireless parameters on each of the wireless PCs:

- Set the Wireless LAN interface to use **infrastructure mode**. This configures the PCs to access each other and the Internet through the Ericsson W25.

- Configure the **network name (SSID)** and **channel** to match the network name and channel configured on the Ericsson W25. This information can usually be obtained through WLAN scanning. The network name is case sensitive.

- If you are using Wired Equivalent Privacy (WEP) security, configure the same **encryption key** that is configured on the Ericsson W25.

- If you are using Wi-Fi Protected Access (WPA or WPA2) security, configure the same **passphrase** that is configured on the Ericsson W25. The passphrase is case sensitive.

  Note: Computers running Windows 2000® does not support WPA or WPA2 encryption.

- Configure the IP settings using the procedure described in section 5.1– “IP Settings”.

5.3 Sharing Settings

When a shared device is connected to the Ericsson W25, information about the device is displayed on the **Sharing** page. To be able to use the shared device you also have to set up a connection to the shared device on your PC.

In some cases, you have to make sure that your PC belongs to the same workgroup as the Ericsson W25. Follow the instructions in section 5.3.1 – “Checking Workgroup Settings” to check the workgroup on your PC.

5.3.1 Checking Workgroup Settings

The following sections include instructions on how to check the workgroup settings on a PC using Windows XP or 2000.

Windows XP

Follow the steps below to check the workgroup settings on a PC using Windows XP:

1. In the Windows task bar, click the **Start** button, and then click **Control Panel**. The **Control Panel** window is displayed.

2. If you are using Category View, click **Performance and Maintenance** and then **See basic information about your computer**. If you are using Classic View, double-click **System**. The **System Properties** window is displayed.

3. Click the **Computer Name** tab.

4. Click **Change…**. The **Computer Name Changes** window is displayed.

5. Make sure that the **Workgroup** name is exactly the same as on the Ericsson W25 **Sharing** page. If not, you have to change the workgroup either on the PC or on the Ericsson W25.

6. If you decide to change the workgroup on the PC, type the correct name in the **Workgroup** field and click **OK**. If you do not want to make any changes, click **Cancel**. The **Computer Name Changes** window is closed.

7. If you have changed the workgroup settings, follow the instructions on the screen to restart the PC.

Windows 2000

Follow the steps below to check the workgroup settings on a PC using Windows 2000:

1. In the Windows task bar, click the **Start** button, and then click **Settings** and **Control Panel**. The **Control Panel** window is displayed.

2. Double-click the **System** icon. The **System Properties** window is displayed.

3. On the **Network Identification** tab, click **Properties**. The **Identification Changes** window is displayed.

4. Make sure that **Workgroup** is selected in the **Member of** section and that the name of the workgroup is exactly the same as on the Ericsson W25 **Sharing** page. If not, select the **Workgroup** option and type the name in the field. If there is already a workgroup name, although not the same as on the Ericsson W25, you have to change the workgroup either on the PC or on the Ericsson W25.

5. If you have made any changes, click **OK**. Otherwise, click **Cancel**. The **Identification Changes** window is closed.

6. If you have changed the workgroup settings, follow the instructions on the screen to restart the PC.

5.3.2 Accessing a Shared USB Mass Storage Device

To access a USB mass storage device from a PC using Windows 2000 or XP, follow the steps below:

1. In the Windows task bar, click the **Start** button, and then click **Run…**.

2. Type **\\<host name>\<share Name>** in the **Open** field. The **Host name** and **Share name** are displayed on the Ericsson W25 **Sharing** page. Click **OK**.

3. The shared resource is displayed. Double-click on the shared file to open it.

5.3.3 Setting Up a Connection to a Storage Device

The following sections include instructions on how to set up a connection to a mass storage device from a PC using Windows XP or 2000. The Storage device will be displayed in the **My Computer** window as a new partition.

Windows XP

Follow the steps below to set up a connection to a shared storage device from a PC using Windows XP:

1. In the Windows task bar, click the **Start** button, and then click **My Computer**. The **My Computer** window is displayed.

2. From the **Tools** menu, select **Map Network Drive…**. The **My Network Drive** window is displayed.

3. Select a drive that is not already used from the **Drive** drop-down menu.

4. In the **Folder** text field, type **\\<host_name>\<share_name>**. You find the host name and share name on the **Sharing** page.

5. Click **Finish**. The **Map Network Drive** window is closed. The device is displayed in the **My Computer** window as a new partition.

Windows 2000

Follow the steps below to set up a connection to a shared storage device from a PC using Windows 2000:

4. Right-click the **My Computer** icon and select **Map Network Drive...** The **Map Network Drive** window is displayed.

5. Select a drive that is not already used from the **Drive** drop-down menu.

6. In the **Folder** text field, type **\\<host_name>\<share_name>**. You find the host name and share name on the **Sharing** page.

7. Click **Finish**. The **Map Network Drive** window is closed. The device is displayed in the **My Computer** window as a new partition.

5.3.4 Accessing a Shared Printer

If you connect an USB printer directly into your PC, the printer device type and brand will normally be automatically detected and a printer driver assigned and installed. This is not the case when using a network shared USB printer connected to your Ericsson W25.

Install the correct printer driver compatible with the PCs operating system. The printer driver is found either on the discs that were shipped with your printer or by downloading it from the manufacturers web page.

The Ericsson W25 supports two protocols for printing: Samba and RAW. The protocol that is used may vary depending on printer and manufacturer. It also affects how to access the printer via the Ericsson W25.

5.3.4.1 Printer Supporting the Samba Protocol

Windows XP (similar user interface in windows 2000)

1. Connect the printer to the Ericsson W25.

2. In the Windows task bar, click the **Start button**, select **Run…**.

3. Enter **\\fwt** in the **Open** field and press enter. The shared printer is displayed. Right click on the printer and select **Connect...**

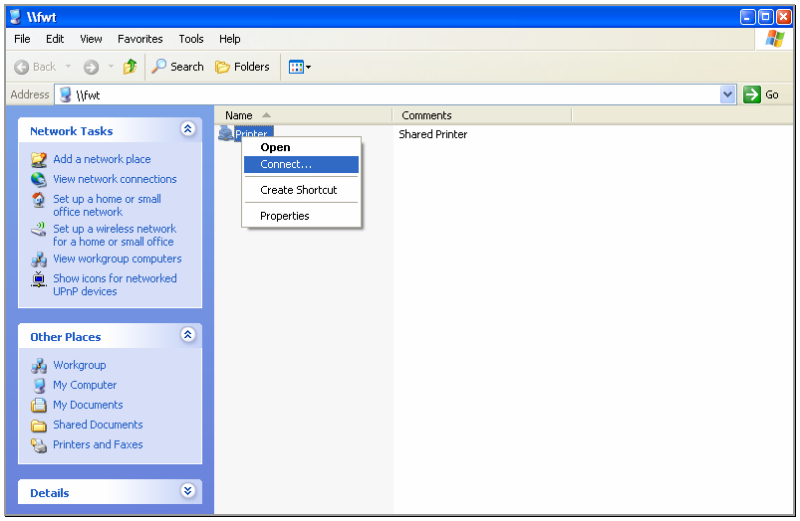


Figure 36 Printer connected to the Ericsson W25 is identified.

4. If you don't have the correct printer drivers installed a pop up window will appear. Click **OK**.

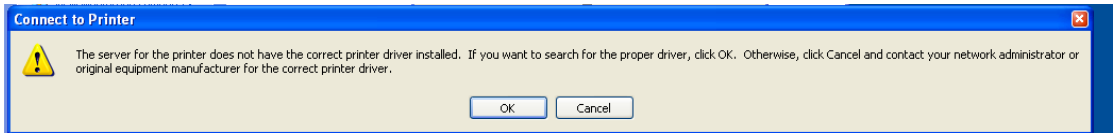


Figure 37 Printer driver dialog.

5. Select printer driver in the drop-down list or select **Have disk…** .

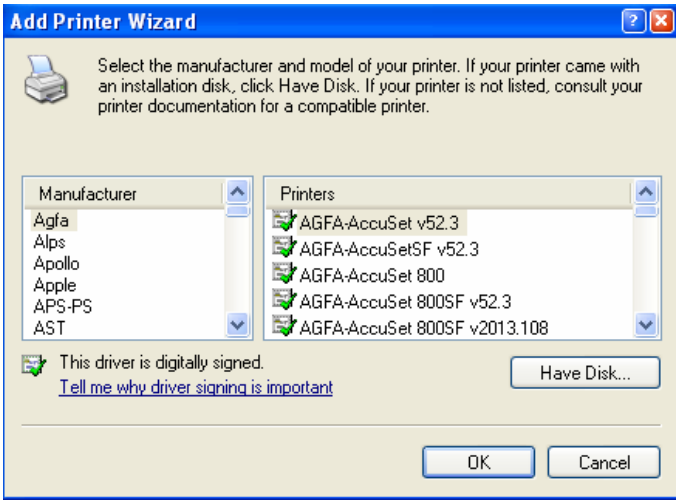


Figure 38 Add Printer Wizard – select manufacturer and model.

6. Your computer will try to connect to the shared printer. This could take a few minutes.

7. Print a test page to verify that your printer is connected properly. In the Windows task bar, click the **Start button**, and select **Printers and Faxes**. Your shared printer will be displayed as **<printer name> on fwt**. Right-click on your printer and select **properties**. Under the General tab select **Print Test Page**.

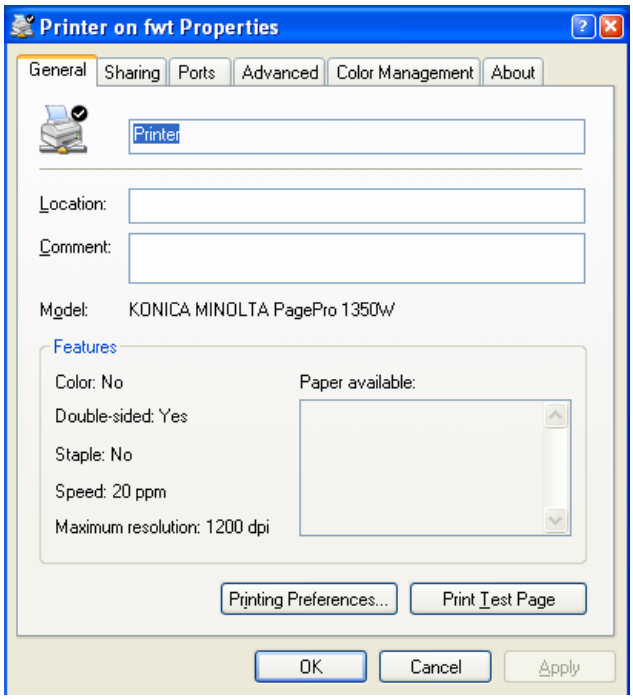


Figure 39 Printer properties.

5.3.4.2 Printer Supporting the RAW Protocol

Windows XP

To establish a connection and access a shared printer from a PC using Windows XP, follow the steps below:

1. In the Windows task bar, click the **Start button**, select **Printers and Faxes**. A new window appears with all the printers connected to the PC.

2. Select **Add a printer**. The wizard **Add Printer Wizard** appears. Click **Next >** to proceed.

3. Select **Local printer attached to this computer** and click **Next >** to proceed.

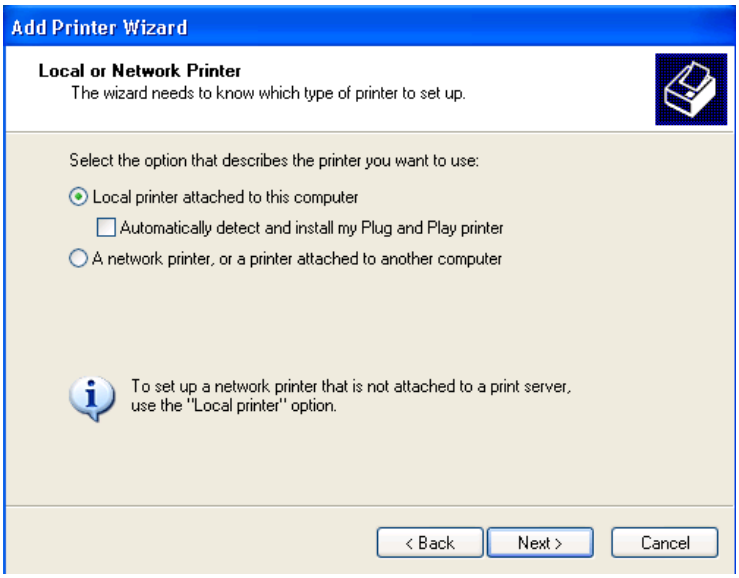


Figure 40 Add Printer Wizard – Local or Network Printer.

4. Select **Create a new port**. In the drop-down list choose **Standard TCP/IP Port**. Click **Next >** to proceed. The new wizard **Add Standard TCP/IP Printer Port Wizard** appears. Follow the instructions and click **Next >** to proceed.

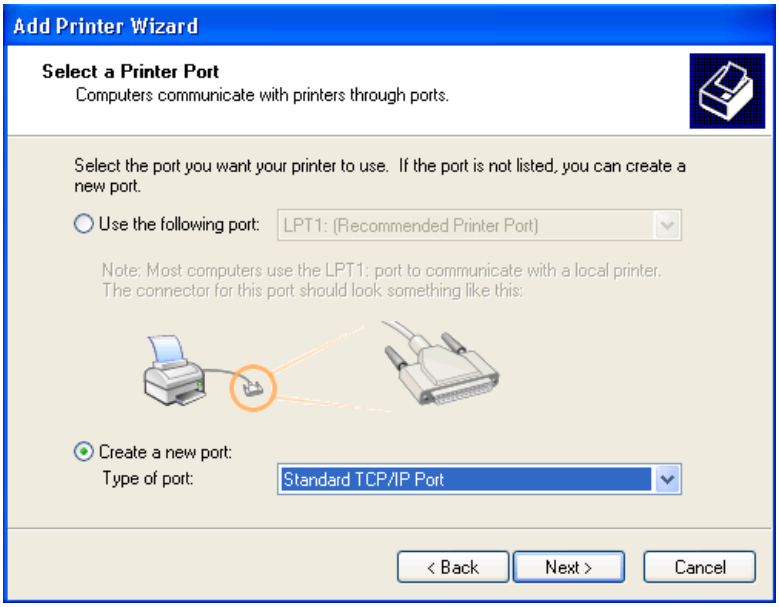


Figure 41 Add Printer Wizard – Select a Printer Port.

5. Enter the IP address of your Ericsson W25 and a port name. Click **Next >** to proceed.

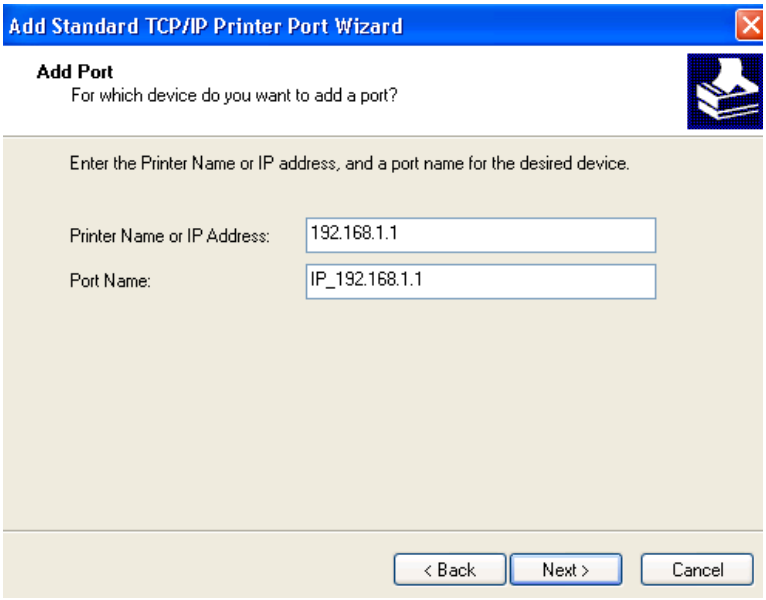


Figure 42 Add Standard TCPI/IP Printer Port Wizard – Add Port.

6. Select the **Custom check-box** and click on **Settings…**.

7. Select **Raw** as **Protocol Type** and set the **Port Number** to 9100 under **Raw Settings**. Click **OK** and in the **Add Standard TCP/IP Printer Port Wizard** click **Next >** to proceed.

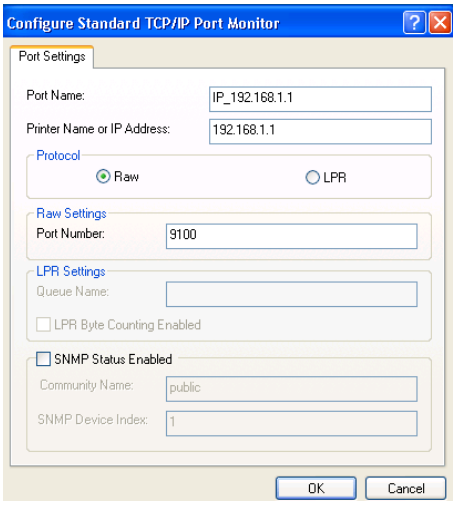


Figure 43 Configure Standard TCP/IP Port Monitor.

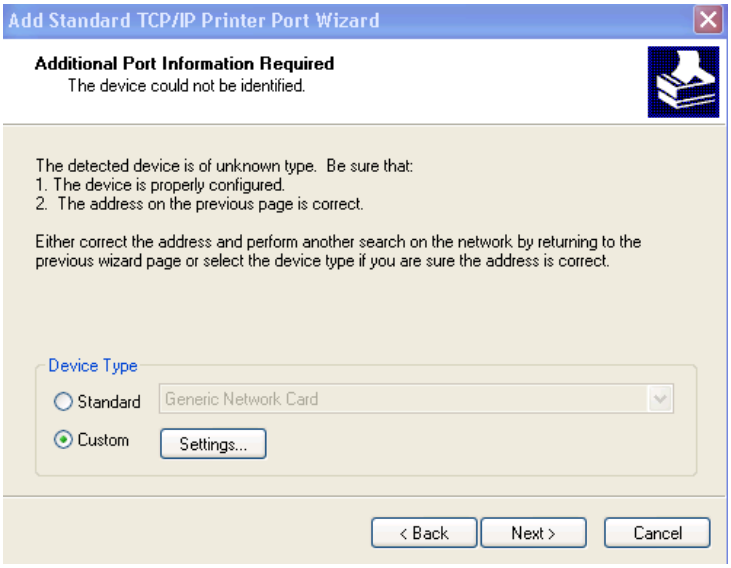


Figure 44 Add Standard TCPI/IP Printer Port Wizard – Additional Port Information required.

8. Verify your settings on the **Add Standard TCP/IP Printer Port Wizard** page and click **Finish**.

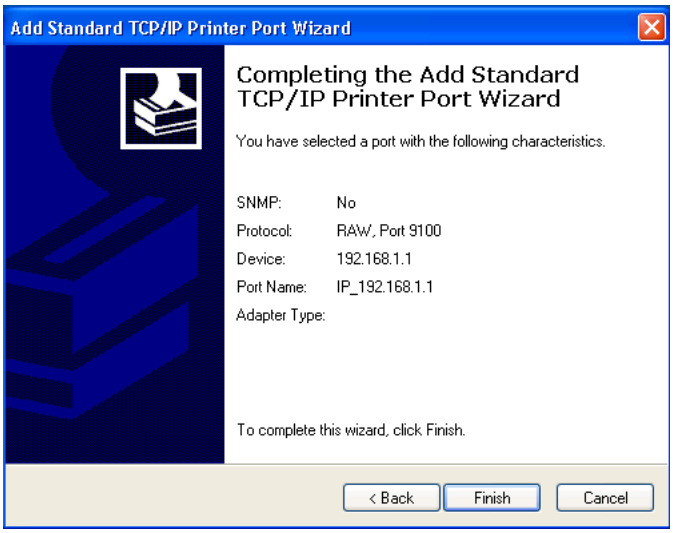


Figure 45 Add Standard TCPI/IP Printer Port Wizard – Confirmation.

9. The **Add Printer Wizard** is showed. Find your Printer Manufacturer in the list and select the driver you installed in step 1. Click **Next >** to proceed.

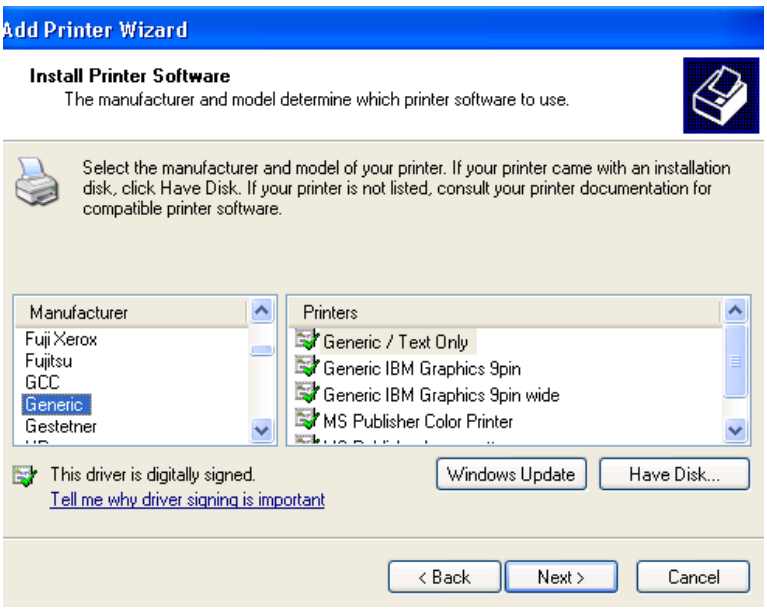


Figure 46 Add Printer Wizard – Install Printer Software.

10. Enter a name for your printer. Click **Next >** to proceed.

11. Select **Do not share this printer** option. Click **Next >** to proceed.

12. Print a test page to see that your printer setup is working properly. Click **Next>** to proceed. It could take a minute or two for the test page to be printed.

13. Click **Finish** in the **Add Printer Wizard** if everything is working successfully.

14. Your printer is ready to be used.

Windows 2000

To establish a connection and access a shared printer from a PC using Windows 2000, follow the steps below:

1. In the Windows task bar, click the **Start button**, select **Settings > Printers**. A new window appears with all the printers connected to the PC.

2. Select **Add a printer**. The wizard **Add Printer Wizard** appears. Click **Next >** to proceed.

3. Select **Local printer attached to this computer** and click **Next >** to proceed.

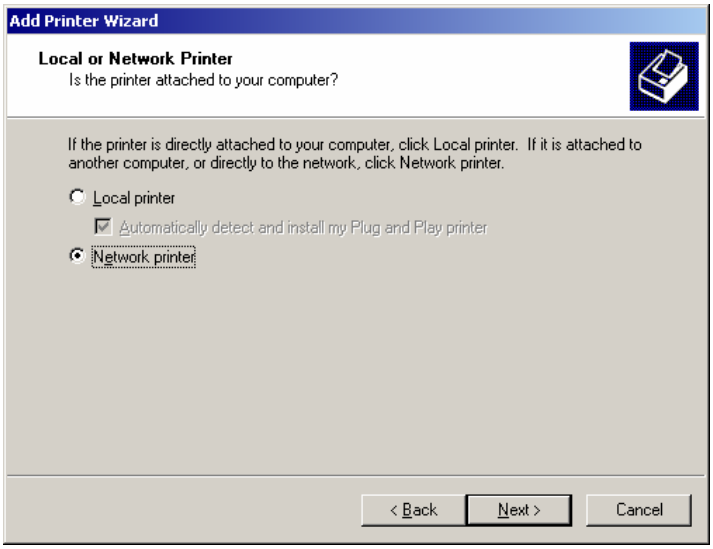


Figure 47 Add Printer Wizard – Local or Network Printer.

4. Select **Create a new port**. In the drop-down list select **Standard TCP/IP Port**. Click **Next >**. The new wizard **Add Standard TCP/IP Printer Port Wizard** appears. Follow the instructions and click **Next >** to proceed.

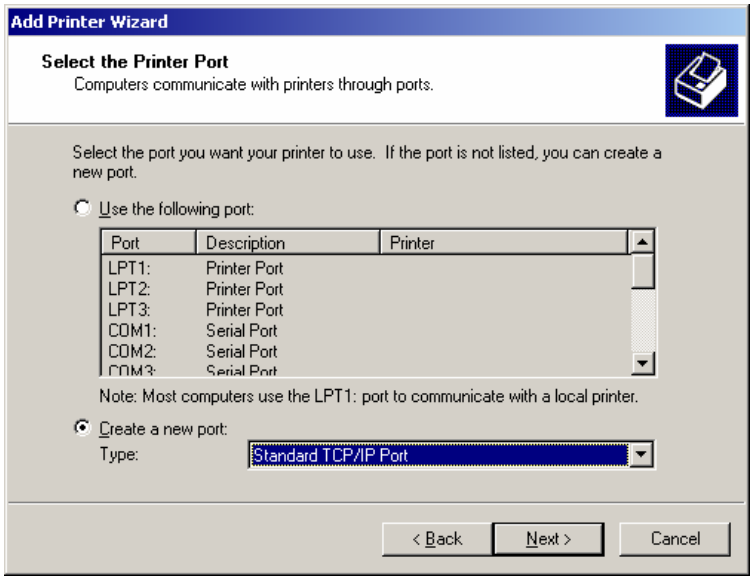


Figure 48 Add Printer Wizard – Select the Printer Port.

5. Enter the IP address of your Ericsson W25 and a port name. Click **Next >** to proceed.

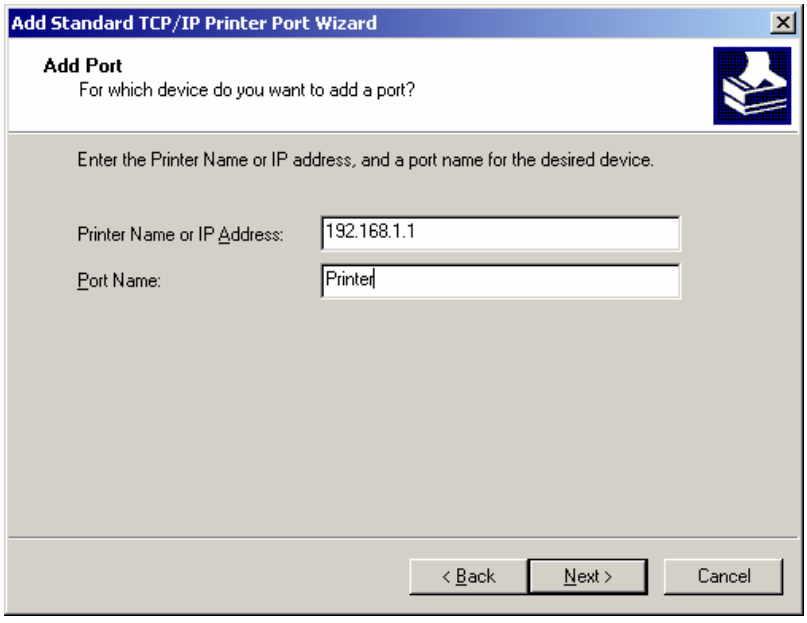


Figure 49 Add Standard TCPI/IP Printer Port Wizard – Add Port.

6. Select the **Custom check-box** and click on **Settings...**.

7. Select **Raw** as **Protocol Type** and set the **Port Number** to 9100 under **Raw Settings**. Click **OK** and in the **Add Standard TCP/IP Printer Port Wizard** click **Next >** to proceed.

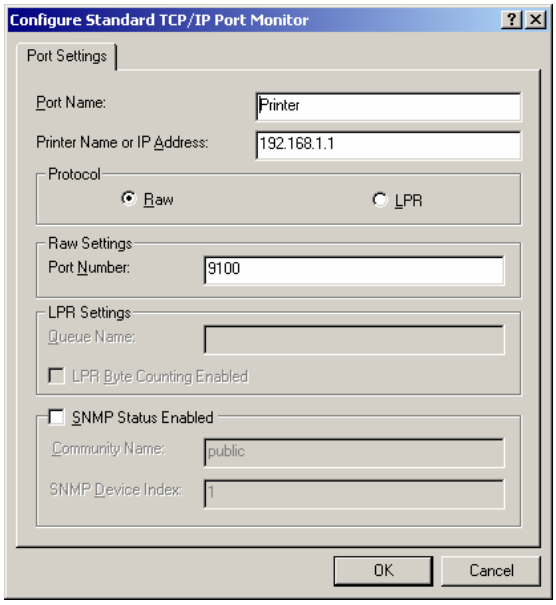


Figure 50 Configure Standard TCP/IP Port Monitor.

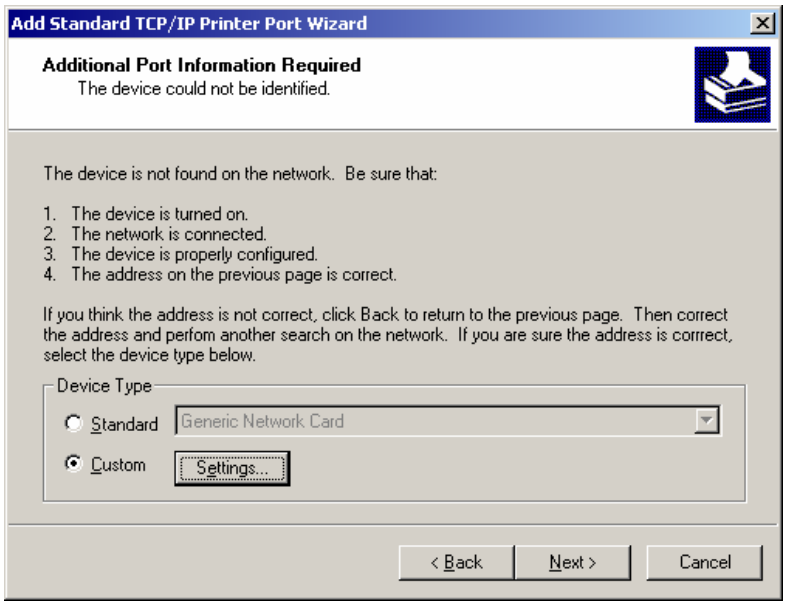


Figure 51 Add Standard TCPI/IP Printer Port Wizard – Additional Port Information required.

8. Verify your settings on the **Add Standard TCP/IP Printer Port Wizard** page and click **Finish**.

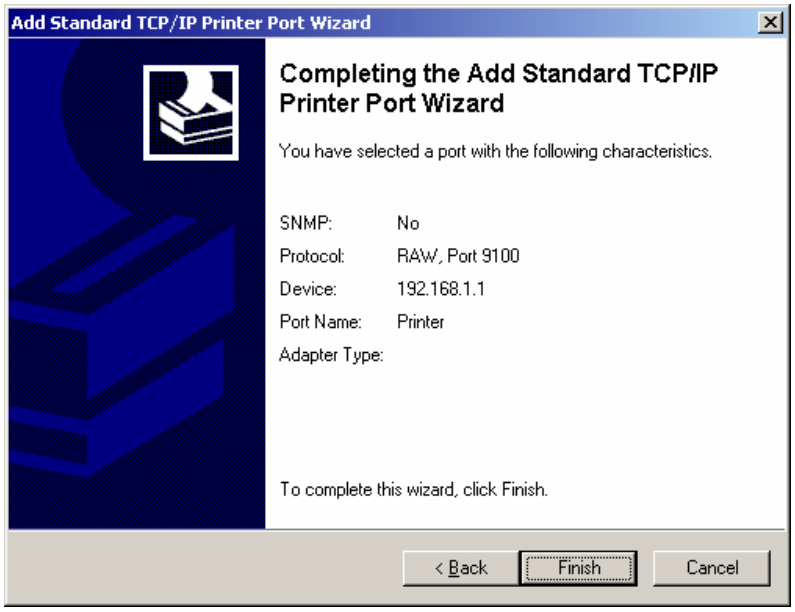


Figure 52 Add Standard TCPI/IP Printer Port Wizard – Confirmation.

9. The **Add Printer Wizard** is showed. Find your Printer Manufacturer in the list and select the driver you installed in step 1. Click **Next >** to proceed.

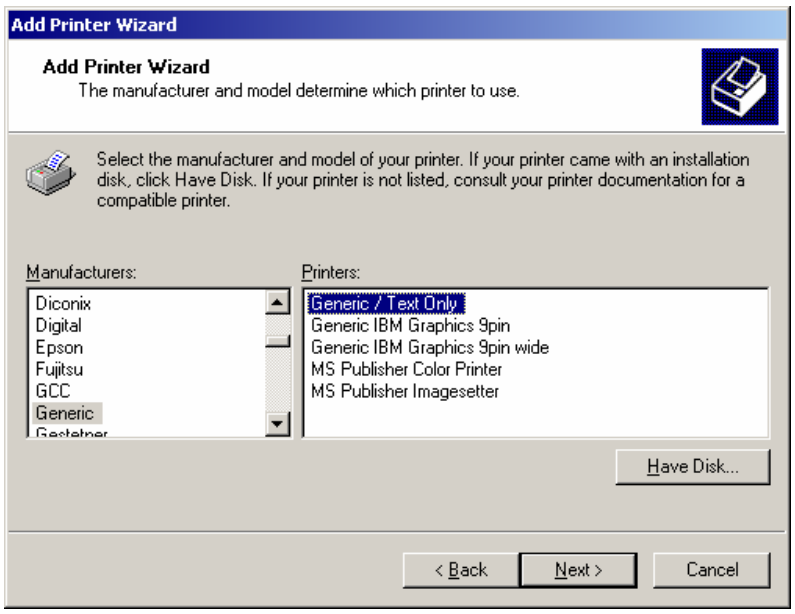


Figure 53 Add Printer Wizard – Install Printer Software.

10. Select a name for your printer. Click **Next >** to proceed.

11. Select **Do not share this printer**. Click **Next >** to proceed.

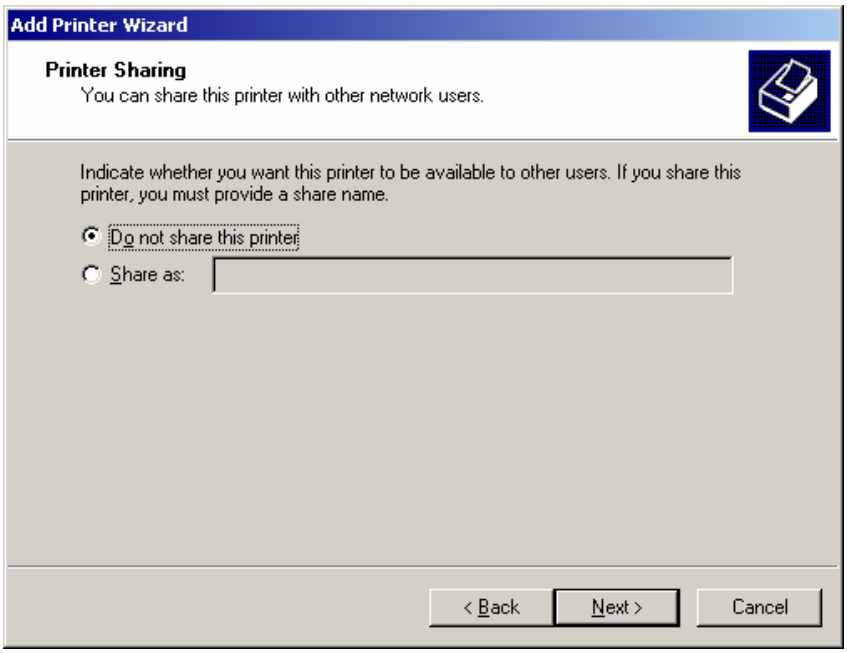


Figure 54 Add Printer Wizard – Printer Sharing.

12. Print a test page to see that your setup is working properly. Click **Next>** to proceed. It could take a minute or two for the test page to be printed.

13. Click **Finish** in the **Add Printer Wizard** if everything is working successfully.

14. Your printer is ready to be used.

6 Trouble-Shooting

This chapter describes how to solve a number of issues that could occur during installation, configuration, and use of the Ericsson W25. More information is available at **www.ericsson.com/fwt**.

Before you try any of the methods described in this chapter, make sure that the connected cables are securely inserted and that the **Power** indicator on the Ericsson W25 is green.

If none of the suggested methods solve your problem, you are recommended to:

1. Restart the Ericsson W25.
2. Reset the Ericsson W25 to factory default configuration and re-install the unit.
3. Contact your service provider.

To restart the Ericsson W25, click **Restart** on the **System** web page. If you cannot access the Ericsson W25 web pages, remove the power cable to disconnect the Ericsson W25 from power and wait a moment before reconnecting the cable.

To reset the settings to factory default, disconnect the Ericsson W25 from power by removing the power cable. If the battery is used as power supply, please remove the battery before the reset. Then use a tip of a pen to press the **Reset** button while reconnecting the power cable. Keep the **Reset** button pressed for at least 20 seconds.

The factory default configuration contains the original settings of your Ericsson W25. When you install your Ericsson W25 and access the web pages for the first time, the configuration file contains the factory default configuration.

Note: A reset to factory default configuration cannot be undone. If you reset the Ericsson W25 to default configuration, all your previous configuration changes are replaced. If you have previously changed the user name and password, the **User Login** page will be displayed. You have to login to the web pages with the default user name and password (**`user`** in both fields).

6.1 No Access to Ericsson W25 Web Pages

If you cannot access the Ericsson W25 internal web pages, take the following actions to identify and solve the problem:

- Check that the PC is configured to obtain an IP address automatically using DHCP. If not, change the PC TCP/IP settings. For instructions, see section 5.1.1 – “Obtaining IP Settings Automatically” or the manual of your operating system.
- If the Ericsson W25 IP address has been changed and you do not know the current IP address, use the **Reset** button to reset the Ericsson W25 to factory default configuration (see above). This will set the IP address to 192.168.1.1 and the web page address to **`http://192.168.1.1`**.
- Make sure you are using the correct login details. If the default password has been changed and you do not know the current password, use the **Reset** button to reset the Ericsson W25 to factory default configuration (see above). This will reset the login details to default values. The default user name and password are “user”.
- If the PC is connected to the Ericsson W25 via an Ethernet cable, check that at least one of the corresponding **LAN** connector indicators is illuminated. If not, make sure that the cable is properly connected or try with another Ethernet cable.
- If you are using a wireless PC, make sure that the **Wireless LAN** indicator on the front panel of the Ericsson W25 unit is illuminated. If not, connect an Ethernet cable between the PC and the Ericsson W25 to establish a connection. The wired connection is required for the initial Wireless LAN configuration of the Ericsson W25.

6.2 No Internet Access

If you cannot access the Internet from any of your local devices, take the following actions to identify and solve the problem:

- On the **Internet** page, make sure that the **Link status** is `Up` and that an **IP address** is defined.
- Make sure that the GSM/UMTS antenna is properly connected and tightened to the Ericsson W25 antenna connector.
- Check the **Alarm** indicator on the front panel of the Ericsson W25 unit. If it is red, see the information in the **Alarms** section on the **Overview** page.

- On the **Internet** page, check that the **PIN** field is filled in and that there is no error message beside this field. If there is a message saying `Insert SIM`, verify that a valid SIM card is correctly inserted and then retype the PIN code on the **Internet** page. If the message says `Set PIN`, only retype the PIN code. If the `SIM blocked` message is displayed, the PUK is required to unblock the card.

- On the **Internet** page, check that the APN is correctly entered in the **APN (3G) and APN (2G)** fields according to the information from your service provider.

- On the **Internet** page, verify that the mobile network signal quality indicator displays at least one bar. If not, move the Ericsson W25 or attach an external antenna (indoor window or outdoor roof mounted). External antennas are available as accessories to the Ericsson W25.

- Make sure that the LAN or WLAN connection is established. For trouble-shooting, see section 6.7 – “No LAN Connection” or 6.8 – “No Wireless LAN Connection”.

6.3 Slow or Intermittent Internet Connection

If your Internet connection is unacceptable slow or regularly dropping, take the following actions to identify and solve the problem:

- On the **Internet** page, verify that the **Connection** is `HSDPA` or `UMTS`. If not, move the Ericsson W25 or attach an external antenna (indoor window or outdoor roof mounted). External antennas are available as accessories to the Ericsson W25. Verify with your operator that HSDPA is available.

- On the **Internet** page, verify that the mobile network signal quality indicator displays at least two bars. If not, try to move the Ericsson W25 or attach an external antenna.

6.4 No Access to a Certain Internet Application

If you cannot access a certain Internet application or specific type of data, take the following actions to identify and solve the problem:

- If the application uses FTP or TFTP, check the **NAT** page to make sure that the ALG supporting the Internet application is enabled.

- If the application requires UPnP IDG, check that **UPnP IDG** is enabled on the **NAT** page.

6.5 Telephony Service not Working

If you cannot make or receive a call from a Phone connected to the Ericsson W25, take the following actions to identify and solve the problem:

- Make sure that the phone is working, for example by connecting it to a fixed line telephone network (PSTN). The phone has to be of a standard touch tone type (with DTMF keypad support).

Note: Some old phones have a keypad, although they do not support DTMF. These phones are consequently not supported by the Ericsson W25.

- Connect the phone directly to the **Phone** connector on the Ericsson W25. Verify that a dial tone is heard when picking up the handset. If not, replace the handset and restart the Ericsson W25. Allow some two minutes for the startup and then listen for the information tone again.

- If an information tone other than the dial tone is heard when lifting the handset verify that the SIM card is correctly inserted, re-enter the PIN, or enter the PUK and a new PIN to unlock the SIM card. The method to use depends on the type of information tone. For information about tones, see section 3.2 – “Information Tones”.

6.6 Fax Service not Working

If you cannot send or receive a fax connected to the Ericsson W25, take the following actions to identify and solve the problem:

- Connect a phone to the **Phone/Fax** connector on the Ericsson W25. Verify that a dial tone is heard. If not, the data service may be out of order. Check that Ericsson W25 has received an IP address. The data service is a prerequisite for the fax service, see section 6.2 – “No Internet Access” for trouble shooting the data service.

- Make sure that the fax is working, for example by connecting it to a fixed line telephone network (PSTN).

- Make sure that the fax is not out of ink or toner or has paper feed problems.

- Messages regarding fax status and failures are shown on the fax.

- Contact your Service Provider if problems remain.

6.7 No LAN Connection

If you cannot access the local network from a PC that is connected to one of the LAN ports on the Ericsson W25, or to an Ethernet switch or hub that is connected to the Ericsson W25, take the following actions to identify and solve the problem:

- Check that at least on of the **LAN** connector indicator is green. If not, check that the Ethernet cable(s) is properly connected.
- Check that the PC is configured to obtain IP address automatically using DHCP. If not, change the PC TCP/IP settings. For instructions, see section 5.1.1 – “Obtaining IP Settings Automatically” or refer to the manual of your operating system.

6.8 No Wireless LAN Connection

If you cannot access the local network from a wireless device, take the following actions to identify and solve the problem:

- Check that the **Wireless LAN** indicator on front panel of the Ericsson W25 unit is illuminated. If not, connect an Ethernet cable between the PC and the Ericsson W25 to establish a connection. The wired connection is required for the initial Wireless LAN configuration of the Ericsson W25.
- Verify that the Wireless LAN interface installed on the wireless client is active.
- Move the Ericsson W25 to another location. Make sure that the mobile network signal is still acceptable before finalizing the installation.
- Check that the **Transmit power [dBm]** on the **Wireless LAN** page is configured in accordance with your requirements on wireless network coverage. The maximum transmit power value is “20”.
- Configure the Ericsson W25 Wireless LAN authentication method to `Open`. This will verify if the Wireless LAN connection is working without encryption. If so, the problem is related to the security settings. See the information below to get help to identify the problem.
- Verify that the operating system and Wireless LAN interface of the client supports the Ericsson W25 authentication and encryption method (WEP 64-bit, WEP 128-bit, WPA, or WPA2). The Ericsson W25 security settings are displayed on the **Wireless LAN** web page. If the security method is not supported, configure the Ericsson W25 to use another method.

- Verify that the network name (SSID) on the Ericsson W25 and the wireless client are the same. Note that the network name is case-sensitive.
- If you are using WEP, make sure that the encryption key length (64-bit or 128-bit) is the same on the Ericsson W25 and the wireless client.
- If you are using WEP, make sure that the wireless client is configured with the same encryption key as the Ericsson W25. Check that the encryption key consists of hexadecimal characters only.
- If you are using WPA or WPA2, make sure that the passphrase is the same on the Ericsson W25 and the wireless client. Note that the passphrase is case sensitive.
- If Whitelist is enabled, make sure that the wireless client is included on this list.
- If the wireless client uses a static IP address, make sure that this IP address is on the same subnet as the Ericsson W25. For instructions on how to check the client's IP address, see the operating system documentation or online help. TheW25 IP address and subnet mask is displayed on the **LAN** page.
- Make sure that your Ericsson W25 network does not use the same radio channel as other wireless devices in the premises, for example security systems. The radio channel is displayed on the **Wireless LAN** page. To avoid interference, let the Ericsson W25 select a channel automatically (`Auto`) or manually change the radio channel currently used.
- Keep the Ericsson W25 away from electrical devices that disturb the radio signals, for example microwave ovens.

6.9 Slow or Intermittent Wireless LAN Connection

If your wireless connections to the local network are unacceptable slow or regularly dropping, take the following actions to identify and solve the problem:

- Move the Ericsson W25 to another location. Make sure that the mobile network signal is still acceptable before finalizing the installation.
- Make sure that your Ericsson W25 network does not use the same radio channel as other wireless devices in the premises, for example security systems. The radio channel is displayed on the **Wireless LAN** page. To avoid interference, let the Ericsson W25 select a channel

automatically (`Auto`) or manually change the radio channel currently used.

- Keep the Ericsson W25 away from electrical devices that disturb the radio frequency signals, for example microwave ovens.
- Check that the **Transmit power [dBm]** on the **Wireless LAN** page is configured in accordance with your requirements on wireless network coverage. The maximum (default) value is “20”.

6.10 No Access to Shared Files or Network Printer

If you cannot access a shared storage device or network printer connected to the one of the USB connectors of the Ericsson W25, take the following action to identify and solve the problem:

- Restart Ericsson W25.
- Disconnect the USB device from the Ericsson W25, and then reconnect it.
- Make sure that the PC belongs to the same workgroup as the Ericsson W25. For instructions, see section 5.3.1. The Ericsson W25 workgroup is displayed on the **Sharing** web page.
- If you have problems accessing a network printer, make sure that the printer drivers are correctly installed on the PC.

6.10.1 USB Printer error

Make sure that the printer is not out of ink or toner or has paper feed problems.

Messages regarding printing status and failures from a shared printer used through the Ericsson W25 may not always be reported back correctly to the computer, please check the printers status lamps for error conditions.

Glossary

2G
The second generation wireless communications technology, introducing digital voice encoding. Low speed data services are supported.

3G
The third-generation wireless communications technology. 3G includes enhanced voice, data, and video capabilities, improved availability, broad bandwith and high speed.

ALG
Application Layer Gateway.
An ALG provides a translation and transportation service for an Internet application. If necessary, the contents of a data packet are modified and if a secondary port is required, the ALG will open one.

AES
Advanced Encryption Standard.
An encryption method used by WPA2. AES offers a high level of security and is approved for sensitive corporate and government data transmission.

AP
Access point.
An Internet device that seamlessly connects wired and wireless networks. Access points attached to a wired network support the creation of multiple radio cells that enable roaming throughout a facility.

APN
Access Point Name.
A reference to the Internet access point of an Service provider.

Authentication
The process to verify the identity of a user requesting network access.

Broadcasting
To simultaneously send the same message to multiple recipients.

CDMA
Code Division Multiple Access.
A general term describing mobile air interface technologies based on “spread spectrum” digital radio access methods, offering benefits including increased capacity, quality and security. CDMA is fundamental to 3G mobile systems.

Channel
A channel determines the radio frequency used by an access point to pass data traffic to wireless clients. Available channels depend on region specific regulations.

CLIP
Calling Line Identity Presentation.
A service that provides a called party the calling line identity,for example the phone number, of the caller.

DHCP
Dynamic Host Configuration Protocol.
A protocol used to provide a framework for passing configuration information on a TCP/IP network.

DHCP server
Dynamic Host Configuration Protocol server.
A configuration server, capable of configuring network devices with a variety of information required for their operation.

DNS
Domain Name System (or Service).
The way that Internet domain names are located and translated into IP addresses.

DTMF
Dual Tone Multi Frequency.
The telephone signaling method used for dialling, tele-banquing and so on.

EDGE
Enhanced Data rates for Global Evolution.
A technology that gives GSM the capacity to handle services for the third generation of mobile telephony. EDGE provides three times the data capacity of GPRS.

Encryption
The translation of data into a form that cannot be easily understood by unauthorized users. Data passing between an access point and network clients can use encryption to protect from interception and eavesdropping.

Encryption key
A sequence of characters used for data encryption. The encrypted data can only be sent and received by users with access to the encryption key.

Ethernet
The most common LAN technology, used in both wired and wireless networks. An Ethernet LAN typically uses coaxial cables or special grades of twisted pair wires.

FTP
File Transfer Protocol.
A protocol for exchanging files over the Internet. FTP is most commonly used to download and upload files from and to servers.

FWT
Fixed Wireless Terminal.
A terminal providing residential and small office users with broadband services like high-speed data, voice, and fax connectivity. Internet access is provided through the mobile communications network.

Gateway
A network point that acts as an entrance to another network.

GPRS
General Packet Radio Service.
A packet-based mobile communications system building on GSM. Advantages over standard GSM include higher data transmission speeds, more efficient use of radio resources and continuous connection to the network to facilitate more advanced non-voice services.

GSM
Global System for Mobile Communication.
The second generation mobile system originally developed in Europe. GSM is oriented to voice and circuit mode data.

Host
A device (usually a computer) connected to a network.

HSDPA
High Speed Downlink Packet Access.
The new standardized evolution of WCDMA that will enable downlink speeds of up to 14 Mbps.

IGD
Internet Gateway Device.
See UPnP IGD.

IMEI
International Mobile Equipment Identity.
The IMEI number of a mobile device is a 15 digit unique code that is used to identify the device on a network.

IP
Internet Protocol.
A part of a suite of protocols that effectively defines the Internet as we know it. Specifies addressing and control information for routing data packets over networks.

IP address
The address of a host on the Internet, consisting of four numbers, each from 0 to 255, separated by periods, for example 192.168.1.1. An IP address consists of a network ID that identifies the particular network the host belongs to, and a host ID uniquely identifying the host itself on that network. A network mask is used to define the network ID and the host ID.

LAN
Local Area Network.
A computer network limited to the immediate area, such as a home, office, or small building.

Lease time
The amount of time that an dynamically assigned IP address will be valid for a specific device.

MAC address
Media Access Control address.
The permanent hardware address of a device assigned by its manufacturer. MAC addresses are expressed as six pairs of hexadecimal characters (0-9 and A-F), with each pair separated by colons. For example: 1a:2b:23:5b:66:9a

Mass Storage
Various techniques and devices used to store large amounts of data. An example of a mass storage device is a hard disk.

NAT
Network Address Translation.
A service performed by many routers that translates a network's IP address into a private IP address for each device on the LAN. Only the router and the LAN know these addresses; the outside world sees only the public IP address when talking to a computer on the LAN.

Network mask
A sequence of bits applied to an IP address to select the network ID while ignoring the host ID. Bits set to 1 mean "select this bit" while bits set to 0 mean "ignore this bit". For example, if the network mask 255.255.255.0 is applied to the IP address 100.10.50.1, the network ID is 100.10.50, and the host ID is 1. See also subnet mask.

Packet
The units of data transmitted on a network. Each packet contains a payload (the data), plus overhead information such as where it came from (source address) and where it will go (destination address).

Passphrase
A secret password used for WPA and WPA2 wireless data encryption. The encryption is based on a WPA master key that is derived from the passphrase and the network name (SSID).

PC
Personal Computer.
A computer designed for use by one person at a time.

PIN
Personal Identification Number.
A secret code used for individual access to for example computer networks. Generally, a PIN is made up of 4 to 10 digits.

PPP
Point-to-Point Protocol.
A protocol for serial data transmission that is used to carry IP (and other protocol) data between the service provider and your computer.

Private IP Address
A private IP Address is typically assigned to a client on a LAN (Local Area Network) and is not used outside the LAN. Private IP addresses are typically used when multiple computers share the same Internet connection.

Protocol
A set of rules governing the transmission of data. In order for a data transmission to work, both ends of the connection have to follow the rules of the protocol.

PSTN
Public Switched Telephone Network.
The traditional, wired telephone network designed primarily for voice traffic.

Public IP Address
A public IP address is a globally unique number that identifies a device on the Internet. Anyone on the Internet can connect to the device using the public address.

PUK
Personal Unblocking Key.
A secret code made up of 8 to 10 digits. The PUK is used to reactivate a SIM card that has been blocked.

Roaming
The movement between microcells in a radio network. Roaming service is used to provide network access independent of where the user resides and what service provider that is running the network.

Routing
The forwarding of data between a local network and the Internet on the most efficient route, based on the data's destination IP address and current network conditions. A device that performs routing is called a router.

RSSI
Received Signal Strength Indicator.
The RSSI is an indicator of the strength of the received radio signal.

SIM
Subscriber Identity Module.
The "smart card" required by all mobile customers to operate their phones. Carries authentication, billing and information about the individual subscriber, as well as address book and other personalized information.

SSID
Service Set Identifier.
A unique network name that differentiates one wireless device from another. Wireless PCs configured with the same SSID can access the same network.

Subnet
A portion of a network. The subnet is distinguished from the larger network by a subnet mask that selects some of the computers of the network and excludes all others. The subnet's devices remain physically connected to the rest of the network, but they are treated as though they were on a separate network.

Subnet mask
A mask that defines a subnet. See also Network mask.

Switching
Routing data traffic by setting up temporary connections between two or more network points. This will take the data toward its intended destination.

TCP
Transmission Control Protocol.
See TCP/IP.

TCP/IP
Transmission Control Protocol / Internet Protocol.
The basic protocols used on the Internet. TCP is responsible for dividing data up into packets for delivery and reassembling them at the destination. IP is responsible for delivering the packets from source to destination. When TCP and IP are bundled with higher-level applications such as HTTP, FTP, Telnet, and so on, TCP/IP refers to this whole suite of protocols.

TFTP
Trivial File Transfer Protocol.
A TCP/IP protocol commonly used for software downloads.

TKIP
Temporal Key Integrity Protocol.
A protocol used for WPA data encryption. It ensures that a unique master key is generated for each packet, supports message integrity and sequencing rules, and supports re-keying mechanisms. TKIP avoids the problems of WEP static keys by dynamically changing data encryption keys.

UDP
User Datagram Protocol.
A connection-less transport service that dispenses with the reliability services provided by TCP. UDP gives applications a direct interface with IP and the ability to address a particular application process running on a host via a port number, without setting up a connection session.

UPnP
Universal Plug and Play.
A networking architecture that provides compatibility among networking equipment, software, or between equipment and software.

UPnP IGD
UPnP Internet Gateway Device.
A standard used by UPnP aware clients, such as MSN Messenger, to work properly from behind a NAT.

UMTS
Universal Mobile Telecommunications Service.
A 3G wireless system that delivers high-bandwidth data and voice services to mobile users. UMTS has an air interface based on WCDMA and a core network based on the General Packet Radio Service (GPRS).

URL
Uniform Resource Locator.
The address of a resource on the Internet.

USB
Universal Serial Bus.
An interface for connecting peripherals such as storage devices and printers to a host.

WAN
Wide Area Network.
A network of computers that covers a large geographical distance. With respect to the Ericsson W25, WAN refers to the Internet.

WCDMA
Wideband CDMA.
The radio access technology for wideband wireless access supporting 3G services. It allows very high speed multimedia services like wireless Internet access and videoconferencing. WCDMA is also known as CDMA DS (Direct Sequence).

WEP
Wired Equivalent Privacy.
A method for data encryption on wireless networks. Data is encrypted into blocks of either 64 bits length or 128 bits length. The encrypted data can only be sent and received by users with access to a private encryption key.

Wireless
A common term used to describe telecommunications in which radio waves (rather than some form of wire) carry the signal over part or all of the communication path.

WLAN
Wireless Local Area Network.
A WLAN is a network in which a mobile user can connect to a LAN through a wireless (radio) connection. The IEEE 802.11 standard specifies the technologies for Wireless LANs.

WPA
Wi-Fi Protected Access.
An authentication and encryption standard for wireless networks. WPA addresses the security limitations of WEP, providing a stronger data encryption method; TKIP. WPA data encryption is based on a WPA master key. The master key is derived from the passphrase and the network name (SSID) of the device.

WPA2
Wi-Fi Protected Access 2.
An enhanced version of WPA. For data encryption, WPA2 uses AES instead of TKIP.

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