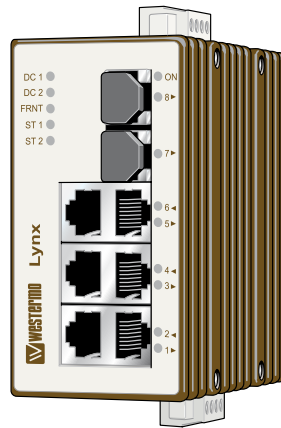


Reference Guide  
6640-3201



# Lynx SERIES



## *Industrial Ethernet 8-port Switch*

[www.westermo.com](http://www.westermo.com)

## **Accessing and Using the Web Interface**

To access to all possible settings, the Lynx switch should be configured via the onboard web based configuration tool. This application note describes the web interface on the Lynx 1xx/4xx and Lynx 1xxx and how to use it. It is important that the unit has the latest firmware, which can be downloaded from Westermo website. All Lynx units with firmware 3.0 or later can be configured through the web interface. If the unit has to be updated, please read the release note on upgrading Lynx before proceeding.

Firmware release note on upgrading the lynx is found at:

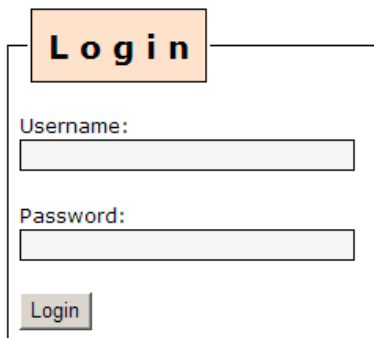
**[www.westermo.com](http://www.westermo.com) Choose download / firmware**

## Accessing the Lynx Web Interface

The Lynx can easily be configured via the onboard Web based configuration interface or by using the Westermo IP Configuration utility.

From the IP Configuration utility a web browser can automatically be launched onto any desired switch in the same subnet, and a login box similar to figure 3 will be displayed.

Figure 3



The image shows a web-based login interface. At the top, there is a light orange rectangular box containing the word "Login" in a bold, black, sans-serif font. Below this box, the form is enclosed in a thin black border. It contains two input fields: the first is labeled "Username:" and the second is labeled "Password:". Both labels are in a blue, sans-serif font. Each label is positioned to the left of a light gray rectangular input field. At the bottom left of the form, there is a button with the word "Login" in a gray, sans-serif font.

Enter the following login details:

- User name: admin
- Password: westermo

**Note!** This is the default login, but once logged in the administrator password can be changed. Default login will not work if the admin password has been changed.

**Note!** This is the default password for all Lynx switches with Firmware 3.12 or later. For Lynx switches with older Firmware the default password is: otn

# Lynx Web Interface Structure

The administrator start page will be displayed and show a brief summary of the unit. It will be similar to figure 4. The menu bar is divided into a main menu, which is the top row tab, and a sub-menu, which is directly under the main menu, figure 5. The main menu tabs are used to select a group of pages, and the sub-menu is used to select a page within that group. Directly under the menu bar the content of the page will be displayed.

Figure 4

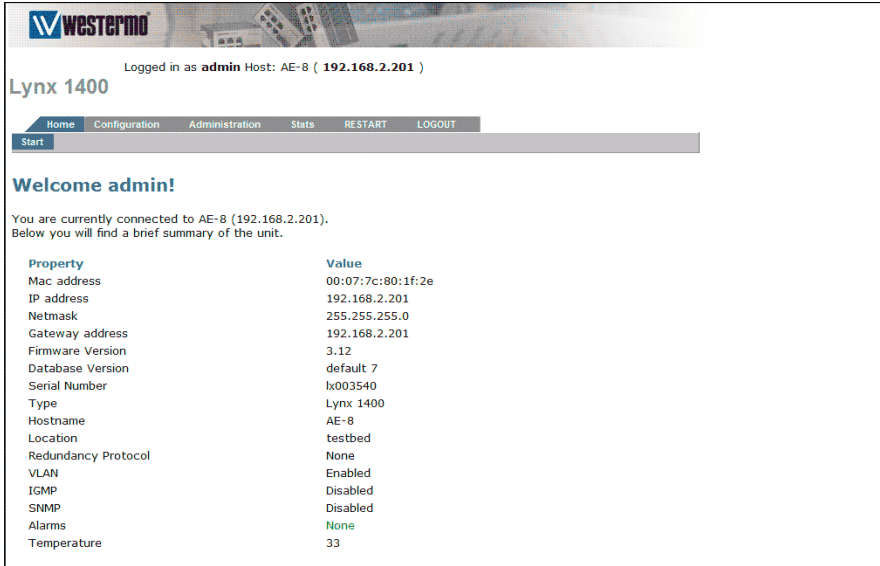


Figure 5



# Configuration

## Network (IP)

The screenshot shows the Western Digital Lynx 1400 web interface. At the top, it says "Logged in as admin Host: AE-8 ( 192.168.2.201 )". Below that is the "Lynx 1400" header. A navigation menu includes "Home", "Configuration", "Administration", "Stats", "RESTART", and "LOGOUT". Under "Configuration", there are sub-menus: "NETWORK (IP)", "IDENTITY", "REDUNDANCY PROTOCOL", "IGMP", "SNMP", "PORT CONFIG", "VLAN", and "MACFILTER". The "NETWORK (IP) Settings" section is active. It displays the following fields:

MAC	00:07:7c:80:1f:2e
IP	<input type="text" value="192.168.2.201"/>
Netmask	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text" value="192.168.2.201"/>

Below these fields is an "Apply" button. Further down, there is a note: "If you wish to enable DHCP, please click the button --->" followed by an "Enable DHCP" button.

The Lynx switch IP-address can individually be changed via the Web Interface, another option is DHCP. These settings can be configured in the *Network (IP) Settings*.

**MAC** The Lynx switch MAC-address (can not be changed)

**IP** If it is desired to change the Lynx switch IP address, enter the new IP address and netmask. Once the changes have been applied, the IP address of the Lynx switch will change. The unit does not need to reboot after changes to the *Network (IP) Settings*.

**Netmask** The subnet netmask of the network.

**Gateway** The address of the gateway in the network.

**Enable DHCP** Enables DHCP protocol on the Lynx switch

Click the "Apply" button to confirm changes made to the *Network (IP) Settings*.

**Note!** If you are not sure about the settings – consult your network administrator.

# Identity



The screenshot shows the Westermo Lynx 1400 web interface. At the top, it says "Logged in as admin Host: AE-8 ( 192.168.2.201 )". Below this is the "Lynx 1400" header. A navigation bar contains tabs for Home, Configuration, Administration, Stats, RESTART, and LOGOUT. Under the Configuration tab, there are sub-tabs for NETWORK (IP), IDENTITY, REDUNDANCY PROTOCOL, IGMP, SNMP, PORT CONFIG, VLAN, and MACFILTER. The "IDENTITY" sub-tab is selected. The main content area is titled "Identity Settings" and contains two input fields: "Hostname" with the value "hostname" and "Location" with the value "location". Below these fields is an "Apply" button.

The Lynx switch identity can be changed via the Web Interface. These settings can be configured in the Identity Settings.

Available options are:

**Hostname** Set desired hostname for the Lynx switch. Accepted characters are 0-9, a-z, A-Z, \_ (underscore) and - (minus).

**Location** Set desired location for the Lynx switch. Accepted characters are 0-9, a-z, A-Z, \_ (underscore) and - (minus).

Click the "Apply" button to confirm changes made to the *Identity Settings*.

## Redundancy protocol – FRNT

WESTERMO

Logged in as **admin** Host: AE-8 ( 192.168.2.201 )

Lynx 1400

Home Configuration Administration Status RESTART LOGOUT

NETWORK (IP) IDENTITY REDUNDANCY PROTOCOL IGMP SHMP PORT CONFIG VLAN MACFILTER

### Redundancy Protocol

**Current protocol: FRNT**

Focalpoint

FRNT port 1

FRNT port 2

If you wish to disable FRNT or enable RSTP, please click the button --->

The Lynx switch supports the redundancy protocol FRNT (Fast Re-configuration of Network Topology, FRNT version 0).

For more information on FRNT, please read the Whitepaper found on the enclosed Lynx CD or at the Westermo website.

Available options are:

**Focal point** If this unit should be the Focal Point, tick the check box.  
If this unit should act as a member in the ring, leave the check box unticked.

**FRNT port 1** Selection of redundant port for FRNT

**FRNT port 2** Selection of redundant port for FRNT

**Disable FRNT** This option disables FRNT.

Click the "Apply" button to confirm changes made to the *Redundancy Protocol* settings. The unit needs to be restarted before changes can take affect.

**Note!** Only one unit in a redundant ring using FRNT can be set as Focal Point.

**Note!** If the redundant ring is created with **copper cables**, selected FRNT ports should be 5 and 6.

# Redundancy protocol – RSTP

WESTERMO

Logged in as admin Host: AE-8 ( 192.168.2.201 )

## Lynx 1400

Home Configuration Administration Stats RESTART LOGOUT

NETWORK (IP) IDENTITY REDUNDANCY PROTOCOL ICMP SNMP PORT CONFIG VLAN MACFILTER

### Redundancy Protocol

**Current protocol: RSTP**

Bridge Prio

Number of nodes

Dynamic Trunking

Edge Ports

1	2	3	4	5	6	7	8
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

If you wish to disable RSTP or enable FRNT, please click the button --->

The Lynx switch support the Rapid Spanning Tree Protocol (RSTP) according to IEEE802.1w with fallback to the Spanning Tree Protocol (STP - IEEE802.1D). The STP fallback feature means that the Lynx switches can be used together with switches that only have support for STP.

*For more information on RSTP, please read the Whitepaper found on the enclosed Lynx CD or at the Westermo website.*

Available options are:

- Bridge Prio** The switch with the lowest priority will become the root switch.
- Number of nodes** Should be equivalent to total number of units in the ring.
- Dynamic** Dynamic trunking is enabled when RSTP is used in a VLAN to eliminate failure
- Trunking** due to an incorrectly configured VLAN. If every unit in the ring has enabled Dynamic trunking, all VLANs will be granted access on the ring.
- Edge Ports** Selection of edge ports for RSTP.
- Disable RSTP** This option disables RSTP.

Click the "Apply" button to confirm changes made to the *Redundancy Protocol settings*. The unit needs to be restarted before changes can take affect.

# IGMP (Internet Group Management Protocol)

WESTERMO

Logged in as **admin** Host: AE-8 ( 192.168.2.201 )

## Lynx 1400

Home Configuration Administration Stats RESTART LOGOUT

NETWORK (IP) IDENTITY REDUNDANCY PROTOCOL **IGMP** SNMP PORT CONFIG VLAN MACFILTER

### IGMP Enabled

If you wish to disable IGMP,  
please click the button --->

Enable Multicast Stopfilter

Enable IGMP Automode

Enable IGMP Querier

Querier interval (Seconds)

Enable IGMP Fast Reconnect

Trunk Ports

1	2	3	4	5	6	7	8
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Lynx switch supports IGMP (Internet Group Management Protocol) snooping based on IGMP v1,IGMPv2 and IGMPv3. To enable IGMP snooping, click *Enable IGMP*.

*For more information on IGMP, please read the Whitepaper found on the enclosed Lynx CD or at the Westermo website.*

Available options are:

### **Disable/Enable IGMP**

This option disables/enables IGMP.

### **Enable Multicast Stopfilter**

Enable this option if the switch should deny unwanted Multicast broadcasts.

### **Enable IGMP Automode**

Options according to possible combinations below:

**Enable IGMP Querier**

Auto mode enabled + Querier disabled:

This unit will always act as a member in the ring.

Auto mode disabled + Querier enabled:

This unit will always act as Querier in the ring.  
(IGMP focal point)

Auto mode enabled + Querier enabled:

This unit can act as a Querier in the ring. If more than one unit in the ring is configured with this setting, the unit with the lowest IP-address will automatically be selected as Querier. If that unit should fail, the unit with the second lowest IP-address becomes the Querier, then the third lowest and so on.

**Querier interval (seconds)**

Indicates the interval between two IGMP query packets. Four intervals are possible. 12, 30, 70 or 150 seconds.

**Enable IGMP Fast Reconnect**

The IP multicast filter implementation is integrated with the Fast Re-configuration of Network Topology (FRNT) protocol. This means that the multicast filters will be updated as fast the FRNT implementation handles a topology change, i.e. approx. 20 ms.

**Trunk Ports**

The IGMP Queriers will be forwarded on selected ports.

Click the "Apply" button to confirm changes made to the *IGMP settings*.  
The unit needs to be restarted before changes can take affect.

## SNMP (Simple Network Management Protocol)

WESTERMO

Logged in as **admin** Host: AE-8 ( 192.168.2.201 )

### Lynx 1400

Home Configuration Administration Stats RESTART LOGOUT

NETWORK (IP) IDENTITY REDUNDANCY PROTOCOL IGMP **SNMP** PORT CONFIG VLAN MACFILTER

#### SNMP Enabled

If you wish to disable SNMP,  
please click the button --->

Community:  
Read ->   
Write ->

The Lynx has support for SNMP v2c with a range of MIBs, which are listed and explained in the Lynx White paper.

The Lynx MIB's are divided into groups allowing the SNMP manager to poll the SNMP agents for information.

*For more information on SNMP and MIB's, please read the Whitepaper found on the enclosed Lynx CD or at the Westermo web page.*

Available options are:

**Disable/Enable SNMP** This option disables/enables SNMP.

**Read** SNMP password to be able to read SNMP values.

**Write** SNMP password to be able to write SNMP values.

Click the "Apply" button to confirm changes made to the *SNMP* settings. The unit needs to be restarted before changes can take affect.

## Port Configuration

WESTERMO

Logged in as admin Host: AE-8 ( 192.168.2.201 )

Lynx 1400

Home Configuration Administration Stats RESTART LOGOUT

NETWORK (IP) IDENTITY REDUNDANCY PROTOCOL IGMP SNMP PORT CONFIG VLAN MACFILTER

### Port Configuration

Port Nr	Link Status	Current Config	New Config	Special Mode	Ingress Limit	Egress Limit	Portalarm
1	LINK	Auto	Auto	None	0	0	<input type="checkbox"/>
2		Auto	Auto	None	0	0	<input type="checkbox"/>
3		Auto	Auto	None	0	0	<input type="checkbox"/>
4		Auto	Auto	None	0	0	<input type="checkbox"/>
5		Auto	Auto	None	0	0	<input type="checkbox"/>
6		Auto	Auto	None	0	0	<input type="checkbox"/>
7		1000M FDX	1000M FDX	None	0	0	<input checked="" type="checkbox"/>
8		1000M FDX	1000M FDX	None	0	0	<input checked="" type="checkbox"/>

Apply

All ports can be configured individually in the *Port Configuration*. To confirm changes made to the *Port Configuration* click the *Apply* button. The unit needs to be restarted before changes can take affect.

Parameter	Options	Description
Port Number	N/A	Port number correspond to the port number on the actual switch
Link Status	LINK	Indicates Link status
Current Config	Disabled Auto 10M HDX 10M FDX 100M HDX 100M FDX 1000M FDX (Port 7-8 only)	Current port settings
New Config		Configuration of new setting
	Disabled	Port disabled
	Auto	Port automatically set to same capacity as receiver
	10M HDX	10 Mbit half duplex
	10M FDX	10 Mbit full duplex
	100M HDX	100 Mbit half duplex
	100M FDX	100 Mbit full duplex
	1000M FDX (Port 7-8 only)	1 Gbit full duplex (Port 7-8 only)
Special Mode	None	Normal mode
	Mirror	A port set to mirror mode will receive data from ports set to sniff mode.
	Sniff	Data sent on a port set to sniff mode can be received from ports set to mirror mode.
Ingress Limit 1)	0-8192	Bandwidth limit into the port
Egress Limit	0-8192	Bandwidth limit out of the port
Port Alarm	ActivatedNot Activated	Port alarm activatedPort alarm deactivated

Note 1. Works only for UDP packets, not TCP/IP

# VLAN

Logged in as admin Host: AE-8 ( 192.168.2.201 )

Lynx 1400

Home Configuration Administration Stats RESTART LOGOUT

NETWORK (IP) IDENTITY REDUNDANCY PROTOCOL IGMP SNMP PORT CONFIG **VLAN** MACFILTER

## VLAN Configuration

Name	Port Nr								Vlan Id	Pri
	1	2	3	4	5	6	7	8		
WHITE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	7
RED	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2	0
BLUE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	3
GREEN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4	5
YELLOW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	7
BROWN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6	0
PINK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7	0
Default	white	blue	red	blue	blue	green	white	white		
Remove Tag	X	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Apply

Restore Default Settings

Disable VLAN

The Lynx has support for VLAN, and each trunk port can be individually granted different levels of access. In the VLAN Configuration each VLAN ID is named as a different colour. The colour White is static and set as management VLAN with VLAN ID 1, this can not be changed.

All other predefined VLANs are fully manageable, and necessary settings are made in the VLAN Configuration.

For more information on VLAN, please read the Whitepaper found on the enclosed Lynx CD or at the Westermo web page.

Parameter	Options	Description
Name	White	White is set as management VLAN.VLAN ID 1
	Red Blue Green Yellow Brown Pink	Red-Pink VLAN are 6 predefined VLAN that can be managed.
Port Nr	1-8	Configure which VLAN colour should be allowed on each port
	Drop down menu	Defines colour (VLAN ID) port Nr should have
	Check box	VLAN allowed on this port
Vlan Id	1-4094	VLAN id for each VLAN
Pri	0-7	Priority for traffic on each VLAN. 0 equals lowest priority. 7 equals highest priority.

# MAC Filter

WESTERMO

Logged in as admin Host: AE-8 ( 192.168.2.201 )

## Lynx 1400

Home Configuration Administration Stats RESTART LOGOUT

NETWORK (IP) IDENTITY REDUNDANCY PROTOCOL IGMP SNMP PORT CONFIG VLAN **MACFILTER**

### MACFILTER DISABLED

If you wish to enable Macfilter,

please click the button --->

Add the approved MAC-addresses by using the input-box below. The address need to be in the "standard" format - e.g. 00:07:7c:cd:ff:ee - You can also use a "\*" as a wildcard - i.e. to allow all Westermo OnTime-addresses you would input the string 00:07:7c:\*:\*:\* . Please note that the maximum number of entries in the list is 50. (If you try to enter an invalid address you will get an error message.)

If you want to add multiple addresses at the same time you can input them as a semi-colon separated list in the text-box below.  
For example : 00:07:7c:00:00:01;00:07:7c:00:00:02;00:07:7c:10:\*:\*

If the MAC filter is enabled, only approved MAC addresses will be granted access through the switch. To approve MAC addresses, add them according to the methods below.

**Note that this function should be used with care. An incorrect configuration could result in total denied access, and a factory reset of the unit would then be needed.**

MAC addresses can be added to the MAC filter by different methods:

- 1) One by one by adding a single MAC address in the small input-box.  
The MAC address should be typed in the standard format - e.g. 00:07:7c:12:34:56
- 2) As a range of addresses using an asterisk, \*, as a wild card. E.g. 00:07:7c:12:34:\*  
This will allow addresses between 00:07:7c:12:34:00 to 00:07:7c:12:34:ff.
- 3) As a sequence of single MAC addresses divided by a semi colon.  
Example: 00:07:7c:00:00:00;00:07:7c:00:01:00;00:07:7c:00:0\*:\*;00:07:7c:00:00:02;

MAC addresses can be added according to method 1 and method 2 in the sequence.

Available options are:

**Input-box small** Input-box if a MAC address is added according to method 1) or 2)

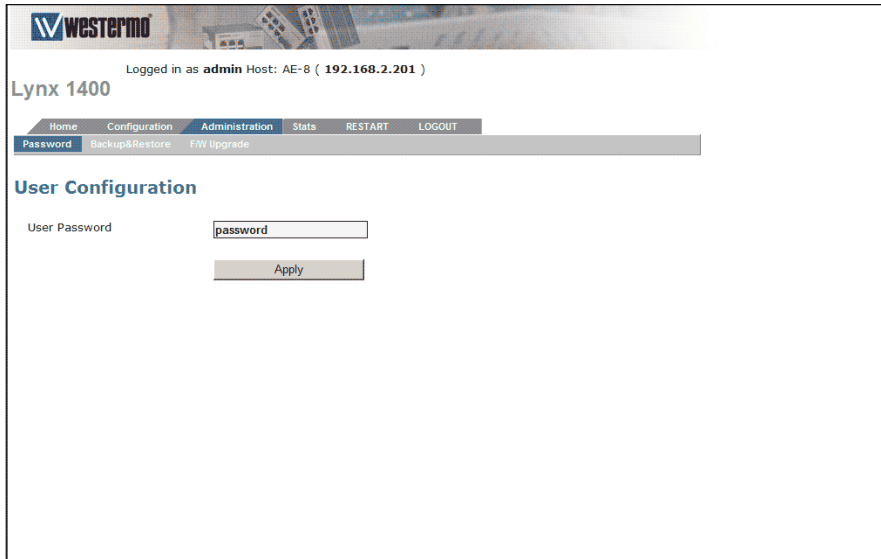
**Input-box large** Input-box if a MAC address is added according to method 3)

Click the "*Apply*" button to confirm changes made to the *MAC filter* settings. The unit needs to be restarted before changes can take affect.

**Note!** Once the MAC filter has been enabled on a unit, the units own MAC address must be added to the MAC filter.

# Administration

## Password



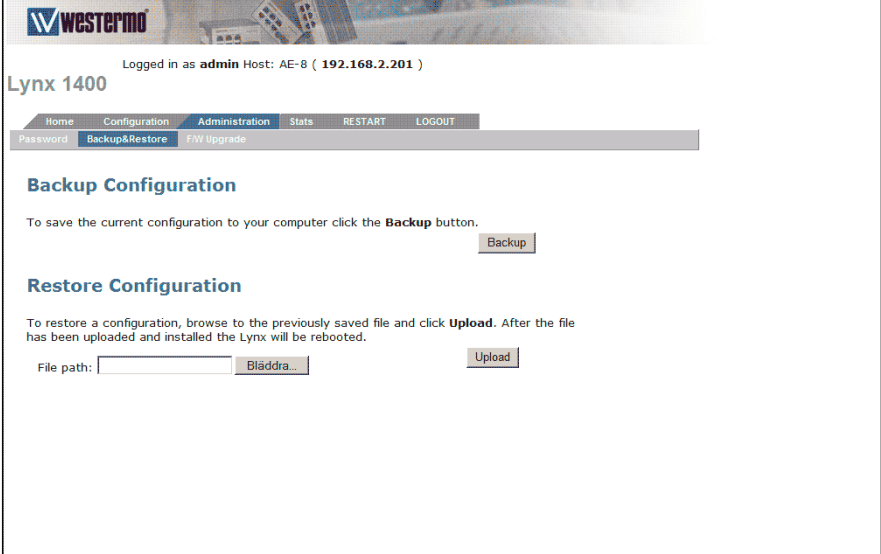
The Lynx switch administrator password can be changed via the Web Interface. These settings can be made in the *User Configuration*.

Available options are:

**User Password**      Insert new password. Once the changes have been applied, the administrator password of the Lynx switch will change.

Click the "Apply" button to confirm changes made to the *User Configuration*.

## Backup & Restore



The screenshot shows the web interface for a Lynx 1400 switch. At the top, it says "Logged in as admin Host: AE-8 ( 192.168.2.201 )". Below that is the "Lynx 1400" logo. A navigation bar includes "Home", "Configuration", "Administration", "Stats", "RESTART", and "LOGOUT". A secondary bar has "Password", "Backup&Restore", and "FW Upgrade". The main content area is titled "Backup Configuration" and contains the text: "To save the current configuration to your computer click the **Backup** button." followed by a "Backup" button. Below that is the "Restore Configuration" section with the text: "To restore a configuration, browse to the previously saved file and click **Upload**. After the file has been uploaded and installed the Lynx will be rebooted." followed by a "File path:" label, an input field, a "Browse..." button, and an "Upload" button.

The configuration of the Lynx switch can be saved as a file to a PC. The file can then be used to restore the configuration later on, or used to configure another switch with identical configuration.

Available options are:

Backup

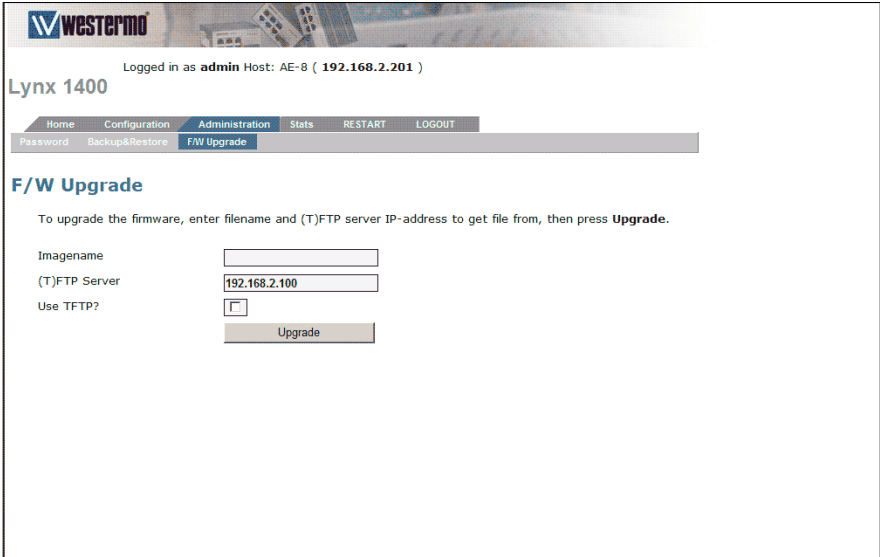
To save current configuration, click Backup and save file to a suitable location.

Upload

To load a saved configuration, insert path and filename into *File path* table or click Browse to browse the location of the saved file. When file path is valid, click *Upload*.

The unit needs to be restarted before loaded settings can take affect.

# Firmware Upgrade



The screenshot shows the Westermo Lynx 1400 web interface. At the top, it says "Logged in as admin Host: AE-8 ( 192.168.2.201 )". Below this is the "Lynx 1400" header. A navigation menu includes "Home", "Configuration", "Administration", "Stats", "RESTART", and "LOGOUT". A secondary menu below it includes "Password", "Backup&Restore", and "FW Upgrade". The main heading is "F/W Upgrade". Below the heading, there is a text instruction: "To upgrade the firmware, enter filename and (T)FTP server IP-address to get file from, then press **Upgrade**." There are three input fields: "Imagename" (empty), "(T)FTP Server" (containing "192.168.2.100"), and "Use TFTP?" (with an unchecked checkbox). An "Upgrade" button is located at the bottom of the form.

Lynx switches with firmware 3.12 and latter can be updated via the Web Interface. To accomplish a firmware update a TFTP or FTP server must be available on the network. For more information on updating the Lynx switch, please read the release note on upgrading Lynx before proceeding,

Firmware release note on upgrading the lynx is found at:  
[www.westermo.com](http://www.westermo.com) Choose download / firmware

Available options are:

- Imagename**            Insert file name to the new Firmware
- (T)FTP Server**        Insert IP address to the TFTP/FTP
- Use TFTP**              Tick check box if a TFTP server should be used, otherwise leave the check box unmarked.

Click the "Upgrade" button to confirm changes made to the *FW Upgrade*. The unit needs to be restarted before a firmware update can take affect.

# Statistic

## Port statistics

Logged in as **admin** Host: AE-8 ( 192.168.2.201 )

**Lynx 1400**

Home Configuration Administration **Stats** RESTART LOGOUT

Port Stats

### Port 1 Statistics

<b>Link Status</b>	LINK		
<b>Inbound Traffic</b>		<b>Outbound Traffic</b>	
Total Bytes In	29891	Total Bytes Out	164016
Broadcasts In	47	Broadcasts Out	0
Multicasts In	0	Multicasts Out	553
Unicasts In	175	Unicasts Out	223
<b>Errors</b>			
Collisions	0	Fragments	0
Oversize	0	Undersize	0
Jabber	0	Late	0
Frame Checksum Errors In	0	Frame Checksum Errors Out	0
<b>Traffic Size Analysis</b>			
64 Octets	681	256 -> 511 Octets	16
65 -> 127 Octets	172	512 -> 1023 Octets	70
128 -> 255 Octets	3	1024 -> 1518 Octets	56

Previous Port Refresh Clear Port Next Port

A overview of the Lynx port statistics

Available options are:

- Details**            Get a more detailed specification on a specific port
- Refresh**           Refresh statistics
- Clear all**           Clear all statistics

<b>Parameter</b>	<b>Options</b>	<b>Description</b>
Port Number	N/A	Port number correspond to the port number on the actual switch
Link Status	LINK (White) LINK (Green) LINK (Red)	Indicates established link Indicates established redundant link Indicates failed redundant link
Speed / Duplex	N/A	Current port settings
Total Bytes in	N/A	Total Bytes received on port
Total Bytes out	N/A	Total Bytes sent from port
In Bytes/ s	N/A	Bytes received each second on port
Out Bytes/ s	N/A	Bytes transmitted each second on port
FCS Errors	N/A	Total frames received with a CRC error not counted in InFragments, InJabber or InRxErr.

## Port Statistics – Details

Logged in as **admin** Host: AE-8 ( 192.168.2.201 )

**Lynx 1400**

Home Configuration Administration **Stats** RESTART LOGOUT

Port Stats

### Port 1 Statistics

<b>Link Status</b>	LINK		
<b><u>Inbound Traffic</u></b>		<b><u>Outbound Traffic</u></b>	
<b>Total Bytes In</b>	29891	<b>Total Bytes Out</b>	164016
<b>Broadcasts In</b>	47	<b>Broadcasts Out</b>	0
<b>Multicasts In</b>	0	<b>Multicasts Out</b>	553
<b>Unicasts In</b>	175	<b>Unicasts Out</b>	223
<b><u>Errors</u></b>			
<b>Collisions</b>	0	<b>Fragments</b>	0
<b>Oversize</b>	0	<b>Undersize</b>	0
<b>Jabber</b>	0	<b>Late</b>	0
<b>Frame Checksum Errors In</b>	0	<b>Frame Checksum Errors Out</b>	0
<b><u>Traffic Size Analysis</u></b>			
<b>64 Octets</b>	681	<b>256 -&gt; 511 Octets</b>	16
<b>65 -&gt; 127 Octets</b>	172	<b>512 -&gt; 1023 Octets</b>	70
<b>128 -&gt; 255 Octets</b>	3	<b>1024 -&gt; 1518 Octets</b>	56

Previous Port Refresh Clear Port Next Port

A detailed overview of a specific port.

Available options are:

- |               |   |
|---------------|---|
| Previous port | Display detailed specifics of previous port |
| Refresh       | Refresh statistics                          |
| Clear all     | Clear all statistics                        |
| Next port     | Display detailed specifics of next port     |

<b>Parameter</b>	<b>Description</b>		
Link Status	Indicates link status		
<b>Inbound traffic</b>	<b>Description</b>	<b>Outbound traffic</b>	<b>Description</b>
Total bytes In	Total Bytes received on port	Total bytes Out	Total Bytes transmitted on port
Broadcasts In	The number of good framed received that have a Broadcast destination MAC address.	Broadcasts Out	Total Broadcasts received on port
Multicasts In	The number of good framed received that have a Multicast destination MAC address.	Multicasts Out	Total Multicasts received on port
Unicasts In	The number of good framed received that have a Unicast destination MAC address.	Unicasts Out	Total Unicasts received on port

<b>Errors</b>	<b>Description</b>	<b>Errors</b>	<b>Description</b>
Collisions	The number of collision events seen by the MAC not including those counted in Single, Multiple, Excessive or Late. This counter is applicable in half-duplex.	Fragments	Total frames received with a length of less than 64 octets and an invalid FCS
Oversize	Total frames received with a length of more than MaxSize octets but with an invalid FCS.	Undersize	Total frames received with a length of less than 64 octets but with a valid FCS.
Jabber	Total frames received with a length of more than MaxSize octets but with an invalid FCS.	Late	The number of times a collision is detected later than 512 bits-times into the transmission of a frame. This counter is applicable in half-duplex only.
Frame checksum errors	Total frames received with a CRC error not counted in InFragments, InJabber or InRxErr.	Frame checksum errors Out	The number of frames transmitted with an invalid FCS. Whenever a frame is modified during transmission (e.g., to add or remove a tag) the frame's original FCS is inspected before a new FCS is added to a modified frame. If the original FCS is invalid, the new FCS is made invalid too and this counter is incremented.

<b>Traffic Size Analysis</b>	<b>Description</b>	<b>Traffic Size Analysis</b>	<b>Description</b>
64 Octets	Total frames received (and/or transmitted) with a length of exactly 64 octets, including those with errors.	256 -> 511 Octets	Total frames received (and/or transmitted) with a length of between 256 and 511 octets, including those with errors.
65 -> 127 Octets	Total frames received (and/or transmitted) with a length of between 65 and 127 octets, including those with errors.	512 -> 1023 Octets	Total frames received (and/or transmitted) with a length of between 512 and 1023 octets, including those with errors.
128 -> 255 Octets	Total frames received (and/or transmitted) with a length of between 128 and 255 octets, including those with errors.	1024 -> 1518 Octets	Total frames received (and/or transmitted) with a length of between 1024 and 1518 octets, including those with errors.





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