



Z H O N E®

For software version 1.2.2.115

July 9, 2008

EtherXtend Release Notes

This document provides information for the EtherXtend 1.2.2.115 release and includes the following information:

- Summary
- New Features
- Problems Fixed
- Known issues or limitations
- Upgrade procedure
- Contacting Global Service and Support

Summary

The EtherXtend 30x4 is a family of SHDSL EFM Network Extenders. These devices support IEEE 802.3ah loop bonding to create a WAN uplink connection up to 22 Mbps. Each EtherXtend device provides 4 local Ethernet ports for connection to customer equipment.

Typical applications include leased line replacement, transparent LAN services, Branch-to-Headquarters connectivity, and Internet Access.

New Features

CO Mode

- ◇ R1.2.2.115 adds support for CO Mode, so that two EtherXtend 30xx CPE devices can be configured to operate “back to back”, with one unit configured for CO mode and the other unit configured for CP mode.
- ◇ The “CO Mode” LED on the front of the 30xx modem will be illuminated when CO Mode is active.
- ◇ One EFM bond group is supported by 30xx CPE devices in CO Mode, so only one CPE device can be connected to it. Unused SHDSL EFM links cannot be used to connect a second CPE device.
- ◇ The CO Mode unit can be configured for fixed rate operation at any supported data rate, with no configuration changes to the CP Mode device required. The default configuration is Adaptive mode with a target SNR Margin of 6dB.

```
/config efm group mode CO
```

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DHCP Client for Management IP Address Assignment (default enabled)

- ◇ New EtherXtend 30x4 units shipped from the factory with R1.2.2.107 and later SW will not have the static IP Address (192.168.2.1) provisioned for management access. Instead, DHCP Client mode will be enabled on VLAN 7, to enable automatic IP Address assignment when connected to the MALC. If a static IP Address is desired, the console connection can be used to provision a static IP Address. To do this, set your terminal emulator for 9600 N 8 1 mode and log in to the unit using the default ID (admin) and password (zhone). At the CLI prompt, enter the following command to configure static IP address 192.168.2.1 on the default data path (VLAN1, untagged):

```
/config if interface brvlan1 ip 192.168.2.1 mask 255.255.255.0 broadcast 192.168.2.255  
/config admin-tools save running-config
```

SNMP MIB2 Support

MIB-2 RFC1213
SNMP V1 and V2c Support
Unlimited number of trap managers and configurable trap communities

SNMP Alarms and Traps

Standard traps:

Cold Start	OID = .1.3.6.1.6.3.1.1.5.1
Link Down	OID = .1.3.6.1.6.3.1.1.5.3
Link Up	OID = .1.3.6.1.6.3.1.1.5.4
Authentication failure	OID = .1.3.6.1.6.3.1.1.5.5

Enterprise traps:

Zhone Alarm-Set	OID = .1.3.6.1.4.1.5504.2.5.1.0.1
Zhone Alarm-Clear	OID = .1.3.6.1.4.1.5504.2.5.1.0.2
Zhone Test-Start	OID = .1.3.6.1.4.1.5504.2.5.1.0.3
Zhone Test-Stop	OID = .1.3.6.1.4.1.5504.2.5.1.0.4
Zhone Ready	OID = .1.3.6.1.4.1.5504.2.5.1.0.7
Zhone Persistent Config Changed	OID = .1.3.6.1.4.1.5504.2.5.13.0.1

PING utility

From the BusyBox shell, a “ping-like” utility (zhnping) can be invoked for diagnostic purposes. After entering the shell, execute the following for additional information on the usage and command syntax for the zhnping:

```
EtherXtend login: admin  
Password:  
EtherXtend> shell  
BusyBox v1.00 (2007.10.18-20:25+0000) Built-in shell (ash)  
Enter 'help' for a list of built-in commands.  
~$ zhnping  
Try zhnping --help' for more information.  
QUICK START:  
simple ICMP ping: zhnping -l <host>
```

```

simple TCP ping: zhnping <host>
simple Port Scan: zhnping --scan 1-30,70-90 -S <host>

~ $ zhnping -1 10.112.3.254
HPING 10.112.3.254 (brvlan1 10.112.3.254): icmp mode set, 28
headers + 0 data bytes
len=28 ip=10.112.3.254 ttl=255 id=65445 icmp_seq=0 rtt=0.8 ms
len=28 ip=10.112.3.254 ttl=255 id=61655 icmp_seq=1 rtt=0.9 ms

--- 10.112.3.254 hping statistic ---
2 packets tramitted, 2 packets received, 0% packet loss
round-trip min/avg/max = 0.8/0.8/0.9 ms
~ $ exit

```

VLAN Priority and Rate Limiting

By default a first level of priority queuing is enforced on the physical LAN ports. Weighted round robin queuing is used to ensure the queues have access to at least some of the uplink bandwidth. The eight IEEE 802.1p priorities are mapped to the four queues according to the rules defined in Clause 7.7.3 and table 7-2 of the IEEE 802.1D standard. The queue mapping is defined as follows:

802.1p priority value	Internal Priority Queue
7	Critical
6	Critical
5	High
4	High
3	Medium
2	Low
1	Low
0	Medium

The weights are distributed as follows.

```

Queue1 (critical) = 50%
Queue2 (high) = 25%
Queue3 (medium) = 15%
Queue4 (low) = 10%

```

On a single service round, Queue1 can send 50% of the bandwidth, Queue2 can send 25%, etc. If there is only traffic on Queue1, it will take two rounds for it to reach 100% of the bandwidth. Likewise if there is only traffic on Queue2, it will take 4 rounds for it to reach 100% of the bandwidth, etc.

VLANs can be configured for rate limiting. Rate limited VLANs can be configured for a second level of priority queuing. The second level of queuing is strict priority queuing where a queue is serviced until it is empty.

Using the CLI to configure VLAN 1 rate limited 1000kbps queuing enabled:

```
EtherXtend> /config vlan vlanconfig rate-limit vlanid 1 enable rate 1000 queuing enable
```

Problems Fixed

- ◇ The size of the Tx buffer used for queuing upstream traffic is now adjusted automatically to a total size = 600msec X aggregate EFM Bond Group rate.

For example, when the aggregate EFM Bond Group rate is 500,000 bps, the Tx buffer size is configured for 300,000 bits (37,500 bytes).

SW Releases prior to R1.2.2.115 used a fixed Tx buffer size of 1,200,000 bytes.

This provides 600msec of buffering when the aggregate EFM Bond Group rate is 20,000,000 bps, but at lower rates the buffer is much larger than it needs to be. At lower rates, it was possible for a burst of traffic to introduce a queuing delay of 1 second or more, causing some client-server applications to time out.

- ◇ The R1.2.2.115 release incorporates new SW for the Infineon SHDSL transceiver that resolves an issue with occasional CRC errors at line rates of 512Kbps and lower.
- ◇ Further improvements have been made to increase robustness when operating on long loops with excessive noise.

Known Issues

- ◇ Upload backup file using SCP (Secure Copy) does not work
- ◇ EtherXtend CPE ifOperStatus always up even when a LAN connection is down
- ◇ Link up/down traps are sent for the EFM bond group, but not when individual SHDSL links go up or down.
- ◇ Authentication trap will be sent when option is disabled
- ◇ Configure Interface Ethernet modify command does not refresh web page when using MicroSoft IE to modify Eth1. You get a pop up of "Make changes to the page and then click apply". The pop up does not close and the Configure Interfaces Ethernet web page is not updated until you re-enter the page
- ◇ CLI command "help-config admin-tools" describes restore as config only and does not mention previous bank of software
- ◇ CLI show syslog command does not always work.

Features not supported in this release

- ◇ VLAN Secure Forwarding mode is not supported but there is a CLI command for it.

Upgrade Procedure

This section describes the SW Upgrade and Bank Switch features of the EtherXtend 30xx CPE devices, and provides a detailed SW Upgrade Procedure.

SW Upgrades

EtherXtend has two banks for software with a dedicated set of configuration files associated with each bank. Only one bank of software and its associated configuration database is active at a time (called the “current” bank). The second bank is used to hold an alternate software revision and configuration. (called the “alternate” bank).

Upgrading the SW of an EtherXtend unit is a two step process.

1. Download the new SW image into EtherXtend temporary memory.
2. Upgrade the EtherXtend to the SW image that is in the temporary memory.

An Upgrade causes the following actions:

- a. The Alternate software bank is erased and reformatted
- b. The new SW image that has been downloaded into temporary memory is uncompressed and written to the Alternate bank.
- c. The configuration database in the Current bank is migrated over to the Alternate bank.
- d. A bank switch is performed, with the Current Bank now containing the new SW revision and migrated configuration database.

IMPORTANT NOTE: A reset to Factory Defaults is required when “Upgrading” to an older SW revision (a SW downgrade).

Upgrade example:

- o EtherXtend unit with release 1.2.2.107 in the Current Bank and 1.2.2.103 in the Alternate Bank
- o EtherXtend unit is upgraded to R1.2.2.115

Before Firmware Download

Bank #	Status	Release	Configuration File
1	Current	R1.2.2.107	Configuration B
2	Alternate	R1.2.2.103	Configuration A

After Firmware Download (R1.2.2.115) but before pressing Upgrade button

Bank #	Status	Release	Configuration File
1	Current	R1.2.2.107	Configuration B
2	Alternate	R1.2.2.103	Configuration A
Temp		R1.2.2.115 (compressed)	none

After pressing Upgrade button

Bank #	Status	Release	Configuration File
1	Alternate	R1.2.2.107	Configuration B
2	Current	R1.2.2.115	Configuration C (see note)

IMPORTANT NOTE: During the Upgrade, Configuration B is migrated from the SW revision in Bank #1 to be compatible with the new SW revision that is in Bank #2. The migrated configuration database is called Configuration C.

The upgraded EtherXtend unit is now running the new firmware and the previously active configuration database was migrated to the new firmware.

Any additional configuration changes that are made will be applied only to the Current bank (Config C) and will not be applied to the Alternate bank (Config B).

Firmware Bank Switching

The bank switch feature may be used to toggle the Current bank between Bank 1 and Bank 2. Since each bank contains the configuration database associated with the SW revision in that bank, switching between a newer SW revision and an older SW revision is fully supported. Alternatively, the bank switch feature can be used to support switching between two different configurations for the same SW revision.

IMPORTANT NOTE: No database migration occurs as a result of a bank switch – the configuration stored in the alternate bank becomes active.

Bank Switch example:

- EtherXtend unit with release 1.2.2.115 in the Current Bank and 1.2.2.107 in the Alternate Bank
- A Bank Switch is performed

Before Bank Switch

Bank #	Status	Release	Configuration File
1	Alternate	R1.2.2.107	Configuration B
2	Current	R1.2.2.115	Configuration C

After Bank Switch

Bank #	Status	Release	Configuration File
1	Current	R1.2.2.107	Configuration B
2	Alternate	R1.2.2.115	Configuration C

You can switch the active firmware bank. The command will force the unit to load the version of firmware that resides in the other “alternate” firmware bank. The Configuration database that is in the alternate bank will become active as well.

IMPORTANT NOTE: When a Bank Switch is performed, the currently active configuration will not be migrated to the newly active bank. The only time that the configuration file is migrated is during a SW Upgrade.

```
system> /config admin-tools restore previous-bank
```

WARNING: This command will cause the unit to reboot.

The following command will display the firmware on the EtherXtend unit:

```
EtherXtend> /show system general-info
```

```
Firmware version           - 1.2.2.107
Alt Bank Firmware version  - 1.2.2.115
Serial number              - HGGKW
Host name                  - EtherXtend
Domain name                - EtherXtendDomain
Primary DNS                - 0.0.0.0
Secondary DNS              - 0.0.0.0
Date                      - 01-06-2007
Time                      - 02:12:34
Uptime                    - 5 days, 2:13
```

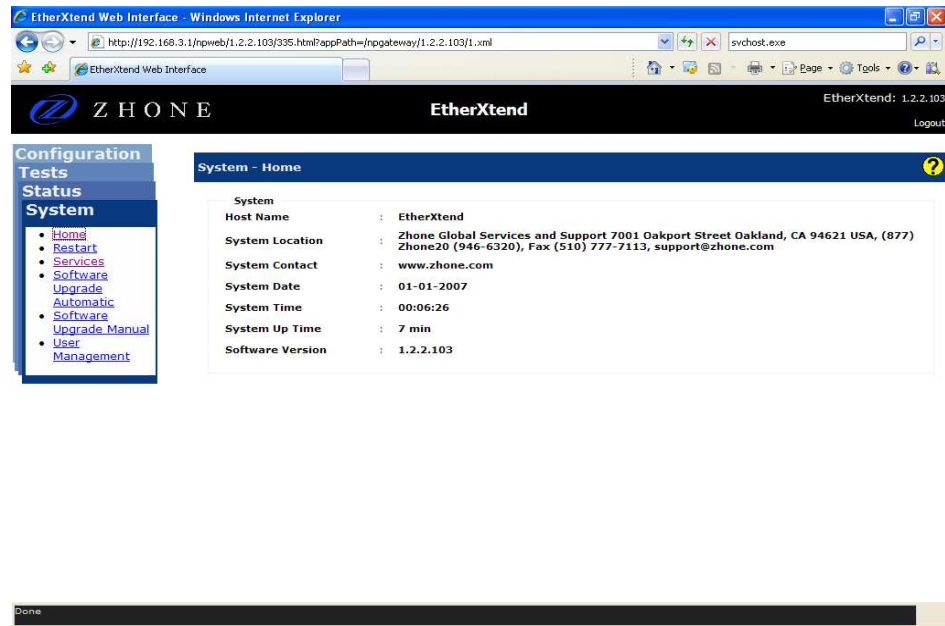
Upgrading EtherXtend software

The EtherXtend CPE provides a built-in mechanism for upgrading its software image without losing customer configurations and settings. To upgrade the software image, use a software image file pre-downloaded to your PC's disk drive.

The following is an example of upgrading an EtherXtend CPE, which is running firmware version 1.2.2.103 to firmware version 1.2.2.107. A PC is connected directly to the EtherXtend CPE's LAN port.

To upgrade the EtherXtend CPE's software image using a locally available *.img* file:

- 1 Viewing the current firmware revision
(here you can see firmware version 1.2.2.103):



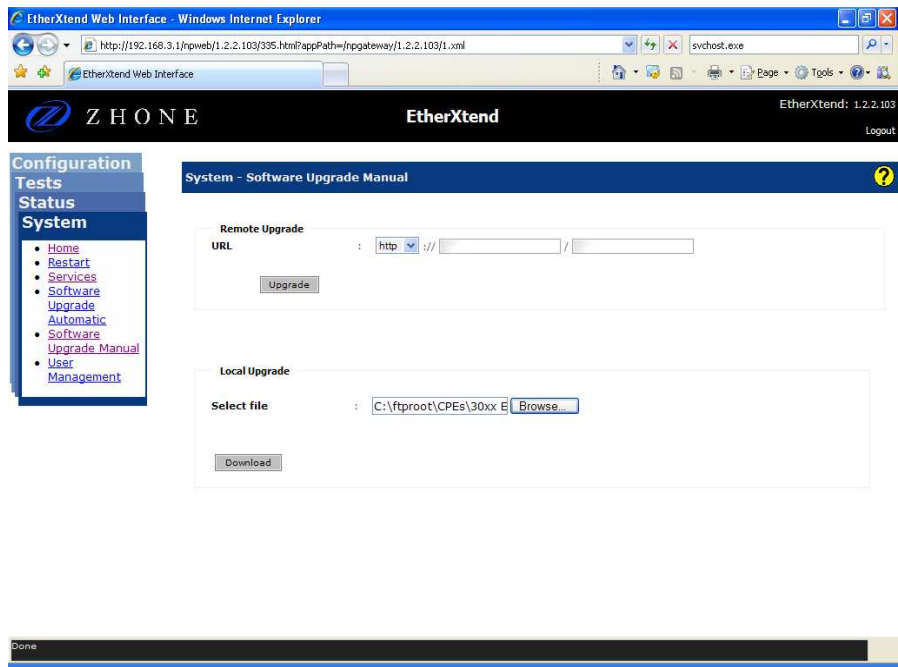
The screenshot shows the EtherXtend Web Interface in a Windows Internet Explorer browser window. The address bar shows the URL: `http://192.168.3.1/nrweb/1.2.2.103/335.html?appPath=/nrgateway/1.2.2.103/1.xml`. The page title is "EtherXtend Web Interface". The interface features the Zhone logo and "EtherXtend" branding. A navigation menu on the left includes "Configuration", "Tests", "Status", and "System". The "System" menu is expanded, showing options like "Home", "Restart", "Services", "Software", "Upgrade", "Automatic", "Software", "Upgrade Manual", "User", and "Management". The main content area, titled "System - Home", displays the following system information:

System	
Host Name	: EtherXtend
System Location	: Zhone Global Services and Support 7001 Oakport Street Oakland, CA 94621 USA, (877) Zhone20 (946-6320), Fax (510) 777-7113, support@zhone.com
System Contact	: www.zhone.com
System Date	: 01-01-2007
System Time	: 00:06:26
System Up Time	: 7 min
Software Version	: 1.2.2.103

- 2 In the **System Software Upgrade Manual** section enter the path of the software image file, or press the **Browse** button to browse for the file on the PC, then click **Download**.

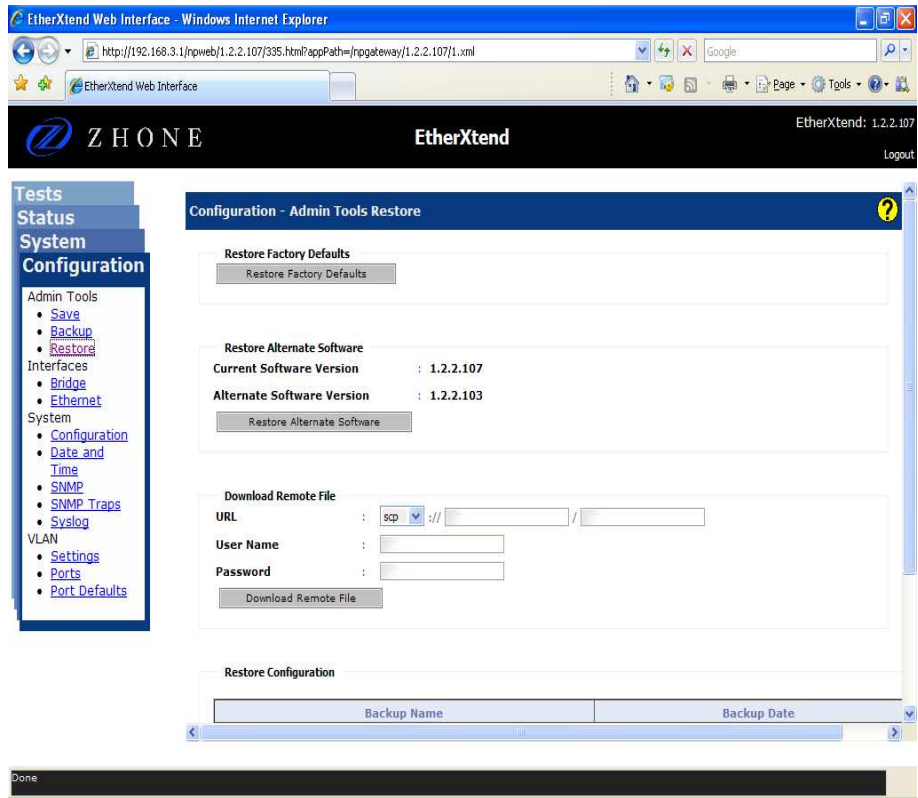


Note: Only files with an *.img* extension can be used for upgrading the firmware of an EtherXtend unit



The file will start loading from the PC to the EtherXtend CPE. The word “Loading” will appear on the bottom of the web page. When loading is completed you will be prompted to again log into the EtherXtend CPE.

- 3 Verify from the Configuration Restore screen that the new code was loaded into the Current Software bank. To install this new release into both banks repeat step 2 above.





Note: After loading new firmware you may have to clear your web browser's cache. See **Clearing Web Browser Cache** below.

Clearing Web Browser Cache

There are two options for avoiding stale web pages after an upgrade. You can configure your web browser to load the new page for every page visit, or you can clear the web browser's cache. The following procedure is for Internet Explorer. If you are using another web browser there should be similar settings available.

Load New Page For Every Visit

1. From your web browser select Tools and then Internet Options.
2. From the General tab on the Browsing history section click Settings. Then select the "Every time I visit the web page" radio button

Clear Cache

1. From the web browser select Tools and then Internet Options.
2. In the Browsing history section click **Delete**. Then in the Temporary Internet Files section click **Delete files**

Contacting Global Service and Support

Contact Global Service and Support (GSS) if you have any questions about this or other Zhone products. Before contacting GSS, make sure you have the following information:

- Model number for the Zhone product you are using
- System configuration
- Software version running on the system
- Description of the issue

Technical Support

If you require assistance with the installation or operation of your product, or if you want to return a product for repair under warranty, contact GSS. The contact information is as follows:

E-mail	support@zhone.com
Telephone (North America)	877-ZHONE20
Telephone (International)	510-777-7133
Internet	www.zhone.com/support

If you purchased the product from an authorized dealer, distributor, Value Added Reseller (VAR), or other third part, contact that supplier for technical assistance and warranty support.

Service Requirements

If the product malfunctions, all repairs must be performed by the manufacturer or a Zhone-authorized agent. It is the responsibility of users requiring service to report the need for service to GSS.