6211-I1 ADSL2+ Router Command Line Interface

User's Guide

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Introduction

This manual describes the Command Line Interface (CLI) available in the 6211-I1 ADSL2+ router.

The following commands are available from the 6211-I1 CLI:

- adsl
- arp
- atm
- brctl
- cat
- defaultgateway
- df
- dhcpserver
- dns
- dumpcfg
- help
- ifconfig
- lan
- logout
- passwd
- ping
- ppp
- ps
- pwd
- reboot
- remoteaccess
- restoredefault
- route
- save
- sntp
- swversion
- sysinfo
- tftp
- wan

The access the CLI:

1. Change the address of your PC or the address of the router so that both are in the same network segment. The default address and subnet mask of the router are 192.168.1.1 and 255.255.255.0. See the *6211-I1 ADSL2+ Router User's Guide* for more information.

2. Open a command window and use Telnet to connect to the router. For example:

   ```
   telnet 192.168.1.1
   ```

3. If prompted for a user name and password, use **admin** for both. User name and password are case sensitive.

Effect of 6211-I1 CLI Commands				
Command	*Effective at Run time*	*Save to CFM Run-time Database*	*Save to Flash Config File*	*Comments*
adsl	Yes	Yes	Yes	--
arp	Yes	No	No	--
atm	Yes	Yes	Yes	--
cat	Yes	No	No	--
defaultgateway	Yes	Yes	Yes	If the command contains "interface" as an option, then this interface must already exist. WAN and LAN interface configuration requires a reboot to be brought up.
dhcpserver	No	Yes	Yes	--
dns	See comments	Yes	Yes	If changing from dynamic to static, then effective at run time, but if changing from static to dynamic, then effective after the system is rebooted.
dumpcfg	Yes	No	No	--
help	Yes	No	No	--
lan	No	Yes	Yes	--
logout	Yes	No	No	--
passwd	Yes	Yes	Yes	Effective after logout.
ppp	Yes	No	No	--
pwd	Yes	No	No	--
remoteaccess	Yes	Yes	Yes	--
restoredefault	See comments	Yes	Yes	Effective after the system is automatically rebooted.
route	Yes	Yes	Yes	If the command contains "interface" as an option, then this interface must already exist. WAN and LAN interface configuration requires a reboot to be brought up.
save	Yes	No	Yes	--
swversion	Yes	No	No	--
wan	No	Yes	Yes	--

Control Key Support

Control Key Support	
Navigate	***Key Combination***
Command History Scrolling (maximum 15 commands in history)	
Up	UP ARROW or CTL+p
Down	DOWN ARROW or CTL+n
Move Cursor	
Left	LEFT ARROW or CTL-b
Right	RIGHT ARROW or CTL-f
Beginning of line	CTL+a
End of line	CTL+e
Clear and Terminate	
Clear screen	CTL+l (lowercase letter of L)
Clear to the beginning of line	CTL+u
Clear to the end of line	CTL+k
Delete	DEL or CTL+h
Terminate	CTL-c (cannot terminate certain running applications, such as PING)

CLI Commands

<u>adsl</u>

Name

adsl   Allows you to control the ADSL driver.

Synopsis

```
adsl start [options]
adsl stop
adsl connection [options]
adsl configure [options]
adsl bert [options]
adsl info [options]
adsl version
adsl help
```

Description

The adsl command controls the ADSL driver. This utility:

- starts and stops the driver.
- activates, deactivates, and controls the ADSL connection.
- configures the ADSL driver and connection parameters.
- starts, stops, and monitors the Bit Error Rate Test (BERT).
- displays status and information of the ADSL driver and connection.
- displays statistics for the ADSL driver and connection.

All information is displayed to stdout. A program or shell script that calls this utility can redirect stdout to a file and then parse the file in order to interpret the displayed output.

Commands

bert

Controls the ADSL BERT. This command can start/stop BERT and monitor its results.

configure

Configures ADSL connection parameters. This command takes the same parameters as the "start" command, except for [--up]. This command causes the ADSL PHY to retrain.

connection

Controls ADSL connection modes, such as up and down, and several special test modes. This command can also be used to specify tone selection for upstream and downstream.

help

Shows the syntax of the adsl command.

info

Displays information about the ADSL driver and PHY status.

start

Starts the ADSL driver. This command calls BcmAdsl_Initialize to initialize the driver and BcmAdsl_ConnectionStart to start the ADSL PHY connection if [--up] is specified. This command takes parameters that can specify various connection modes. These parameters are the same as in "configure" command.

stop

> Stops the ADSL connection and the ADSL driver. This command calls BcmAdsl_Uninitialize.

version

> Displays the ADSL version

Options

Options for the start and configure commands:

> adsl start [--up] [--mod <a|d|l|t|2|p|e|m>] [--lpair <(i)nner|(o)uter>]
> [--trellis <on|off>] [--snr <snrQ4>] [--bitswap <on|off>]
> *or for Annex C:*
> [--bm <(D)BM|(F)BM>] [--ccw]
>
> adsl configure [--mod <a|d|l|t|2|p|e|m>] [--lpair <(i)nner|(o)uter>]
> [--trellis <on|off>] [--snr <snrQ4>] [--bitswap <on|off>]
> *or for Annex C:*
> [--bm <(D)BM|(F)BM>] [--ccw]
>
> --up
>
>> Calls BcmAdsl_ConnectionStart to start the ADSL PHY connection.
>
> --mod <a|d|l|t|2|p|e|m>
>
>> a--all modulations allowed.
>> d--G.DMT enabled.
>> l--G.Lite enabled.
>> t--T1.413 enabled.
>> 2--ADSL2 (G.992.3) enabled.
>> p--ADSL2+ (G.992.5) enabled.
>> e--Reach extended ADSL (Annex L) enabled.
>> m--Double upstream (Annex M) enabled.
>>
>> - More than one mode letter can be specified, to enable several modes.
>
> --lpair <(i)nner|(o)uter>
>
>> (i)nner--inner loop pair is used.
>> (o)uter--outer loop pair is used.
>
> --trellis <on|off>
>
>> Enables or disables trellis coding.
>
> --snr <snrQ4>
>
>> Specifies the Signal-to-Noise Ratio (SNR) margin as the Q4 number.
>
> --bitswap <on|off>
>
>> Enables or disables ADSL bitswap

The following options only apply to Annex C:

--bm <(D)BM|(F)BM>

> <(D)BM|(F)BM>
> (D)BM - DBM mode
> (F)BM - FBM mode

--ccw

> Enables special CRC workaround for Centillium modems.

Option for the stop command:

adsl stop

Options for the connection command:

adsl connection [--up] [--down] [--loopback] [--reverb]
[--medley] [--noretrain] [--L3]
[--tones <xmtStart xmtNum xmtMap rcvStart rcvNum rcvMap>]

--up

> Starts the ADSL connection in normal mode.

--down

> Puts ADSL PHY in idle mode.

--loopback

> Puts the ADSL PHY in ATM cell loopback mode. In this mode, ADSL PHY will not try to establish connection.

--reverb

> Puts the ADSL PHY in test mode, which only sends a REVERB signal.

--medley

> Puts the ADSL PHY in test mode, which only sends a MEDLEY signal.

--noretrain

> The ADSL PHY will be trying to establish a connection as in normal mode, but once the connection is up, it will not retrain, even if the signal is lost.

--L3

> Puts the ADSL modem in the L3 power state.

--tones <xmtStart xmtNum xmtMap rcvStart rcvNum rcvMap>

> Specifies tones that can be used by the ADSL PHY.
>
> xmtStart--first tone used in the upstream direction (usually 0).
>
> xmtNum--number of tones in the upstream direction (usually 32).
>
> xmtMap--bitmap for tones used in the upstream direction. Specified as a hexadecimal string. Bit-value 0 means the corresponding tone is not used, and bit-value 1 means it is used.
>
> rcvStart--first tone used in the downstream direction (usually 32).
>
> rcvNum--number of tones in the downstream direction (usually 224).
>
> rcvMap--bitmap for tones used in the downstream direction. Specified as a hexadecimal string. Bit-value 0 means the corresponding tone is not used, and bit-value 1 means it is used.
>
> Tone configuration command does not cause the ADSL PHY to automatically retrain. To experience the effect of this command, the ADSL connection must be restarted using, for example, adsl connection -down, followed by the adsl connection -up command.
>
> Tone selection is not affected by the adsl configure commands and has to be explicitly changed. Default tone configuration (all tones enabled) is set by ADSL tones 0 32 0xFFFFFFFF 32 224 0xFF... (repeated 28 times).

Options for the bert command:

adsl bert [--start <seconds>] [--stop] [--show]

--start

> Starts the BERT.

> seconds--duration of the BERT in seconds.

--stop

> Stops the BERT.

--show

> Displays the BERT results to stdout in the following format:

```
BERT Status = [NOT] RUNNING
BERT Total Time = 10 seconds
BERT Elapsed Time = 10 seconds
BERT Bits Tested = 0x00000000045A6380 bits
BERT Err Bits = 0x0000000000000002 bits
```

> BERT status indicates whether the BERT is currently running. It can be used to monitor when the BERT is complete after it is started. The number of total bits and errored bits are displayed as 64-bit hexadecimal numbers.

Options for the info command:

adsl info [--state] [--show] [--stats] [--reset]

--state

> Displays the shortest message about the ADSL PHY connection state, for example:

```
adsl: ADSL driver and PHY status
Status: Showtime Channel: FAST, Upstream rate = 8064 Kbps, Downstream rate =
1024 Kbps
```

--show

> Displays more statistics about the ADSL connection.

--stats

> Displays all available statistics about the ADSL connection.

--SNR

> Displays the signal-to-noise ratio (SNR) per tone.

--reset

> Clears all statistic counters in the ADSL driver.

Exit Codes

Exit codes less than 100 are assigned by the ADSL driver. Exit codes of 100 or greater are assigned by the ADSL utility.

BCMADSL_STATUS_SUCCESS 0
BCMADSL_STATUS_ERROR 1
ADSL_GENERAL_ERROR 100
ADSL_ALLOC_ERROR 101
ADSL_INVALID_COMMAND 102
ADSL_INVALID_OPTION 103
ADSL_INVALID_PARAMETER 104
ADSL_INVALID_NUMBER_OF_OPTIONS 105
ADSL_INVALID_NUMBER_OF_PARAMETERS 106

Examples

A simple initialization.
```
adsl start [--up]
```
or
```
adsl start
adsl connection --up
```

A more complex initialization.
```
adsl start --up --mod dl --lpair I
```
or
```
adsl start
adsl connection --up --mod dl --lpair I
```

Getting in and out of the test modes.
```
adsl connection --reverb
...
adsl connection --up
```

Selecting tones.
```
adsl connection --tones 0 32 0xFEFFFF7F 32 224 0xFEFFFFFFFFFFFF7F
```
Selects tones from 1 to 31 for upstream and from 33 to 95 for downstream.

Starting and monitoring the BERT.
```
adsl bert -start 60
```

To run the BERT for 60 seconds. After about 20 seconds of the BERT running, the results appear:

```
adsl bert -show

adsl: BERT results:
BERT Status = RUNNING
BERT Total Time = 60 sec
BERT Elapsed Time = 20 sec
BERT Bits Tested = 0x0000000008B4C700 bits
BERT Err Bits = 0x0000000000000067 bits
```

After 60 seconds when the BERT has completed, the results of the -show command appear:

```
adsl bert -show

adsl: BERT results:
BERT Status = NOT RUNNING
BERT Total Time = 60 sec
BERT Elapsed Time = 60 sec
BERT Bits Tested = 0x000000001A1E5500 bits
BERT Err Bits = 0x0000000000000067 bits
```

Display minimal ADSL state.
```
adsl info --state

adsl: ADSL driver and PHY status
Status: Showtime Channel: FAST, Upstream rate = 8064 Kbps, Downstream rate = 1024
Kbps
```

Display complete ADSL driver and PHY status.

```
adsl info --show

adsl: ADSL driver and PHY status
Status: Showtime Channel: FAST, Upstream rate = 8064 Kbps, Downstream rate = 1024
Kbps
Mode G.DMT
Channel Fast
Trellis ON
Line Status No defect
Training status Showtime

Down Up
SNR (dB) 16.1 7.0
Attn (dB) 0.0 5.5
Pwr (dBm) 6.5 7.8
Max (Kbps) 11040 1088
Rate (Kbps) 0 0
K 0(0) 0
R 0 0
S 1 1
D 1 1
SF 25288 25286
SFErr 1 0
RS 0 0
RSCorr 0 0
RSUnCorr 0 0
HEC 1 0
OCD 0 0
LCD 0 0
ES 1 0
```

<u>arp</u>

Name

arp   Manipulate the modem's Address Resolution Protocol (ARP) table.

Synopsis

```
arp add <IP address> <MAC address>
arp delete <IP address>
arp show
arp --help
```

Description

The arp command manipulates the modem's ARP table.

▪ ARP entries added by this command are not saved in the flash memory by the save command.

After system reboot, ARP entries need to be re-added.

Examples

Add a static ARP entry for IP address 192.168.1.2 with MAC address 00:11:22:33:44:55.

```
>arp add 192.168.1.2 00:11:22:33:44:55
```

Show the ARP table.

```
> arp show

IP address HW type Flags HW address Mask Device
192.168.1.3 0x1 0x2 00:01:03:E3:4F:F9 * br0
192.168.1.2 0x1 0x6 00:11:22:33:44:55 * br0
```

Delete the ARP entry for IP address 192.168.1.2.

```
>arp delete 192.168.1.2
```

atm

Name

atm   Allows you to control the ATM driver.

Synopsis

```
atm start [options]
atm stop
atm operate tdte|intf|vcc [options]
```

Description

The atm command controls the ATM driver. This utility:

- starts and stops the driver.
- activates and deactivates an ATM interface (port) or a Virtual Channel Connection (VCC).
- adds and removes traffic descriptor table entries.
- adds and removes VCCs.
- displays the configuration for traffic descriptor table entries, ATM interfaces, and VCCs.
- displays statistics for ATM interfaces and VCCs.

All information is displayed to stdout. A program or shell script that calls this utility can redirect stdout to a file and then parse the file in order to interpret the displayed output.

Commands

start

Starts the ATM driver. This command calls BcmAtm_Initialize to initialize the driver and BcmAtm_SetTrafficDescrTable to add one UBR traffic descriptor table entry.

stop

Stops the ATM driver. This command calls BcmAtm_Uninitialize.

operate

Operates on traffic descriptor table entries, ATM interfaces, and VCCs. Depending upon the options, this command calls BcmAtm_GetTrafficDescrTable, BcmAtm_SetTrafficDescrTable, BcmAtm_GetInterfaceCfg, BcmAtm_SetInterfaceCfg, BcmAtm_GetVccCfg, BcmAtm_SetVccCfg, BcmAtm_GetInterfaceStatistics, or BcmAtm_GetVccStatistics.

Options

Options for the start command:

atm start [--cqs <size>] [--pqs <size>] [--bs <size>] [--bo <offset>] [--intf <port> <type> <address>]

--cqs <size>

size--size used to create the Free and Receive cell queues. The default value is 10.

--pqs <size>

size--size used to create the Free and Receive packet queues. The default value is 200.

--bs <size>

size--size of a buffer used in the Free and Receive packet queues. The default value is 1600.

--bo <offset>

offset--offset into a receive buffer where data is to be received. The default value is 32.

--intf <port> <type> <address>

    port--port number (starting at 0) to be configured.

    type--adsl|loopback|utopia|tc

    address--UTOPIA address. Only used if type is UTOPIA.

    More than one "intf" option can be specified to configure multiple ports. If no "intf" option is specified, the default value is "0, adsl, 0."

Options for the stop command:

    atm stop

Options for the operate tdte command:

    atm operate tdte [--add <type> [<pcr>] [<scr>] [<mbs>]] [--delete <index>] [--show [<index>]]

    --add <type> [<pcr>] [<scr>] [<mbs>]

        type--ubr|ubr_pcr|cbr|rtvbr|nrtvbr

        pcr--Peak Cell Rate (PCR) if type requires it.

        scr--Sustainable Cell Rate (SCR) if type requires it.

        mbs--Maximum Burst Size (MBS) if type requires it.

    --delete <index>

        index--index to delete traffic descriptor table entry. The show option displays the current index values.

    --show [<index>]

        index--index to display information about the traffic descriptor table entry.

        If "index" is omitted, all traffic descriptor table entries are displayed.

Options for the operate intf command:

    atm operate intf [--state <port> <type>] [--show [<port>]] [--stats [<port>] [reset]]

    --state <port> <type>

        port--port number (starting at 0) to enable or disable.

        type--enable|disable.

    --show [<port>]

        port--port number (starting at 0) to display configuration information.

        If "port" is omitted, configuration information is displayed for all configured ports.

    --stats [<port>] [reset]

        port--port number (starting at 0) to display statistics.

        reset--resets statistics fields.

        If "port" is omitted, statistics are displayed for all configured ports.

Options for the operate vcc command:

    atm operate vcc [--add <port.vpi.vci> <aal_type> <tdte_index> <encapsulation_type>] [--delete <port.vpi.vci>] [--addq <port.vpi.vci> <size> <priority>] [--deleteq <port.vpi.vci> <size> <priority>] [--state <port.vpi.vci> <type>] [--show [<port.vpi.vci>]] [--stats [<port.vpi.vci>] [reset]]

    --add <port.vpi.vci> <type> <tdte_index> <encapsulation_type>

        port.vpi.vci--port number, VPI, and VCI that identifies the VCC to add.

        type--aal5|aal2|aal0pkt|aal0cell|aaltransparent

        tdte_index--traffic descriptor table entry index to use for this VCC. The "atm operate tdte --show" command displays the current index values.

        encapsulation_type--vcmux_routed|vcmux_bridged8023|llcencaps|other|unknown

--delete <port.vpi.vci>

port.vpi.vci--port number, VPI, and VCI that identifies the VCC to delete.

--addq <port.vpi.vci> <size> <priority>

port.vpi.vci--port number, VPI, and VCI that identifies the VCC to add a new queue.
Size--size of the queue.
Priority--priority of the queue.

--deleteq <port.vpi.vci> <size> <priority>

port.vpi.vci--port number, VPI, and VCI that identifies the VCC to delete a queue.
size--size of the queue.
priority--priority of the queue.

--state <port.vpi.vci> <type>

port.vpi.vci--port number, VPI, and VCI that identifies the VCC to enable or disable.
type--enable|disable

--show [<port.vpi.vci>]

port.vpi.vci--port number, VPI, and VCI that identifies the VCC to display configuration information.
If "port.vpi.vci" is omitted, configuration information is displayed for all configured VCCs.

--stats [<port.vpi.vci>] [reset]

port.vpi.vci--port number, VPI, and VCI that identifies the VCC to display statistics.
reset--resets statistics fields.
If "port.vpi.vci" is omitted, statistics are displayed for all configured VCCs.

Exit Codes

Exit codes less than 100 are assigned by the ATM driver. Exit codes of 100 or greater are assigned by the atm utility.

ATMDRV_SUCCESS 0
ATMDRV_ERROR 1
ATMDRV_STATE_ERROR 2
ATMDRV_PARAMETER_ERROR 3
ATMDRV_ALLOC_ERROR 4
ATMDRV_RESOURCE_ERROR 5
ATMDRV_IN_USE 6
ATMDRV_VCC_DOWN 7
ATMDRV_INTERFACE_DOWN 8
ATMDRV_LINK_DOWN 9
ATMDRV_NOT_FOUND 10
ATMDRV_NOT_SUPPORTED 11
ATM_GENERAL_ERROR 100
ATM_ALLOC_ERROR 101
ATM_INVALID_COMMAND 102
ATM_INVALID_OPTION 103
ATM_INVALID_PARAMETER 104
ATM_INVALID_NUMBER_OF_OPTIONS 105
ATM_INVALID_NUMBER_OF_PARAMETERS 106

Examples

A simple initialization.

```
atm start
atm operate vcc --add 0.0.35 aal5 1 vcmux_bridged8023
```

A more complex initialization.

```
atm start --pqs 400 --bo 0
atm operate tdte --add ubr_pcr 15000
atm operate tdte --show

index ype pcr scr mbs
1 ubr 0 0 0
2 ubr_pcr 15000 0 0

atm operate vcc --add 0.0.35 aal5 2 vcmux_bridged8023
```

Display interface configuration (assumes that the ATM driver is started).

```
atm operate intf --show

port status type
0 enabled adsl
```

Create and display a VCC configuration (assumes that the ATM driver is started).

```
atm operate vcc --add 0.0.35 aal5 1 vcmux_bridged8023 --addq 0.0.35 64 2 --addq
0.0.35 80 1
atm operate vcc --add 0.0.36 aal5 1 vcmux_routed --addq 0.0.36 128 1
atm operate vcc --show

vcc status type tdte_index q_size q_priority encapsulation
0.0.35 enabled aal5 1 64 2 vcmux_bridged8023
80 1
0.0.36 enabled aal5 1 128 1 llcencaps
```

Display interface statistics (assumes that the ATM driver is started).

```
atm operate intf --stats

interface statistics for port 0
in octets 8130336
out octets 46512
in errors 0
in unknown 0
in hec errors 0
in invalid vpi vci errors 0
in port not enable errors 0
in pti errors 0
in circuit type errors 0
in oam rm crc errors 0
in gfc errors 0

aal5 interface statistics for port 0
in octets 8130336
out octets 46512
in ucast pkts 5426
out ucast pkts 189
in errors 0
out errors 0
in discards 0
out discards 0
```

Display VCC statistics (assumes that the ATM driver is started and two VCCs are configured).

```
aal5 vcc statistics for 0.0.35
crc errors 0
oversized sdus 0
short packet errors 0
length errors 0

aal5 vcc statistics for 0.0.36
crc errors 0
oversized sdus 0
short packet errors 0
length errors 0
```

brctl

Name

brctl   Bridge administration utility.

Synopsis

```
brctl [ command ]
```

Description

The brctl command sets up, maintains, and inspects the bridge configuration.

A bridge is a device commonly used to connect different networks (Ethernet, USB, 802.11x wireless network, or ATM) together, so that these networks will appear as one network to the participants.

Each network being connected corresponds to one physical interface (port) in the bridge. These individual networks are bundled into one bigger (logical) network. This bigger network corresponds to the bridge network interface such as "br0."

Commands

addbr <bridge>

Creates a new instance of the bridge. The network interface corresponding to the bridge is called <bridge>.

addif <bridge> <device>

Makes the interface <device> a port of the bridge <bridge>. This means that all frames received on <device> will be processed as if destined for the bridge. Also, when sending frames on <bridge>, <device> will be considered as a potential output interface.

clearportsnooping <bridge> <port> <addr>

Removes an entry for a port <port> from the port snooping table of the bridge <bridge>. The format of the <addr> is group_mac_address/src_mac_address.

delbr <bridge>

Deletes the instance <bridge> of the bridge. The network interface corresponding to the bridge must be down before it can be deleted.

delif <bridge> <device>

Detaches the interface <device> from the bridge <bridge>.

setageing <bridge> <time>

Sets the MAC address aging time, in seconds. After <time> seconds of not having seen a frame coming from a certain address, the bridge times out (deletes) that address from the forwarding database (fdb).

setbridgeprio <bridge> <priority>

Sets the bridge's priority to <priority>. The priority value is an unsigned 16-bit quantity (a number between 0 and 65535), and has no dimension. Lower priority values are better than higher priority values. The bridge with the lowest priority is elected as the "root bridge."

setfd <bridge> <time>

Sets the bridge's "bridge forward delay" to <time> seconds.

setgcint <bridge> <time>

Sets the garbage collection interval for the bridge <bridge> to <time> seconds. This means that the bridge checks the forwarding database for timed out entries every <time> seconds.

sethello <bridge> <time>

Sets the bridge's "bridge hello time" to <time> seconds.

setigmpsnoop <bridge> <state>

Turns IGMP snooping on and off.

setmaxage <bridge> <time>

Sets the bridge's "maximum message age" to <time> seconds.

setpathcost <bridge> <port> <cost>

Sets the port cost of the port <port> to <cost>. This is a dimensionless metric.

setportprio <bridge> <port> <prio>

Sets the port's <port> priority to <priority>. The priority value is an unsigned 8-bit quantity (a number between 0 and 255), and has no dimension. This metric is used in the designated port and root port selection algorithms.

show

Shows all current instances of the bridge.

showmacs <bridge>

Shows a list of learned MAC addresses for this bridge.

showstp <bridge>

Shows the Spanning Tree Protocol (STP) status of this bridge.

showigmpsnooping <bridge>

Displays the current contents of the igmp snooping table.

stp <bridge> <state>

Controls this bridge's instance participation in the spanning tree protocol. If <state> is "on" or "yes" the STP will be turned on; otherwise, it will be turned off. When turned off, the bridge will not send or receive BPDUs, and thus will not participate in the spanning tree protocol. If the bridge is not the only bridge on the LAN, or if there are loops in the LAN's topology, do not turn this option off. Prior to turning this option off, be aware the implications of doing so.

Options

None.

Examples

Display all the learned MAC addresses on br0.

```
brctl showmacs br0
```

Set the aging timer value to be 400 seconds on br0.

```
brctl setageing br0 400
```

Turn off STP.

```
brctl stp br0 off
```

__cat__

Name

cat   Concatenates files and prints them to standard output.

Synopsis

```
cat [FILE] ...
```

Description

Concatenates files, if more than one is specified, and prints the result to standard output.

Commands

None.

Options

None.

Examples

Display system memory information.

```
cat /proc/meminfo
```

defaultgateway

Name

defaultgateway   Configure or show the default gateway or default route.

Synopsis

```
defaultgateway config auto
defaultgateway config static [<ipaddress>] [<interface>]
defaultgateway show
defaultgateway --help
```

Description

The primary use of the defaultgateway command is to set up a static default gateway or default route, or to automatically retrieve the default gateway information from remote ISPs through DHCP protocol for a MAC Encapsulated Routing (MER) interface, or through Point-to-Point Protocol (PPP) for a Point-to-Point Protocol over ATM (PPPoA) or Point-to-Point Protocol over Ethernet (PPPoE) interface. A PPPoA or PPPoE interface always automatically retrieves remote gateway information. This command saves the configuration to permanent storage.

If the default gateway is configured with static data, it will override any remote gateway address received automatically from some WAN interface and become effective immediately in the runtime system. The ipaddress address is optional if the default route is en route a PPPoE, PPPoA, or Internet Protocol over ATM (IPoA) interface. If the default gateway is en route, a MER interface, ipaddress must be configured and the interface parameter is optional. If there is only one IPoA WAN interface, you must configure static default gateway or default route since IPoA does not support DHCP.

If the default gateway is configured with the auto option, the system needs to be rebooted before it can take effect. If there are multiple WAN interfaces with DHCP or PPP enabled, multiple remote gateway addresses may be received, and the first received will be chosen to be the default gateway.

Options

ipaddress

    The IP address of the default gateway in dotted-decimal notation.

interface

    Force the default gateway to be associated with the specified device, as the kernel will otherwise try to determine the device on its own by checking existing routes and devices.

Examples

Enable the system to automatically retrieve the default gateway information from the remote DHCP server when the system starts. The system needs to be rebooted for the modified configuration to take effect.

```
defaultgateway config auto
```

Set up a static default gateway to 10.6.33.125. It should be immediately effective and is saved to permanent storage on the flash memory.

```
defaultgateway config 10.6.33.125
```

df

Name

df   Print the file system used space and available space.

Synopsis

```
df [OPTION]... [FILESYSTEM]...
```

Description

The df command displays the amount of disk space available on the file system of each file system name argument. If no file system name is given, the space available on all currently mounted file systems is shown. Disk space is shown in 1 kilobyte blocks (default).

Commands

None.

Options

-h

Print sizes in human readable format (for example, 1K, 243M, 2G)

-m

Print sizes in megabytes

-k

Print sizes in kilobytes (default)

Examples

Display the available space on all the mounted file systems.

```
Df
```

Display the available space on the flash root file system.

```
df /dev/mtdblock0
```

dhcpserver

Name

dhcpserver   Lets you configure or show the DHCP server data.

Synopsis

```
dhcpserver config <start IP address> <end IP address> <leased time (hour)>
dhcpserver show
dhcpserver --help
```

Description

The dhcpserver command configures or shows the DHCP server data. This utility:

- configures the DHCP server on the primary LAN interface.
- shows the DHCP server configuration data.
- displays usage.

All information is displayed to stdout. A program or shell script that calls this utility can redirect stdout to a file and then parse the file in order to interpret the displayed output.

Commands

config

Configures the DHCP server with the given data.

- This command saves the configuration data to flash, but does not take effect until the system is rebooted.

show

Shows the DHCP server configuration data.

--help

Displays usage.

Options

Options for the config command:

dhcpserver config <start IP address> <end IP address> <leased time (hour)>.

<start IP address>

The IP address of the first address in the range. The value of range start must be less than or equal to the value of range end.

Valid values: any valid IP address.

Default value: 192.168.1.2.

<end IP address>

The IP address of the last address in the range. The value of range end must be greater than or equal to the value of range start.

Valid values: any valid IP address.

Default value: 192.168.1.254.

> The lease period for which the server assigns an IP address to the client in case the client does not request for the specific lease period itself.
> Valid values: 0-8760.
> Default value: 24 hours (this equals a day).

Options for the show command:

dhcpserver show

Options for the --help command:

dhcpserver --help

Examples

Configure the DHCP server.

```
dhcpserver config 192.168.1.2 192.168.1.254 24
```

Display the DHCP server configuration data.

```
dhcpserver show

start 192.168.1.2
end 192.168.1.254
interface br0
option lease 86400
option min_lease 30
option subnet 255.255.255.0
option router 192.168.1.1
option dns 192.168.1.1
```

Display usage.

```
Dhcpserver --help
Usage: dhcpserver config <start IP address> <end IP address> <leased time
(hour)>
dhcpserver show
dhcpserver -help
```

dns

Name

dns   Lets you configure or show the DNS relay data.

Synopsis

```
dns config auto
dns config static <primary DNS> [<secondary DNS>]
dns show
dns --help
```

Description

The dns command is used to configure or show the DNS relay data. This utility can:

▪ Configure the DNS relay with the given data
▪ Show the DNS relay configuration data
▪ Display usage

All information is displayed to stdout. A program or shell script that calls this utility can redirect stdout to a file and then parse the file in order to interpret the displayed output.

Commands

config

Configures the DNS relay with the given data.

▪ The command only saves the configuration data to flash and does not take effect until the system is rebooted.

show

Shows the DNS relay configuration data.

--help

Displays usage.

Options

Options for the config auto command:

dns config auto

Options for the config static command:

dns config static <primary DNS> [<secondary DNS>]

<primary DNS>

The IP address of the primary DNS server.
Valid values: any valid IP address.

[<secondary DNS>]

The IP address of the secondary DNS server. It is optional and can be omitted.
Valid values: any valid IP address.

Options for the show command:

dns show

Options for the --help command:

dns --help

Examples

An auto DNS configuration.

```
dns config auto
```

A static DNS configuration without a secondary DNS.

```
dns config static 10.6.33.1
```

A static DNS configuration with a secondary DNS.

```
dns config static 10.6.33.1 10.6.33.2
```

Display DNS relay configuration data.

```
dns show

Primary 10.6.33.1
Secondary 10.6.33.2
```

Display usage.

```
dns --help

Usage: dns config auto
Usage: dns config static <primary DNS> [<secondary DNS>]
dns show
dns --help
```

dumpcfg

Name

dumpcfg   Display the system's configuration.

Synopsis

```
dumpcfg
```

Description

The dumpcfg command displays the system's configuration, which is in text XML format.

Commands

None.

Options

None.

Examples

Display the system's configuration.

```
Dumpcfg

<psitree>
<SecCfg>
<srvCtrlList ftp="lan" http="lan" icmp="lan" snmp="lan" ssh="lan" telnet="lan"
tftp="lan"/>
</SecCfg>
<AtmCfg>
<initCfg structureId="2" threadPriority="25" freeCellQSize="10"
freePktQSize="200" freePktQBufSize
="1600" freePktQBufOffset="32" rxCellQSize="10" rxPktQSize="200"
txFifoPriority="64" aal5MaxSduLen
="64" aal2MaxSduLen="0"/>
</AtmCfg>
<AtmCfgTd>
<td1 cat="UBR" PCR="0" SCR="0" MBS="0"/>
</AtmCfgTd>
<SystemInfo>
<sysLog state="enable" displayLevel="ERR" logLevel="DEBUG" option="local"
serverIP="0.0.0.0" serve
rPort="514"/>
<snmp state="disable" readCommunity="public" writeCommunity="private"
sysName="Broadcom" sysLocati
on="unknown" sysContact="unknown" trapIP="0.0.0.0"/>
<sysUserName value="admin"/>
<protocol autoScan="enable" upnp="enable" macFilterPolicy="forward"
siproxd="enable"/>
</SystemInfo>
<WirelessCfg>
<vars state="enabled" hide="0" ssId="Broadcom" country="ALL" authMode="open"
radiusServerIP="0.0.0
.0" radiusServerPort="1812" radiusServerKey="" wep="disabled" keyBit="128-bit"
key64_1="" key64_2=
"" key64_3="" key64_4="" key64Index="1" key128_1="" key128_2="" key128_3=""
key128_4="" key128
Index="1" wpaRekey="0" wpakey="" wpa="tkip" fltMacMode="disabled" apMode="ap"
bridgeRestrict="d
isabled" wdsMAC_0="" wdsMAC_1="" wdsMAC_2="" wdsMAC_3="" apIsolation="off"
```

```
band="b" channel="
11" rate="auto" multicastRate="auto" basicRate="default" fragThreshold="2346"
RTSThreshold="2347"
DTIM="1" beacon="100" XPress="off" gMode="auto" gProtection="auto"
preamble="long"/>
</WirelessCfg>
<AtmCfgVcc>
<vccId1 vpi="0" vci="35" tdId="1" aalType="AAL5" adminStatus="up" encap="llc"
qos="disable"/>
</AtmCfgVcc>
<Lan>
<entry1 address="192.168.1.1" mask="255.255.255.0" dhcpServer="enable"
leasedTime="24" startAddr="
192.168.1.2" endAddr="192.168.1.254"/>
</Lan>
<RouteCfg>
<ripGlobal state="disable" ripIfcTableSize="1"/>
<ripIfc tableSize="1">
<ripIfcEntry id="1" name="br0" state="disable" version="2"
operation="active"/>
</ripIfc>
</RouteCfg>
<ADSL/>
<DDNSCfg/>
<SNTPCfg/>
<ToDCfg/>
<ipsrv_0_35>
<dhcpc_conId1 state="disable" wanAddress="10.6.33.138"
wanMask="255.255.255.0"/>
</ipsrv_0_35>
<wan_0_35>
<entry1 vccId="1" conId="1" name="ipoa_0_35" protocol="IPOA" encap="LLC"
firewall="disable" nat="d
isable" igmp="disable" service="enable"/>
</wan_0_35>
</psitree>
```

echo

Name

echo   Display a line of text or an environment variable's value.

Synopsis

```
echo [OPTION]... [STRING]...
```

Description

The echo command displays a line of text, or an environment variable's value.

- The "ls" command is not supported in the CLI.

Echo can be used to display files and subdirectories using a wildcard (*).

Commands

None.

Options

-n

Suppresses trailing newline.

-e

    Interprets backslash-escaped characters (for example, =tab).

-E

    Disables the interpretation of backslash-escaped characters.

Examples

Display a string.

```
echo "Hello, world"
```

Display the value of the environment variable $TERM.

```
echo $TERM
```

Display all files or subdirectories.

```
echo /etc/*
echo *
echo /var/*
```

help

Name

help   List all available CLI commands supported by the DSL router.

Synopsis

```
Help | ?
```

Description

    The help command lists all available CLI commands supported by the DSL router.

Options

    None.

ifconfig

Name

ifconfig   Configure a network interface.

Synopsis

```
ifconfig [interface]
ifconfig interface [aftype] options | address ...
```

Description

    The Ifconfig command is used to configure the kernel-resident network interfaces. It is used at boot time to set up interfaces as necessary. After that, it is usually only needed when debugging or when system tuning is needed.

    If no arguments are given, ifconfig displays the status of the currently active interfaces. If a single interface argument is given, it displays the status of the given interface only; if a single -a argument is given, it displays the status of all interfaces, even those that are down. Otherwise, it configures an interface.

Commands

None.

Options

interface

The name of the interface. This is usually a driver name followed by a unit number (for example, eth0 for the first Ethernet interface).

address

The IP address to be assigned to this interface.

up

This flag causes the interface to be activated. It is implicitly specified if an address is assigned to the interface.

down

This flag causes the driver for this interface to be shut down.

[-]arp

Enable or disable the use of the ARP protocol on this interface.

[-]promisc

Enable or disable the promiscuous mode of the interface. If selected, all packets on the network will be received by the interface.

[-]allmulti

Enable or disable the all-multicast mode. If selected, all-multicast packets on the network will be received by the interface.

metric N

This parameter sets the interface metric.

mtu N

This parameter sets the Maximum Transfer Unit (MTU) of an interface.

dstaddr addr

Set the remote IP address for a point-to-point link (such as PPP). This keyword is now obsolete; use the pointopoint keyword instead.

netmask addr

Set the IP network mask for this interface. This value defaults to the usual class A, B, or C network mask (as derived from the interface IP address), but it can be set to any value.

irq addr

Set the interrupt line used by this device. Not all devices can dynamically change their IRQ setting.

io_addr addr

Set the start address in the I/O space for this device.

mem_start addr

Set the start address for shared memory used by this device. Only a few devices need this option.

[-]broadcast [addr]

If the address argument is given, set the protocol broadcast address for this interface. Otherwise, set (or clear) the IFF_BROADCAST flag for the interface.

[-]pointopoint [addr]

This keyword enables the point-to-point mode of an interface, meaning that it is a direct link between two machines with nobody else listening on it. If the address argument is also given, set the protocol address of the other side of the link, as does the obsolete dstaddr keyword. Otherwise, set (or clear) the IFF_POINTOPOINT flag for the interface.

[-]trailers

Set (or clear) the IFF_NOTRAILERS flag for the interface.

[-]dynamic

Set (or clear) the IFF_DYNAMIC flag for the interface.

hw class address

Set the hardware address of this interface, if the device driver supports this operation. The keyword must be followed by the name of the hardware class and the printable ASCII equivalent of the hardware address. Hardware classes currently supported include ether (Ethernet) only.

multicast

Set the multicast flag on the interface. This should not normally be needed as the drivers set the flag correctly.

outfill N

This parameter sets the interface outfill timeout.

keepalive N

This parameter sets the interface keepalive timeout.

txqueuelen length

Set the length of the transmit queue of the device. It is useful to set this to small values for slower devices with a high latency (modem links, ISDN) to prevent fast bulk transfers from disturbing interactive traffic (as in Telnet) too much.

Examples

Display all the active interfaces.

```
ifconfig
```

Set the interface eth0 IP address to be 192.168.1.1 and netmask to be 255.255.255.0.

```
ifconfig eth0 192.168.1.1 netmask 255.255.255.0
```

kill

Name

kill   Send a signal to the specified process(es).

Synopsis

```
kill [ -signal ] pid ...
kill -l [ signal ]
```

Description

The kill command sends the specified signal to the specified process or process group. If no signal is specified, the TERM signal is sent. The TERM signal kills processes which do not catch this signal. For other processes, it may be necessary to use the KILL (9) signal, since this signal cannot be caught.

Commands

None.

Options

pid...

Specifies the list of processes that kill should signal.

-signal

Given as a signal name or number.

-l

Lists all signal names and numbers.

Examples

Terminate the process with pid 120.

```
kill 120
```

Send the KILL signal to the process with pid 120.

```
kill -SIGKILL 120
```

List all signal names and numbers.

```
kill -l
```

lan

Name

lan   Lets you configure the IP layer for the LAN interfaces.

Synopsis

```
lan config [--ipaddr <primary|secondary> <IP address> <subnet mask>]
[--dhcpserver <enable|disable>]
lan delete -ipaddr <primary|secondary>
lan show [<primary|secondary>]
lan --help
```

Description

The lan command is used to configure the IP layer data for the primary and secondary LAN interfaces. A LAN interface is a logic interface toward the IP stack from the Bridge module. Both primary and secondary LAN interfaces share the same MAC address from the physical Ethernet port. This utility can:

▪ Configure the IP address and subnet mask for the primary LAN interface. It can be either a private or a public IP address.

▪ Configure the IP address and subnet mask for the secondary LAN interface. Network Address Translation (NAT) is not supported on the secondary LAN interface. Only a public IP address is allowed.

▪ Enable or disable the DHCP server on the primary LAN interface. The DHCP server is not supported on the secondary LAN interface.

▪ Display configuration data for the primary and secondary LAN interfaces.

▪ Display usage.

All information is displayed to stdout. A program or shell script that calls this utility can redirect stdout to a file and then parse the file in order to interpret the displayed output.

Commands

config

Configures the IP layer for the primary or secondary LAN interface.

delete

Deletes the primary or secondary LAN interface configuration.

show

Shows configuration data for the primary and secondary LAN interfaces.

--help

Displays usage.

Options

Options for the config command:

lan config [--ipaddr <primary|secondary> <IP address> <subnet mask>]
[--dhcpserver <enable|disable>]

--ipaddr <primary|secondary> <IP address> <subnet mask>

primary|secondary--specify which LAN interface will be configured.
Valid values: primary or secondary.

IP address--IP address of the LAN interface.
Valid values: any valid IP address.
Default value: 192.168.1.1.

Subnet mask--subnet mask of the LAN interface.
Valid values: 0.0.0.1-255.255.255.255.
Default value: 255.255.255.0.

--dhcpserver <enable|disable>

enable|disable--specify which DHCP server should be enabled or disabled. This option is only valid
for the primary LAN interface.
Valid values: enable or disable.
Default value is enable for the primary LAN interface.

Options for the delete command:

lan delete --ipaddr <primary|secondary>

--ipaddr <primary|secondary>

primary|secondary--specify which LAN interface will be deleted.
Valid values: primary or secondary.

Options for the show command:

lan show [<primary|secondary>]

primary|secondary--specify which LAN interface will be shown.
Valid values: primary or secondary.
If primary|secondary is omitted, all LAN interfaces are displayed.

Options for the --help command:

lan --help

Examples

Configure a primary LAN interface.

```
lan config -ipaddr primary 192.168.1.1 255.255.255.0
```

Remove a secondary LAN interface.

```
lan delete -ipaddr secondary
```

Display all LAN interfaces.

```
lan show

br0 Link encap:Ethernet HWaddr 02:10:18:01:00:01
inet addr:192.168.1.1 Bcast:192.168.1.255 Mask:255.255.255.0
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:42083 errors:0 dropped:0 overruns:0 frame:0
TX packets:107786 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:7412118 (7.0 MiB) TX bytes:34445874 (32.8 MiB)

br0:0 Link encap:Ethernet HWaddr 02:10:18:01:00:01
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
```

Display usage.

```
lan -help

Usage: lan config [--ipaddr <primary|secondary> <IP address> <subnet mask>]
[--dhcpserver <enable|disable>]
lan delete --ipaddr <primary|secondary>
lan show [<primary|secondary>]
lan -help
```

logout

Name

logout   Logs out the current user console.

Synopsis

```
logout
```

Description

The logout command logs out the current user console. After the logout command is executed, a message appears. Press Enter to display the Login prompt.

Examples

Logout user admin.

```
Login: admin
Password:
> logout

Bye bye. Have a nice day!!!

Login:
```

passwd

Name

passwd   Lets you change the password.

Synopsis

```
passwd <admin|support|user> <password>
```

Description

The passwd command is used to change the password for user account admin, support, or user.

Examples

Change the password for user admin to superuser.

```
> passwd admin superuser
```

ping

Name

ping   Sends Internet Control Message Protocol (ICMP) echo requests to the target host.

Synopsis

```
ping [-c <count>] [-s <size>] host
```

Description

The ping command sends out ICMP echo requests over the ICMP to a host on the network. The default number of ICMP echo request packets the ping command sends out is four. To continually send out packets without stopping, use the "-c 0" option.

Options

count

The number of ICMP echo request packets the ping command sends out. A count of zero is contrued

size

Force the ping to send out ICMP echo request packets with this number of data bytes.

host

The name or IP address of the target host.

Examples

Send eight ICMP echo requests to 192.168.0.5.

```
ping -c 8 192.168.0.5
```

ppp

Name

ppp   Lets you bring up or bring down a PPP connection.

Synopsis

```
ppp config <port.vpi.vci> [<connection id>] up|down
```

Description

The ppp command controls the PPP interfaces. The ppp command brings up the PPP connection with the "up" option, and brings down the connection with the "down" option. For a PPP connection in the on-demand mode (in addition to the "up" option), traffic to the PPP interface needs to be initiated to bring the connection up.

Options

<port.vpi.vci>

Port number, VPI, and VCI that identifies the VCC where the PPP connection is established.

<connection id>

The number that identifies an existing WAN connection on a PVC. If connection ID is omitted, the default is 1.

Valid values: 1–8.

Default value: 1.

Examples

Bring down the PPP connection on the 0.0.35 VCC.

```
ppp config 0.0.35 down
```

ps

Name

ps   Report process status.

Synopsis

```
ps
```

Description

The ps command gives a snapshot of the current processes. The output consists of six columns:

- PID – The process ID.
- TTY – The terminal device the process attaches to, such as /dev/ ttyp0.
- Uid – The user ID of the process owner.
- Size – The amount of virtual memory taken by the process (kilobytes).
- State – The state of the process (S-sleeping, R-running, W-waiting).
- Command – The command that launches the process.

Commands

None.

Options

None.

Examples

Report process status.

```
                                        ps
```

pwd

Name

pwd   Print the name of the current working directory.

Synopsis

```
    pwd
```

Description

The pwd command displays the name of the current working directory.

Examples

To view the current working directory.

```
            >pwd
            /
```

reboot

Name

reboot   Reboot the system.

Synopsis

```
    reboot
```

Description

The reboot command reboots the system.

Commands

None.

Options

None.

Examples

Reboot the system.

```
            reboot
```

remoteaccess

Name

remoteaccess   Allows certain protocols to access the modem from the WAN side.

Synopsis

```
Usage: remoteaccess <enable|disable>
remoteaccess show
remoteaccess --help
```

Description

The remoteaccess command sets the security level to allow or disallow remote access into the route using telnet, http, snmp, or ping from the WAN side. The options are enable, disable, and show.

Examples

Show the current remote access mode.

```
>remoteaccess show
```
Remote access is disabled.

Enable remote access.

```
> remoteaccess enable
```

Disable remote access.

```
>remoteaccess disable
```

restoredefault

Name

restoredefault   Restores the modem configuration to factory defaults.

Synopsis

```
restoredefault
```

Description

The restoredefault command erases all configurations made by the user and restores the modem back to the factory default configuration. Once this command is executed, the modem automatically reboots with the default configuration.

Examples

Restore configuration to factory defaults.

```
>restoredefault
```

route

Name

route   Shows and configures the IP routing table.

Synopsis

```
route add <ipaddress> <subnetmask> <[<gateway>] [<interface>]>
route delete <ipaddress> <subnetmask>
route show
route --help
```

Description

The route command lets you add entries to and delete entries from the IP routing table. Its primary use is to set up static routes to specific hosts or networks via an interface.

When the add or delete options are used, the route modifies the routing table. The show option displays the current contents of the routing table.

▪ The default gateway route should use another defaultgateway command.

If 0.0.0.0 is entered using the route add command, it is treated the same as a static default gateway where a subnet mask must be entered.

Commands

Add

Adds a new route entry.

Delete

Deletes a route entry.

Show

Shows the current content of the routing table, including static and dynamic route entries.

Options

ipaddress

The destination network or host IP address in dotted-decimal notation. For example: 137.27.51.0.

subnetmask

When adding a network route, the netmask must be specified. The target address must have a 0 matching with the 0 portion in the subnet mask. Otherwise, the command will fail and display the message "netmask doesn't match route address."

gateway

Route packets via a gateway.

The specified gateway must first be reachable. This usually means that you have to set up a static route to the gateway beforehand. If you specify the address of one of your local interfaces, it will be used to select the interface where the packets should be routed.

interface

Force the route to be associated with the specified device, as the kernel will otherwise try to determine the device on its own by checking existing routes and devices.

Examples

Add a route to the network 192.56.76.x via the br0 interface.

```
route add 192.56.76.0 255.255.255.0 br0
```

Add a route to gateway 10.6.33.129 for network 192.57.66.x.

```
route add 192.57.66.0 255.255.255.0 10.6.33.129
```

Output

The output of the kernel routing table is organized in the following columns:

Destination

The destination network or destination host.

Gateway

The gateway address or "*" if none is set.

Genmask

The netmask for the destination net, 255.255.255.255 for a host destination, and 0.0.0.0 for the default route.

Flags

Possible flags include:

U--route is up.

H--target is a host.

G--use gateway.

R--reinstate route for dynamic routing.

D--dynamically installed by daemon or redirect.

M--modified from routing daemon or redirect.

Files

/proc/net/route

/proc/net/rt_cache

save

Name

save   Saves the current configuration to permanent storage on flash memory.

Synopsis

```
save
```

Description

The save command saves the current configuration to flash.

Examples

Save all current configuration to flash.

```
>save
```

<u>sntp</u>

Name

sntp   Automatically synchronizes the router time (with a time zone) with Internet time servers.

Synopsis

```
sntp -s server [ -s server2 ] -t "timezone"
sntp disable
sntp date
sntp zones
sntp --help
```

Description

The sntp command automatically synchronizes the router's time with the specified Internet time servers.

Options

disable

If SNTP is enabled, disable it (requires a reboot).

date

Show the current date and time of the router.

zones

Show the list of supported time zones.

Examples

Set up the SNTP server with the "Pacific Time, Tijuana" zone.

```
sntp -s time.nist.gov -t "Pacific Time, Tijuana"
```

Disable SNTP (requires a reboot to be effective).

```
sntp disable
```

Show the current date and time.

```
sntp date
```

Show a list of supported time zones.

```
sntp zones
```

Get help.

```
sntp --help
```

swversion

Name

swversion   Displays the current running software version.

Synopsis

```
swversion show
```

Description

The swversion command is used to view the software version, ADSL firmware version, and ADSL driver version.

Examples

Display the current software version.

```
> swversion show
3.02L.01.A2pB018e.d16f
```

In this example, 3.02L.01 is the software version, A2pB018e is the ADSL firmware version, and d16f is the ADSL driver version.

sysinfo

Name

sysinfo   Display the general system information.

Synopsis

```
sysinfo
```

Description

The sysinfo command displays the number of processes in the system; system time; system uptime; average system load in the past 1, 5, and 15 minutes; and system memory consumption. The figures in the memory consumption table are in 1-kb units.

Commands

None.

Options

None.

Examples

Display the system information.

```
sysinfo
```

<u>tftp</u>

Name

tftp   Starts a TFTP client to update software or retrieve and back up the configuration data.

Synopsis

```
tftp [OPTION]... tftp_server_ip_address
```

Description

The TFTP client updates the software and configuration data from a remote TFTP server and backs up and retrieves the configuration to the remote TFTP server.

Commands

None.

Options

-g

Get file (update image/configuration data).

-p

Put file (back up configuration data).

-f

Remote file name.

-t

Where "i" is for image and "c" is for configuration data.

Examples

Back up configuration data.

```
tftp -p -t c -f backupsetting.cfg 192.168.1.2
```

Restore configuration data.

```
tftp -g -t c -f backupsetting.cfg 192.168.1.2
```

Update software.

```
tftp -g -t i -f bcm96345_fs_kernel 192.168.1.2
```

The file name after "-f" should be the real file to be retrieved or backed up from the TFTP server.

wan

Name

wan Lets you configure the WAN interfaces for the DSL router.

Synopsis

```
wan config <port.vpi.vci> [<connection Id>]
[--protocol <bridge|pppoe|pppoa|mer|ipoa>] [--encap <llc|vcmux>]
[--vlanid <vlan id>]
[--state <enable|disable>] [--service <servicename>]
[--firewall <enable|disable>] [--nat <enable|disable>]
[--igmp <enable|disable>] [--qos <enable|disable>]
[--username <username> --password <password>]
[--pppidletimeout <timeout>] [--pppipextension <disable|enable>]
[--ipaddr <wanipaddress> <wansubnetmask]
[--dhcpclient <enable|disable>]
wan delete <port.vpi.vci>
wan show [<port.vpi.vci>]
wan --help <bridge|pppoe|pppoa|mer|ipoa>
```

Description

The wan command configures the networking protocols for each WAN interface. Currently, each WAN interface occupies one ATM Permanent Virtual Circuit (PVC). It does not support multiple PPPoE sessions on one ATM PVC. Before using this command, the ATM PVC, which the WAN interface is based, must be first configured by using the atm command. This command:

- configures the protocol, encapsulation mode over ATM PVC, state, and service name for each WAN interface.
- configures the username, password, idle timeout, and PPP IP extension for a PPPoE or a PPPoA interface.
- configures the IP address and subnet mask for a MER or IPoA interface.
- enables NAT or firewall for a MER or IPoA interface.
- enables or disables the DHCP client for a MER interface.
- deletes the existing WAN interface (it will not delete the ATM PVC).
- shows the ATM PVC and WAN interface summary data and status.
- displays usage for the WAN interface.

All information is displayed to stdout. A program or shell script that calls this utility can redirect stdout to a file and then parse the file in order to interpret the displayed output. Note that special characters are supported in all options of the character string type.

Commands

config

Configures the WAN interface for the DSL router.

- The command only saves the configuration data to flash and does not take effect until the system is rebooted.

delete

Removes the existing WAN interface.

- The command only saves the configuration data to flash and does not take effect until the system is rebooted.

show

Shows the ATM PVC VPI/VCI, service category, WAN interface service name, WAN interface name, WAN protocol, WAN interface service state, WAN interface up/down status, and WAN IP address.

--help

Displays usage for the WAN interface.

Options

Options for the config command:

wan config <port.vpi.vci> [<connection id>]

[--dhcpclient <enable|disable>] [--encap <llc|vcmux>]

[--firewall <enable|disable>] [--igmp <enable|disable>]

[--ipaddr <wanipaddress> <wansubnetmask>] [--nat <enable|disable>]

[--pppidletimeout <timeout>] [--pppipextension <disable|enable>]

[--protocol <bridge|pppoe|pppoa|mer|ipoa>] [--qos <enable|disable>]

[--state <enable|disable>] [--service <servicename>]

[--username <username> --password <password>] [--vlanid <vlan id>]

<port.vpi.vci>

port--port number of the ATM VCC to add.
Valid values: 0.

vpi--VPI of the VCC to add.
Valid values: 0-255.
Default value: 0

vci--VCI of the VCC to add.
Valid values: 32-65535.
Default value: 35.

<connection Id>

The connection Id identifies a WAN connection on a PVC. To add a new WAN connection, the connection Id should be omitted. To edit an existing WAN connection, the connection Id can be specified to identify a specific WAN connection. If omitted, it is defaulted to 1.
Valid values: 1-8.
Default value: 1

--dhcpclient <enable|disable>

The DHCP client state of the MER interface. This option is only valid to a MER interface. The DHCP client is not supported over any other type of WAN interface.
Valid values: enable or disable.
Default value: enable.

--encap <llc|vcmux>

The encapsulation type over the ATM PVC.

Valid values: llc or vcmux.

- llc--For MER, PPPoE, or bridge, llc is RFC2684 bridged encapsulation. For PPPoA, llc is RFC2364 LLC/NLPID encapsulation.
- vcmux--RFC2684 VC-MUX (null encapsulation).

Default value:

- llc for bridge, PPPoE, MER, or IPoA.
- vcmux for PPPoA.

--firewall <enable|disable>

The firewall state of the MER or IPoA interface.

- Firewall is always enabled on a PPPoE or a PPPoA interface.

Valid values: enable or disable.

Default value: enable.

--igmp <enable|disable>

Whether IGMP multicasting is enabled.

Valid values: enable or disable.

Default value: disable.

--ipaddr <wanipaddress> <wansubnetmask>

The WAN IP address and WAN subnet mask of a MER or IPoA interface.

This option should only be used for a MER or IPoA interface. PPPoE and PPPoA interfaces always receive the IP address, submask, and DNS addresses automatically from the ISP through the PPP protocol. If this option is used and the dhcpclient value is "enable", the DHCP client will be disabled on this interface. In general principle, static configuration overwrites dynamically assigned data.

<wanipaddress>--WAN IP address.

Valid values: any valid IP address.

<wansubnetmask>--WAN subnet mask.

Valid values: 0.0.0.1-255.255.255.255.

--nat <enable|disable>

The NAT state of the MER or IPoA interface.

- NAT is always enabled on a PPPoE or a PPPoA interface.

Valid values: enable or disable.

Default value: enable.

--password <password>

The password of the PPPoE or PPPoA interface. This option is only applied to a PPPoE or PPPoA interface. The --username option is also needed when this option is used.

Valid values: string of 256 characters.

--pppidletimeout <timeout>

The PPP timeout of a PPPoE or PPPoA interface. This option is only applied to a PPPoE or PPPoA interface.

Valid values: 0-1090 (minutes).

0: PPP connection is always on.

Greater than 0: WAN traffic is monitored and the PPP connection is torn down when there is no user data activity over the WAN interface for more than this idle time period.

Default value: 30 minutes.

--pppipextension <disable|enable>

The PPP IP extension mode of a PPPoE or PPPoA interface. This option is only applied to a PPPoE or PPPoA interface.

Valid values: disable or enable.

Default value: disable.

--protocol <bridge|pppoe|pppoa|mer|ipoa>

The protocol of the WAN interface.

Valid values: bridge, pppoe, pppoa, mer, or ipoa.

Default value: bridge.

--qos <enable|disable>

Whether QoS (Quality of Service) is enabled.

Valid values: enable or disable.

Default value: disable.

--service <servicename>

The service name of the WAN interface.

Valid values: strings of 32 characters.

Default value: <protocol>_<vpi>_<vci>.

--state <enable|disable>

The service state of the WAN interface.

Valid values: enable or disable.

Default value: enable.

--username <username>

The login name of the PPPoE or PPPoA interface. This option is only applied to a PPPoE or PPPoA interface. The --password option is also needed when this option is used.

Valid values: string of 32 characters.

--vlanid <vlan id>

The VLAN ID associated with this connection.

Valid values: a number from 1 to 4095.

Default value: 1.

Options for the delete command:

wan delete <port.vpi.vci> [<connection Id>]

<port.vpi.vci>

port--port number of the VCC to add.
Valid values: 0.

vpi--VPI of the VCC to add.
Valid values: 0-255.
Default value: 0

vci--VCI of the VCC to add.
Valid values: 32-65535.
Default value: 35.

<connection Id>

The number that identifies the existing WAN connection. If the connection Id is omitted, then its value is 1.
Valid values: 1-8.
Default value: 1

Options for the show command:

wan show [<port.vpi.vci>]

<port.vpi.vci>

port--port number of the VCC to add.
Valid values: 0.

vpi--VPI of the VCC to add.
Valid values: 0-255.
Default value: 0

vci--VCI of the VCC to add.
Valid values: 32-65535.
Default value: 35

If <port.vpi.vci> is omitted, then it will display the summary state of all existing WAN interfaces.

- The configuration needs to first be saved to permanent storage, and then it becomes effective after a reboot.

The wan show command shows the WAN interfaces after reboot (the second stage).

Options for the --help command:

wan -help [<bridge|pppoe|pppoa|mer|ipoa>]

<bridge|pppoe|pppoa|mer|ipoa>

Display only valid options for the specified protocol.
If <bridge|pppoe|pppoa|mer|ipoa> is omitted, then the help for all protocols is displayed.

Examples

Configure a PPPoE interface.

```
wan config 0.0.35 --protocol pppoe --username username --password password --
encap llc
```

Configure a PPPoA interface.

```
wan config 0.0.36 --protocol pppoa --username username --password password --
encap vcmux
```

Configure a MER configuration using DHCP client.

```
wan config 0.0.37 --protocol mer --encap llc
```

Configure a MER configuration using a static WAN address.

```
wan config 0.0.37 --protocol mer --encap llc --ipaddr 10.6.33.163 255.255.255.0
```

Configure an IPoA configuration without fireware and NAT.

```
wan config 0.0.40 --protocol ipoa --encap llc --firewall disable --nat disable --
ipaddr 10.6.33.227 255.255.255.0
```

Configure a bridge configuration.

```
wan config 0.2.35
```

Remove a WAN interface.

```
wan delete 0.2.35
```

Display all WAN interfaces.

```
wan show
=====================================================================
VCC Catego. Service Intf. Proto. State Status IP
Name Name Address
=====================================================================
0.0.35 UBR pppoe_0_35 ppp33 PPPoE Enable Up 10.6.33.143
0.0.36 UBR pppoa_0_36 ppp42 PPPoA Enable Up 10.6.33.152
0.0.37 UBR mer_0_37 nas27 MER Enable Up 10.6.33.193
0.0.40 UBR ipoa_0_40 atm52 IPoA Enable Up 10.6.33.227
=====================================================================
```

Display usage for all protocols.

```
wan -help

Usage: wan config <port.vpi.vci>
[--protocol <bridge|pppoe|pppoa|mer|ipoa>] [--encap <llc|vcmux>]
[--state <enable|disable>] [--service <servicename>]
[--firewall <enable|disable>] [--nat <enable|disable>]
[--username <username> --password <password>]
[--pppidletimeout <timeout>] [--pppipextension <disable|enable>]
[--ipaddr <wanipaddress> <wansubnetmask]
[--dhcpclient <enable|disable>]
wan delete <port.vpi.vci>
wan show [<port.vpi.vci>]
wan --help <bridge|pppoe|pppoa|mer|ipoa>
```

Display usage for bridge.

```
wan -help bridge

Usage: wan config <port.vpi.vci>
[--protocol <bridge|pppoe|pppoa|mer|ipoa>] [--encap <llc|vcmux>]
[--state <enable|disable>] [--service <servicename>]
wan delete <port.vpi.vci>
wan show [<port.vpi.vci>]
wan --help <bridge|pppoe|pppoa|mer|ipoa>
```