OMCI SFU/HGU Configuration

CPE-AN2600-R
Corporate Headquarters: San Jose, CA
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Revision History

Revision	*Date*	*Change Description*
CPE-2600-R	05/08/16	Initial release Update from document released in 2012

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About This Document

Purpose and Audience

This application note details how to use the command line interface (CLI) to configure a single family unit (SFU) optical network terminal (ONT) or a home gateway unit (HGU) in the BCM68XX GWO or GWOV reference board images.

This document is aimed at software engineers designing SFU ar HGU applications with the BCM68XX family of devices.

Acronyms and Abbreviations

In most cases, acronyms and abbreviations are defined on first use.

For a comprehensive list of acronyms and other terms used in Broadcom documents, go to: http://www.broadcom.com/press/glossary.php.

Document Conventions

The following conventions may be used in this document:

Convention	*Description*
Bold	User input and actions: for example, type **exit**, click **OK**, press **Alt+C**
`Monospace`	Code: `#include <iostream>` HTML: `<td rowspan = 3>` Command line commands and parameters: `wl [-l] <command>`
< >	Placeholders for *required* elements: enter your <username> or `wl <command>`
[ ]	Indicates *optional* command-line parameters: `wl [-l]` Indicates bit and byte ranges (inclusive): [0:3] or [7:0]

Technical Support

Broadcom provides customer access to a wide range of information, including technical documentation, schematic diagrams, product bill of materials, PCB layout information, and software updates through its customer support portal (https://support.broadcom.com). For a CSP account, contact your Sales or Engineering support representative.

In addition, Broadcom provides other product support through its Downloads and Support site (http://www.broadcom.com/support/).

Supported Image Profiles

The instructions given in this document apply to GWO or GWOV profiles only, such as 96838GWO, 96848GWO, 96858GWO, 96838GWOV, 96848GWOV, 96858GWOV, etc.

Ethernet UNI Port Mode Configuration

An optical network unit (ONU) image built from any of the supported profiles can support either ONU (SFU mode), residential gateway (RG) (HGU mode), or both (hybrid mode).

- ONU: All user-network interface (UNI) ports are managed directly by the OMCI.
- RG: All UNI ports are managed from a non-OMCI management environment such as BBF TR-069. The virtual Ethernet interface point (VEIP) management entity (ME) is the data plane demarcation point between the OMCI domain and the RG domain.
- Hybrid: A subset of UNI ports are managed by the OMCI domain in the bridged mode, similar to the ONU case; and the rest of UNI ports are managed by the RG domain.

A device that is considered as pure ONU should have all of its UNI (LAN) interfaces in the ONU mode. In this mode, the UNI should not be attached to the default *br0* bridge, and should be visible by the OLT, so that these UNI interfaces can be configured to join any Layer 2 bridge, and create a full data path from UNI to ANI (WAN) through the pure Layer 2 bridge.

A device that is considered as pure RG should have all of its UNI interfaces in the RG mode. In this mode, UNI should not be visible by the OLT. Instead, these UNI interfaces should be attached to default bridge *br0* so that they can be connected to any Layer 3 interfaces through the VEIP in routed mode.

A device that is considered to support both ONU and RG (hybrid mode) may have some of its UNI interfaces in the ONU mode, and others in the RG mode. The default *br0* bridge is coexisted with other pure Layer 2 bridges that are created by the OLT configurations in this device. UNI interfaces that are connected to the default *br0* bridge should setup routed data paths. UNI interfaces that are connected to other Layer 2 bridges should create bridged data paths.

By default, a GWO or GWOV image has all UNI ports in the RG mode. Use the following Broadcom CLI command to view the UNI port modes:

```
omci eth --show
```

Example:

```
> omci eth --show
  Ethernet 0 is member of RG bridge only
  Ethernet 1 is member of RG bridge only
  Ethernet 2 is member of RG bridge only
  Ethernet 3 is member of RG bridge only
```

In the above default mode, the device is pure RG, none of UNI ports are reported as Physical Path Termination Point (PPTP) Ethernet UNI OMCI ME instances in the ONU OMCI management information base (MIB), and that the OLT cannot configure them.

To configure which UNI ports are in the ONU mode or in the RG mode, use the following Broadcom CLI command:

```
omci eth --port <0..7> --type <rgont|rg|ont>
```

Example: Use the following command to configure *eth0* in the ONU mode. System reboot is necessary before the command will take effect.

```
omci eth --port 0 --type ont

 > omci eth --port 0 --type ont
   Ethernet 0 is member of ONT bridge only
   Ethernet 1 is member of RG bridge only
   Ethernet 2 is member of RG bridge only
   Ethernet 3 is member of RG bridge only
```

After reboot, the physical *eth0* interface is expected to be detached from the default *br0* bridge, and is represented in the ONU OMCI MIB, as a PPTP Ethernet UNI ME instance, so that it can be configured later by the OLT. Other UNI ports should still be attached to default *br0* bridge, and should not be reported in the ONU OMCI MIB as PPTP Ethernet UNI ME instances.

To configure *eth0* back to RG mode, use the following Broadcom CLI command:

```
omci eth --port 0 --type rg
```

Example:

```
 > omci eth --port 0 --type rg
   Ethernet 0 is member of RG bridge only
   Ethernet 1 is member of RG bridge only
   Ethernet 2 is member of RG bridge only
   Ethernet 3 is member of RG bridge only
```


PPTP Ethernet UNI as VEIP

If the OLT does not support VEIP-based OMCI configuration, the “PPTP ETH UNI as VEIP” feature can be useful. This feature allows the ONU to report a PPTP ETH UNI ME instance in the RG mode, and to accept the OMCI configurations associated with the PPTP ETH UNI ME instance. Internally, that PPTP ETH UNI interface is treated as a VEIP interface.

The corresponding Broadcom CLI command format is:

```
omci eth --portmax <0..8> --startid <0..65535> --veip <0|1>
```

For example, the following command treats the PPTP ETH UNI ME Instance 0x101 (257) as a VEIP interface.

```
> omci eth --portmax 5 --startid 257 --veip 1
> save
```

The command takes effect after an ONU reboot.

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