Start-up Guide

FK-OLT-G4S

For Best Practices for Metallic and Optical Instalation, and other Technical Notes, Firmware for these and other equipment consult the Technical Support area on our website by clicking here.

Compatible with:

OLT
FK-OLT-G4S

Important:
Furukawa recommends always keeping firmware updated to the latest version available.
Before beginning configuration it is important to have the logical project in hands. It will be the guide so configuration is executed as planned in a fast and efficient manner. A well executed logical project garantees a smooth network management without future problems, greater availability and reliability besides allowing expansion and alterations. The logical project will also serve for future reference and will be a powerfull tool in network troubleshooting for performance issues, instability or unavailable services.

1 CONSOLE ACCESS

Connect the console cable, provided with the OLT, to the interface indicated on the image below:

Connect the other end of the cable to the PC serial interface. In some cases it will be necessary to use a DB9-USB adapter.

See below information for equipament access:

EQUIPMENT ACCESS	
Speed (baud)	9600
Data bits	8
Stop bits	1
Parity	None
Flow Control	None

Default user and password:

DEFAULT ACCESS	
User	admin
Password	<blank>

2 IP MANAGEMENT CONFIGURATION

It is possible to configure an IP address to the MGMT interface to enable remote access. Configuration from step 2 can be done either via console or remotely.

2.1 Out-of-Band Interface (MGMT interface)

Use the commands below to configure the out-of-band interface (MGMT port):

CLI	Commands	Description
SWITCH>	**enable**	Access EXEC mode.
SWITCH#	**configure terminal**	Access configuration mode.
SWITCH(config)#	**ssh server enable**	Enables SSH service.

SWITCH(config)#	**interface mgmt**	Access management interface.
SWITCH(config-if[mgmt])	**no shutdown**	Activates MGMT interface.
SWITCH(config-if[mgmt])	**ip address 10.80.46.11/24**	Configures IP to MGMT interface.
SWITCH(config-if[mgmt])	**end**	Returns to global configuration mode.
SWITCH#	**write memory**	Saves configuration to flash memory.

3 PASSWORD CHANGE

During first access to the equipment, it is recommended to change default password for the **admin** user. The commands are:

CLI	Commands	Description
SWITCH(config)#	**passwd**	Change password for **admin** user.
Enter new password:	**<new_password>**	Insert new password.
Re-enter new password:	**<confirm_new_password>**	Confirm new password.

4 VLANS

Use the commands below to create VLANs and apply them to the OLT ports.

Uplink ports can be configured as access or trunk, depending on the devices connected to them, whereas PON ports must always be configured in trunk mode.

CLI	Commands	Description
SWITCH>	**enable**	Access EXEC mode.
SWITCH	**configure terminal**	Access configuration mode.
SWITCH(config)#	**bridge**	Access bridge mode.
SWITCH(bridge)#	**vlan create 10-20**	Creates vlans 10 through 20.
SWITCH(bridge)#	**vlan add 10-20 7,17 tagged**	Associates created VLANs to ports 7 and 17 tagged .
SWITCH(bridge)#	**vlan add 15 18 untagged**	Associates VLAN 15 to port 18 untagged.
SWITCH(bridge)#	**vlan del 11 7**	Removes VLAN 11 from port 7.
SWITCH(bridge)#	**no vlan 12**	Removes VLAN 12 from the equipment.

5 CREATING PROFILES

The following example is for FK-ONT-G420R.

5.1 DBA-PROFILE

CLI	Commands	Description
SWITCH#	**configure terminal**	Access configuration mode.
(config)#	**gpon**	Access GPON mode.
(gpon)#	**dba-profile data create**	Creates dba-profile named data.
(config-dba-profile[dados])#	**mode sr**	Configures DBA with mode sr.
(config-dba-profile[dados])#	**sla fixed 128**	Minimum value used for OLT / ONU communication (OMCI).
(config-dba-profile[dados])#	**sla maximum 10944**	Sets maximum upstream bandwidth.
(config-dba-profile[dados])#	**show current-profile**	Shows profile.
(config-dba-profile[dados])#	**apply**	Apply configurations to profile.

5.2 Extended-VLAN

CLI	Commands	Description
SWITCH#	**configure terminal**	Access configuration mode.
(config)#	**gpon**	Access GPON mode.
(gpon)#	**extended-vlan-tagging-operation bridge create**	Creates extended-vlan bridge profile.
(config-ext-vlan-oper[bridge])#	**downstream-mode enable**	Enables configuration for downstream.
(config-ext-vlan-oper[bridge])#	**untagged-frame 1**	Configures VLAN as untagged.
(config-ext-vlan-oper[bridge]-untagged-frame[1])#	**treat inner vid 10 cos 0 tpid 0x8100**	Configures VLAN 10 with cos 0 and tpid 0x8100.
(config-ext-vlan-oper[bridge]-untagged-frame[1])#	**apply**	Applies configurations to profile.

5.3 Traffic-Profile

The traffic-profile is responsible for managing L2 packets for the end devices. The first step is to configure a t-cont, which will have a dba-profile assigned for upstream bandwidth control. The mapper is responsible for forwarding the logical packages through the gemport to the bridge, which is the border between the logical (ani) and physical (uni) exits.

CLI	Commands	Description
SWITCH#	**configure terminal**	Access configuration mode.
(config)#	**gpon**	Access GPON mode.
(bridge)#	**traffic-profile TP create**	Creates traffic-profile TP.
(config-traffic-pf[TP])#	**tcont 1**	T-CONT 1 configuration.
(config-traffic-pf[TP]-tcont[1])#	**dba-profile data**	Assigns dba-profile data.
(config-traffic-pf[TP]-tcont[1])#	**gemport 1/1**	Creates gemport.
(config-traffic-pf[TP]-tcont[1])#	**exit**	Returns to previous menu.
(config-traffic-pf[TP])#	**mapper 1**	Creates mapper 1.
(config-traffic-pf[TP]-mapper[1])#	**gemport count 1**	Defines quantity of gemports.
(config-traffic-pf[TP]-mapper[1])#	**exit**	Returns to previous menu.
(config-traffic-pf[TP])#	**bridge 1**	Creates bridge 1.
(config-traffic-pf[TP]-bridge[1])#	**ani mapper 1**	Access ANI 1 interface.
(config-traffic-pf[TP]-bridge[1]-ani[mapper:1])#	**vlan-filter vid 10 untagged discard**	Assigns VLAN 10 to ANI interface.
(config-traffic-pf[TP]-bridge[1]-ani[mapper:1])#	**exit**	Returns to previous menu.
(config-traffic-pf[TP]-bridge[1])#	**uni eth 1**	Access UNI 1 interface.
(config-traffic-pf[TP]-bridge[1]-uni[eth:1])#	**extended-vlan-tagging-operation bridge**	Assigns extended-vlan to profile.
(config-traffic-pf[TP]-bridge[1]-uni[eth:1])#	**exit**	Returns to previous menu.
(config-traffic-pf[TP]-bridge[1])#	**exit**	Returns to previous menu.
(config-traffic-pf[TP])#	**apply**	Applies configurations to profile.

NOTE 1: For interfaces UNI ETH 2, 3 and 4 repeat configuration for UNI ETH 1.
NOTE 2: For multiple services profiles, see annex 1 at the end of this guide.

5.4 Onu-Profile

The onu-profile is the profile that will be applied to the ONU and it contains all previous profiles created:

CLI	Commands	Description
SWITCH#	**configure terminal**	Access configuration mode.
(config)#	**gpon**	Access GPON mode.
(config)#	**onu-profile data create**	Creates ONU-Profile data.
(config-onu-profile[dados])#	**traffic-profile TP**	Assigns traffic-profile to onu-profile.
(config-onu-profile[dados])#	**apply**	Applies configurations to profile.

6 APPLYING A PROFILE

After creating the onu-profile use the commands below to apply it to an ONU.

CLI	Commands	Description
SWITCH#	**conf t**	Access configuration mode.
(config)#	**gpon**	Access GPON mode.
(gpon)#	**gpon-olt 1**	Access interface gpon 1.
(config-gpon-olt[1])#	**discover-serial-number start 10**	Enables automatic ONU discovery.
(config-gpon-olt[1])#	**onu fix all**	Fixates ONUs to PON port.
(config-gpon-olt[1])#	**onu-profile 1 data**	Applies ONU-profile data to ONU 1.

7 SAVING CONFIGURATIONS

After configuring the OLT it is important to save the information since it will be lost in case the OLT reboots:

CLI	Commands	Description
SWITCH#	**copy running-config startup-config**	Saves configurations to the OLT.

It is also possible to save using the following command:

CLI	Commands	Description
SWITCH#	**write memory**	Saves configurations on OLT.

8 TROUBLESHOOTING

8.1 Verify ONU database

It is possible to display all the registered ONU in the PON port, the applied profile and index with the command:

CLI	Commands	Description
SWITCH#	**show onu info**	Shows ONUs registered in the database.
SWITCH#	**show onu model-name 1**	Shows ONUs model name

```
SWITCH(config)# show onu info
-------------------------------------------------------------------------------
  OLT | ONU |  STATUS  |  Serial No.  | Distance |  Rx Power  |    Profile
-------------------------------------------------------------------------------
    1 |   1 |   Active | FISA4b07f9e0 |      5m  | - 14.6 dBm |
```

```
SWITCH(config)# show onu model-name 1
--------------------------------
  OLT | ONU |   Model Name
--------------------------------
    1 |   1 | FK-ONT-G420W
```

8.2 ONU detailed information

CLI	Commands	Description
SWITCH #	**show onu detail-info 1**	Shows detailed information from its index registered to the PON port.

```
SWITCH(config)# show onu detail-info 1
-----------------------------------------------------------------
 OLT : 1, ONU : 1
-----------------------------------------------------------------
 Activation Status                : Active
 Last Activation Fail Reason      : -
 Deactivation Reason              : -
 Serial Number                    : FISA4b07f9e0
 Serial Number(Hex)               : 464953414b07f9e0
 Password (R-ID)                  : 00000000000000000000
 Description                      :
 Learning Method                  : Auto
 Model Name                       : FK-ONT-G420W
 MAC Address                      : b8:26:d4:07:f9:e0
 EqD / RTD                        : 246723 / 64277 bit
 Fiber Distance                   : 5m
 ONU RX Power                     : - 14.7 dBm
 MAX T-CONT                       : 7
 MAX US Priority Queue per T-CONT : 8 (8/8/8/8/8/8/8/8)
 T-CONT Scheduling Policy         : SPQ
 Activated Time                   :   0:00:01:22
 MIB Sync Number                  : 7
 SysUpTime                        :   0:00:09:28
 InactiveTime                     :   0:00:00:00
 Vendor Product Code              : 0x0007
 Host Name                        :
 Encryption Key                   : 58 9f 6b 89 33 95 27 2b 6a 07 58 99 3a 5c 25 0f
 OMCC Version                     : 0xa0
 onu-profile                      : -
 VoIP Available signal protocol   : SIP / MGCP
 VoIP Available config method     : OMCI / Configuration file
 Power over Ethernet Control      : Not support
 Remote Debug                     : Support
 Remote Debug Format              : ASCII
```

8.3 Verifying ONU firmware version

Display the firmwares installed inside the ONU use the command below.

```
SWITCH# show onu firmware version 1
                                                                    (D):Default-OS  (R):Running-OS
-------------------------------------------------------------------------------------------------
  OLT | ONU |        Upgrade Status       |             OS1            |            OS2
-------------------------------------------------------------------------------------------------
    1 |   1 |                           - |                 3.05-1154 |         (D)(R) 3.03p2-1146
```

9 ANNEX 1 – PROFILES FOR MULTIPLE SERVICES

9.1 One service

```
extended-vlan-tagging-operation v100 create
 downstream-mode enable
 untagged-frame 1
  treat inner vid 100 cos 0 tpid 0x8100
 apply

traffic-profile [traffic 1] create
 tcont 1
  gemport 1/1
  dba-profile [NAME]
 mapper 1
  gemport count 1
 bridge 1
  ani mapper 1
   vlan-filter vid 100 untagged discard
  uni eth 1
   extended-vlan-tagging-operation v100
  uni eth 2
   extended-vlan-tagging-operation v100
  uni eth 3
   extended-vlan-tagging-operation v100
  uni eth 4
   extended-vlan-tagging-operation v100
 apply
```

9.2 Two Services

```
extended-vlan-tagging-operation v200 create
 downstream-mode enable
 untagged-frame 1
  treat inner vid 200 cos 0 tpid 0x8100
 apply

traffic-profile [traffic 2] create
 tcont 1
  gemport 1/1
  dba-profile [NAME]
 tcont 2
  gemport 2/1
  dba-profile [NAME]
 mapper 1
  gemport count 1
```

```
 mapper 2
  gemport count 1
 bridge 1
  ani mapper 1
   vlan-filter vid 100 untagged discard
  uni eth 1
   extended-vlan-tagging-operation v100
  uni eth 2
   extended-vlan-tagging-operation v100
 bridge 2
  ani mapper 2
   vlan-filter vid 200 untagged discard
  uni eth 3
   extended-vlan-tagging-operation v200
  uni eth 4
   extended-vlan-tagging-operation v200
 apply
```

9.3 Three Services

```
extended-vlan-tagging-operation v400 create
 downstream-mode enable
 untagged-frame 1
  treat inner vid 400 cos 0 tpid 0x8100
 apply

traffic-profile [traffic 3] create
 tcont 1
  gemport 1/1
  dba-profile [NAME]
 tcont 2
  gemport 2/1
  dba-profile [NAME]
 tcont 3
  gemport 3/1
  dba-profile [NAME]
 mapper 1
  gemport count 1
 mapper 2
  gemport count 1
 mapper 3
  gemport count 1
 bridge 1
  ani mapper 1
   vlan-filter vid 100 untagged discard
  uni eth 1
   extended-vlan-tagging-operation v100
  uni eth 2
   extended-vlan-tagging-operation v100
 bridge 2
  ani mapper 2
   vlan-filter vid 200 untagged discard
  uni eth 3
   extended-vlan-tagging-operation v200
```

```
 bridge 3
  ani mapper 3
   vlan-filter vid 400 untagged discard
  uni eth 4
   extended-vlan-tagging-operation v400
 apply
```

9.4 Three Services With One Vlan Tagged

```
extended-vlan-tagging-operation v200_v300T create
 downstream-mode enable
 untagged-frame 1
  treat inner vid 200 cos 0 tpid 0x8100
 single-tagged-frame 1
  filter inner vid 300 cos any tpid 0x8100
  treat remove single
  treat inner vid 300 cos copy-inner tpid 0x8100
 apply

traffic-profile [traffic 4] create
 tcont 1
  gemport 1/1
  dba-profile [NAME]
 tcont 2
  gemport 2/1,3/1
  dba-profile [NAME]
 mapper 1
  gemport count 1
 mapper 2
  gemport count 1
 mapper 3
  gemport count 1
 bridge 1
  ani mapper 1
   vlan-filter vid 100 untagged discard
  uni eth 1
   extended-vlan-tagging-operation v100
  uni eth 2
   extended-vlan-tagging-operation v100
 bridge 2
  ani mapper 2
   vlan-filter vid 200 untagged discard
  ani mapper 3
   vlan-filter vid 300 untagged discard
  uni eth 3
   extended-vlan-tagging-operation v200_v300T
  uni eth 4
   extended-vlan-tagging-operation v200_v300T
 apply
```