



Multiple NCT240 V3.0.9 IP DSLAM Cascaded Management via one IP Address White Paper

The NetComm NCT240 24 Port IP DSLAM supports cascade management for up to 6 units through one IP address. This is achieved by the making use of the NCT240 RS485 cascade terminal. In the NCT240 management system, cascade management for multiple IP DSLAMs also refers to system Daisy Control. In this white paper, the term Daisy Control will be used.

This white paper is written to provide instruction on how to configure 3 x NCT240 IP DSLAM for system Daisy Control management through one IP address. It is recommended that the readers of this document has read and understood the Installation Guide and User Manual of the NCT240 IP DSLAM.

Aside:

Please note that the IP DSLAM management IP address and the gateway IP address of the Ethernet interfaces of the IP DSLAM system is only for system management. They are not the IP address for upstream and downstream data traffic. In general, the IP DSLAM just acts as a broadband access switch (BAS) to provide room users / subscribers the broadband Internet access over the existing telephone/POTS lines.

The Idea behind Multiple NCT240 Daisy Control

NCT240 IP DSLAM Daisy Control feature is used for managing up to six devices using a single IP address or using the console port of one device in the stack and it is named the master device in this white paper. While one of the NCT240 IP DSLAM should be set as the master device and the rest of the other IP DSLAMs should be configured as slave devices individually.

About RS485



The RS485 standard allows the user to configure local networks and multidrop communications links using twisted pair wires.

NCT240 IP DSLAM can make use of this standard to communicate with each other. The transmission rate is 115200 bit per second (28.8kb/s).

As shown in the NCT240 IP DSLAMS front physical panel, the RS485 terminal is a RJ12 connection. It is a MUST to use the special 0.5 meter RJ12 cable in the brown box of the NCT240 when shipped. If the length is unsuitable for your usage, you will need to follow the cable specification carefully as shown in the following section and arrange your own RJ12 daisy-control cable.

NCT240 RS485 RJ12 Cable Specification

The NCT240 RS485 RJ12 cable must be a parallel 4-wire UTP (Unshielded Twisted Pair) and flat-satin untwisted cable.

Please refer to Figure 1 for pin assignment and its color codes specification.

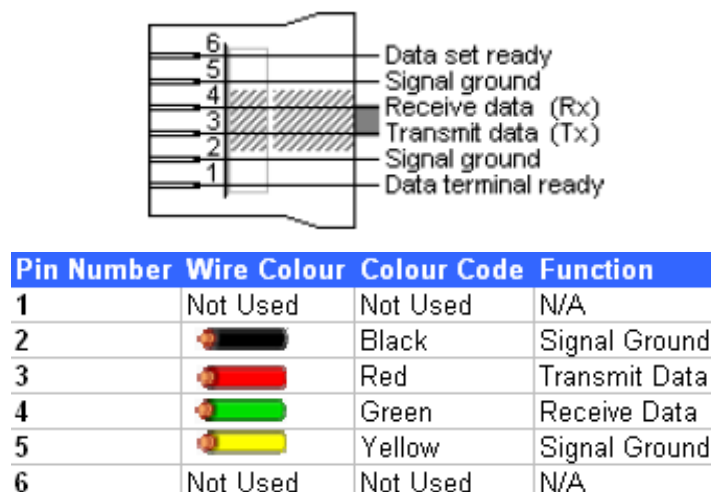


Figure 1: NCT240 IP DSLAM RS485 pin assignment and color codes

Logical Network Diagram

A logical network diagram for NCT240 IP DSLAM system Daisy Control system via a single IP address is shown in Figure 2. The connection marked in **BLUE** is a NCT240 IP DSLAM RS485 cable with standard RJ12 connectors - this cable must have at least 4 wires to transmit all the required signals. The laptop that is used to manage all the three NCT240 IP DSLAMs will need to be connected to the management port of the master device, that is, Daisy Device #0 as shown in Figure 2.

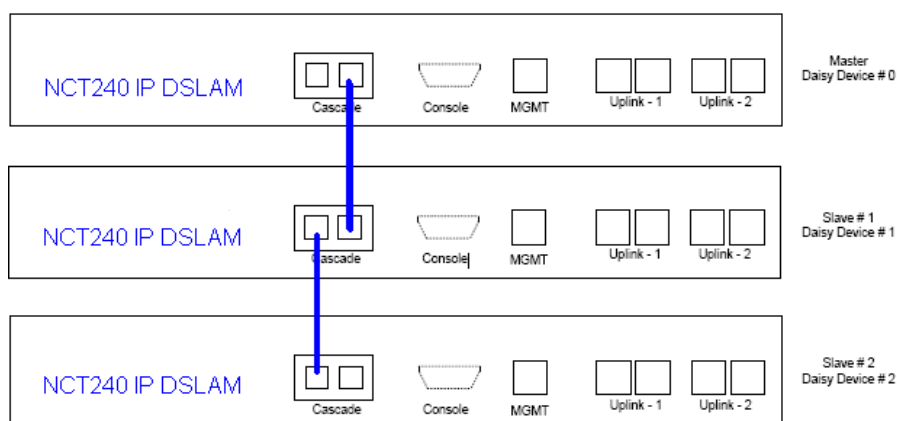


Figure 2: NCT240 Daisy Chain Management RS485 connection

Please be aware that there is a maximum-physical-distance limitation applied to the total S485 cables length for this system Daisy Control scenario. Figure

3 shows the Maximum distance between the first and last device that can work well.



Figure 3: RS485 total cable length vs number of Daisy Control NCT240 IP DSLAMs allowed

Configure Three NCT240 for Daisy Chain Management

Configure the first NCT240 IP DSLAM as the Master Device

STEP 1

Connect your PC to the management port of the NCT240 (Device Number 0 as shown in Figure 2) by using a cross-over Ethernet cable. Manually configure your PC to a static IP address in the same subnet as the NCT240 management IP. Eg: 192.168.1.100/24

The default IP address of NCT240 IP DSLAM: 192.168.1.1 /24

Default user name: admin

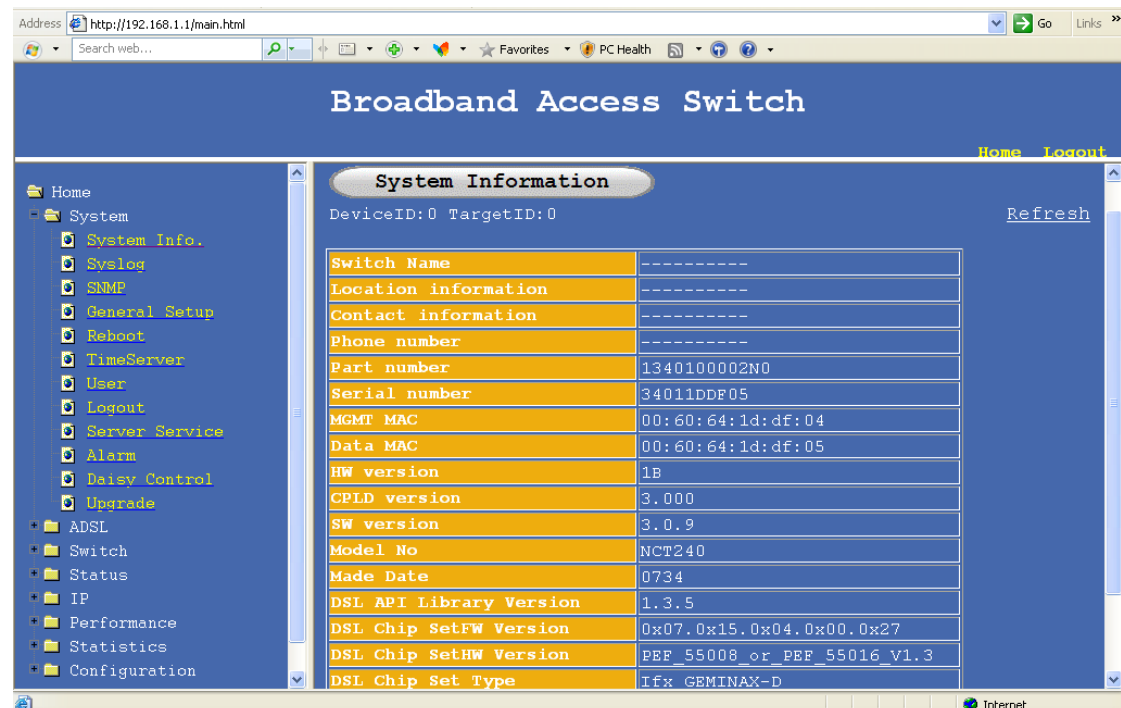
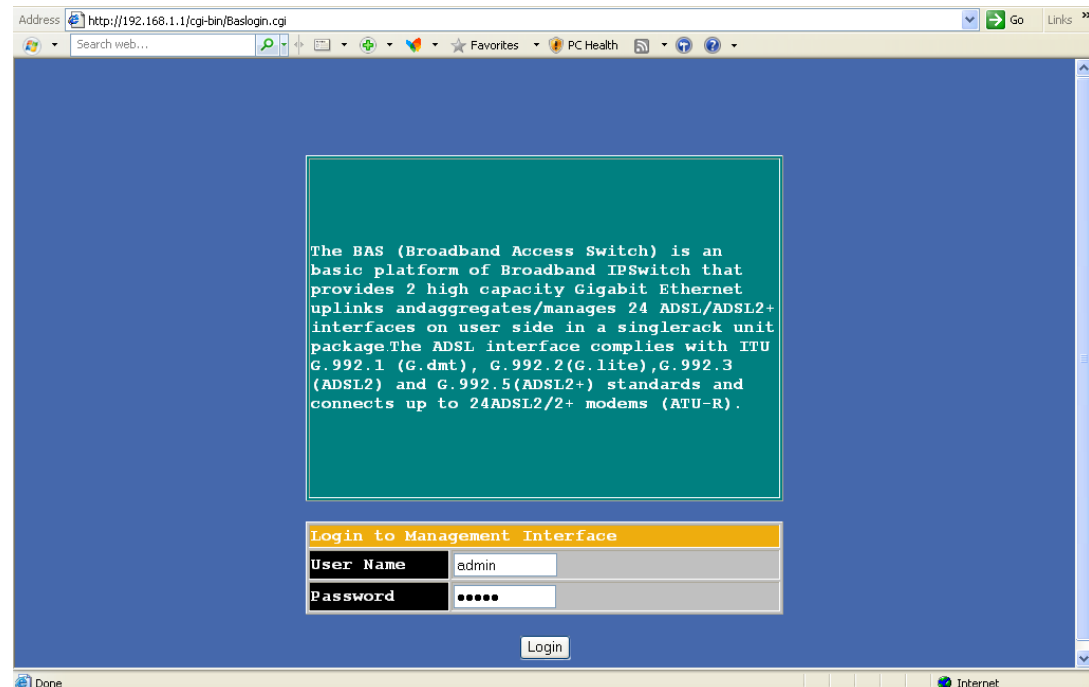
Default Password: admin

STEP 2

Open Internet Explore and log into the management web interface of the NCT240 IP DSLAM.

It is recommended to use IE6.0 as it is the software development platform of NCT240.

Please confirm that your NCT240 device is running firmware version: V3.0.9.
Please refer to screen shot shown as follows.



STEP 3

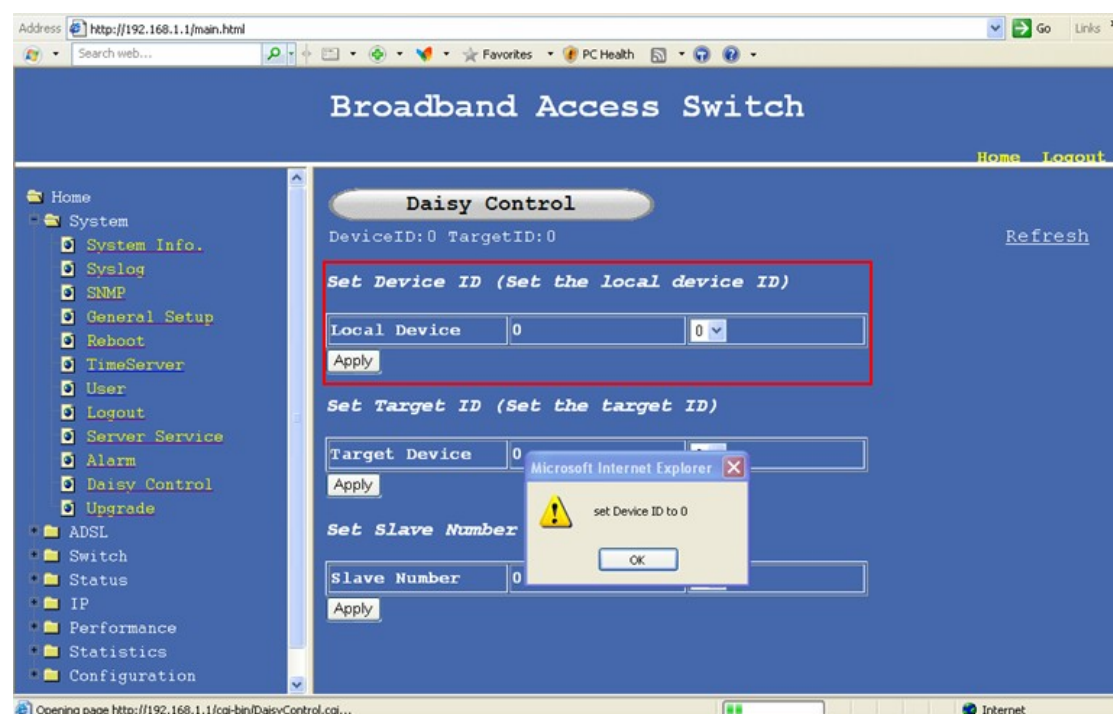
Configure NCT240 device number 0 as the master device for system Daisy Control management.

Aside:

It is recommended to perform the following configuration via the web interface as it is easier to see the overall system configuration status. However, the respective CLI commands and their corresponding outputs from the console interface are also provided in this white paper for your reference.

Navigate to NCT240 web interface > Home > System > Daisy Control > 'Set Local Device ID' = 0 and hit 'Apply' then 'Ok'.

Please refer to the red highlighted section as shown in the following screen shot.



By setting local device to 0, it means that the NCT240 that you are currently connected to is now defined to be the Master Device for system Daisy Control management

The alternate CLI command to perform the same configuration is as follows:

Connect your PC to the NCT240 console interface by using the serial console cable provided in the NCT240 brown box.
Connection rate: 115200bps 8-N-1
Username / Password: admin/admin

Input the following command as shown.

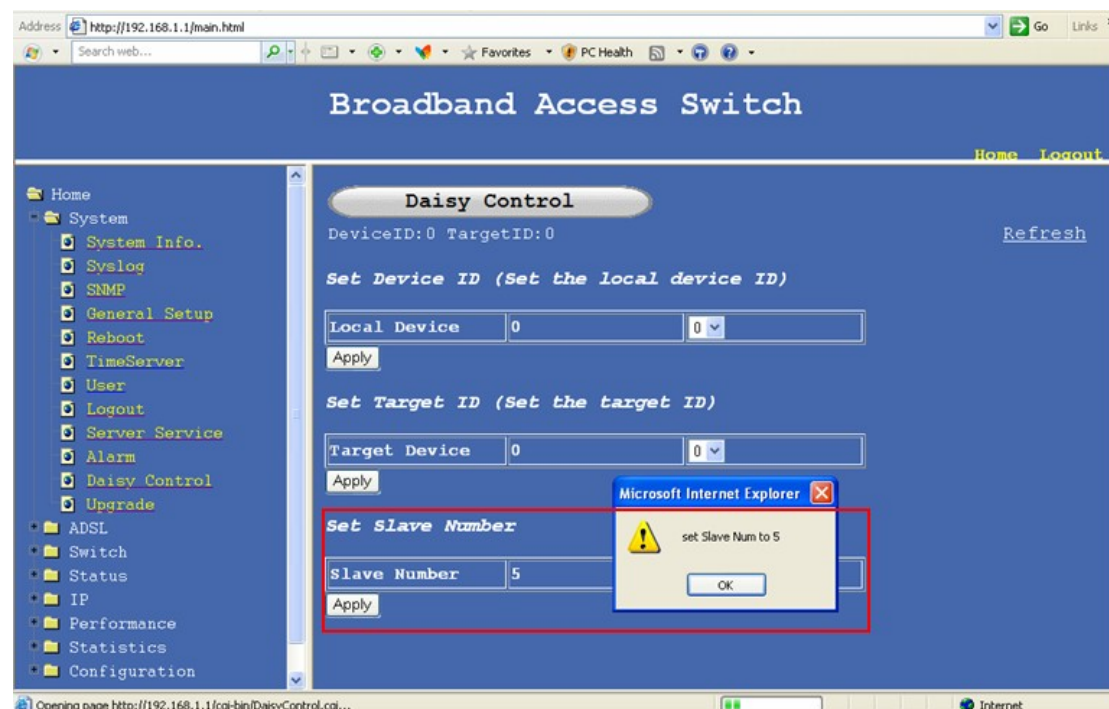
```
BAS0/sys>daisycontrol setdevice 0
Set device ID 0 OK!
BAS0/sys>daisycontrol show
RS485 device ID is 0
Target device ID is 0
BAS0/sys>
```

Connected 0:24:46 ANSIW 115200 8-N-1 SCROLL

STEP 4

Restrict the number of 'Slave' device by setting the maximum slave number to 5. This means the maximum number of NCT240 IP DSLAM for Daisy Control is equals to 6 because slave device number starts from 0 to 5.

Navigate to NCT240 web interface > System > Daisy Control > 'Set Slave Number' = 5 and hit 'Apply' then 'Ok'.



The respective CLI command is as follows:

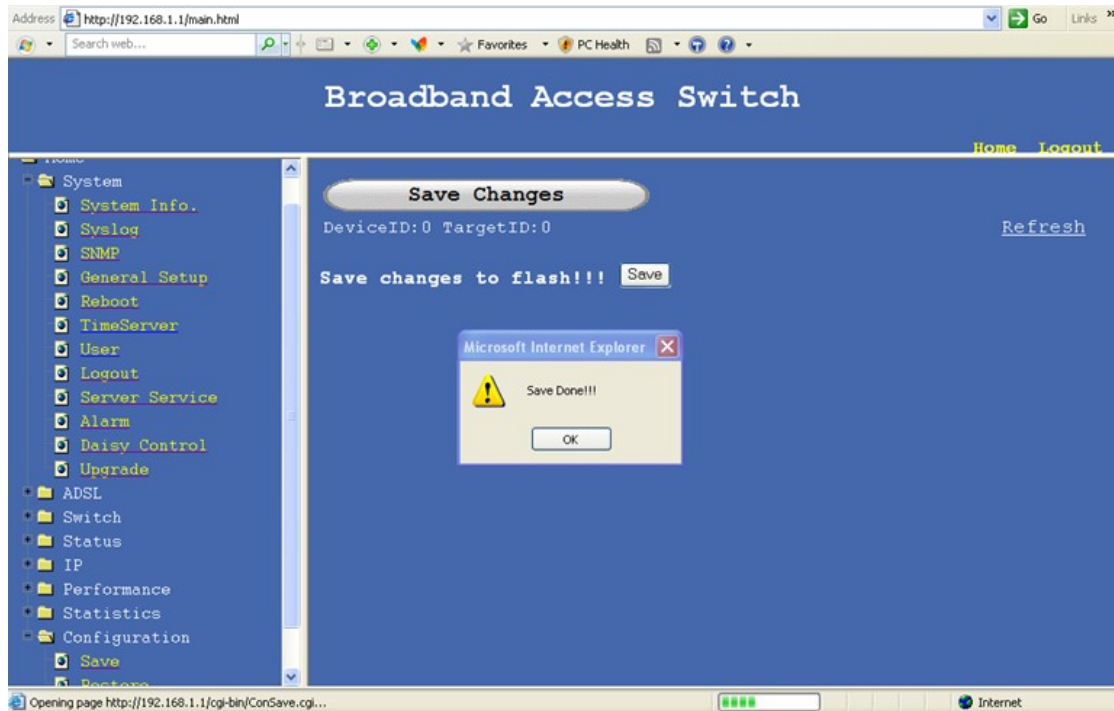
```
BAS0/sys>daisycontrol setslavenum 5
Set slave num 5 OK!
BAS0/sys>daisycontrol showslavenum
Slave number is 5
BAS0/sys>
```

Connected 0:31:41 ANSIW 115200 8-N-1 SCROLL

STEP 5

Save settings

Navigate to Home > Configuration > Save > Save Changes > hit 'Save'



Navigate to Home > System > Logout then close the NCT240 Device 0 web interface

Configure the second NCT240 as the first slave device

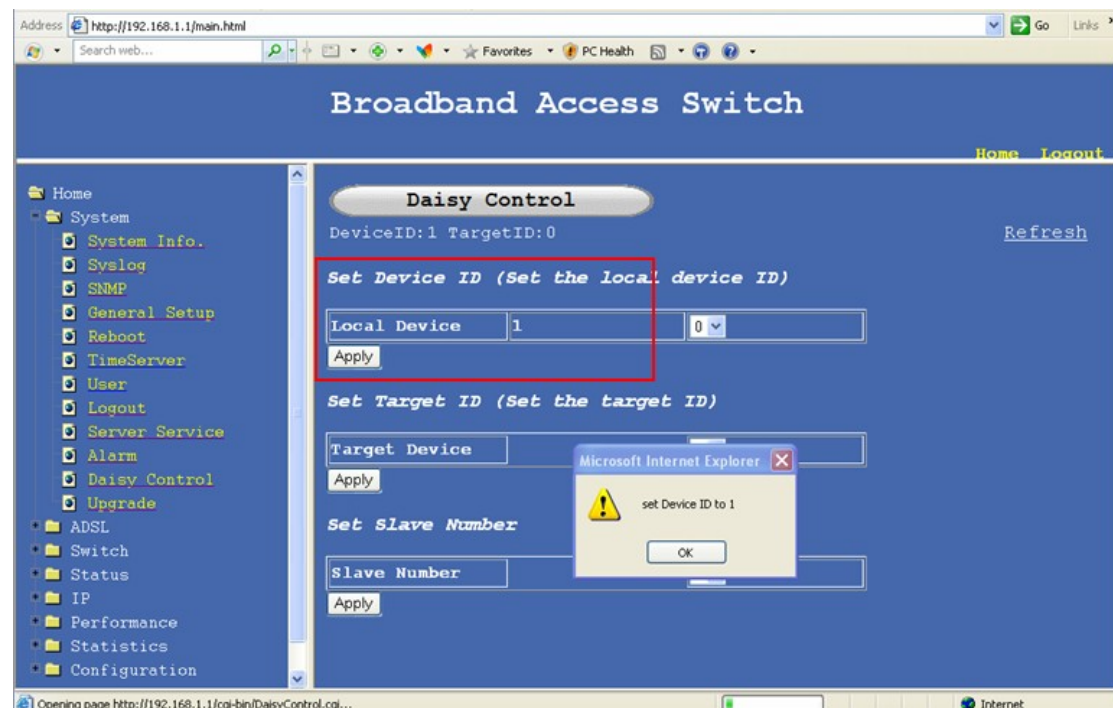
STEP 6

Repeat STEP 1 and 2 to the second NCT240 IP DSLAM.

STEP 7

Under the second NCT240's web interface, navigate to Home > System > Daisy Control > 'Set Device ID (Set Local Device ID)' = 1 and hit 'Apply' then 'Ok'.

This means that the second NCT240 is now set as the first slave device for system Daisy Control.



The respective CLI command line is shown as follows:

```
BAS0/sys>daisycontrol setdevice 1
Set device ID 1 OK!
BAS1/sys>daisycontrol show
RS485 device ID is 1
BAS1/sys>
```

Connected 0:39:51 ANSIW 115200 8-N-1 SCROLL

Repeat STEP 6 to save system configuration and logout.

Configure the third NCT240 as the second slave device

Follow similar steps as illustrated for the second NCT240. Under the third NCT240's web interface and navigate to Home > System > Daisy Control > 'Set Device ID (Set Local Device ID)' = 2 and hit 'Apply' then 'Ok'. Please refer to screen shot shown as follows.

Daisy Control
DeviceID:2 TargetID:0

Set Device ID (Set the local device ID)

Local Device: 2 (dropdown: 2) [Apply]

Set Target ID (Set the target ID)

Target Device: 0 (dropdown: 0) [Apply]

Set Slave Number

Slave Number: 0 (dropdown: 0) [Apply]

The alternate CLI command to set up slave device number 2 is as follows:

BAS/sys> daisycontrol setdevice 2

Please repeat STEP 5 and ensure new configuration is saved and log out and unplug your PC from the management port of the third NCT240 IP DSLAM.

The third NCT240 IP DSLAM is now configured to be the second slave device in this Daisy Control scenario.

Test System Daisy Control Management for three NCT240 IP DSLAM via the master device

Reconnect the management PC to the console or Ethernet management interface of the first NCT240 IP DSLAM ie. The master device and make sure RS485 cables are still connected as shown in Figure 2

Navigate to Home > System > Daisy Control >

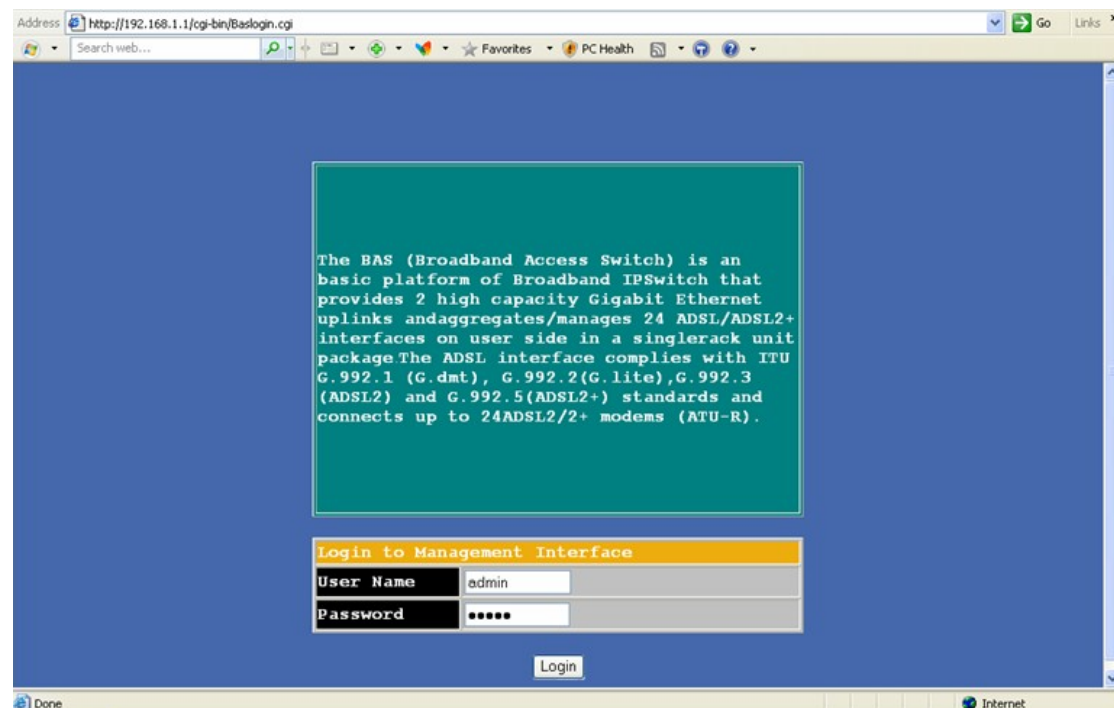
And select the NCT240 device that you want to control by a target device number.

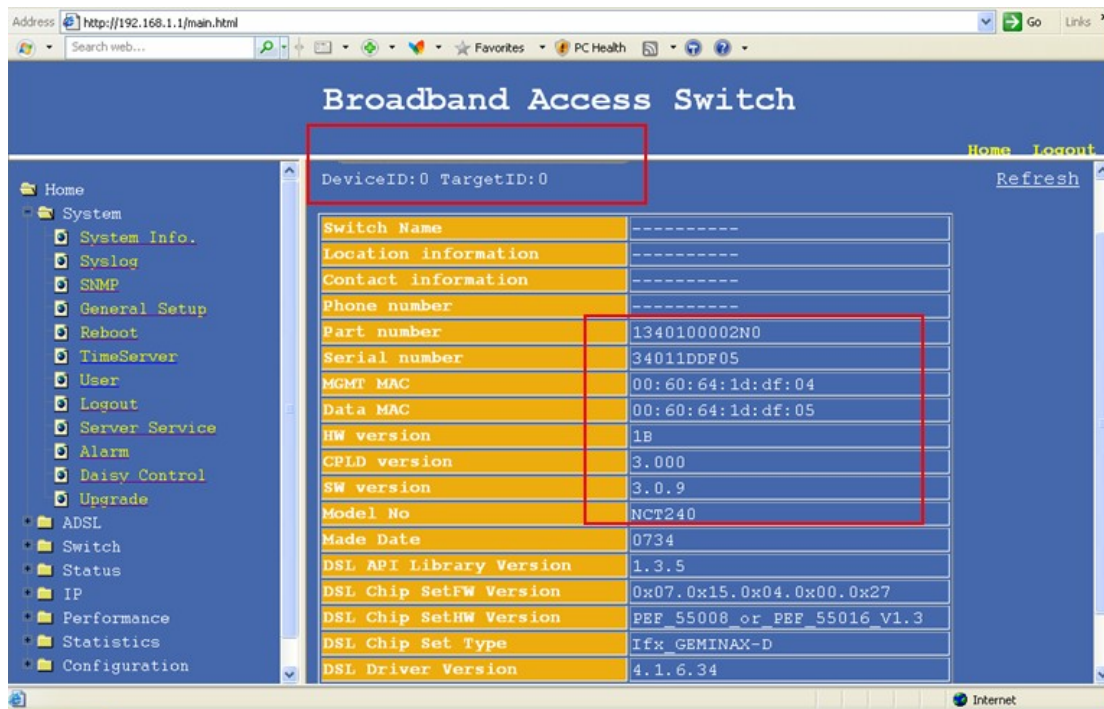
For example: under current master device number 0, if you like to control slave device number 1. You will then need to set

Daisy Control > 'Set Target ID (Set the Target Device ID) = 1; hit 'Apply' then 'Ok'

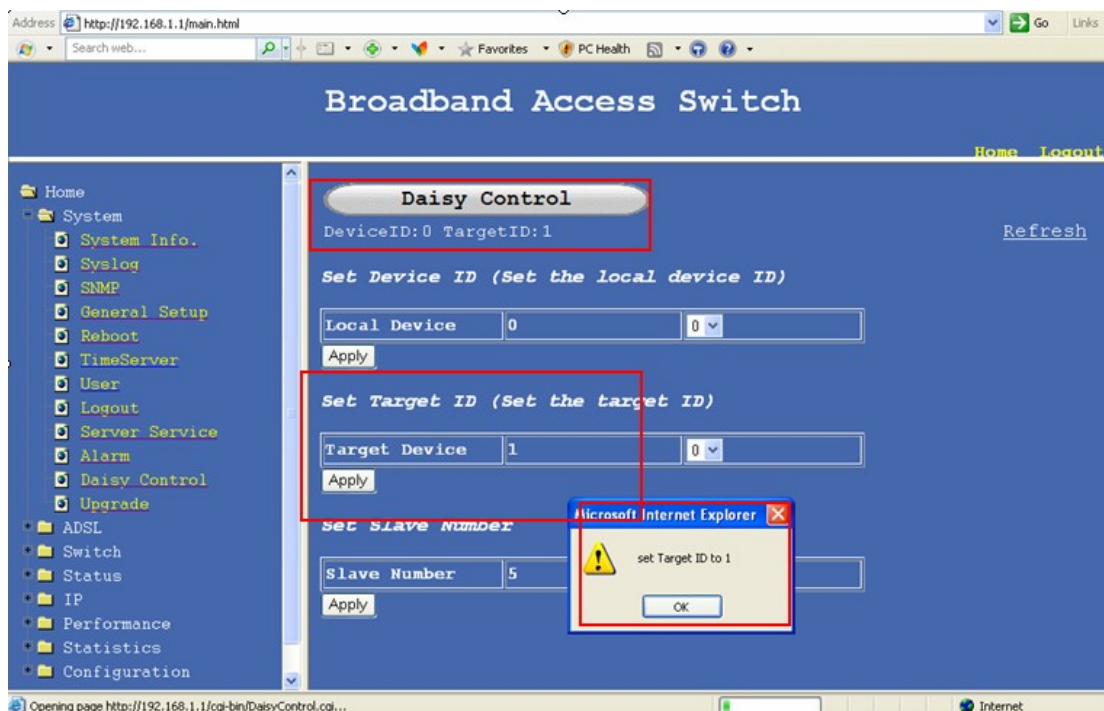
Some sample screen shots taken before and after the target device ID configuration are shown as follows.

Before

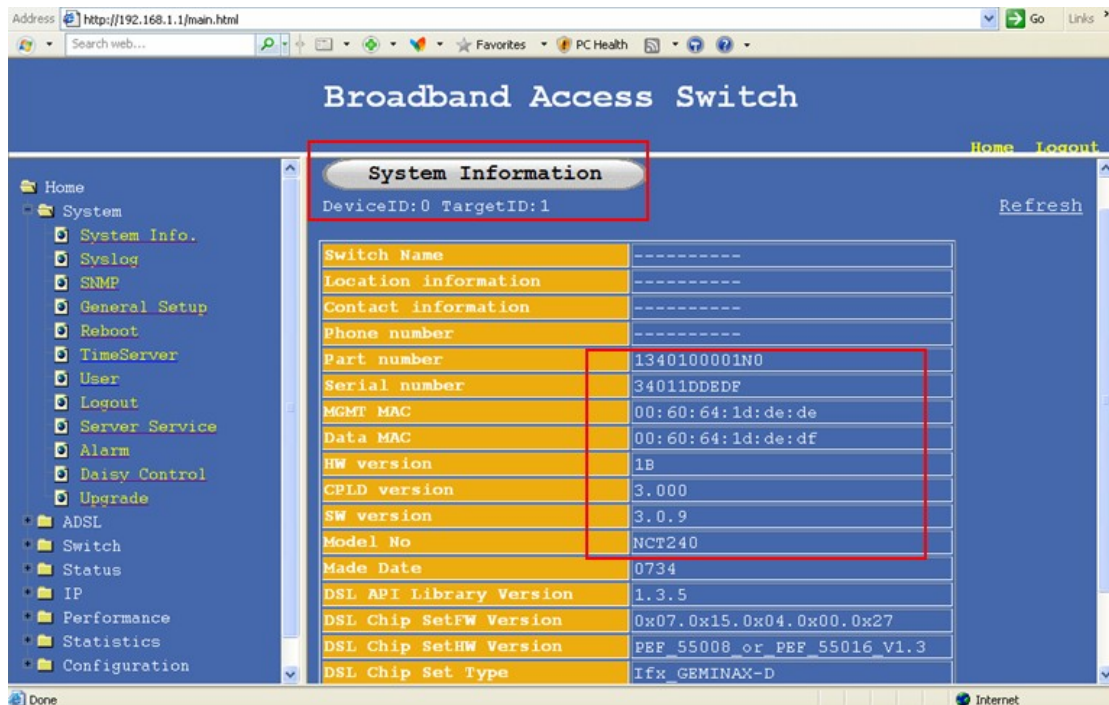




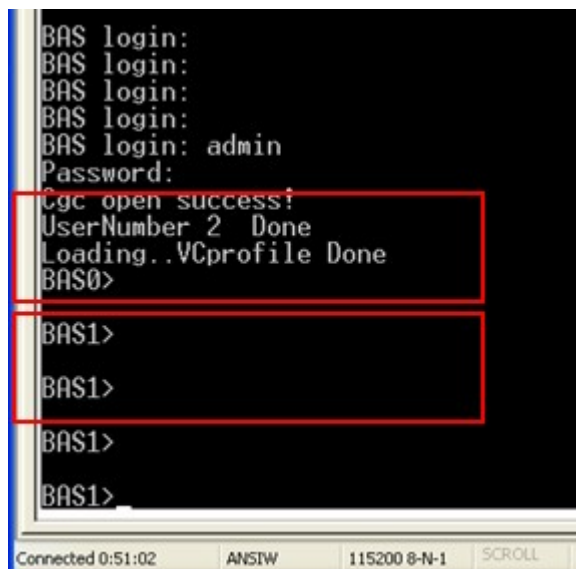
After



You will notice that the web interface that you are looking at now has changed to the web interface of the second NCT240 IP DSLAM, that is the first slave device) Please refer to red highlighted section shown in the screen shot.



You will notice that the CLI interface that you are looking at now has changed from 'BAS0>' to 'BAS1>'. Please refer to screen shot as follows



The alternate CLI command to set up the target device is as follows:

BAS0/sys> daisycontrol settarget 1

You are now controlling the second NCT240 IP DSLAM via the first NCT240/ the master device.

By using the method described in this white paper, you can control up to 6 x NCT240 IP DSLAMs through one master device.

Test Completed!

For further product installation and configuration details, please refer to the NCT240 User Manual provided in the product CD ROM when shipped.