Nanyang Polytechnic

Specialist Diploma in Cloud Data Centre Technology and Management

EG211S Data Centre Service Management and Analysis

Network Management & Monitoring Lab – Using CACTI

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1) Installing cacti from package

    # apt-get install python-software-properties

After this operation, 22.0 MB of additional disk space will be used.!
Do you want to continue [Y/n]? **Y**

    # add-apt-repository ppa:micahg/ppa

You are about to add the following PPA to your system:!
These are packages that I wanted backported to the current stable release.!
More info: https://launchpad.net/~micahg/+archive/ppa!
Press [ENTER] to continue or ctrl-c to cancel adding it
(Press <ENTER> at this point)!

    # apt-get update
    # apt-get install cacti

0 upgraded, 62 newly installed, 0 to remove and 0 not upgraded.!
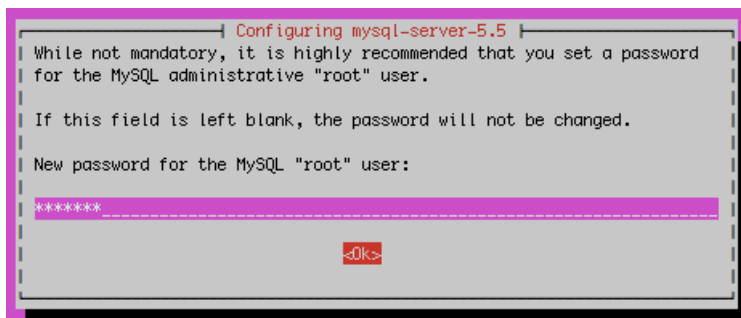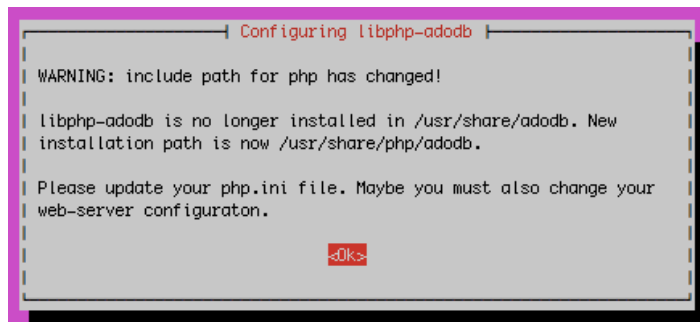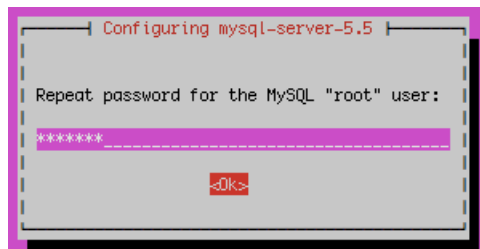Need to get 55.4 MB of archives.!
After this operation, 175 MB of additional disk space will be used.!
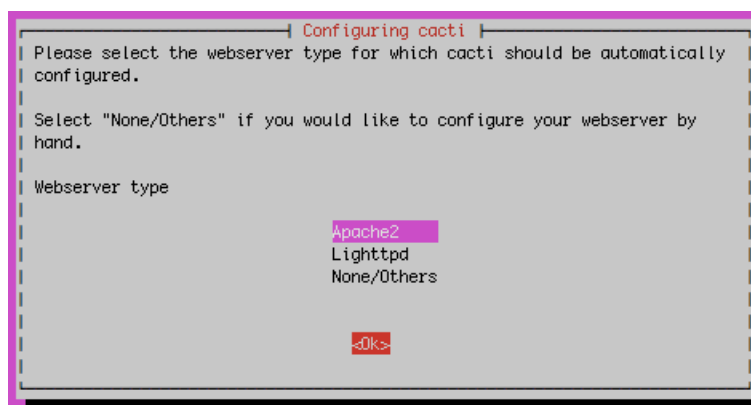Do you want to continue [Y/n]? **Y!**

We may have already done this for you. If so, you can use these slides for informational purposes. Skip to the Cacti *Web* installation steps to continue…

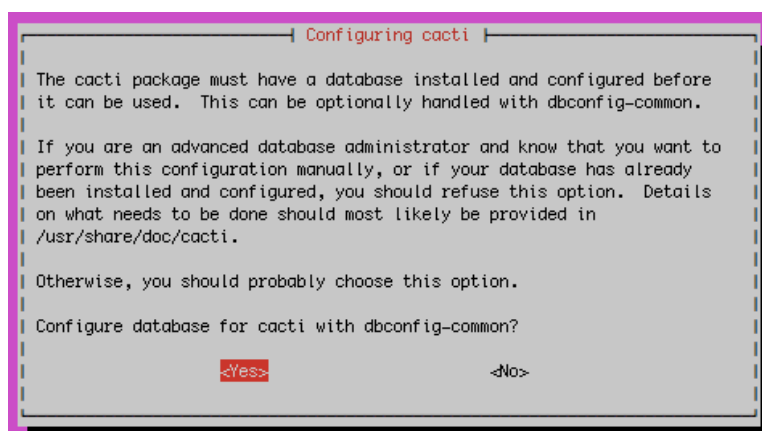*Type in MySQL root password as "sqlpass" (without the quotes)*

```
┌─── Configuring mysql-server-5.5 ├───┐
│                                      │
│ Repeat password for the MySQL "root" user: │
│                                      │
│ *******_____  │
│                                      │
│              <Ok>                    │
│                                      │
└──────────────────────────────────────┘
```

```
┌─── Configuring libphp-adodb ├───┐
│                                  │
│ WARNING: include path for php has changed!     │
│                                  │
│ libphp-adodb is no longer installed in /usr/share/adodb. New │
│ installation path is now /usr/share/php/adodb. │
│                                  │
│ Please update your php.ini file. Maybe you must also change your │
│ web-server configuraton.         │
│              <Ok>                │
│                                  │
└──────────────────────────────────┘
```

Press OK to continue.

```
┌─── Configuring cacti ├───┐
│ Please select the webserver type for which cacti should be automatically │
│ configured.                      │
│                                  │
│ Select "None/Others" if you would like to configure your webserver by │
│ hand.                            │
│                                  │
│ Webserver type                   │
│                                  │
│              Apache2             │
│              Lighttpd            │
│              None/Others         │
│                                  │
│              <Ok>                │
│                                  │
└──────────────────────────────────┘
```

We are using Apache2. Be sure this is chosen then highlight <Ok> and press <ENTER> to continue.

```
┌─── Configuring cacti ├───┐
│                                  │
│ The cacti package must have a database installed and configured before │
│ it can be used.  This can be optionally handled with dbconfig-common. │
│                                  │
│ If you are an advanced database administrator and know that you want to │
│ perform this configuration manually, or if your database has already │
│ been installed and configured, you should refuse this option.  Details │
│ on what needs to be done should most likely be provided in │
│ /usr/share/doc/cacti.            │
│                                  │
│ Otherwise, you should probably choose this option. │
│                                  │
│ Configure database for cacti with dbconfig-common? │
│         <Yes>              <No>  │
│                                  │
└──────────────────────────────────┘
```
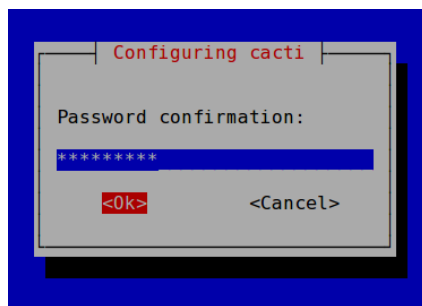
Choose <Yes> and press <ENTER> to continue.

This is the MySQL administrator password that you have created earlier.
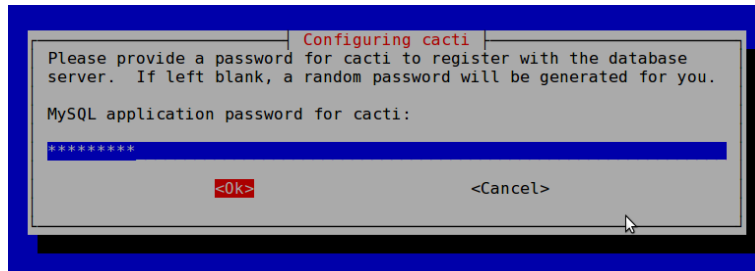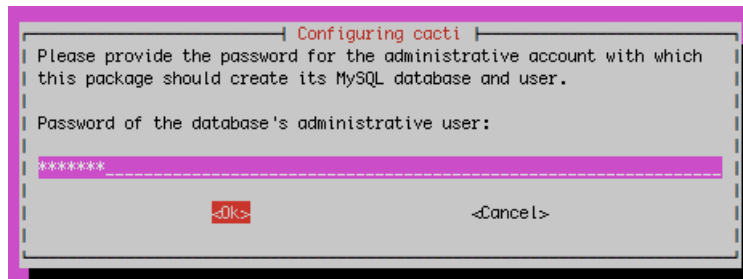
Type in MySQL application password for cacti as "cactipass" (without the quote)

.

Repeat the password you just entered in the previous screen

2) Installation on Web

Enter "localhost/cacti" in web browser

Cacti Installation Guide

Thanks for taking the time to download and install cacti, the complete graphing solution for your network. Before you can start making cool graphs, there are a few pieces of data that cacti needs to know.

Make sure you have read and followed the required steps needed to install cacti before continuing. Install information can be found for Unix and Win32-based operating systems.

Also, if this is an upgrade, be sure to reading the Upgrade information file.

Cacti is licensed under the GNU General Public License, you must agree to its provisions before continuing:

```
This program is free software; you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or (at
your option) any later version.

This program is distributed in the hope that it will be useful, but
WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
General Public License for more details.
```

Next >>

Press "Next >>"

Cacti Installation Guide

Please select the type of installation

New Install

The following information has been determined from Cacti's configuration file. If it is not correct, please edit 'include/config.php' before continuing.

```
Database User: cacti
Database Hostname:
Database: cacti
Server Operating System Type: unix
```

Next >>

Choose "New Install" and press "Next >>" again.

Cacti Installation Guide

Make sure all of these values are correct before continuing.

[FOUND] RRDTool Binary Path: The path to the rrdtool binary.

/usr/bin/rrdtool

[OK: FILE FOUND]

[FOUND] PHP Binary Path: The path to your PHP binary file (may require a php recompile to get this file).

/usr/bin/php

[OK: FILE FOUND]

[FOUND] snmpwalk Binary Path: The path to your snmpwalk binary.

/usr/bin/snmpwalk

[OK: FILE FOUND]

[FOUND] snmpget Binary Path: The path to your snmpget binary.

/usr/bin/snmpget

[OK: FILE FOUND]

[FOUND] snmpbulkwalk Binary Path: The path to your snmpbulkwalk binary.

/usr/bin/snmpbulkwalk

[OK: FILE FOUND]

[FOUND] snmpgetnext Binary Path: The path to your snmpgetnext binary.

/usr/bin/snmpgetnext

[OK: FILE FOUND]

[FOUND] Cacti Log File Path: The path to your Cacti log file.

/var/log/cacti/cacti.log

[OK: FILE FOUND]

SNMP Utility Version: The type of SNMP you have installed. Required if you are using SNMP v2c or don't have embedded SNMP support in PHP.

NET-SNMP 5.x ⇕

RRDTool Utility Version: The version of RRDTool that you have installed.

RRDTool 1.4.x ⇕

NOTE: Once you click "Finish", all of your settings will be saved and your database will be upgraded if this is an upgrade. You can change any of the settings on this screen at a later time by going to "Cacti Settings" from within Cacti.

Finish

Your screen should look like this. If it does not ask your instructor for help.

Press "Finish"
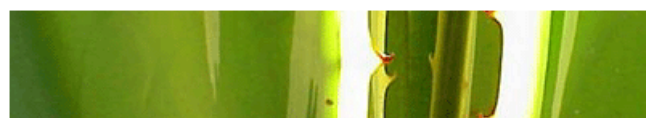
User Login

Please enter your Cacti user name and password below:

User Name: [   ]

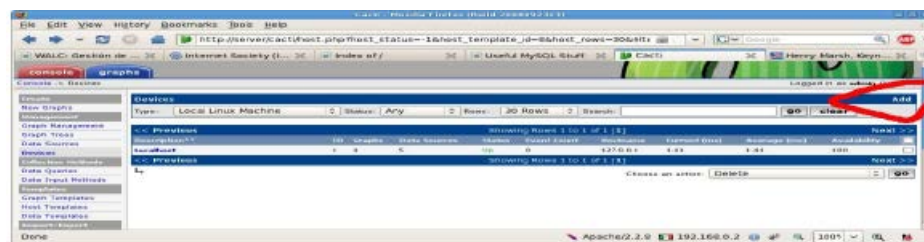Password: [   ]

Login

User Name: *admin*
Password: *admin*

Now you must change the *admin* password. Change password to "password" (without the quotes)

3) Adding device to monitor

Management -> Devices -> Add

Devices [edit: Gateway Router]

General Host Options

Description
Give this host a meaningful description. | Router A

Hostname
Fully qualified hostname or IP address for this device. | 172.16.240.12

Host Template
Choose what type of host, host template this is. The host template will govern what kinds of data should be gathered from this type of host. | Cisco Router

Disable Host
Check this box to disable all checks for this host. | ☐ Disable Host

Availability/Reachability Options

Downed Device Detection
The method Cacti will use to determine if a host is available for polling.
NOTE: It is recommended that, at a minimum, SNMP always be selected. | Ping and SNMP ← **Menu changes after you select SNMP version below!**

Ping Method
The type of ping packet to sent.
NOTE: ICMP on Linux/UNIX requires root privileges. | UDP Ping

Ping Port
TCP or UDP port to attempt connection. | 23

Ping Timeout Value
The timeout value to use for host ICMP and UDP pinging. This host SNMP timeout value applies for SNMP pings. | 400

Ping Retry Count
After an initial failure, the number of ping retries Cacti will attempt before failing. | 1

SNMP Options

SNMP Version
Choose the SNMP version for this device. | Version 2

SNMP Community
SNMP read community for this device. | cdc

SNMP Port
Enter the UDP port number to use for SNMP (default is 161). | 161

SNMP Timeout
The maximum number of milliseconds Cacti will wait for an SNMP response (does not work with php-snmp support). | 500

Maximum OID's Per Get Request
Specified the number of OID's that can be obtained in a single SNMP Get request. | 10

Additional Options

Notes
Enter notes to this host.

cancel   create

Save Successful.

Gateway Router (gw.ws.nsrc.org)

SNMP Information
System:Cisco IOS Software, 1841 Software (C1841-ADVIPSERVICESK9-M), Version
www.cisco.com/techsupport Copyright (c) 1986-2006 by Cisco Systems,
Inc. Compiled Tue 28-Feb-06 21:03 by alnguyen
Uptime: 24881862 (2 days, 21 hours, 6 minutes)
Hostname: sanog17-2.learn.ac.lk
Location:
Contact:

*Create Graphs for this Host
*Data Source List
*Graph List

Ping Results
UDP Ping Success (1.19 ms)

Devices [edit: Gateway Router]

General Host Options

Description
Give this host a meaningful description. | Router A

Hostname
Fully qualified hostname or IP address for this device. | 172.16.240.12

Host Template
Choose what type of host, host template this is. The host template will govern what kinds of data should be gathered from this type of host. | Cisco Router

You'll see this screen later when you are creating graphics for hosts vs. routers

4) Viewing Graphs

Under Management ☐ Graph Trees →Add

Save Successful.

Graph Trees [edit: NetManage Routers]

Name
A useful name for this graph tree.   Router A

Sorting Type
Choose how items in this tree will be sorted.   Natural Ordering

Tree Items   Add

[++] [--]

Item	Value
No Graph Tree Items	

                                              cancel   save

Tree Items

Parent Item
Choose the parent for this header/graph.   [root]

Tree Item Type
Choose what type of tree item this is.   Host

Tree Item Value

Host
Choose a host here to add it to the tree.   Router A   172.16.240.12

Graph Grouping Style
Choose how graphs are grouped when drawn for this particular host on the tree.   Graph Template

                                              cancel   create

console graphs   settings

Graphs -> Tree Mode   Logged in as admin (Logout)

- Default Tree   Presets: Last Day   From: 2011-01-12 08:40   To: 2011-01-13 08:40   1 Day   refresh clear
    Host: Localhost   Search: Graphs per Page: 10 Thumbnails: □ go clear
- NetManage Routers
    Host: Gateway Router   **Showing All Graphs**

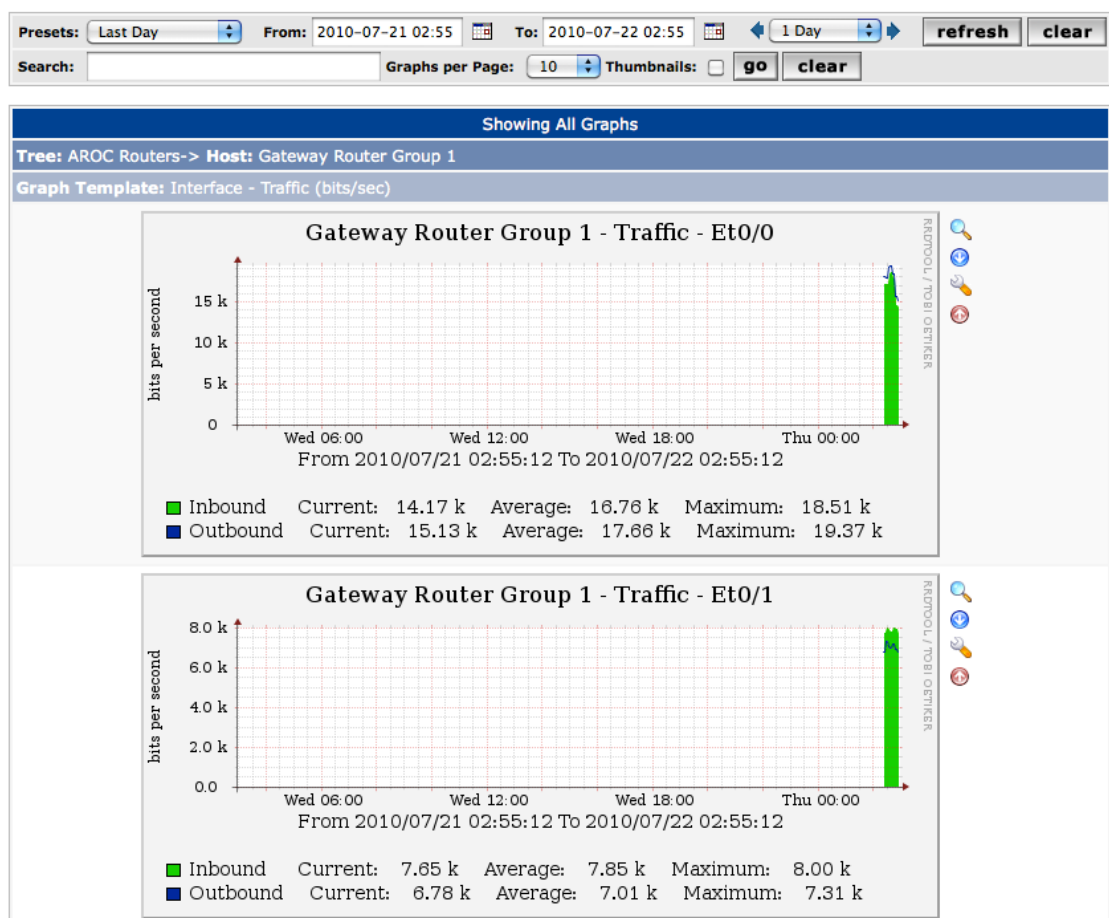   **Tree:** NetManage Routers-> **Host:** Gateway Router

                        Graph Template: Cisco - CPU Usage

                                  Gateway Router - CPU Usage
                            1.0
                            0.8
                            0.6

So far, graphics are empty – the first data can take up to 5 minutes to display.
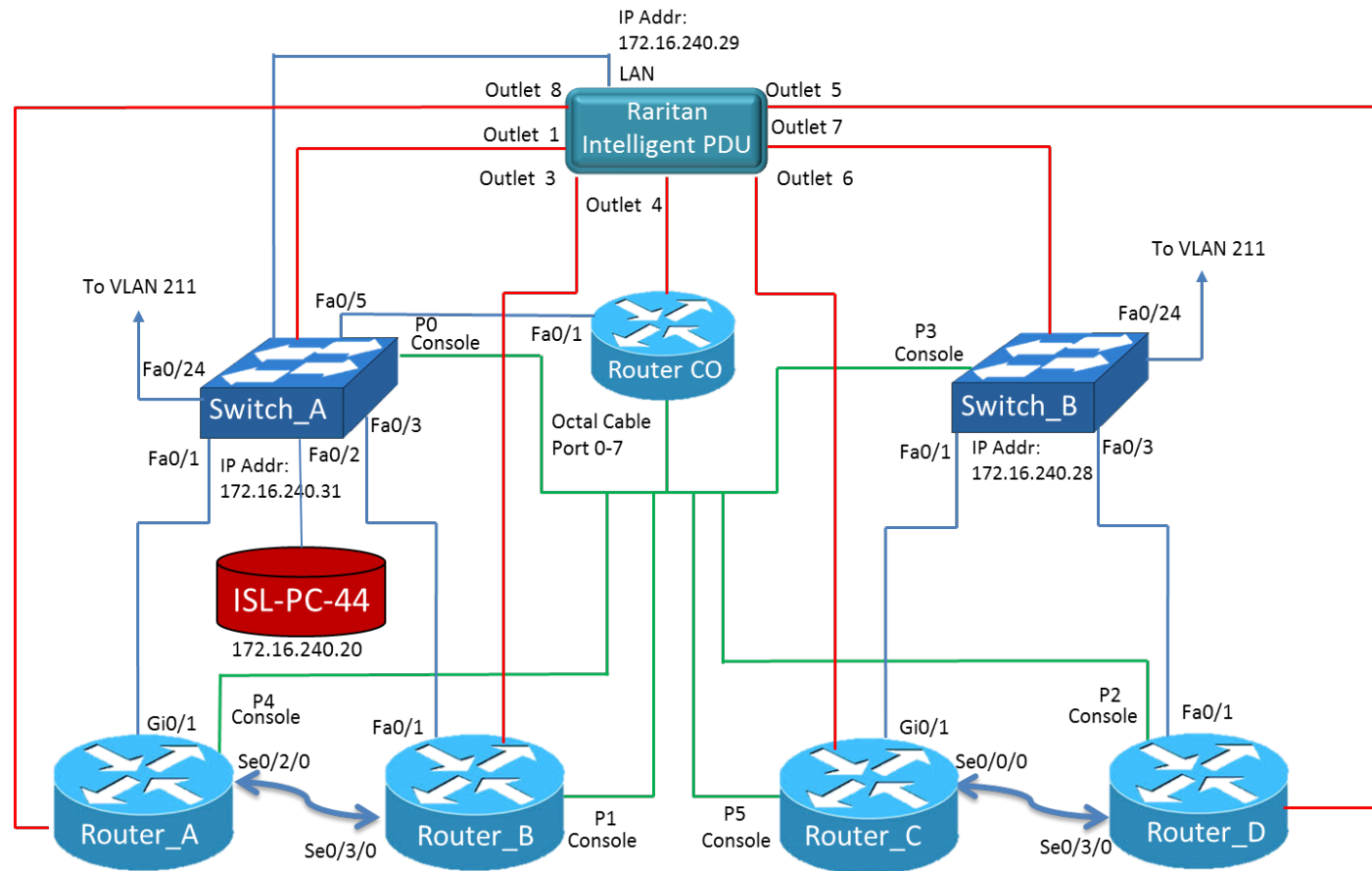
Initial Graphs

5) Repeat step 3) by adding device to monitor until all managed devices are included in the graph. **Over time you'll see tendencies.**
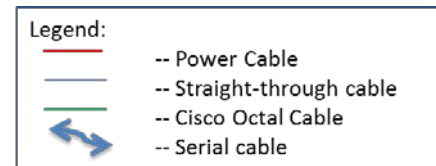

--- End of Lab ---

Network Topology

Note: SNMP Community String for all device is cdc

IP Addressing Table:

Devices	Port Number(s)	Vlan/IP Address
Router CO	Fa0/1	172.160.240.30
Switch_A	Fa0/1,3,5,24	Vlan 211/ 172.16.240.31
Router_A	Gi0/1 Se0/2/0	172.16.240.12 10.10.10.1
Router_B	Fa0/1 Se0/3/0	172.16.240.13 10.10.10.2
Router_C	Gi0/1 Se0/0/0	172.16.240.14 10.10.20.1
Router_D	Fa0/1 Se0/3/0	172.16.240.15 10.10.20.2
Switch_B	Fa0/1,3,24	Vlan 211/ 172.16.240.28
Raritan Intelligent PDU	LAN	172.16.240.29