

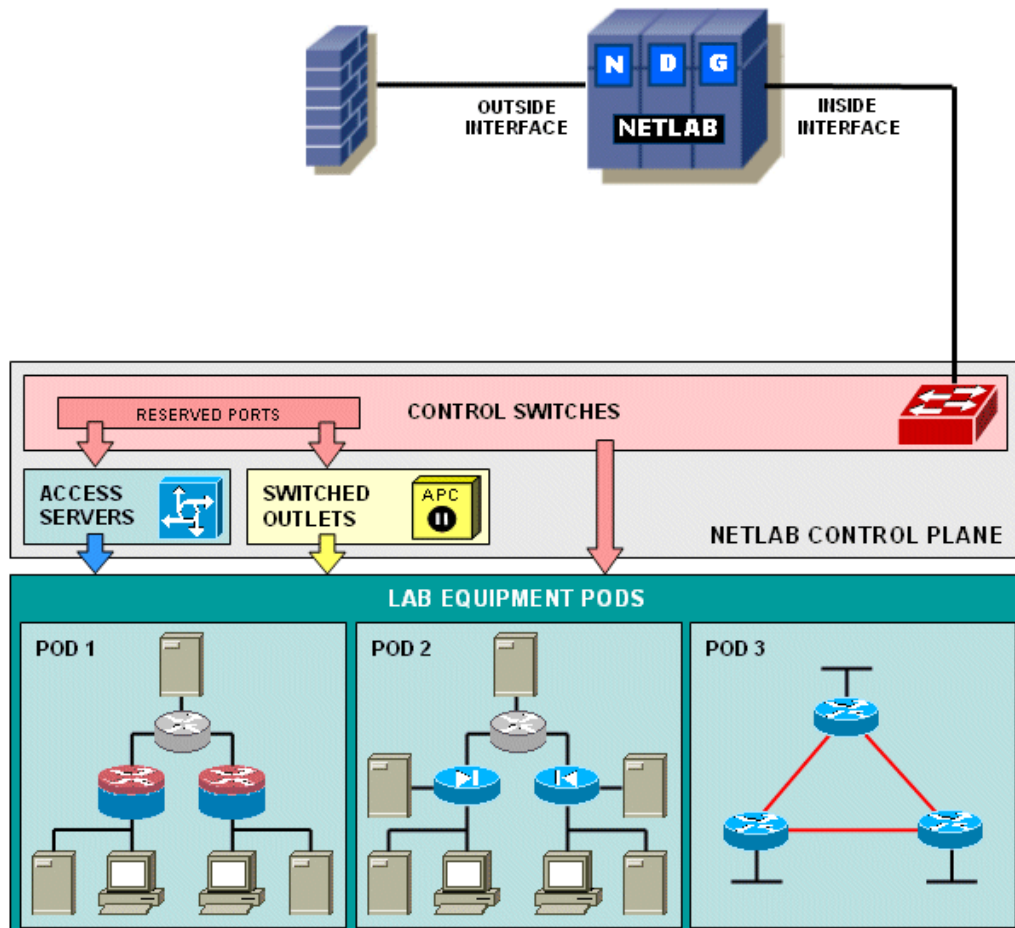
This document provides a summary of the components required to setup a NETLAB Academy Edition® (AE) system at your Academy. For detailed information, study the NETLAB<sub>AE</sub> website and documentation: <http://www.netdevgroup.com/ae/documentation.htm>

1. **NETLAB<sub>AE</sub> server and support services:** The NETLAB<sub>AE</sub> server will be shipped to you with the NETLAB<sub>AE</sub> software and all other required software pre-installed and ready for your setup.



Keep in mind that annual support services are required. For an explanation of why support services are required review: <http://www.netdevgroup.com/ae/faq.htm#reqannualmaint>.

2. **NETLAB<sub>AE</sub> Control devices: 2a. Cisco Access Server, 2b. Cisco Control Switch, 2c. APC Switched Outlets.** NETLAB<sub>AE</sub> control devices provide internal connectivity, console access, and managed power. Control devices are dynamically managed by NETLAB<sub>AE</sub> and are not accessible or configurable by end users.



**2a. Access Server:** You can use several different models including a 2600 or 2800 router with a NM-32A module. You may want to review the entire list, as older models are less expensive (but unfortunately discontinued in many cases). For a list of supported access servers, review: <http://www.netdevgroup.com/ae/controldevices.htm#accessservers>. Access servers provide console connections to lab equipment. Using this approach, users can access lab gear even when no configurations have been loaded in the lab devices. NETLAB<sub>AE</sub> proxies all connections through the access server. This special proxy allows simultaneous sharing of console ports and allows all users to access the lab environment using a single IP address and single Telnet port. The following table lists the Cisco devices supported by NETLAB<sub>AE</sub> for use as an access server.

Cisco Model	Ports Provided	Required Image
NM-32A Module in Cisco Router (2811, 2610/11/20/21)	32	12.0(5)T or later
NM-16A Module in Cisco Router (2811, 2610/11/20/21)	16	12.0(5)T or later
2511-RJ	16	12.0(5)T or later
2511 (octal cables)	16	12.0(5)T or later
2509-RJ	8	12.0(5)T or later
2509 (octal cables)	8	12.0(5)T or later

**2b. Control Switch:** NETLAB<sub>AE</sub> uses a control switch to provide connectivity between the NETLAB<sub>AE</sub> server, access servers, remote PCs, and switched outlet devices. Control switches are not accessed by lab users. The following table lists the Cisco switch models supported by NETLAB<sub>AE</sub> for use as a control switch. Reference: <http://www.netdevgroup.com/ae/controldevices.htm#controlswitches>.

Cisco Switch Model	Required Image
Catalyst 1912 Enterprise Edition <sup>1</sup>	9.00.04 Enterprise Edition (or later)
Catalyst 1924 Enterprise Edition <sup>1</sup>	9.00.04 Enterprise Edition (or later)
Catalyst 2950-12	12.1(22)EA2
Catalyst 2950-24	12.1(22)EA2
Catalyst 2950-48	12.1(22)EA2
Catalyst 2960-24	12.2.25
Catalyst 2960-48	12.2.25
Catalyst 3550-12	12.1(22)EA2
Catalyst 3550-24	12.1(22)EA2
Catalyst 3550-48	12.1(22)EA2

<sup>1</sup> End-of-life, not recommended. Functionality may be limited. Not compatible with virtual PC pods.





**2c. APC Switched Outlet Devices:** You will need enough APCs to connect each lab router and switch:

<http://www.netdevgroup.com/ae/controldevices.htm#switchedoutlets>.

Switched outlets provide managed electrical power, allowing NETLAB<sub>AE</sub> and users to turn lab equipment on and off. The power of each managed device in a NETLAB<sub>AE</sub> equipment pod is connected to an American Power Conversion (APC) Switched Rack PDU. This provides three functions:

- Reboot devices during NETLAB<sub>AE</sub> automated operations.
- Allow users to control power of a lab device (making password recovery possible).
- Power off devices when not in use to reduce energy and cooling requirements.

Each APC Switched Rack PDU provides eight (8) managed outlets. The following table lists the Switched Outlet devices supported by NETLAB<sub>AE</sub>.

Switched Outlet Device	Outlets	Voltage	Outlet Type
<a href="#">APC 7900 Switched Rack PDU</a>	8	120V	NEMA 5-15R 
* <a href="#">APC 7920 Switched Rack PDU</a>	8	208V	IEC 320 C13 
APC 9211 Master Switch (end of sales)	8	120V	NEMA 5-15R 
*APC 9212 Master Switch (end of sales)	8	208V	IEC 320 C13 

\*The AP7920 and AP9212 are for countries with 200-240 VAC power. Eight (8) IEC-320 C13 outlets are provided. This will require (8) C13 to C14 power cords such as the AP9870 (sold separately). One (1) IEC-320 C14 inlet is provided on the input side. The C14 connector is the same used on a Cisco router or switch. For additional assistance with power related issues please contact the Academy Edition distributor [SIGMAnetAcad](#).

**3. Lab Equipment:** Lab equipment selection depends on the topologies you choose to install behind your NETLAB<sub>AE</sub> server. Reference the list of supported topologies: <http://www.netdevgroup.com/ae/topologies.htm>. A list of supported lab devices: <http://www.netdevgroup.com/ae/labdevices.htm>.

Lab Equipment Selection Guidelines:

- Supported Curriculum Selection:** Determine the supported curriculum you plan to offer. For a list of supported Cisco Networking Academy curriculum reference: <http://www.netdevgroup.com/ae/labs.htm>.
- Determine the Topologies Required For Each Lab:** Select the labs you wish to offer for each curriculum. The detail pages for each course (see step a) include a Supported Lab List, which lists the topology types required for each lab.

**Example, the Multi-purpose Academy Pod (MAP) may be used for all CCNA Security Labs (see [http://www.netdevgroup.com/ae/CCNA\\_Security\\_BETA.htm](http://www.netdevgroup.com/ae/CCNA_Security_BETA.htm)).** The CCNA Security lab page also indicates that several other topologies may be used to support many of the labs, if router memory is upgraded. NDG provides compatibility to use older equipment topologies whenever possible.

- See the Equipment Requirements For Each Selected Topology.** Details on required equipment for each topology are available here: <http://www.netdevgroup.com/ae/topologies.htm>.

4. **Remote PCs:** Remote PCs are implemented by integrating with 3<sup>rd</sup> party virtualization products. VMware Server or VMware ESXi will allow you to install Remote PC enabled pods. The [NETLAB<sub>AE</sub> Documentation Library](#) includes several version-specific *Remote PC Guides for VMware Server Implementation*, which provide step-by-step instructions on implementing PCs in pods.
5. **Review Your Equipment Selections and be aware of the option to upgrade to a NETLAB Professional Edition® (PE) System,** Using NETLAB Academy Edition, you can host up to twelve (12) topologies to teach the Cisco Networking Academy curriculum. NETLAB<sub>AE</sub> will also support two (2) custom topologies (2 of the total 12) and custom labs of your own design to train Cisco Networking Academy students.

NETLAB Professional Edition is licensed for custom topologies to teach courses outside of the Cisco Networking Academy. NETLAB<sub>PE</sub> will allow you to design custom topologies and labs for courses outside of the Cisco Networking Academy Program and supports up to fifteen (15) custom topologies.

For additional information on **custom pods** reference:

[http://www.netdevgroup.com/doc/NETLAB\\_Pod\\_Designer.pdf](http://www.netdevgroup.com/doc/NETLAB_Pod_Designer.pdf)

For additional information on **custom labs** reference:

[http://www.netdevgroup.com/doc/NETLAB\\_Lab\\_Designer\\_40.pdf](http://www.netdevgroup.com/doc/NETLAB_Lab_Designer_40.pdf)

To create a new pod design: 1. Complete the general information. 2. Import a drawing (GIF, JPG) of your own design. 3. Assign control device ports. 4. Define devices (routers, switches, etc.). 5. Define remote PCs. 6. Create a build for your pod design. Pod design import drawing example:

Name	Build	Committed	Author ID	Global ID	File Size	Last Modified (y-m-d h:m:s)
CT Cuatro Router Pod (Clone Template)	2	Yes	CTCRP	0011_25AA_EDB0_481F_6B0D	28,152	2008-05-05 21:40:17 UTC

File Name	Type	Width	Height
aecrp.png	PNG	550	400

File Name	Type	Width	Height
csp_sch_ct.gif	GIF	120	50

6. **License Acceptance:** Your reseller will send you a link to the NETLAB+ license for the product version you decide to purchase. Your NETLAB+ order will be processed by NDG distribution partner SIGMANet after license acceptance. To review the license prior to purchase, visit the NDG website: <http://www.netdevgroup.com/legal-notice.htm>.

**Note:** NETLAB Professional Edition can be setup with NETLAB Academy Edition topologies for Cisco Networking Academies. For this setup you will be asked to complete the NETLAB+ Academy Content Rider for Multi-purpose Systems.