



Network Monitoring and Management Tutorial

Cisco Configuration Elements

Overview

- Basic things that we need to make sure are configured on a Cisco router (and switch) to do proper network management
- These apply to other network equipment manufacturers of course, and to servers and workstations

Elements

Hostname:	Hostname of the device
SSH:	Enable S ecure S hell
DNS:	D omain N ame L ookup
NTP:	Time synchronization (N etwork T ime P rotocol)
Syslog:	S ystem l og messages
SNMP:	SNMP configuration
SNMP traps:	Where to send traps
CDP:	C isco D iscovery P rotocol

Access the router

1. `ssh inst@bb-rtrN` (given in class)
2. You are in “user mode”
`rtr>`
3. If you're user has the privileges, go to “privileged mode”
`rtr>enable` (might need pw)
`rtr#conf t`
`rtr(config)#`
4. Type in configuration commands.
5. Exit and save/build your new configuration
`rtr(config)#exit`
`rtr#wr mem`

Hostname

- Preferably we use the FQDN (**F**ully **Q**ualified **D**omain **N**ame).
- In config mode on the router

```
rtr(config)#hostname bb-rtrN.mgmt.ws.afnog.org
```

DNS configuration

In config mode on the router:

```
ip domain-name mtg.ws.afnog.org  
ip name-server 196.200.218.248
```

NTP + time configuration

In config mode:

```
ntp server pool.ntp.org  
clock timezone XXXX 3
```

If needed:

```
clock summer-time XXXX recurring \  
last Sun Mar 2:00 last Sun Oct \  
3:00
```

Replace “XXXX” with the timezone abbreviation for the location of your router.

Verify:

```
rtr>show clock
```

SSH

Only crypto version of IOS/CatOS have support for SSH – there are export restrictions... In config mode:

```
rtr# aa new-model  
rtr# crypto key generate rsa  
rtr# username USERID secret 0 \  
      PASSWORD
```

...above is required to be allowed to enable SSH. Verify creation with:

```
sh crypto key mypubkey rsa
```

Use at least 768 bits - OpenSSH requires it

SSH continued

Enforce ssh (disabling telnet) on vty lines

```
rtr#conf t
rtr(config)#line vty 0 4
rtr(config)#transport input ssh
rtr(config)#^Z      (“exit” completely)
rtr#wr mem
```

SSH is now enabled

Telnet is not necessary disabled!

- Use ACLs to be sure of this

Syslog

In config mode, enable logging to your classroom NOC machine

```
rtr(config) #logging 196.200.218.248  
rtr(config) #logging facility local5  
rtr(config) #logging trap debugging
```

SNMP

In config mode:

```
# snmp-server community xxxxxxxxx RW
# snmp-server community public RO
# snmp-server location XX
# snmp-server enable traps config
# snmp-server enable traps envmon
# snmp-server enable traps config-copy
# snmp-server enable traps syslog
# snmp-server host 192.200.218.XXX public
```

- Replace xxxxxxxx with the class private community string
- Replace “XX” with an abbreviation for your location.
- Replace “XXX” with your network’s gateway address.

CDP

Cisco Discovery Protocol

- Enabled by default nowadays in current IOS versions.
- Otherwise, enable with "cdp enable" or "cdp run" in configure mode on your router.
- tcpdump and tools like cdpr will show you CDP announcements
- check neighbor announcement with:

```
rtr>show cdp neighbors
```

Questions?

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