

Network Monitoring and Management Welcome

Network Startup Resource Center
www.nsrc.org



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Workshop Schedule

Session I	09:00 – 10:30
Break	10:30 – 11:00
Session II	11:00 – 12:30
Lunch	12:30 – 14:00
Session III	14:00 – 15:30
Break	15:30 – 16:00
Session IV	16:00 – 17:30

Please come on time. If we start late, we will end late.

Workshop Instructors

Instructor	Country	Organisation
Jonathan Brewer	NZ	NSRC
Fakrul Alam	BD	APNIC

https://nsrc.org/workshops/2016/apricot2016/

Track5Wireless – APRICOT x

https://nsrc.org/workshops/2016/apricot2016/wiki/Track5Wireless

Available reference materials [here](#)

Monday	Topic	Inst	Presentations	Exercises
	Introductions	JB		Icebreaker Exercise
	Basic Radio Physics	JB	PDF	Basic Radio Physics Exercises
	TCP/IP Fundamentals	FA	PDF	TCP/IP Fundamentals Exercises
	SSH Fundamentals	FA	PDF	SSH Key Exercise
	Wireless Standards, Modes, Spectrum	JB	PDF	Wireless Standards Exercises
Tuesday				
	Antennas and Transmission Lines	JB	PDF	Antenna Exercises Wireless Scanning and Antenna Lab
	Campus Design Principles	FA	PDF	Campus Design Exercises
	Building Scalable Wireless Networks	JB	PDF	Scalable Wireless Networks Exercises
	Wireless Security Principles	FA	PDF	Wireless Security Exercises Wireshark Lab (Lab Data)
Wednesday				
	Wireless Authentication	FA	PDF	Wireless Authentication Exercise Wi-Fi Hotspot Lab
	Building wireless links	JB	PDF	Wireless Linking Exercises
	Wireless link design with Air Link	JB		Point-to-Point Design Exercises
	Multipoint coverage design with CloudRF	JB		
	Point-to-point wireless with Mikrotik	JB	PDF	Link Building Exercises
Thursday				
	Wi-Fi networks	JB		Wi-Fi networks with Ubiquiti
	Wi-Fi networks	JB		Multi-SSID networks with Ubiquiti
	Wi-Fi networks	JB		Ubiquiti's Access Controller
	Wi-Fi networks	JB		Adding Wi-Fi to wireless access networks
Friday				
	Intro to Network Monitoring & Management	JB	PDF	
	SNMP	FA	PDF	SNMP Labs Enabling SNMP on Wireless Equipment
	Smokeying	JB	PDF	Smokeying Lab
	Nagios	FA	PDF	Nagios Lab
	LibreNMS	JB		Installing LibreNMS LibreNMS Lab

Resources

► Attachments (26)

Last modified 4 days ago

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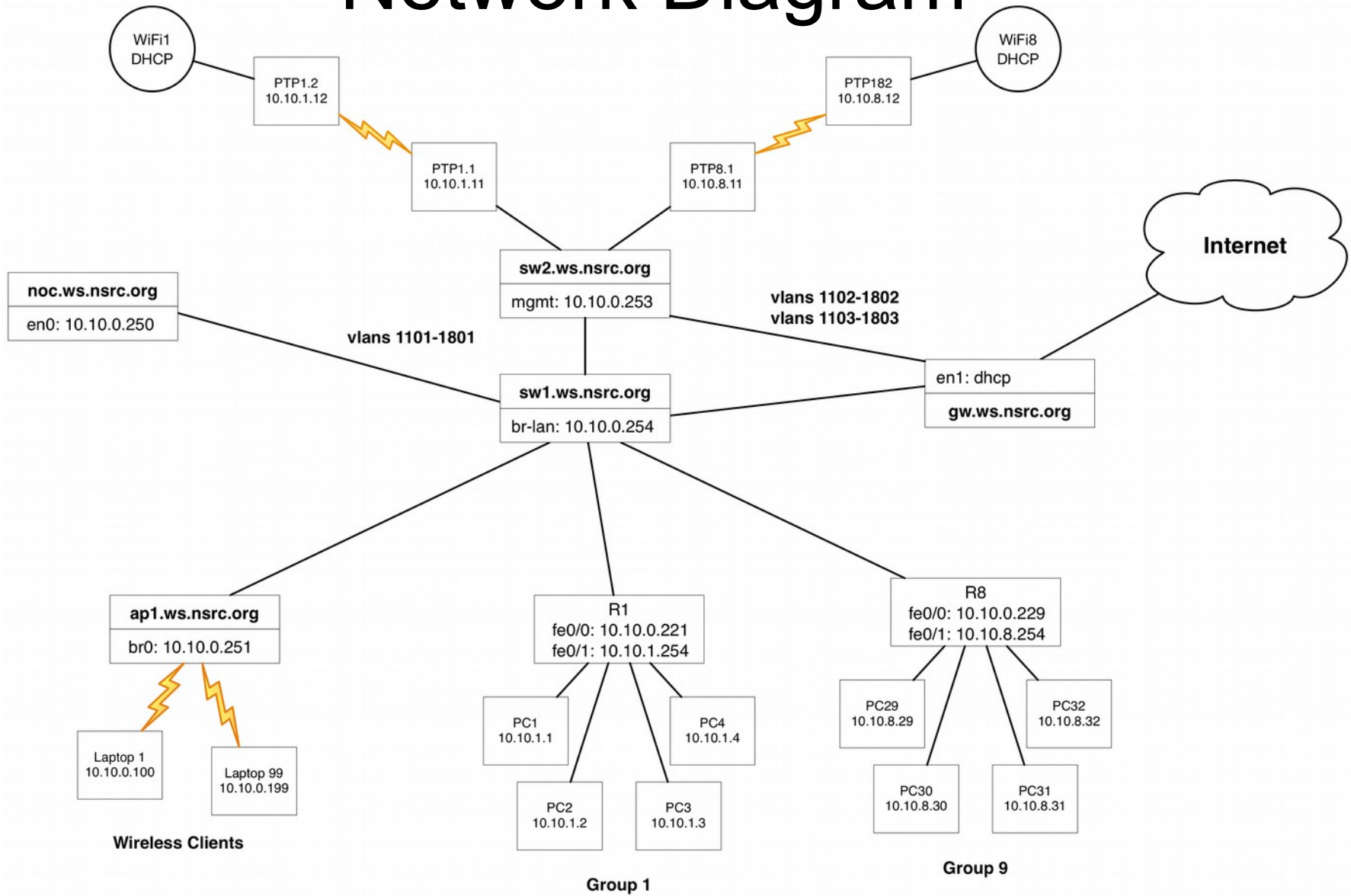
Administrative Items

- Agenda
 - <http://noc.ws.nsrc.org/>
- During the course
 - Please ask questions as you have them.
 - Your experiences are valuable. Please share them.
 - The schedule is somewhat flexible.
- Course Materials
 - <http://noc.ws.nsrc.org/>
 - Will be available permanently here:
 - <http://nsrc.org/workshops/20NN/workshopname>

Virtual Machine Access

- There are 36 Virtual Machines: pc1-pc36
- Each has two users:
 - General User: sysadm ← “s y s a d m”
 - Administrative User: root
- Password for sysadm is written on the board.

Network Diagram



Virtual Machine Groups

GROUP 1	GROUP 2	GROUP 3	GROUP 4
rtr1 → 10.10.1.254	rtr1 → 10.10.2.254	rtr1 → 10.10.3.254	rtr4 → 10.10.4.254
pc1 → 10.10.1.1	pc5 → 10.10.2.5	pc9 → 10.10.3.9	pc13 → 10.10.4.13
pc2 → 10.10.1.2	pc6 → 10.10.2.6	pc10 → 10.10.3.10	pc14 → 10.10.4.14
pc3 → 10.10.1.3	pc7 → 10.10.2.7	pc1 1 → 10.10.3.11	pc15 → 10.10.4.15
pc4 → 10.10.1.4	pc8 → 10.10.1.8	pc12 → 10.10.3.12	pc16 → 10.10.4.16

P 5	GROUP 6	GROUP 7	GROUP 8	GROU
0.5.254	rtr6 → 10.10.6.254	rtr7 → 10.10.7.254	rtr8 → 10.10.8.254	rtr9 → 10
10.5.17	pc21 → 10.10.6.21	pc25 → 10.10.7.25	pc29 → 10.10.8.29	pc33 → 1
10.5.18	pc22 → 10.10.6.22	pc26 → 10.10.7.26	pc30 → 10.10.8.30	pc34 → 1
10.5.19	pc23 → 10.10.6.23	pc27 → 10.10.7.27	pc31 → 10.10.8.31	pc35 → 1
10.5.20	pc24 → 10.10.6.24	pc28 → 10.10.7.28	pc32 → 10.10.8.32	pc36 → 1

We will assign PCs & Groups Now

- 9 total (virtual) routers
- 4 (virtual) Linux server images per router
 - 36 total virtual machine images

You will work in groups of 4 on some exercises

Please choose your location now

You will use your virtual machine all week

Questions

Please Ask Questions At Any Time!