NET100-M1-2-Lab-Network Diagramming

New Attempt

Due No Due Date **Points** 10 **Submitting** a text entry box or a file upload
File Types jpeg, jpg, and png

Abstract

Network diagrams can show us both the physical and logical layouts of our network.

Learning Objective(s)

At the end of this lab, you should be able to:

EO1: Label the components of a network diagram.

EO2: Diagram various network configurations using open-source tools (DIA).

System Requirements & Configuration

System Requirements

Your personal laptop.

Software Requirements

Recommend one of these tools, but feel free to explore others, if available:

DIA Network Diagraming Tool (http://dia-installer.de/)

Draw.io (https://draw.io)

Procedure – Detailed Lab Steps

Lab Execution

Draw.io

Go to **Draw.io (https://draw.io)** . You will be asked if you want to save to the cloud or to a local drive. Choose the local drive.

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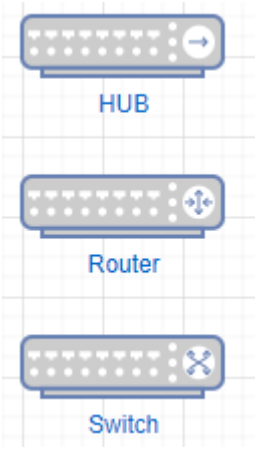
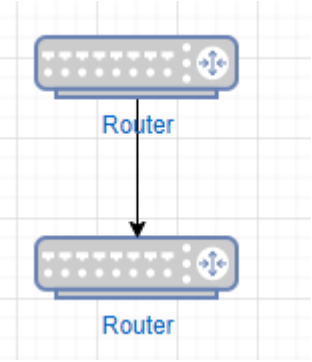
Create a new diagram and choose Network for the type. Choose a random network template to see what the options are that are available to you. You can use File->New, to select another template. Once you have viewed a few different templates, select the blank template.

In the left column, select More Shapes and check the box next to Network. This will bring up a selection of icons for network diagramming. Notice the Hub, Router and Switch icons. They look very similar (look at the icon on the right – the arrows tell what type of device it is).



Additionally, there are icons for laptops, servers, satellites and various other network devices, nodes and mediums. Add two routers to your blank diagram. You can label the devices by selecting it and simply typing the corresponding label.

On the menu across the top, you will find an arrow that represents the connections. You can select this and then mouse over one of the routers. Notice the connection points highlight and you can select one for the start and a point on the other router for the end.



Diagramming Lab

Using the diagramming tools available through draw.io or DIA, create diagrams for the following scenarios. You may need to substitute similar icons when you cannot find an exact match.

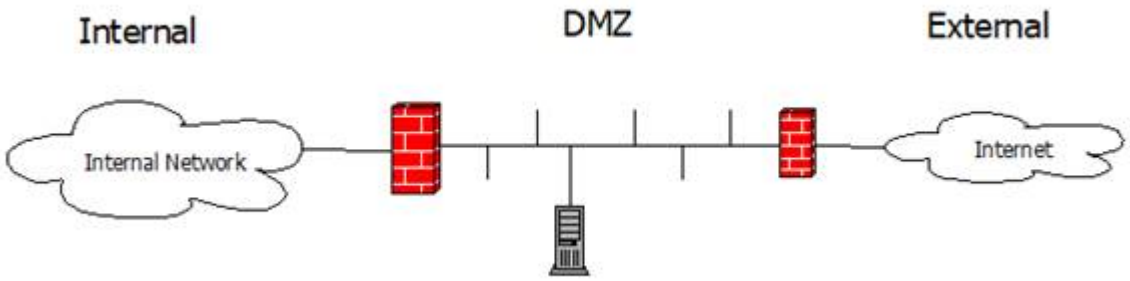
Remember that DHCP/NAT is used by home routers in their default configuration and allows for the utilization of 192.168.1.x for all devices internally. Note that some routers may default to 192.168.0.x or some other internal numbering. For this exercise, assume the numb u need, but start with 192.168.1.1 for the router and assign other IP addresses, as r

1. A home network consisting of an ISP router, 2 home computers, 1 web capable television and 1 video game system. Assume DHCP/NAT is configured on the ISP router for the internal IPs (set to 192.168.1.0/24). Submit this diagram.
2. A small business has contracted you to consult on their network. They have 10 users, each with a PC. They also have 3 printers, one at the receptionist's desk, one in the common area for employees and one in the manager's office. Additionally, they have a Network File Share (NFS) device where all employees store common files. They have a business router from their ISP with all devices currently set to DHCP/NAT (set to 192.168.1.0/24). In their storage closet, you find an older switch that isn't being used. Users are complaining that sometimes they have trouble getting to the NFS and the systems need to be rebooted.
   A. Diagram the current solution.
      I. Recommend additional security measures without adding any additional equipment (you can use the switch, if desired). Create an updated Network Diagram, if needed.
      II. Recommend additional purchases (hardware or software) to increase security on their network.
      III. The small business in problem 2 merged with a competitor that had the exact same business resources. Update the diagram to reflect both businesses.
   B. Are there any network considerations that may need to be revisited?
      I. If yes, update the diagram to reflect your suggested changes.

Submission: Submit screenshots of all diagrams using jpg, jpeg, or png format.

Advanced Lab

Consider the following network diagram:



Notice the server in the DMZ, between the two firewalls. This is an example of a simple network.

▾ What would be the purpose of the Server attached to the DMZ? [Click to expand the answer]

The firewall on the right is used to segment off potentially malicious external generated traffic.

▾ What is the purpose of the firewall on the left? [Click to expand the answer]

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▼ Is there ever a reason to utilize firewalls on the Internal network? If so, create a network diagram that would demonstrate this purpose.[Click to expand the answer]

Lab Submittals						
Criteria	**Ratings**					**Pts**
All sections completed	**5 pts** **Exceeds Expectations** All sections completed fully, with some indication the student went beyond the lab	**4 pts** **Meets Expectations** All sections completed	**3 pts** **Minimum Expectations Met** Some work performed on all sections	**2 pts** **Partial Completion** Some sections not attempted or quality of work was lower than expected	**0 pts** **No Marks**	5 pts
Learning Objectives	**5 pts** **Exceeds Expectations** Student has mastered all learning objectives and work indicates mastery beyond the objectives	**4 pts** **Meets Expectations** Student has shown full aptitude across all learning objectives	**3 pts** **Minimum Expectations Met** Student shows minimal understanding around the learning objectives	**2 pts** **Partial Understanding** Student shows understanding around some of the learning objectives, but needs reinforcement on others.	**0 pts** **No Marks**	5 pts
					Total Points: 10	

Have specific feedback?

Tell us here! (https://flatironschoolforms.formstack.com/forms/canvas_feedback?CourseID=5336&LessonID=174448&LessonType=assignments&CanvasUserID=10700&Course=None)

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