



Cisco Network Designer



WORKSHEETS

worksheet :: create a blank project

Topics:

This worksheet covers the following step:

- Create a blank project

Tools:

- Printout of this worksheet
- Printout of *Jones, Jones, & Jones* Logical Diagram

Create a blank project

There are two methods to open a blank project:

- Start-up window
- Project menu

1. Start-up window procedure

When Cisco Network Designer is launched, you are prompted with five different options.

Follow these steps to create a blank project.

1. Click the **New Project** radio button.
2. Click **OK**.

This will launch a new project with a new drawing called: *Drawing1*

The browser window (default -- Device Library) will be on the left. The drawing window will be on the right and the menu bar and toolbar will be located across the top.

2. Project menu procedure

You can also create a blank project at any time using the Project menu.

1. Select the **Project > New**.
2. Click **OK**.

worksheet :: drag objects from device library & clone objects

Topics:

This worksheet covers the following steps:

- Drag objects
- Clone objects
- Save project

Tools:

- Printout of this worksheet
- Printout of *Jones, Jones, & Jones* Logical Diagram

Drag objects

Follow these steps to drag a generic vendor router object from the Device Library to the drawing window.

1. Select the Device Library by clicking the **Library** tab. (The Library tab has three small file folders on it and is located in the lower left hand corner of the browser window.)
2. Click the **[+]** plus sign located to the left of the **Generic Vendor** directory. (*Note:* To close a directory, simply click once on the **[-]** minus sign to the left of the directory.)
3. Select the **Routers** directory.
4. Click and drag a *generic router* object from the Device Library to the drawing window.

Clone objects

Follow these steps to make six copies of the router object.

1. Select the router in the drawing window.
2. Select **Edit > Clone**. (Or, **right-click** the mouse. Select **Clone** from the pop-up menu.)
3. In the 'Clone' pop-up window, enter **6** in the **Number of copies** to make six copies of the router and then click **OK**. To deselect the routers click once on a blank area of the drawing window.
4. Relocate the routers so that they match the locations of the routers as they appear on the *Jones, Jones, and Jones* logical drawing.
5. Resize the *middle router* (as per the Jones drawing) so that it is slightly larger than the other routers.

Note: you can resize the routers by first selecting the router, then clicking and dragging one of the corner or side handle bars.

Save project

1. Select **Project > Save As**
2. Type *Jones Logical* as the project name.
3. Then click on **OK** to save the project.

Note: CND will automatically save your project that you are working on as "Project X".

worksheet :: make links between objects

Topics:

In this worksheet, you will continue to modify the *Jones Logical* drawing you created in the previous worksheet. This worksheet covers the following steps:

- Draft mode
- Choose a link protocol
- Link two devices
- Link multiple devices

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones Logical Diagram
- Jones Logical drawing you created in the previous worksheet

Draft mode

"Draft Mode" allows you to connect devices without validating the link. This is useful when drawing logical diagrams.

Follow these steps to enter **Draft Mode**:

1. Select **Tools > Draft Mode**

Note: To active the Draft Mode option you must first click on the drawing window.

Choose a link protocol

The Protocol Palette drop-down list contains many different protocols. Before linking devices, you should choose which protocol to use for the link. The Protocol Palette will automatically appear in the drawing window when you enter the Draft Mode.

Additionally you can open the Protocol Palette by following the step below.

1. Select **View > Toolbars > Protocol Palette**

Link two devices

Follow these steps to create a leased line link between two routers.

1. Choose **LeasedLine** from the Protocol Palette drop-down list.
2. Select the **Single Link Mode** tool (located on the middle toolbar).
3. Left click once (and continue to hold down the left click button) on the *middle router* (the larger one).
4. Drag the tool from the middle router to the router that is located directly above and then let go of the left click button.

Link Multiple devices

Follow these steps to link two routers to a single router with leased lines.

1. Choose **LeasedLine** from the Protocol Palette drop-down list.
2. Use the shift-key & left-click to select the two routers at the bottom of the drawing window.
3. Select the **Multi Link** tool (located to the right of the **Single Link Mode** tool)
4. Now click the *larger middle router* as the destination device.

worksheet :: make label for the objects

Topics:

In this worksheet, you will continue to modify the Jones Logical drawing you created in the previous worksheet. This worksheet covers the following steps:

- Show devices name
- Label links
- Rename devices

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones Logical Diagram
- Jones Logical drawing you created in the previous worksheet

Show device name

Follow these steps to show the names of all the routers.

1. On the menu bar, select **Edit > Select All** to select all the routers in the drawing window. (Or use the shift-key & left-click to select all seven routers.)
2. On the menu bar, select **Format > Show Name**.
3. Click anywhere on the drawing window to deselect the routers.

Label links

Follow these steps to label the links with their protocol name.

1. In the drawing window, use the shift-key & left-click to select the links between the devices.
2. Select **Format > Labels**.
3. Select **Protocol** from the **Available attributes** list.
4. Click **Add**.
5. Click **OK**.
6. Click anywhere on the drawing window to deselect the links.

Rename devices

Follow these steps to rename the middle router to US1.

1. Click on the middle router (the larger one) to select it. The device and the label are highlighted.
2. Click on the label. Only the label is highlighted.
3. Click the label again. The text is selected.
4. Rename the device *US1*.

worksheet :: create a sub-drawing

Topics:

In this worksheet, you will continue to modify the Jones Logical drawing you created in the previous worksheet. This worksheet covers the following steps:

- Rename a drawing
- Move objectives to new child drawing
- Place drawing in another drawing
- Return child drawing to independent
- Link devices between drawings
- Link devices on a child drawing

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones Logical Diagram
- Jones Logical drawing you created in the previous worksheet

Rename a drawing

Follow these steps to rename your drawing to Jones.

1. Select the *Drawing 1* in the Drawing Browser.
2. Click on the name. The text is selected.
3. Rename the drawing *Jones Logical*.

There are two methods to create a child drawing:

- Move objects to new child drawing
- Place drawing in another drawing

Move objects to new child drawing

Follow these steps to move objects to new child drawing:

1. Drag a *generic LAN-switch* object from the Device Library to the drawing window. Place this switch directly to the left of the *US1 router*.
2. Use the **Single Link Mode** tool and the Protocol Palette to create an FastEth link between the *LAN-switch* and the *US1 router*.
3. Right-click the *LAN-switch*.
4. Select **Create Sub Drawing**.
5. Rename the child drawing *US1 LAN*.

Place drawing in another drawing

You can also make sub-drawings by dragging existing drawings onto another drawing. Follow these steps to place a drawing in another drawing.

1. Display the Drawing Browser and click the **New Drawing** icon (upper left icon in the drawing browser window).
2. Double-click the *Jones Logical* drawing to display it.
3. Drag the *Drawing1* icon from the Drawing Browser to the drawing window.

Return child drawing to independent

Follow these steps to return child drawing to independent.

1. Select the icon representing the new drawing in the *Jones Logical* drawing window.
2. Press **Delete** on your keyboard.
3. Select the drawing in the Drawing Browser.
4. Press **Delete** on your keyboard.
5. Click **Yes** to confirm.

Link devices on a child drawing

You can link devices in child drawings.

Follow these steps to add another generic LAN-switch (switch #2) to the *US1 LAN* drawing and then link it to the existing generic LAN-switch (switch #1).

1. In the Drawing Browser, double-click on the *US1 LAN* to open it. And then, click on the **Library** tab to switch to the Device Library.
2. Drag another LAN-switch object to the drawing *US1 LAN*.
3. Selected **FathEth** from the Protocol Palette. Select the **Single Link Mode** tool.
4. Click and hold on Generic *LAN-switch #1*. Drag the mouse and let go on Generic *LAN-switch #2*.

worksheet :: create a logical diagram summary

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones Logical Diagram
- Printout of Jones, Jones, & Jones Logical Sub-drawing
- Jones Logical drawing you created in the previous worksheets

Practice

For the purpose of learning Cisco Network Designer, you should follow the steps below to finish the logical network design. You can look through the CND tutorial and the already completed worksheets to review how to perform specific procedures. At the end of this activity you will end up with a logical diagram that looks similar to the one found in the CND tutorial.

1. Drag additional router(s), ISDN and Internet clouds, PC, and firewall objects from the Device Library to the drawing window as needed. Try and clone devices to save time! Also resize objects as needed.
2. Make draft links between the devices with appropriate **protocols**.
3. Label all of the links and icons. Each device should have a unique name, appropriate to the network design.
4. Update the *US1 LAN* sub-drawing to include two additional generic LAN switches and one generic PC-Server. One of the switches (switch #1) should connect back to the US1 router in the *Jones Logical* via a 100BaseT Ethernet link (FastEth). The other three switches (switches # 2-4) and the PC-Server should connect to switch #1 via 100BaseT Ethernet links.

Notes:

- You can relocate device and link names by clicking once on the name and then click-dragging the name to a new location.
- You can relocate devices and links by clicking once on the link and click dragging the object/link to a new location.
- These devices can be found in the following folders of Generic Vendor directory of Device Library:
 - PC - PCstations
 - Firewall - Miscellaneous
 - WAN Cloud (Internet Cloud, ISDN Cloud) - Network Services

worksheet :: replace devices

Topics:

In this worksheet, you will learn how to replace the objects that you created in Jones Logical drawing with actual device. This worksheet covers the following step:

- Replace Devices

Tools:

- Printout of this worksheet
- Jones Logical drawing you created in the previous section

Before you begin

Before you begin this worksheet, follow these steps to create a copy of *Jones Logical* project, and rename it as *Jones Physical*. You will be using this *Jones Physical* project for the rest of the worksheets.

1. Launch Cisco Network Designer.
2. Open the *Jones Logical* project.
3. On the menu bar, select **Project > Save As**.
4. Save the *Jones Logical* as *Jones Physical*.
5. Click on the Drawing Browser tab (in the lower left-hand side of the window).
6. Rename *Jones Logical* as *Jones Physical*.
7. Now you are ready to begin converting the logical to a physical.

Replace Devices

Follow these steps to replace the US1 hockey-puck with a Cisco 3640.

1. In the Device Library, locate the *Cisco 3640* router (it is located near the middle of the router list).
2. In the drawing window, select the *US1* hockey-puck.
3. Select the **Replace Device** tool (located on the top middle toolbar).
4. In the Device Library, click once on the *Cisco 3640*.

worksheet :: add components manually

Topics:

In this worksheet, you will continue to modify the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- Manual configuration and error correction
- Disable validation

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones Physical Diagram
- Printout of Jones, Jones, & Jones Hardware Configuration Table
- Jones Physical drawing you created in the previous worksheet

Manual configuration and error correction

Follow these steps to manually add components to the Cisco 3640.

1. Double-click on the *Cisco 3640* in the drawing palette.
2. The Inspector window should display on the left hand side of the screen.
3. Click on the **Object Properties** icon (upper middle icon in the Inspector window)
4. The 'Object Properties' window should now be open.
5. Click the **Validate** button to ensure that all minimum components are added. Then click **OK** (on the 'Validation' popup window).
6. Click on the **Blades** button to view all available blades.
7. Select the **NM-1E2W-1 Ethernet 2 WAN Card Slot Network Module** from the blades list.
8. Then click on **OK**. (The NM-1E2W blade has been added to the router components list.)
9. Click on the **Blades** button again.
10. Select the **NM-4T -4-Port Serial Network Module**.
11. Click **OK**.
12. Click on the **Blades** button again.
13. Select the **NM-1FE-TX -1Port Fast Ethernet Module (TX only)**.
14. Click **OK**.
15. Click on the **Blades** button again.
16. Select the **NM-1CT1 -1 Port Channelized T1/ISDN-PRI Network Module**.
17. Click **OK**.
18. Click on the **Accessories** button.
19. Select the **MEM3640 32U48D 32-to-48 MD DRAM Factory Upgrade for the Cisco 3640**.
20. Click **OK**.
21. In the 'DeviceXpert Error Correction' window select **S364AHK2-12.0.3T Cisco 3640 Series IOS ENTERPRISE/FW PLUS IPSEC 3DES - CISCO3640**.
22. Click on **Add**.
23. Now, in the 'DeviceXpert Error Correction' window select **MEM3600-8U16FS 8-to-16MB Flash Factory Upgrade for the Cisco 3600 - CISCO3640**.
24. Click on **Add**.
25. Click **OK** on the 'DeviceXpert' popup message window.
26. Click **OK** to complete the router configuration process for the 3640.

Disable validation

You can disable validation if you want to be able to add components to devices, without checking for compatibility errors.

Follow these steps to disable validation.

1. Right-click on the *US1* router and select **Properties** from the pop-up menu. The 'Configuration' window should now be open.
2. Uncheck the **DeviceXpert Automatic Validation** box.

worksheet :: use configuration wizard

Topics:

In this worksheet, you will continue to modify the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- Start configuration wizard
- Add hardware
- Add software
- Set preferences
- Finish adding components

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones Physical Diagram
- Printout of Jones, Jones, & Jones Hardware Configuration Table
- Jones Physical drawing you created in the previous worksheet

Start Configuration Wizard

Follow these steps to start Configuration Wizard:

1. Select the *US2* hockey-puck in the *Jones Logical* drawing.
2. Replace the *US2* hockey-puck with a *Cisco 3620*.
3. Click on the **Inspector** tab to view the Inspector window
4. Click on the **Device Configuration Wizard** icon (upper left icon in the Inspector window). The 'DeviceXpert Configuration Wizard' window should now be open.

Add hardware

Follow these steps to add hardware:

1. Select **WAN** from the Technology pull-down menu.
2. Select **T1** from the interface type pull-down menu.
3. Enter **2** as the minimum number of ports you need for the selected technology.
4. Click **Add**.
5. Next select **Ethernet** from the Technology pull-down menu.
6. Select **10BaseT** from the interface type pull-down menu.
7. Enter **1** as the minimum number of ports you need for the selected technology.
8. Click **Add**.
9. Finally Select **WAN** from the Technology pull-down menu.
10. Select **ISDN-BRI** from the interface type pull-down menu.
11. Enter **1** as the minimum number of ports you need for the selected technology.
12. Click **Add**.

Add software

Follow these steps to add software:

1. Click the **Software** tab.
2. Select **IP**, **IPX**, and **ISDN** as the protocols you'd like the software to support.

Set preferences

Follow these steps to set preferences:

1. Click the **Preferences** tab.
2. Set the slider to **Scalability** to change the sort order of the component options.
3. Click **Next**.

Finish adding components

Follow these steps to finish adding components: (refer to the Hardware Configurations Table)

1. Highlight **WAN-T1** in the Select a requirement list.
2. Select **2 NM-4T - 4-Port Serial Network Module** from the Available components list.
3. Click **Add**.
4. Highlight **Ethernet** in the Select a requirement list.
5. Select **NM-1E2W - 1 Ethernet 2 WAN Card Slot Network Module** from the Available components list.
6. Click **Add**.
7. Highlight **WAN-ISDN BRI** in the Select a requirement list.
8. Select **WIC-1B-S/T - 1-Port ISDN WAN Interface Card** (dial and leased line) from the Available components list.
9. Click **Add**.
10. In the 'Component Prerequisite' popup window (Existing component named NM-1E2W should be highlighted) click **OK**.
11. Highlight **Software** in the Select a requirement list.
12. Select **S362B-12.0.3T - Cisco 3620 Series IOS IP/IPX/AT/DEC** from the 'Component Name' list.
13. Click **Add**.
14. Click **OK** in the 'DeviceXpert Message' window.
15. Click **Finish** to exit the configuration process.

worksheet :: replace draft links with valid links

Topics:

In this worksheet, you will continue to modify the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- Connect devices
- Connect ports

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones Physical Diagram
- Printout of Jones, Jones, & Jones Hardware Configuration Table
- Jones Physical drawing you created in the previous worksheet

Connect devices

1. Select **Tools > Expert Mode**.
2. Delete the draft link between the *Cisco 3640 (US1)* and the *Cisco 3620 (US2)*.
3. Select the **Single Link Mode** tool.
4. Drag a link between the *Cisco 3640* and the *Cisco 3620*. The 'LinkXpert' pop-up window should be open now.
5. Select **T1** from the protocol list. (Only protocols common to the configuration of the two devices appear.)

Connect ports

1. Click the **[+]** plus sign next to the NM-4T on the *US1* and the *US2* routers.
2. Select **Port 1** on both routers.
3. Click **Connect**. A link appears between *US1* and *US2* routers.
4. Right-click on the link. Select **Labels** from the pop-up menu.
5. Select **Protocol** from the **Available Attributes** list.
6. Click **Add**.
7. Click **OK**.

worksheet :: design a wiring rack

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- Create a sub drawing in the US1 LAN drawing
- Copy items from the US1 LAN to wiring closet drawing
- Create a wiring rack for the US1 LAN
- Add patch panels to the US1 LAN
- Add a power supply to the US1 LAN
- Arrange items in rack

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheets

Create a sub drawing in the US1 LAN drawing

Follow these steps to create a wiring closet for the US1 LAN.

1. Click on the **Drawing** tab to open the Drawing Browser
2. Click on the **new drawing icon** to create a new drawing, *Drawing 1*.
3. Double click on the *US1 LAN* drawing in the Drawing Browser to open the *US1 LAN* drawing.
4. Drag the new Drawing (*Drawing 1*) onto the *US1 LAN* drawing (this will make the new drawing a sub drawing of the *US1 LAN*).
5. Rename the new drawing as "wiring closet."

Copy items from the US1 LAN to wiring closet drawing

Follow these steps to copy items from the US1 LAN to the wiring closet drawing that you just created.

1. Select all devices in the *US1 LAN* drawing (the 4 switches and the server).
2. Select **Edit > Copy**.
3. Click on wiring closet drawing icon to open it.
4. Select **Edit > Paste**.

Create a wiring rack for the US1 LAN

To create a wiring rack, follow these steps:

1. Click on the Library tab in the browser window.
2. In the Device Library, click on the **[+]** plus sign to the left of the **Generic Vendor** folder.
3. Click on the **Wiring Closets** folder.
4. Click and drag a **24U 19in Wiring Closet** into the drawing window.

Add patch panels to the US1 LAN

Follow these steps to add patch panels to the US1 LAN:

1. Click on the Library tab in the browser window.
2. Click on the [+] plus sign to the left of the **Generic Vendor** folder.
3. Click on the **Wiring Closet Accessories** folder.
4. Click and hold and drag a **Patch Panel 48 FJ-45 19in 2U** into the drawing window.
5. Repeat step 5 to add a second Patch Panel to the drawing window.

Add a power supply to the US1 LAN

Follow these steps to add a power supply to the US1 LAN:

1. Click on the Library tab in the browser window.
2. Click on the [+] plus sign to the left of the **Generic Vendor** folder.
3. Click on the **Power Supplies** folder.
4. Click and hold and drag a **Generic UPS** into the drawing window.

Arrange items in rack

Follow these steps to arrange items in the wiring rack:

1. Select **Tools > Options > Customize Grid**.
2. Set the slider **Snap distance** to weak.
3. Click on **OK**.
4. Drag the **Patch Panels** to the top of the wiring rack and center between the two edges. (Resize horizontally so that they fit within the rack. Slightly overlapping the vertical frame)
5. Place the **WS C3524 switch** directly below the patch panels, leaving room for air circulation. (Resize horizontally so that they fit within the rack. Slightly overlapping the vertical frame)
6. Place the remaining Cisco switches directly below the *WS C3524* switch (one below the another), again leaving room for air circulation. (Resize horizontally so that they fit within the rack. (Slightly overlapping the vertical frame)
7. Finally, place the *Generic UPS* in the bottom left hand corner of the rack.

worksheet :: creating a physical diagram summary

Topics:

This section has covered all the skills you need to understand in order to complete a physical network diagram based on the Jones, Jones & Jones case study.

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones Physical Diagram
- Printout of Jones, Jones, & Jones Hardware Configuration Table
- Printout of Jones, Jones, & Jones Physical Sub-drawing
- Jones Physical drawing you created in the previous worksheets

Steps:

1. Replace all the *hockey-pucks* with actual *Cisco devices*. (Use the Hardware Configuration Table and the Jones, Jones & Jones Physical Diagram)
 - a. Firewall = PIX-515 (located in the *Security Products Directory*)
 - b. Access Router = Cisco 3620
 - c. Home Router = Cisco 1604
 - d. Munich & Riyadh = Cisco 2503
 - e. US2 & US3 = Cisco 3620
 - f. US1 LAN switch #1 = WS-C3524-XL-EN
 - g. US1 LAN switch #2, #3, & #4 = WS-C2924-XL-EN
2. Add valid components to each Cisco device using either manual configuration or the Configuration Wizard. (Use the Hardware Configuration Table to complete this task).
 - a. Firewall = PIX-515 (located in the *Security Products Directory*)
Follow these steps to add components and software:
 1. First add specified blade **PIX-4FE**.
 2. In the 'DeviceXpert Error Correction' window select **PIX-515UR-SW** and click **Add**.
 3. In the 'DeviceXpert Error Correction' window select **SF-PIX515-4.4** and click **Add**.
 4. In the 'DeviceXpert Error Correction' window select **CAB-AC Power Cord,110V - PIX-515**.
 5. Click on **Add**.
 6. In the 'DeviceXpert Message' window click on **OK**.
 7. Click **OK** again to finish the configuration process
 - b. Access Router = Cisco 3620
Follow these steps to add the WIC-1B-S/T:
 1. Click on the **Objects Properties** icon in the Inspector window.
 2. Add the **NM-1E2W** blade.
 3. Select the **NM-1E2W#1** blade.
 4. Click on the **Accessories** button (on the 'Objects Properties' menu bar).
 5. Select **WIC 1B S/T - 1 Port ISDN WAN Interface Card** (dial and leased line) from the 'Attachable Accessories' menu list.
 6. Click **OK**.

c. Home Router = Cisco 1604

Follow these steps to add the SF160C-11.2.16P (IP) software package

1. Click on the **Objects Properties** icon in the Inspector window.
2. Click on the **Software** button (on the 'Objects Properties' menu bar).
3. Select **IP** from the 'Attachable Software Package' window pull-down list.
4. Select **SF160C-11.2.16P Cisco 1601-1604 IOS IP** from the software list.
5. In the 'DeviceXpert Error Correction' window select **2PWR-1600-WW1Cisco 1600 AC Power Supply - WORLD-WIDE - CISCO1604** and click **Add**.
6. In the 'DeviceXpert Error Correction' window select **CAB-AC Power Cord,110V - CISCO1604** and click **Add**.
7. Click **OK** and **OK** again to complete the configuration process.
8. Click **OK**, then **OK** again.

d. Munich & Riyadh = Cisco 2503

e. US2 & US3 = Cisco 3620

Follow these steps to add the S362B – 12.0.3T (IP/IPX/AT/DEC) software package:

1. Click on the **Objects Properties** icon in the Inspect window.
2. Add the **NM-4T** and the **NM-1E2W** blades.
3. Click on the **Software** button (on the 'Objects Properties' menu bar).
4. Select **IP/IPX/AT/DEC** from the 'Attachable Software Package' window pull-down list.
5. Select **S362B – 12.0.3T Cisco 3620 Series IOS IP/IPX/AT/DEC** from the software list.
6. Click **OK**, then **OK** again.

Follow these steps to add the WIC-1B-S/T:

1. Click on the **Objects Properties** icon in the Inspect window.
2. Select the **NM-1E2W#1** blade.
3. Click on the **Accessories** button (on the 'Objects Properties' menu bar)
4. Select **WIC 1B S/T - 1 Port ISDN WAN Interface Card** (dial and leased line) from the 'Attachable Accessories' menu list.
5. Click **OK**.

3. Replace all draft links between all devices with valid links.

Note: The link to the Internet cannot be validated because the Internet Cloud has not been configured.

4. Label all of the links and devices with appropriate labels. (Use the Jones, Jones, & Jones Physical Diagram to help you complete this task).

worksheet :: create subnets in IP planner

Topics:

In this worksheet, you will continue to modify the Jones Physical drawing you created in the previous section. This worksheet covers the following steps:

- Create base subnets
- Configure base subnets

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones IP Addresses Scheme
- Jones Physical drawing you created in the previous worksheet

Create base subnets

For the Jones, Jones, & Jones case study you will use one class B address range. There are 20 network connections in the design, therefore you should divide the class B network into 24+ subnetworks. This will allow for additional devices, connections, and future growth.

1. Display the **Subnet Browser**.
2. Click the **New Subnet** icon (upper left hand icon in the Subnet Browser).

Configure base subnets

You will create 24+ subnets from the 131.108.0.0 class B IP address range.

1. Double-click the new subnets you just created to display the 'IP Planner'.
2. Enter the **IP address** of the subnet, **131.108.0.0**.
3. Enter the **subnet mask** for the class B address, **255.255.0.0**.
4. Click on **No. of subnets** radio button and enter **24**. (You may NOT use the 0 subnet)
5. Click on the **Allow 0 for subnet** to uncheck it.
6. Click **Calculate**.
7. Click **Create**.
8. Click **Select All** and **OK**.
9. Click **OK** again.

worksheet :: attach IP addresses to devices

Topics:

In this worksheet, you will continue to modify the Jones Physical drawing you created in the previous worksheet. This worksheet covers the following steps:

- Drag subnets to new drawing
- Link subnets to devices
- Automatically assign IP addresses to host
- Manually assign IP addresses to host

Tools:

- Printout of this worksheet
- Printout of Jones, Jones, & Jones IP Addresses Scheme
- Jones Physical drawing you created in the previous worksheet

Drag subnets to new drawing

Follow these steps to drag subnets to a new drawing and name them.

1. Create a **new sub-drawing** in the Drawing Browser.
2. Name the new drawing *Subnets*.
3. Open the *Subnets* drawing by double-clicking on the **Subnets** icon in the Drawing Browser.
4. Click on the **Subnet Browser** tab to view the Subnet Browser window.
5. Drag subnet cloud icon 131.108.48.0 to the *Subnets* drawing window.
6. Repeat step 5 to drag subnet cloud icon 131.108.56.0 to the drawing window.

Note: You can only drag subnet clouds that do not contain child subnets. You can only drag a subnet to the drawing window once.

Link subnets to devices

Follow these steps to link the *US1* router to the *131.108.48.0* subnet.

1. Open the *Jones Physical Design* and click once anywhere on the drawing window.
2. Enable **Expert** mode.
3. In the drawing window, select the *US1* router.
4. Select the **Multi-Link** tool.
5. Open the *Subnets* drawing (double-click the subnets icon located in the Drawing Browser).
6. Click on the **131.108.48.0** subnet icon cloud in the *Subnets* drawing.
7. Repeat steps 1-6 to link the *US2* router to the *131.108.56.0* subnet.

Automatically assign IP addresses to hosts

Follow these steps to automatically assign an IP address to the US1 router.

1. In the Subnet Browser, select the **131.108.48.0** subnet.
2. Click the **Distribute Addresses** icon (upper right icon in the Subnet Browser window).
3. Click the **[+]** plus sign located to the left of the **131.108.48.0** in the Subnet Browser window.
4. Note the subnet allocation (to US1).

Manually assign IP addresses to hosts

Follow these steps to manually assign an IP address to the US2 router.

1. In the Subnet Browser, double-click the *131.108.56.0* subnet.
2. Select the *US2* router.
3. Enter *131.108.56.1* into the **address** field.
4. Click **Static** to ensure that the IP address remains the same during future distribution of IP addresses.
5. Click **OK**.

worksheet :: view IP addresses and subnet masks

Topics:

In this worksheet, you will continue to modify the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- View IP addresses in tabular view
- View IP addresses in graphic view
- Graphic view filters

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

View IP addresses in tabular view

Follow these steps to view the IP addresses of all the devices in the *Jones Physical* drawing in tabular view.

1. In the Drawing Browser, double-click the *Jones Physical* drawing to display it.
2. Be certain to click once on the drawing window to activate the drawing palette menus.
3. Select **View>Tabular View**.
4. Click the **Addresses** tab to learn how IP addresses are displayed in tabular view
5. Then click on the **Devices** tab, the **Assets** tab and finally the **Links** tab to learn what types of information each view displays.
6. Select **Table>Wrap Text** to view all lines of information.

View IP addresses in graphic view

Follow these steps to view the IP address information of the US1 router in a graphic view.

1. Open the Drawing Browser window.
2. Double click on *Jones Physical* to open the drawing in the drawing window.
3. Double-click the *US1* router. (The Inspector window will open on the left)
4. Double-click on the *US1* router icon (in the upper left hand side of the Inspector window)
5. In the 'Properties' pop-up window, select the software version **S364AHK2-12.0.3T#1** from the list of added components.
6. Click on the **Addresses** tab.
7. Select **IP Configuration** from the **Attribute Group** pull-down menu. (The IP information is displayed.)

Graphic view filters

Follow these steps to hide the IP subnet links using the layer 3 filter.

1. Display the *Jones Physical* drawing.
2. Click the **filter** button and then click on the **network layer** button from the pull down list.

worksheet :: IP planner summary

Overview:

This section has covered all the steps you need to understand in order to assign IP subnets and addresses to devices.

Tools:

- Printout of this worksheet
- Printout of Jones IP Address Scheme
- Jones Physical drawing you created in the previous worksheet

Practice

For the purpose of learning Cisco Network Designer, you should complete the steps below to practice these skills. Be sure to assign an individual IP address to each device using the distribute addresses button, or manually. You can look in the Cisco Network Designer online tutorial and worksheets if you need to review how to perform specific procedures.

1. Drag any remaining assigned subnets to Subnets drawing.
2. Link subnets to devices.
3. Assign IP addresses to hosts.
4. View the IP addresses in tabular view.

worksheet :: clean up your diagram

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheet. This worksheet covers the following steps:

- Grid options
- Resize icons
- Re-shape links
- Bend links
- Position labels
- Change label, font, size, color
- Rotate
- Text block
- Portrait vs. landscape

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheets

Grid Options

Customize Grid

You can customize the grid size and/or snap distance by selecting: **Tools > Options > Customize Grid.**

Disable Grid

To disable the grid you select: **View > Show Grid.**

Resize icons

Follow these steps to resize an icon.

1. Select the icon you want to resize.
2. Move the mouse over one of the graphic handles.
3. Drag the icon to a new size.

Re-shape links

Follow these steps to reshape a link.

1. Select the link you want to reshape.
2. Select a shape from the link-type pull-down menu.

Bend links

Follow these steps to bend a **straight line** link.

1. Select any straight line link.
2. Hold down the CTRL key and click a spot on the link (a bending point is added).
3. Drag the bending point to a new location.

Position labels

Follow these steps to position the labels.

1. Click on a label to select it.
2. Click on the label again to select only the label.
3. Drag the label to a new position

Change label font, size, color

Follow these steps to change the label.

1. Display the formatting toolbar by selecting **View > Toolbars > Formatting**.
2. Click on a label to select it.
3. Click on the label again to select only the label.
4. Change the settings with the formatting toolbar.

Rotate

Follow these steps to rotate the label for the US1 BRI line.

1. Select the link between *US1* and the *ISDN cloud*.
2. Select the text label for the link.
3. Select the **Rotate** tool.
4. Drag a handle on the label to rotate the label.

Text blocks

Follow these steps to add a text block.

1. Select the **Text** tool.
2. Click on the drawing window.
3. Type the text *Jones, Jones, & Jones*.
4. Click on the drawing window.

Portrait vs. landscape

Follow these steps to switch from portrait to landscape orientation.

1. Select **Project > Print Setup...**
2. Select **Landscape**.
3. Click **OK**.

worksheet :: create a bill of material

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- Exclude from Bill of Material (BOM)
- Discounts
- Create BOM
- Export BOM to Excel

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

Exclude from BOM

Follow these steps to exclude the Internet cloud from the bill of materials.

1. Right-click on the *Internet cloud*.
2. Select **Properties** from the popup menu.
3. Click on the **Attributes** tab.
4. Select **Asset Management** from the 'Attribute Group' drop-down list.
5. Select **No** from the 'BOM(y/n)' drop-down list.

Discounts

You may wish to include a discount for your clients. You can apply a discount to all of the items in the bill of materials, but you cannot apply discounts individually. Follow these steps to apply a 10% discount.

1. Select **Project > Properties**.
2. Select the **PO General Info** from the **Attribute group** pull-down menu.
3. Enter **10** into the Discount field.
4. Click **OK**.

Create BOM

Follow these steps to create a BOM grouped by chassis.

1. Select **Reports > Bill of Materials > Grouped by Drawing (Chassis)**

Export BOM to Excel

Follow these steps to export a BOM report to Excel.

1. Create BOM report and view in Microsoft Access.
2. Click the **Excel Export** button.
3. Name the file and save it to an appropriate folder.

worksheet :: create work order

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- Manage work orders
- Create work order report
- Export to Excel

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

Manage work orders

Follow these steps to change the work order status of a device.

1. Right click on the *US1* router.
2. Select **Properties** from the popup menu.
3. Click the **Attributes** tab.
4. Select **Asset Management** from the 'Attribute Group' drop-down menu.
5. Scroll down to view **Work Order(y/n)**.
6. Select **No** from the pull-down list.

Create work order report

Follow these steps to create a work order report.

1. Select **Reports > Work Order**.

worksheet :: create IP report, export diagram to HTML, & print diagrams

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheet. This worksheet covers the following steps:

- IP reports
- Export to HTML
- Print preview
- Fitting objects on the page
- Print diagrams

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

IP Report

Follow these steps to create an IP address summary report.

1. In the Drawing Browser, select the *Jones Physical* drawing.
2. Select **Reports > IP Address Summary**.

Export to HTML

Follow these steps to export a drawing to HTML.

1. Select **Tools > Export > To HTML > OK**.
2. Click **OK** when 'Application message' pop-up window appears.
3. Start your browser application.
4. Open the Designer HTML file found in: *c:\program files\Cisco Network Designer\BIN\Jones Physical\main.htm*
5. Use the links on the left or the icons in the Jones Physical Design to navigate the different drawings.
6. Click on any object to view its properties.

Print preview

Follow these steps to preview your printed network design.

1. Select **Project > Print Preview**.
2. If applicable, click **Next Page** to view multiple pages prints.

Fit objects on the page

To fit objects onto a page:

1. Select **Format > Fit Page to Objects**.

Print diagrams

Follow these steps to print the entire project.

1. Select **Project > Print > Project....**
2. Select the appropriate print options.
3. Click **OK**.

worksheet :: project/file management

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following lessons:

- Rename a project
- Open/Save to a different location
- Delete a project

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

Rename a project

Follow these steps to rename a project.

1. Select **Project > Rename....**
2. Enter a new name and click **Rename**.

Open/save to a different location

Follow these steps to import a file from a different location, such as a ZIP disk

1. Select **Project > Import Project...**
2. Select the project in the window that appears and click **Open**.
3. Select **Project > Open...**
4. Select the new project from the list. Click **OK**.

Delete a project

Follow these steps to delete a project.

1. Select **Project > Delete project.**
2. Select **No** from the dialog.

worksheet :: autodiscovery

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- Autodiscover a network

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

Autodiscover a network

Follow these steps to autodiscover a client's network.

Begin autodiscovery

1. Select **Tools> Run Autodiscovery ...**

Choose scope of autodiscovery

1. On the Autodiscovery window, click **Configure ...**
2. "Autodiscovery Configuration" pop-up window appears.
3. To discover the entire network, make sure **Full Discovery** checkbox, on the **Discovery** tab, is checked.

Configure seed router

1. On the **Discovery** tab, enter the IP address of the **seed router**.

Configure SNMP

1. Click the **SNMP** tab.
2. Enter the SNMP passwords.

Configure timing

1. Click on the **Scope** tab
2. Enter the maximum number of packets sent per second.

Configure NOS services

1. Click the **NOS Services** tab.
2. Select **Resolve Names** to resolve IP addresses into DNS names (GHBA).
3. Enter your **user name** and **password** for NOS services.

Begin autodiscovery

1. Click **OK**.
2. Click **Run Discovery**.

worksheet :: add a protocol to protocol library

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following step:

- Add protocol

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

Add protocol

Create new folder

1. Select the Library tab to open the Device Library window
2. Select **Protocols** from the drop-down menu.
3. Select **Insert > New Library Folder**.
4. Name the new folder *Gig/Eth Redundant*.

Create protocol

1. Select the new protocol folder you just created.
2. Select **Insert > New Library Item > Protocol**.
3. Type *Gig/Eth Redundant* in the name window.
4. Select **2** for the OSI layer.
5. Select the base protocol, **Gigabit/Ethernet**

Define sub-types

1. Click **Add**.
2. Enter *segment* and click **OK**.
3. Click Add again
4. Enter *station* and click **OK**.

Match sub-types

1. In the 'match' window, select (check) both **station** and **segment**.

Configure graphics

1. Click the **Graphics** tab. Click **Yes** when the 'Cisco Network Designer Warning' pop-up message appears.
2. Select the **2nd line** thickness option in the 'Thickness' pull down menu.
3. Set color to **dark green** (lower right).
4. Click **OK**.

Note: You can add a protocol to the Protocol Library, but before you can create links with the protocol, you must configure the Protocol Palette to display the new protocol. See "Customize Protocol Palette" for more information.

worksheet :: customize protocol palette

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following worksheets:

- Add protocol to the palette
- Rearrange palette list

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

Add protocols to the palette

Follow these steps to add the Gig/Eth Redundant and Gigabit/Ethernet protocols to the protocol palette.

Note: You created the Gig/Eth Redundant protocol in the previous section.

1. Click in the drawing window. (This ensures that the proper menu options are available.)
2. Select **Tools > Options > Customize Protocol Palette**.
3. Click **Add**.
4. Hold down the shift key and select both **Gig/Eth Redundant** and **Gigabit/Ethernet**.
5. Click **OK** and click **OK** again.

Rearrange palette list

Follow these steps to move Gigabit/Ethernet to the top of the list.

1. Click in the drawing window. (This ensures that the proper menu options are available.)
2. Select **Tools > Options > Customize Protocol Palette**.
3. Select **Gigabit/Ethernet**.
4. Click **Move Up** or **Move Down** to rearrange the order of the list.

worksheet :: add a symbol to the symbol library

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following lessons:

- Add symbol

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

Add symbol

Create new folder

1. Click the **Library** tab to open the Device Library window.
2. Select **Symbols** (from the pull down list located at the top of the Library window)
3. Select the **Library** folder.
4. Right click on the Library folder. Select **New Folder** from the pop-up menu.
5. Name the folder as you wish.

Import graphic

1. Select and then right-click on the new folder you just created.
2. Select **New Item** from the pop-up menu. (Or, select **Insert > New Library Item** from the menu bar.)
3. On the 'New Symbol' pop-up window, click **Import**.
4. Select the image you wish to import. Click **Open**. Type a name for the symbol.
5. Click **OK**.

worksheet :: Visio import/export

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- Install NIF Converter
- Convert Visio to NIF
- Import NIF

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheet

Install NIF Converter

Follow these steps to install the NIF Converter.

1. Verify that Visio 4.5 or later is installed on your computer.
2. Open the **VisioNIF** folder on your *Cisco Network Designer CD-ROM*.
3. Run **Setup**.

Convert Visio to NIF

Follow these steps to convert a Visio document to a NIF file.

1. Open the Visio document you wish to convert.
2. Select **Netformx > Convert to NIF** from the Visio menu bar.
3. Select a name and location for the NIF file. Click **Convert**.

Import NIF

Follow these steps to import a NIF to Cisco Network Designer.

1. Select **Tools > Import NIF File**.
2. Locate the NIF document you wish to import.
3. Click **OK**.

worksheet :: create a template

Topics:

In this worksheet, you will continue to work on the Jones Physical drawing you created in the previous worksheets. This worksheet covers the following steps:

- Create a template

Tools:

- Printout of this worksheet
- Jones Physical drawing you created in the previous worksheets

Create a template

Follow these steps to create a template based on a drawing that you have created.

1. Start with a drawing that you want to make into a template.
2. Select **View > Second Browser**.
3. Select the **Drawing Browser** tab in the *first* browser window. Select the **Device Library** tab in the *second* browser window.
4. Select root Library in the *second* browser window. Select **Insert > New Library Folder**
5. Rename the new folder to *Templates*.
6. Drag drawing from *first* browser window to *Templates* folder in *second* browser window.
7. Click **Yes**.