Technical Note
201-008-01
October 30, 1998

Adding an NE to an Existing Network

Introduction

This technical note describes the procedures for adding a network element to an existing network, including setting the bandwidth. The procedure consists of the following tasks:

- Switching traffic to fiber A
- Connecting fiber B to the new NE
- Provisioning the new NE
- Switching traffic to fiber B
- Connecting fiber A to the new NE
- Removing traffic force from fiber B

Switching Traffic to Fiber A

You must force all traffic to fiber A before adding the new node to fiber B.

To force all traffic to fiber A, perform the following steps:

1. Log on the existing network using Positron OSIRIS-VUE.
2. Right click any node icon and click **Maintenance Path Switching** the click **Force All On A**. A dialog box appears.
3. Click **Yes**.
4. Repeat Steps 2 and 3 for each node icon appearing in the Network Status dialog.

   A Forced Switch Request (FRCDSWREQ) appears in the Active Alarms report for each node. Forced Switch Requests are minor alarm and are not service affecting.

   Note: A forced switch causes a traffic hit that meets Bellcore requirements per cross-connected path.

Connecting Fiber B to the New NE

Once all network traffic is switched to fiber A, the new node may be inserted onto fiber B without affecting network traffic.

For this procedure, existing nodes are referred to as **Node 1** and **Node 2**. The new node is referred to as **Node 3**.

Note: Any fiber connections to or from an NE should be performed through a demarcation point, such as a fiber patch panel, and not directly to the OAUs.

1. Disconnect the OAU-B TX of Node 1. Refer to Figure 1.

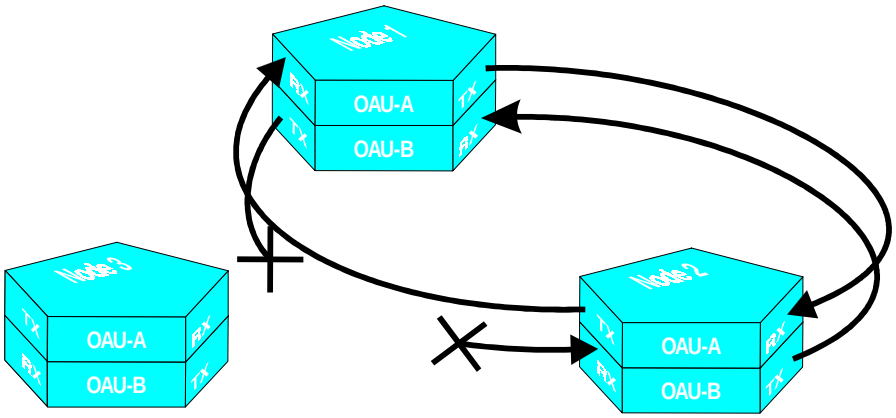
WARNING

Take special care in handling any fiber cables on the B ring. Invisible laser radiation may be present in an operational fiber ring, which may cause blindness.

2. Disconnect the OAU-B RX of Node 2.

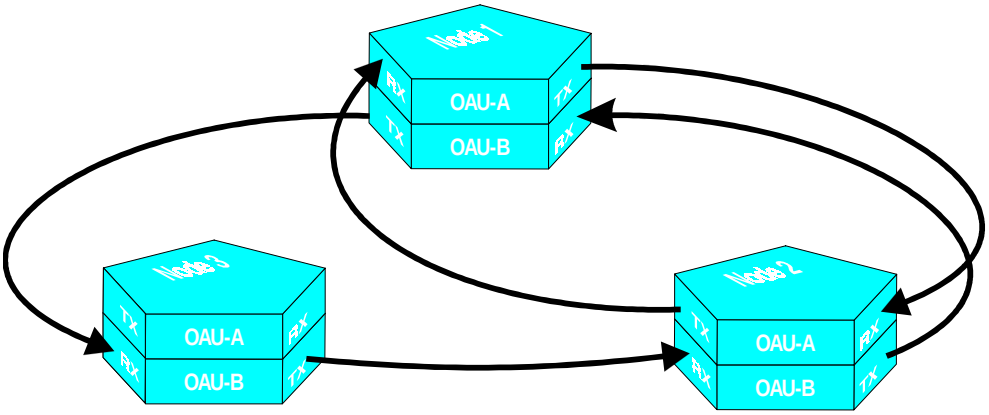
Note: Disconnecting the OAU-Bs does not interrupt network traffic. In this example, a DCC-X alarm appears for OAU-B of Node 2 and a DCC-Y alarm appears for OAU-B of Node 1 in the Active Alarms report. DCC alarms are minor and are not service affecting.

Figure 1 Disconnecting OAU-B TX of Node 1 and OAU-B RX of Node 2



3. Connect OAU-B TX of Node 1 to OAU-B RX of Node 3. Refer to Figure 2.
4. Connect OAU-B TX of Node 3 to OAU-B RX of Node 2.

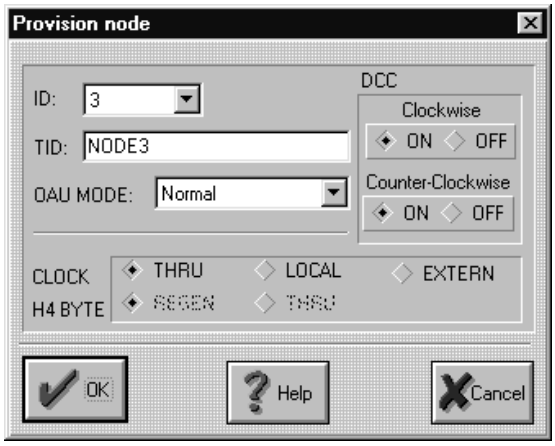
Figure 2 Inserting OAU-B of Node 3 into the Existing Network



Provisioning The New NE

Node 3 appears in Positron OSIRIS-VUE's Network Status dialog box. The new node appears in the following way.

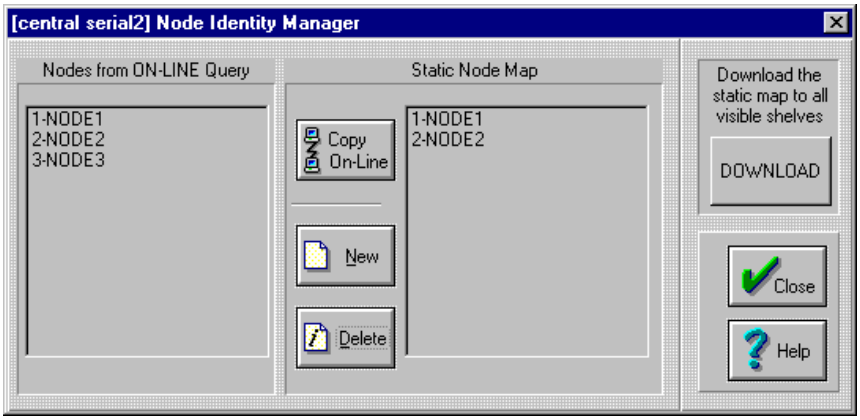
1. Double-click this node icon. The **Provision Node** dialog box appears.



2. Select an **ID** number.
3. Enter a name in the **TID** text box.
4. Set **Clock** and **H4 Byte** to **THRU**.

Do not modify the DCC settings. If the DCC settings are changed, communication between nodes may be interrupted once you add the new node to the existing network.

5. Click **OK**. The **Node Identity Manager** appears.



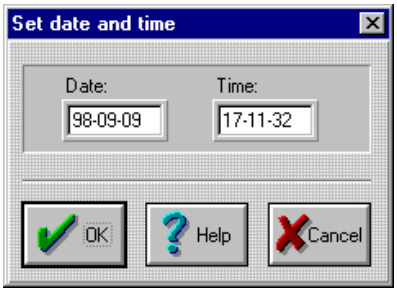
When an ID number or TID is changed using Positron OSIRIS-VUE node, the static node map must be updated on the new node.

6. Click **Copy On-Line**. The new node ID number and TID appear in the **Static Node Map** text box.
7. Click **Download** to download the static node map into this node. The Network Status dialog box reappears. ID number and TID have been provisioned for this node. The Network Status dialog box reappears.

   The following alarms remain outstanding:

Alarm	Node	Severity	Reason
Card Removed (CRDRMVD) - OAU-A	Node3 (new node)	Major	Once OAU-B of the new node is added to the network, all alarms on this node appear. Because OAU-A has not yet been inserted to close the network on both fibers paths, a Card Removed error appears for this OAU. This alarm is not service affecting because traffic does not flow through the A side on this node.
DCC-X	Node2	Minor	DCC alarms appear until both fibers of the new node are connected to the network.
DCC-Y	Node1	Minor	DCC alarms appear until both fibers of the new node are connected to the network.

   The fiber lines between the nodes in the Network Status dialog box will not appear green due to the DCC not being continuous.
8. Verify that all other alarms have been cleared. Refer to *Positron OSIRIS Troubleshooting Guide (203-008)*.
9. To provision a date and time, right-click the node icon and click **Download Real Time Clock**. The **Set Date and Time** dialog box appears.



10. Enter the current date (yy-mm-dd).
11. Enter the current time (hh-mm-ss).
12. Click **OK**. The Network Status dialog box reappears. Date and time have been provisioned for the new node.
13. To set the bandwidth for the new node, click **Bandwidth Provisioning** from the **Network** menu. The **Bandwidth Provisioning** dialog box appears.
14. Click **Whole Ring** from the list box.
15. Click **OK**. Network bandwidth for the new node has been set.

Switching Traffic to Fiber B

Switching network traffic to fiber B, includes the following procedures:

- Provision a test cross-connection (optional)
- Switch test traffic to fiber B
- Force network traffic to fiber B

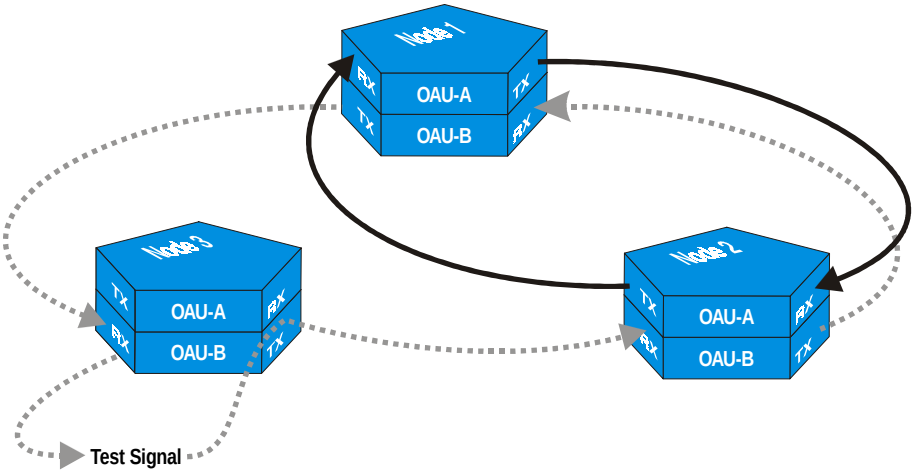
Provision a Test Cross-connection (Optional)

You may now test the continuity of the optical signal on fiber B.

1. Provision a cross-connection on the local node in the Positron OSIRIS network.

   Continuity testing is performed without dropping the signal at the far end of the network. Instead, the signal circulates back to the original location on this time slot of the bandwidth. The signal should return with no bit errors.

Figure 3 Sending a Test Signal Through the "B" Fiber



Switch Test Traffic to Fiber B

Since the default setting is for traffic to travel on fiber A, you will need to switch the test traffic to fiber B.

1. In the **Shelf-level** dialog box, double-click the mapper carrying the test signal. The **Mapper-level** dialog box appears.
2. Double-click the cross-connected channel. The **Channel-level** dialog box appears.
3. Click the **PPS** tab.
4. Click the Force traffic on B fiber icon. A confirmation dialog box appears.
5. Click **Yes**.

   A Forced Switch Request (FRCDSWREQ) appears in the Active Alarms report for each node. Forced Switch Requests are minor alarm and are not service affecting.
6. Verify that no bit errors appear in your test traffic.

   Once you have verified that test traffic flows error free on fiber B, you may switch all network traffic to fiber B.
7. Deprovision the test cross-connection.

Force Network Traffic to Fiber B

To switch network traffic to fiber B, perform the following steps:

1. Right click a node icon and click **Maintenance Path Switching**, then click **Remove all Lock/Force**.
2. Repeat Step 1 for each node **except the new node icon**.
3. Right click a node icon and click **Maintenance Path Switching**, then click **Force All on B**.

   A Forced Switch Request (FRCDSWREQ) appears in the Active Alarms report for each node. Forced Switch Requests are minor alarm and are not service affecting.

   Note: A forced switch causes a traffic hit that meets Bellcore requirements per cross-connected path.

Connecting Fiber A to the New NE

Now that traffic is carried on fiber B, you can connect fiber A to the new node. To do this, perform the following steps:

Note: Any fiber connections to or from an NE should be performed through a demarcation point, such as a fiber patch panel, and not directly to the OAUs.

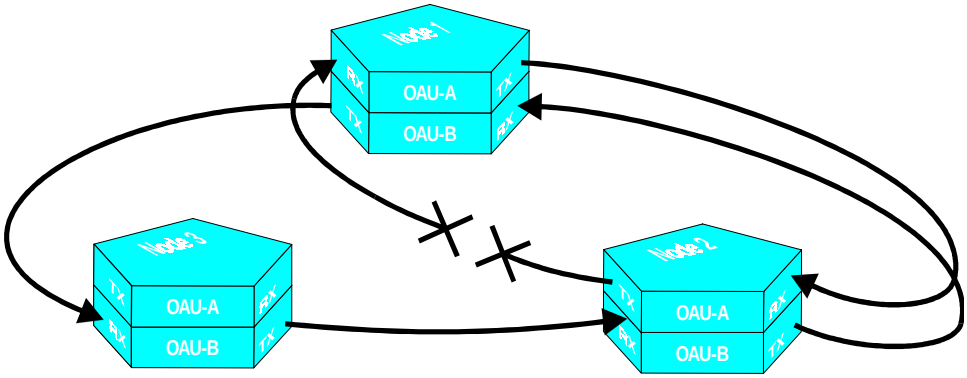
1. Disconnect the OAU-A RX of Node 1. Refer to Figure 4.

Take special care when handling any fiber cables on the A ring. Invisible laser radiation may be present in an operational fiber ring, which may cause blindness.

2. Disconnect the OAU-A TX of Node 2.

   Note: Disconnecting the OAU-As does not interrupt network traffic.

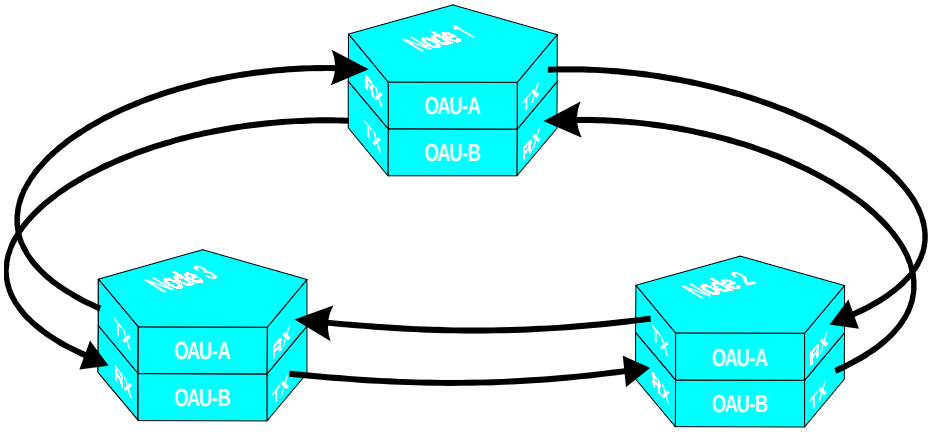
Figure 4 Disconnecting OAU-A RX of Node 1 and OAU-A or TX of Node 2



3. Connect OAU-A TX of Node 2 to OAU-A RX of Node 3. Refer to Figure 5.

4. Connect OAU-A TX of Node 3 to OAU-A RX of Node 1.

Figure 5 Inserting OAU-A of Node 3 into the Shelf



Fibers appear between all three nodes in the Network Status dialog box.

Removing Force From Fiber B

Removing traffic force from fiber B, includes the following procedures:

- Provision a test cross-connection (optional)
- Lock test traffic to fiber A
- Remove traffic force from fiber B

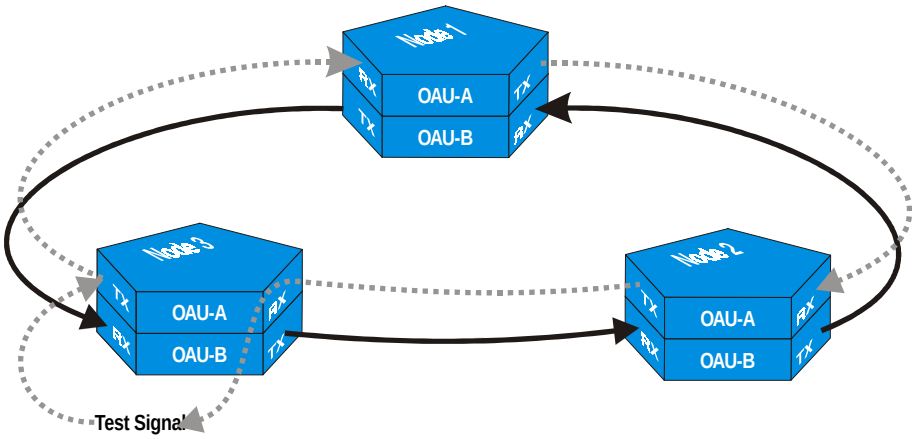
Provision a Test Cross-connection (Optional)

You may now test the continuity of the optical signal on fiber A.

1. Provision a cross-connection on the local node in the Positron OSIRIS network.

   Continuity testing is performed without dropping the signal at the far end of the network. Instead, the signal circulates back to the original location on this time slot of the bandwidth. The signal should return with no bit errors.

Figure 6 Sending a Test Signal Through the "A" Fiber



Lock Test Traffic to Fiber A

1. In the **Shelf-level** dialog box, double-click the mapper carrying the test signal. The **Mapper-level** dialog box appears.
2. Double-click the cross-connected channel. The **Channel-level** dialog box appears.
3. Click the **PPS** tab.
4. Click the Lock traffic on A fiber icon. A confirmation dialog box appears.
5. Click **Yes**.

   A Forced Switch Request (FRCDSWREQ) appears in the Active Alarms report for each node. Forced Switch Requests are minor alarm and are not service affecting.
6. Verify that no bit errors appear in your test data.

   Once you have verified that test traffic flows alarm free on fiber A, you may remove the traffic force from fiber B.
7. Deprovision the test cross-connection.

Remove Traffic Force from Fiber B

To remove network traffic force from fiber B, perform the following steps:

1. Right click a node icon and click **Maintenance Path Switching**, then click **Remove all Lock/Force**.
2. Repeat Step 1 for each node icon **except the new one**.

   Note: At this point, all drop traffic remains on the B path until something happens to the B ring.