

TRUNK LINKS

What are Trunk Links?

Trunk links give us a way of specifying the number of Hydra connections that can be used to connect to routers together.

Who should use Trunk Links?

A single Hydra port connection between two routers can carry up to 512 individual paths of audio in each direction. To transmit more than 512 audio paths in any one direction between two routers you will need trunk links.

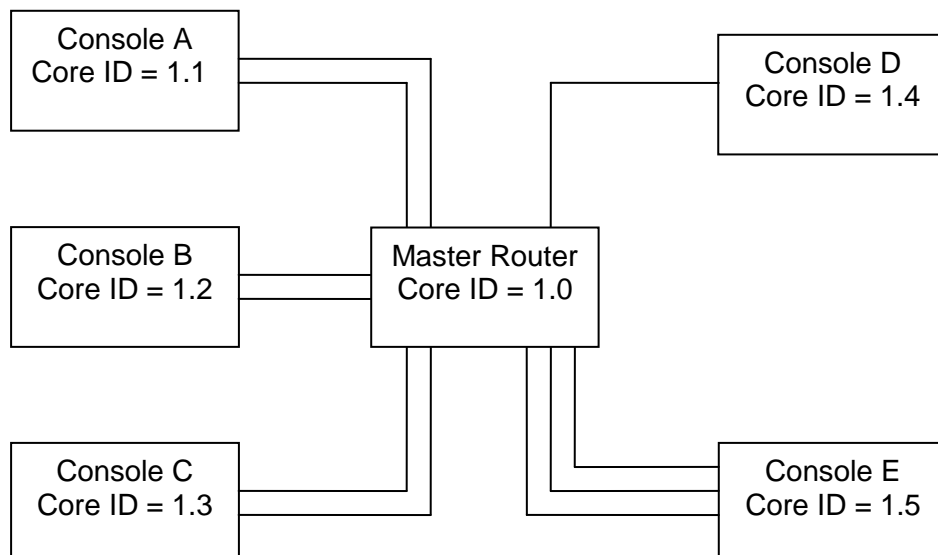
How to set up Trunk Links

A configuration file called “**trunk.xml**” must be created that specifies the width of the trunk (ie: number of links) between each connected router. For this you need the Core ID of each router and the number of trunk links that will connect between the cores.

To illustrate this, the following example system will be used:

Five consoles are connected to a Master Router Core in a star network.

- Consoles A, B and C are each connected to the Master Router Core using 2 trunk links. This allows a maximum bandwidth of 1024 audio paths in each direction between each console and the Master Router Core.
- Console D is connected via a single trunk link, so has the standard bandwidth of 512 paths of audio in each direction.
- Console E is connected with 3 trunk links, giving a bandwidth of 1536 paths of audio in each direction.



N.B. The above diagram shows only Primary connections for clarity.

N.B. 'Core' is the updated terminology (as of s/w v1.12.1) for 'Rack' (ie: Apollo Core, Artemis Light Core, etc), however the term 'Rack' may still be used in some areas.

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The configuration file (trunk.xml) must contain the information for **all** trunk links used in the system (including any trunk links of 1), as the file is simply replicated throughout the system.

```
<?xml version="1.0"?>
<Calrec>
  <Rack>
    <TrunkLinks>
      <TrunkLink RackA="1.0" RackB="1.1" Count="2" />
      <TrunkLink RackA="1.0" RackB="1.2" Count="2" />
      <TrunkLink RackA="1.0" RackB="1.3" Count="2" />
      <TrunkLink RackA="1.0" RackB="1.4" Count="1" />
      <TrunkLink RackA="1.0" RackB="1.5" Count="3" />
    </TrunkLinks>
  </Rack>
</Calrec>
```

In the configuration file shown above, each trunk link is specified in a single **TrunkLink** element. The attributes **RackA** and **RackB** identify the start and end point of the trunk link, while the **Count** is the number of individual cable links that are used to connect the two routers.

Save this file as **trunk.xml** on the control PC of the Master Router Core.

Uploading the Trunk.xml file

1. Ensure that all Cores in the system are running on their Primary Router.
2. Launch the Backup Utility. This can be found in **C:\Calrec\Utils\CustomerDataBackupUtility.jar**
3. Enter the Core ID of the Master Router and then click "Connect".
4. Click the 'Update Trunk List' button.
5. Select the '**trunk.xml**' file with the Open File dialog.
6. Your 'trunk.xml' file will now be uploaded to both the Primary and Secondary Routers into the folder **/home/montana**.
 N.B. *Please note that the routers are not automatically rebooted and the trunk file will not become active until the next reboot.*
7. Open a telnet session to the active Master Router (this must be the Primary Router, see 1)
8. Issue the command **showrouters**. Check this list to make sure that all the slave routers you need to update are currently connected to the Master Router.
9. Issue the command **sendtrunkinfo** (or **sti**). Your '**trunk.xml**' file will now be transmitted to both the Primary and Secondary Routers of all connected Slave Consoles, and written to the folder **/home/montana**.
 N.B. *Please note that the slave routers are not automatically rebooted and the trunk file will not become active until the next reboot.*
10. Wait for a command to return and confirm all slave routers (primary and secondary) have been updated.
11. Reboot all routers in the system.

Now connect the specified amount of router to router links between the Master Router and each console. As per normal, all links must be connected to routers and not expanders, and any available hydra port on the router can be used.

There is no requirement to match ports at either end of the links (ie: A link can be plugged into port 1 on the Master Router and port 4 on the Console's Router), nor match ports between primary and secondary routers.

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Diagnosing Problems

Once all the routers have been configured with the trunk configuration file and the specified number of links has been connected the network will function as normal, but with extended bandwidth.

To establish a valid router to router connection, at least the specified number of links have to be in place. If less than the configured count are in place, a connection will not be made. In this instance, a “Trunk link failure” AWACS warning will be raised by both cores. This warning contains information about which links are currently connected and how many should be connected.

If there are too many links connected, the router to router connection will be established, with the first links to be detected used to form the link. Any extra links will be ignored and an “Extra trunk link” AWACS warning will be raised with details of which ports the extra link is connected to.

Trunk Links and Redundancy

For a trunk link to operate, all of the links have to be connected.

If any one of the links fail, then the entire trunk link fails. This behaviour is true even if an extra link is connected. If this should happen, the audio will be switched to the secondary path.

If any link on the secondary path should then also fail, the router to router connection is lost. However, if a failed link is replaced or corrected, the primary path will once again become a valid connection and redundancy will be restored.