

IBM System Cluster 1350

Cabling Guidelines

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Key

Understanding the cluster configuration is important in setting up your cable strategy. Please obtain the CPOM Step 3 file and review prior to installation.

Prerequisites

The customer will need to supply the following:

- Floor layout so that you may become familiar with it.
- Rack configuration on raised floor.
- Raised floor and beneath raised floor environment including depth and obstacles that may need to be considered before routing cables. Trays, safety devices (smoke detectors and water sprinklers), plumbing, and existing cables are a few examples.

Some installations require above rack cable routing. You need to understand what obstacles are imposed here as well. Establish a specific area for InfiniBand, Cat5, and fiber cables

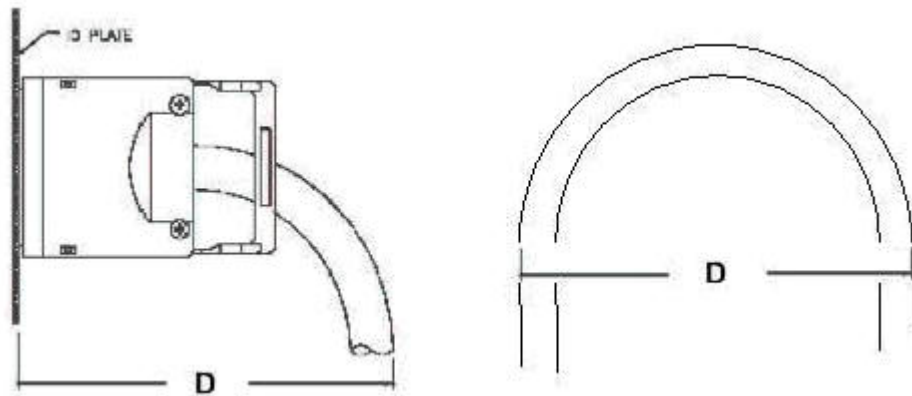
It is highly recommended that you use the space directly beneath the racks for InfiniBand Cable placement. This will prevent anyone from standing on cables while working or standing below raised floor grade. It is also recommended that you route InfiniBand cables before the Cat5 and Fiber cables. This ensures the lighter cabling is on top of the heavier InfiniBand cables.




This also makes it easier to install the InfiniBand cables into the racks and will allow for maximum working space within rack cabling areas. It is recommended you loop cables in half and pull them under the floor by the looped end being cautious not to bend beyond cable bend limitations.

Setup Guidelines

To avoid damage to the InfiniBand cables, follow these guidelines:

- Route cables where they will not be snagged by other devices in the rack or raised floor
- Do not over tighten the cable straps or bend the cables to a radius smaller than 4 inches. (See figure below. Distance 'D' equals 4 inches).
- Do not put excess weight on the cable at the connection point and be sure that it is well supported
- Do not leave cables on the floor where they can be damaged by carts or foot traffic.
- Provide appropriate strain relief.

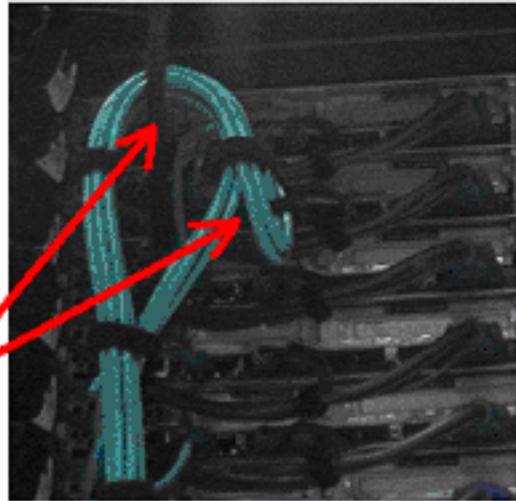


-  Do not kink InfiniBand cables.
-  Do not over bend InfiniBand cables.
-  Do not twist InfiniBand connectors.

To avoid damage to the Ethernet cables, follow these guidelines:

- Route the cable away from places where it can be snagged by other devices in the rack or raised floor.
- Do not over tighten the cable straps or bend the cables to a radius smaller than (1 in.).
- Do not put excess weight on the cable at the connection point and be sure that it is well supported.
- Route Ethernet cables away from power cables.

Maintain minimal 1" radius on any Ethernet cable bending



- When attaching to a device on slides, leave enough slack in the cable so that it does not bend to a radius smaller than 50 mm (2 in.) when extended or become pinched when retracted.
- Route the cable away from places where it can be snagged by other devices in the rack or raised floor.
- Do not over tighten the cable straps or bend the cables to a radius smaller than 50 mm (2 in.).
- Do not put excess weight on the cable at the connection point and be sure that it is well supported.

Cabling Voltaire Switch end

Voltaire Switch Configuration

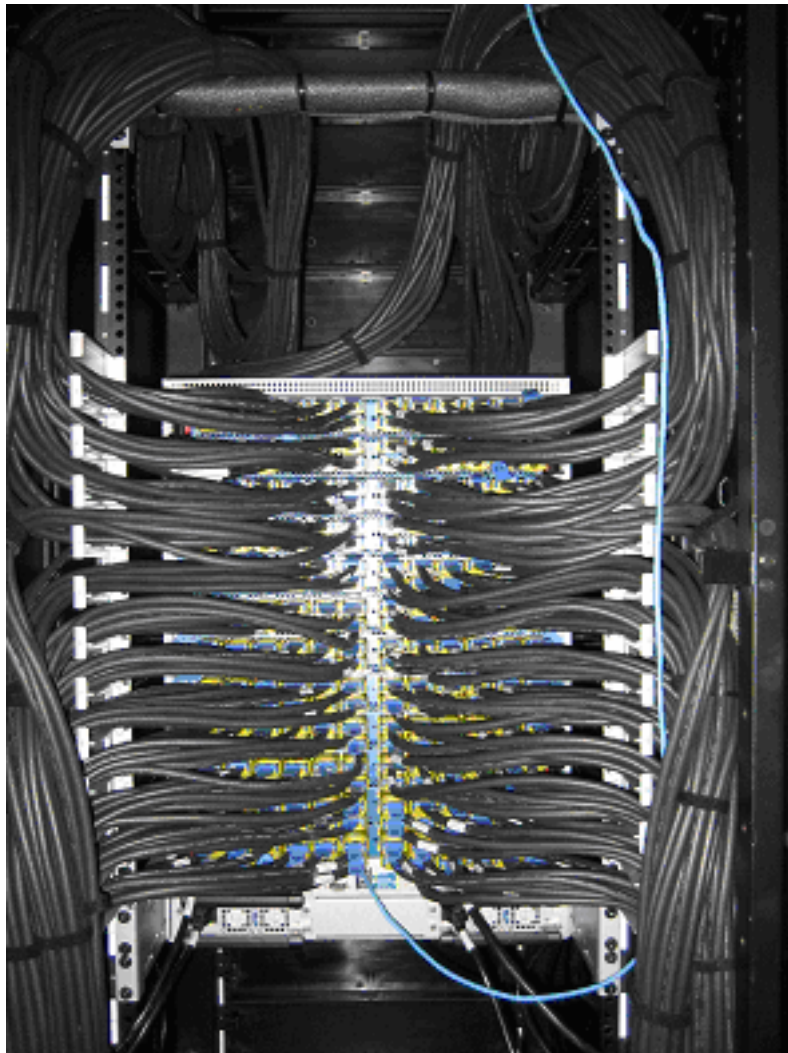
- Split the switch in half vertically down the middle and run cables between the frame and cable management brackets up left and right sides.
- Remove all cable Flag Tags from Switch end of cable. Cable Voltaire InfiniBand switch from bottom slot 12 through top slot 1. Secure cables to sides of frame using Velcro. The below images demonstrate what the cables should look like when properly routed.
- With cables needing to be run at different lengths to facilitate InfiniBand line card slot port locations, loop excess beneath rack neatly considering cable bend limitations. Keep in mind that space will become limited as you begin to fill all pluggable locations on the switch line cards. It is recommended that you position the excess loops under floor or in tray above as far away from the switch rack as possible. Redressing the cable bundle neatly will help with limited space on fully configured switched.

Note: If more than 240 InfiniBand cables are in the configuration. It is recommended you route the cables through the top of the rack to facilitate ease of serviceability. You may also want to consider less than 240 through the bottom of the switch rack depending on the customer's requirements

- It is recommended that the rack rails that overlap with the 12U of the ISR 9288 IB connectors not be used for PDU or power inlets.
- It is recommended that you install cable management brackets on the rear rail of the rack.
- The cable management bracket should be installed with the bend facing the outside; otherwise it will prevent line board from being inserted or removed.

Cabling Voltaire Switch end

The following two figures are an example of proper cable and how to merge cables into the switch.

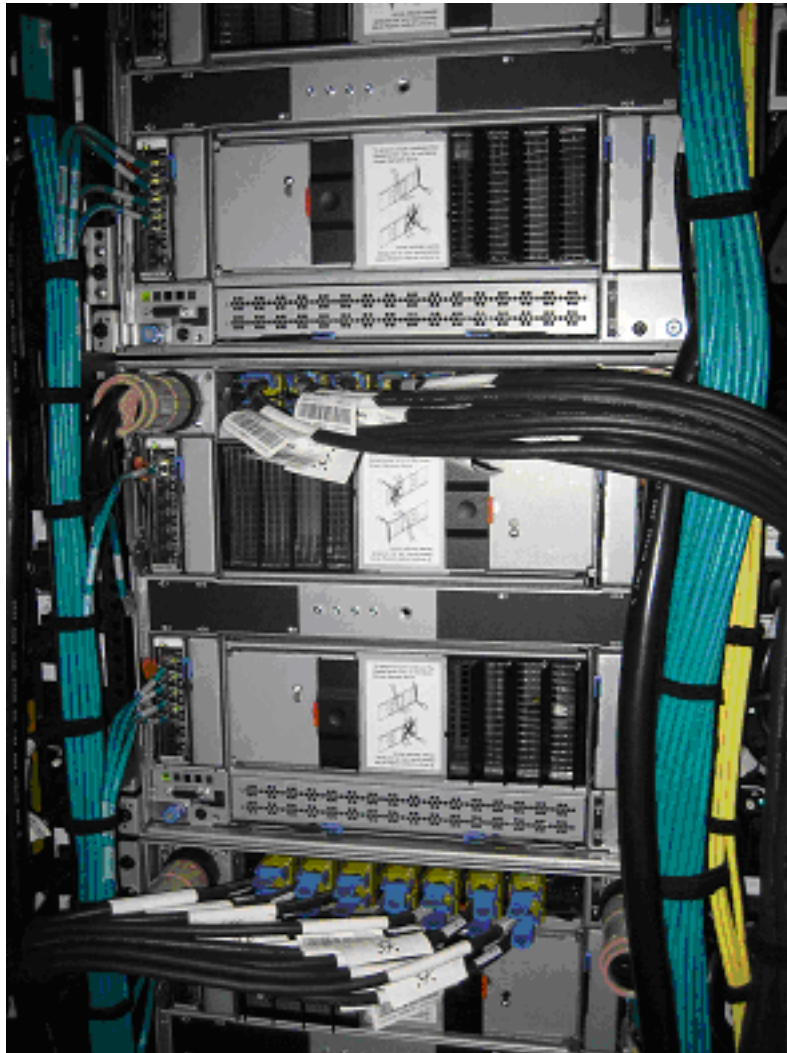




Cabling Rack Side InfiniBand

BladeCenter Configuration

- Cables should be bundled in groups of 14 or less and should run up alternating left and right sides of rack. Start at the bottom BladeCenter unit and work to the top.
- Cables should be neatly looped into place as to not apply any pressure up down or side to side.
- Cable bundles should be dressed neatly and fastened to the frame sides using Velcro. With using cable of different lengths, loop excess beneath compute rack neatly considering cable bend limitations.



Cabling Rack Side InfiniBand

The following figure shows cables routed through bottom and top of the compute rack.

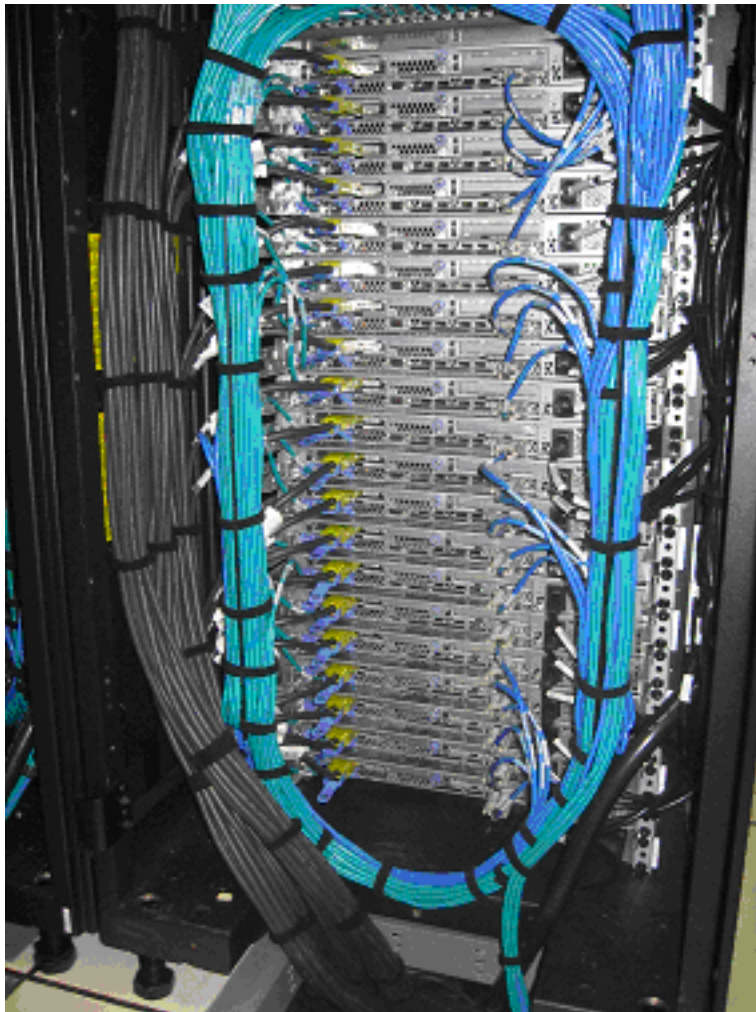


1U, 2U, and 3U Server Configuration

Server Configuration

Cables should be bundled in groups of 10 or less for easily handling. Route bundles up the left side of the rack through the cable retention brackets (if installed) and to the server. Plug the InfiniBand cable into the lowest port number or P1 of the server adapter card.

The cable should be routed through the cable management bracket towards the inside of the rack. Use the rack cable retention slots to fasten Velcro to maintain positive retention of cables. (See picture below.)



1U, 2U, and 4U Server Configuration

The following shows a properly cabled server configuration using cables of different lengths to facilitate plugging into each server location.



Routing Cat5 E Ethernet Cables

Compute rack configuration:

- Cat5 E cables from the compute rack to the network rack should be coiled in the compute rack and routed under the floor or over the racks in trays.
- It is recommended that you start with the rack furthest from and work towards the network rack.
- Coil excess cabling under compute racks when routing under floor.
- Loop excess cables in as large a loop as possible within tray when routing from above racks.
- When routing cables into the network rack, it is recommended you follow the same cabling scheme as in the compute racks. Green on left, blue and yellow on right looking at the back of the rack. See photo below.

