IBM z14 ZR1 and LinuxONE Rockhopper II Cable Exit Choices

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This document is designed to address potential confusion regarding the ordering of Top and/or Bottom Exit Cabling on the **IBM z14 ZR1** and **LinuxONE Rockhopper II**.

For additional information, please refer to the 3907 Installation Manual for Physical Planning (IMPP).

Here are summary points to the details that follow.

1. **I/O and power cabling can be routed through the top of the rack, even when bottom exit cabling is ordered. The Top Exit Cabling feature provides a top hat. Top hat details to follow in this document.**

2. **Top and Bottom Exit Cabling can both be ordered simultaneously.**

3. **There is no non-raised floor feature although this system can be installed on a non-raised floor. With bottom exit cabling on a non-raised floor, all cables must egress out of the top of the machine – and an exit path out of the top of the machine is provided for the cables.**

4. **Fiber Quick Connect - FQC (FC7934) can be ordered with either Top Exit or Bottom Exit Cabling. FQC is applicable to FICON Express16S+, FICON Express16S and FICON Express8S – Long Wave only.**

5. **When FQC is desired, Fiber Transport Services must also be ordered.**

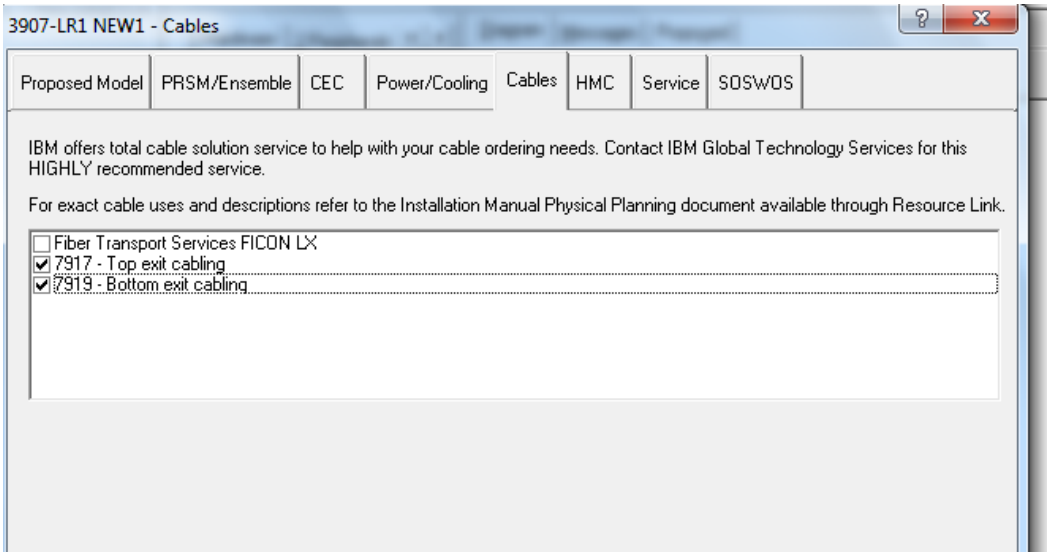

Figure 1: This is the Cables tab in eConfig for the z14 ZR1 and LinuxONE Rockhopper II. This screenshot should be familiar to IBMers and Business Partners only.

Note that in the cabling tab of the IBM configurator, there are three choices.

Fiber Transport Services (FTS)

This provides installation planning assistance, fiber trunking cable, connectors, distribution enclosures, cable support routing hardware, and installation by IBM personnel.

With the use of fiber trunking and distribution enclosures, all system reconfigurations may be performed at a patch panel, planned to eliminate extensive down time and enhancing your availability.

Reconfiguration is as simple as unplugging and re-plugging a connector. The Enterprise Fiber Cabling Services use a proven modular cabling system, the fiber transport system (FTS), which includes trunk cables, zone cabinets, and panels for servers, directors, and storage devices.

FTS supports Fiber Quick Connect (FQC), a fiber harness that is integrated in the frame of a z14

server for quick connection. In the IBM z14 FQC supports FICON LX features types. Fiber Quick Connect can be implemented out of the top or the bottom in the z14 ZR1.

Top Exit Cabling FC7917

When installed on a non-raised floor, all cables shall be egressed out of the top of the rack, even if only Bottom Exit Cabling is ordered.

When Top Exit Cabling is ordered, there are no side chimneys as with other IBM Z systems. In the case of the z14 Model ZR1 and LinuxOne Rockhopper II a new “top hat” is provided with Top Exit Cabling.

The top hat can be configured to exit cables either from the top-front or the top-rear of the rack. This same feature can be used for overhead power cabling or for overhead I/O cabling. The feature is required for scenarios in which top exit is desired with Fiber Quick Connect (FC7934) brackets at the top. The top hat provides cable strain relief and cable management. Strain relief is also available out of the top when Top Exit Cabling is not ordered.

Minimum: 0
Maximum: 1
Pre-requisites: None
Co-requisites: None
Compatibility Conflicts: None
Field Installable: Yes

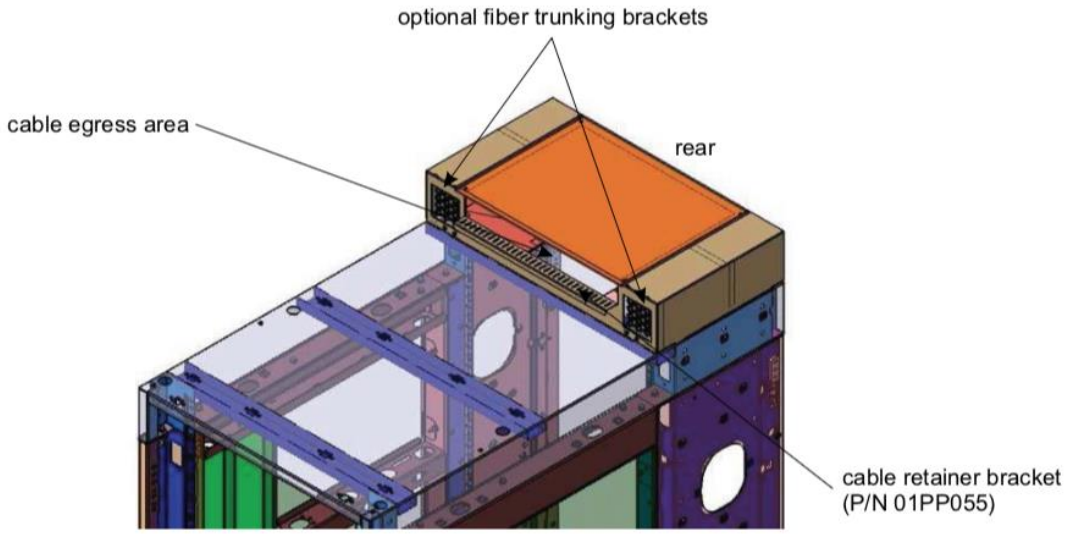

Figure 2: IBM z14 Model ZR1 Top Hat for Top Exit Cabling – cables exiting from the front of the top exit cabling enclosure

If FCQ is also ordered, appropriate harness brackets are included.

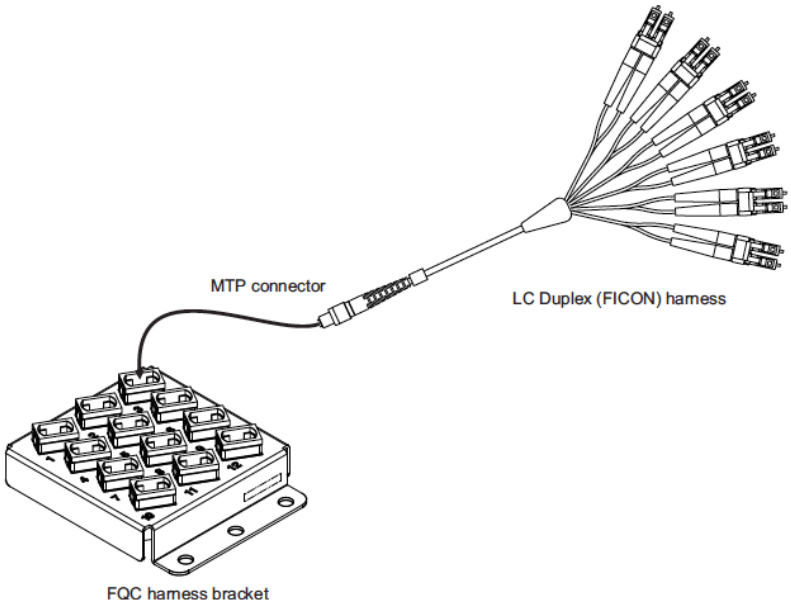

Figure 3: The Fiber Quick Connect feature enables trunk cables to connect to FICON channels using under-the-cover attachment harnesses. These harnesses are installed when your system is built, and your 3907 arrives ready to connect the trunk cables at your site. The harness brackets use an MTP connector, and the FICON connects are routed to the FICON feature cards in the rack.

Figure 4: When routing cables directly through the top of the frame, there are two sliding plates on the top of the frame (one on each side of the rear of the frame) that can be opened and any gaps can be eliminated with self-sticking foam. The foam assists with airflow containment. The sliding plates can be used for top exit cabling, even if the Top Exit Cabling feature code is not ordered.

Bottom Exit Cabling FC7919

When bottom exit cabling is selected, the required infrastructure is provided. This feature includes cabling egress for both Input/Output (I/O) cables and power cables.

When installation is on a raised floor and when cables are planned to be egressed out the bottom of the rack, FC7919 should be ordered.

When installed on a non-raised floor, all cables shall be egressed out of the top of the rack.

Minimum: 0
Maximum: 1
Pre-requisites: None
Co-requisites: None
Compatibility Conflicts: None
Field Installable: Yes

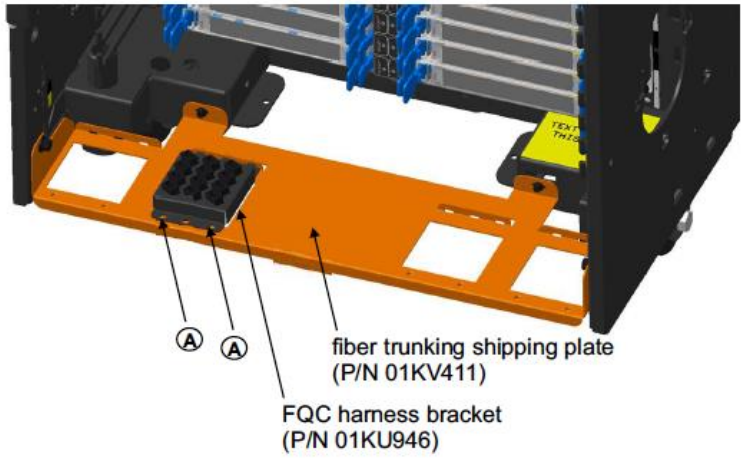

Figure 5: Bottom Exit Cabling Tailgate

IBM has offered tailgates for a variety of generations of IBM Z systems. Tailgates in the past have offered the ability to support and protect the cables that are exiting the system.

The tailgates offered today are specifically designed for cushioning the exiting cables as well as preventing or minimizing airflow recirculation within the system.

These bracket assemblies are only available and installed on the rear of the system. With Bottom Exit Cabling there can be no cable egress in the front of the z14 ZR1 or LinuxONE Rockhopper II system.

I/O feature cables and connectors

The **IBM Facilities Cabling Services** fiber transport system offers a total cable solution service to help with cable ordering requirements. These services can include the requirements for all of the protocols and media types that are supported (for example, FICON, Coupling Links, and OSA). The services can help whether the focus is the data center, SAN, LAN, or the end-to-end enterprise.

You can route I/O cables:

- Through the top of the frame using the top exit cabling (FC 7917) with FQC (Fiber Quick Connect)
- Through the top of the frame using the top exit cabling (FC 7917) without FQC
- Directly through the top of the frame, even without Top Exit Cabling
- Through the bottom of the frame using the bottom exit cabling feature (FC 7919) with FQC
- Through the bottom of the frame using the bottom exit cabling feature (FC 7919) without FQC
- Through the bottom of the frame or to the top of the frame using the spine cable management hardware (see the next page) if the 3907 contains more than one PCIe+ I/O drawers or if you are installing the 16U Reserved feature (FC 0617).

The **Fiber Quick Connect (FQC)** feature for FICON LX cabling and trunking (only) can be used on a 3907 that is installed on a raised floor or a non-raised floor. This is an optional feature. The FQC components can be on the top or the bottom of the machine, depending on whether you've order Bottom Exit Cabling or Top Exit Cabling or both.

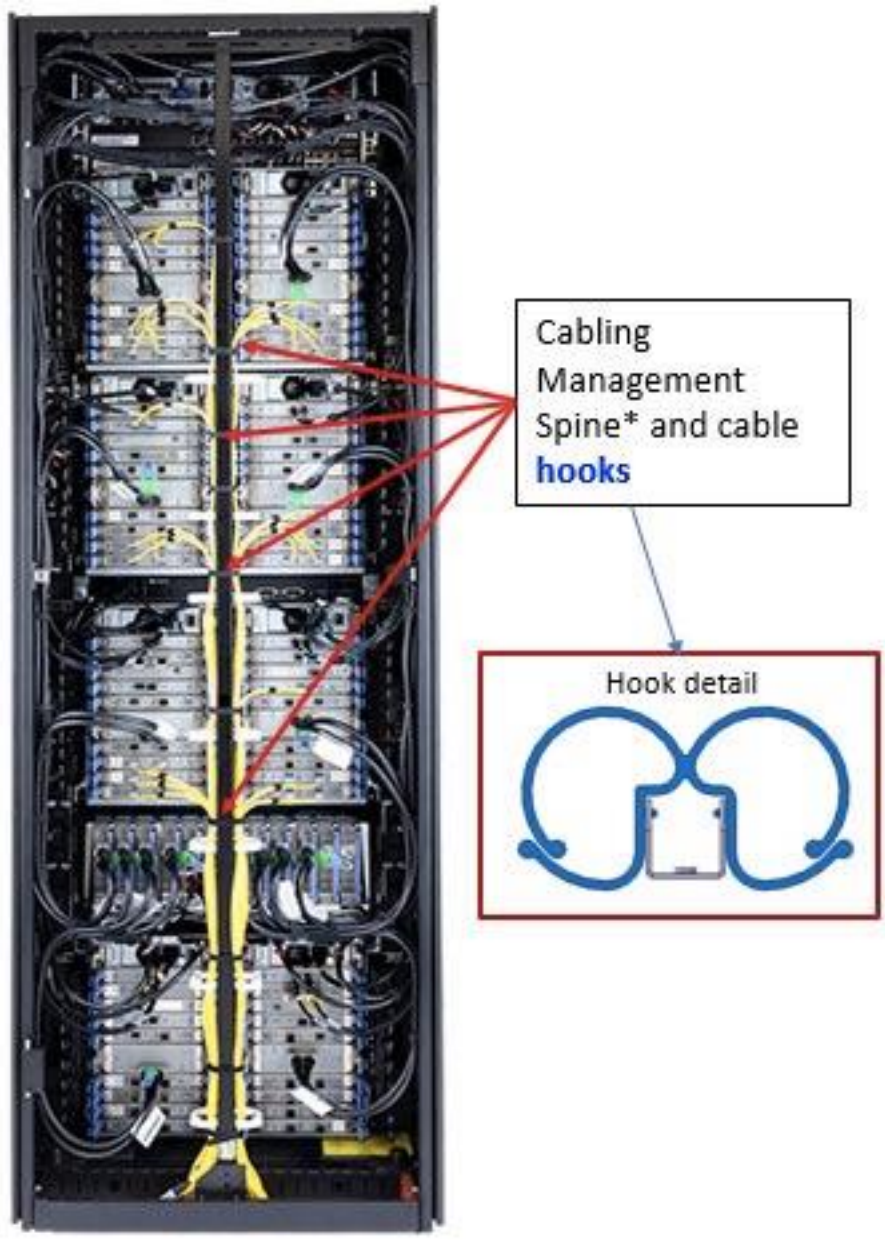

Figure 6: Rack Enclosure Cable Management System

A newly designed vertical cable management guide (“spine”) can assist with proper cable management for fiber, copper, and coupling cables. The spine is shipped with configurations that contain two to four PCIe+ I/O drawers or with the 16U Reserved feature (FC 0617). All external cabling to the system (from top or bottom) can use the spine to minimize interference with the PDUs mounted on the sides of the rack. The spine includes removable hooks that can be placed in appropriate slots throughout the length of the spine.

IBM Site and Facilities has a comprehensive set of scalable solutions to address cabling requirements, from product-level to enterprise-level for small, medium, and large enterprises. These services fall into two major categories:

- IBM Facilities Cabling Services - fiber transport system
- IBM IT Facilities Assessment, Design, and Construction Services - optimized airflow assessment for cabling.

Planning and installation services for individual fiber optic cable connections are available. An assessment and planning for IBM Fiber Transport System (FTS) trunking components can also be performed. These services are designed to be right-sized for your products or the end-to-end enterprise, and to take into consideration the requirements for all of the protocols and media types supported on z14, LinuxONE and older IBM Z servers (for example, FICON, Coupling Links, OSA-Express) whether the focus is the data center, the Storage Area Network (SAN), the Local Area Network (LAN), or the end-to-end enterprise.

IBM Site and Facilities are designed to deliver convenient, packaged services to help reduce the complexity of planning, ordering, and installing fiber optic cables. The appropriate fiber cabling is selected based upon the product requirements and the installed fiber plant.

z14 ZR1 and LinuxONE Rockhopper II Height Considerations

Always consult the Installation Manual for Physical Planning publication.

Height Reduction:
If you have doorways that will not fit the 3907, you should order FC9975. This reduces the frame height to 1900 mm (74.8 in). With FC9975, the 2U top hat, the primary Support Element, and the alternate Support Element are shipped in separate boxes.

Height Reduction adds time to the installation process and should be selected only when absolutely necessary for delivery clearance purposes. FC9975 should be ordered for openings less than 2032 mm (80.0 in) high.

The top exit cabling enclosure is installed on the top of the machine in the rear. The following table provides the dimensions and weight for the top exit cabling enclosure (FC7917):

Weight	Width	Depth	Height
5.4 kg (12 lbs)	599 mm (23.58 in)	310 mm (12.20 in)	117.5 mm (4.63 in)

Note: Ensure that there is enough headroom for cabling to exit the top of the z14 and easily be routed into overhead trays.