IBM® Installation Instruction

Transferring Spectrum Fusion HCI Components to Another Rack

Table of Contents

PN *TBD*	EC H48789A				
1 of 13	12/08/2022				

© *Copyright IBM Corp. 2022*

PN *TBD*	EC H48789A				
2 of 13	12/08/2022				

Introduction

The purpose of these instructions is to guide the work of removing all the components from a Spectrum Fusion HCI rack and moving all of them to another rack. The customer must purchase RPQ 8S1898 for the rack before the contents of that rack can be transferred.

Required Tools

- Phillips head screwdriver (PH1)
- Socket wrench with 9/32/, 5/16 and 10mm sockets and, optionally, a 3-inch extension
- Data center server lifter (if GPU servers are included in the source rack)
- Torx screwdriver, size T-15 (if console is present)

Rack Transfer Kit Contents

This kit contains parts that will be make the transfer of components easier and parts that can be replacements for parts that may be damaged when removed from the source rack.

1) Labels
   a) Rack label that has the IBM Rack MTM and serial number that was programmed in during MGEN for Call Home purposes
   b) Sheet of Point-to-Point networking cable labels to for assist with cabling in case labels are damaged when the cables are moved.
   c) Sheet of labels for power cords so that replacement power cords can be given the same labels as the original cables
2) PDU Mounting Brackets
   a) The four PDUs in the side pockets of the Spectrum Fusion HCI rack will likely need to be moved and mounted horizontally in the target rack. The PDUs will each need a pair of mounting brackets.

U	Component
42	2U Filler
41	
40	2U Filler
39	
38	2U Filler
37	
36	1U PDU (horizontally mounted)
35	1U PDU (horizontally mounted)
34	2U Filler
33	
32	Storage/Compute Server
31	Storage/Compute Server
30	Storage/Compute Server
29	Storage/Compute Server
28	GPU Server with 3x GPU PCIe Gen 4 adapter cards
27	
26	GPU Server with 3x GPU PCIe Gen 4 adapter cards
25	
24	AFM Node
23	AFM Node
22	KVM Service Console
21	32-port 100 GbE Ethernet Switch
20	32-port 100 GbE Ethernet Switch
19	48-port 1 GbE Management Ethernet Switch
18	48-port 1 GbE Management Ethernet Switch
17	Storage/Compute Server
16	Storage/Compute Server
15	Storage/Compute Server
14	Storage/Compute Server
13	Storage/Compute Server
12	Storage/Compute Server
11	Storage/Compute Server
10	Storage/Compute Server
9	Storage/Compute Server
8	Storage/Compute Server
7	Storage/Compute Server
6	Storage/Compute Server
5	Storage/Compute Server
4	Storage/Compute Server
3	Storage/Compute Server
2	Storage/Compute Server
1	Reserve 1U Space at Bottom

(blue)	Required
(orange)	Optional

Figure 1: Component layout of a Spectrum Fusion HCI rack

PN *TBD* 3 of 13	EC H48789A 12/08/2022				

b) PDUs will be mounted horizontally in RU37 to RU40 of the target rack.
3) Additional rail kits for servers
4) Nut clips - both round hole clips and square hole clips that could be needed for fastening the PDUs
5) Screws
6) Velcro strap kit to replace any Velcro straps that become damaged when moved
7) Longer power cables for connecting components to PDUs that were moved from the side pockets of the source rack to be horizontally mounted in the upper part of the target rack.
8) This documentation in printed form.

Steps

Preparation

1) Confirm all power is removed from both racks.
2) Lower all four stabilizer legs of both the source and target racks.
3) If not already installed, install the tilt plate at the bottom front of both source and target rack.
4) Remove the front and rear doors and the "stud" that the back door latch connects to.
5) Remove the rack side covers.
6) Remove the front fillers.
7) The ends of unused network cables may be covered in plastic bubble wrap to protect them. Do not remove the bubble wrap; leave it in place until the final setup of the rack takes place in the client data center.

Figure 2: Rear view of an IBM Spectrum Fusion HCI rack

Disconnecting Network and Power Cables from Components

1) Unplug all network cables from the servers. (The network cables are held in place by Velcro.)
2) Unplug all the network cables from the four switches taking care to keep all the cables attached to the cable management arm with the provided Velcro strap.
3) Unplug all the power cables from both power supplies on the servers and switches.

PN *TBD* 4 of 13	EC H48789A 12/08/2022				

4) Unplug the single power cord for the console (if there is a console present).

5) If a console is present, unplug the video cable and USB cable of the console from the server in RU7. Note that these cables do not detach from the console.

Remove and Transfer the Servers Below RU18

When transferring the server and switches and console, note that the original location of the components must be preserved in the target rack. If components are relocated, the network cables my no longer reach to required ports.

1) Install the 2 pairs of provided in the ship group kit at positions RU2 and RU3 of the target rack using the provided clips (also in the ship group kit) appropriate for the hole shape (round or square) of the target rack.

2) Remove the server from RU2 of the source rack and put it onto the rails in RU2 of the target rack and push it all the way into the rack until it locks.

3) Remove the server from RU3 and put it onto the rails in RU3 of the target rack and push it all the way into the rack until it locks.

4) Remove the locking screw from the back of the rails RU2 and RU3 of the source rack (the rails that had been supported the servers just moved) and then remove the rails and put these 2 pairs of rails at RU4 and RU5 of the target rack using the
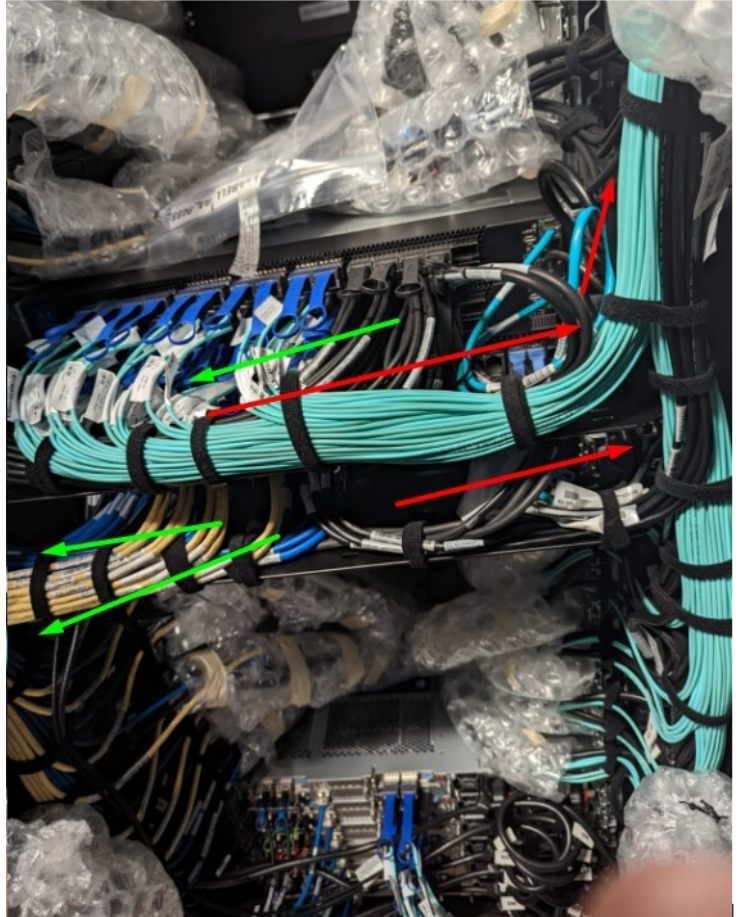

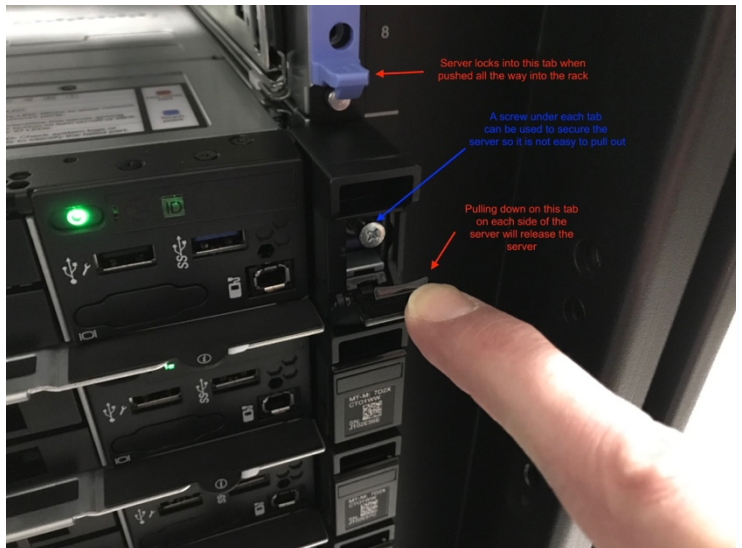*Figure 3: Flow of Network Cables to the Left and the Right*

Figure 4: Locking server rails

PN *TBD* 5 of 13	EC H48789A 12/08/2022				

© Copyright IBM Corp.2022

provided clips appropriate for the hole shape (round or square) of the target rack.

5) Remove the server from RU4 and put it onto the rails in RU4 of the target rack and push it all the way into the rack until it locks.

6) Remove the server from RU5 and put it onto the rails in RU5 of the target rack and push it all the way into the rack until it locks.

7) Repeat the above steps for all servers up to position RU17.

Remove and Transfer the Switches

1) Remove the 1Gb Management Switch from RU18 of the source rack
   a) Remove the switch power cords from both sides of the air vent
   b) Remove the four screws at the front of the rack that support the switch
   c) Pull the switch forward being careful to support the weight of the switch (most of the weight of the switch is at the back). The air duct is attached to the switch and will come out with the switch.
   d) Remove bracket at the back of the rack that were used to mount the switch
   e) Remove all the nuts that were used to mount the switch
2) Install the switch into RU18 of the target rack
3) Repeat the steps above the management switch at RU19, installing it in RU19 of the target rack
4) Remove the 100Gb High-Speed Switch from RU20 of the source rack
   a) Remove the switch power cords from both sides of the air vent
   b) Remove the four screws at the front of the rack that support the switch
   c) Pull the switch forward being careful to support the weight of the switch (most of the weight of the switch is at the back). The air duct is attached to the switch and will come out with the switch.
   d) Remove bracket at the back of the rack that were used to mount the switch
   e) Remove all the nuts that were used to mount the switch
5) Install the switch into RU20 of the target rack
6) Repeat the steps above the high-speed switch at RU21, installing in RU21 of the target rack

Remove and Transfer the Console

For diagrams and further helpful details for moving the rack-mounted console from the source rack to the target rack, refer to this online document:

https://www.uptyma.com/wp-content/uploads/2019/06/UPG173RM17A1URackmountEnglish.pdf

At a high level, these are the steps for removing and moving the console.

PN *TBD*	EC H48789A				
6 of 13	12/08/2022				

1) Remove the KVM console from RU22 of the source rack
   a) Pull the console out until it is fully extended
   b) Remove the two screws that attach the cable management arm using a Torx screwdriver
   c) Press the release buttons on each side of the console and then slide the console all the way out of the console rails.
   d) Click the release locks on both sides of the console rails and then push the rails back fully into the rack.
   e) Remove the two screws that hold the crossbar in place between the rails, then remove the crossbar
   f) Remove the console rails by flexing the metal tabs that lock the rails to the frame. See the instructions in the referenced PDF. This may be easier to do from the outside of the rack with the side panels removed.
2) Install the KVM console into RU22 of the target rack by reversing the steps above.

Remove and Transfer Any AFM Nodes

If AFM servers are present, they will be in RU23 and RU24. If there are no AFM servers present, then simply transfer the rails in RU23 and RU24 to the same position in the target rack for possible use in the future. Note that the rail kits used by the AFM nodes are specific to the AFM servers and should not be used with any of the other servers. If AFM servers are present, use the following steps to move them.

1) Pull forward the AFM node in RU23 and remove it from rails, setting it aside in a safe place
2) Remove the rails from RU23 and install them in RU23 of the target rack
3) Put the AFM on the rails and put it into the rack.
4) Repeat the above steps for the AFM node in RU24

Remove and Transfer Any GPU Servers

If GPU servers are present, they will be in RU25/26 and RU27/28. If there are no GPU servers present, then simply transfer the rails in RU25 and RU26 to the same position in the target rack for possible use in the future. If GPU servers are present, use the following steps to move them.

1) Remove the rails from RU16 and RU17 of the source rack and install them in RU25 and RU27 of the target rack
2) Slide the GPU node in RU25/26 forward and support it with the data center server lifter and remove it from the rails.
3) Roll the data center server lifter with the GPU node over to the target rack and install it on the rails in RU25/26.

PN *TBD*	EC H48789A				
7 of 13	12/08/2022				

4) Push the GPU server all the way in until it locks.
5) Repeat the above steps for the GPU server in RU27/28 and install it in RU27/28 of the target rack.

Remove and Transfer Any Remaining Servers

There could be as many as four more servers to move. If there are no more servers present, then simply transfer the remaining rails to the same position in the target rack for possible use in the future. If more servers are present, use the following steps to move them.

1) Remove the rails from RU25 and RU27 of the source rack and install them in RU29 and RU30 of the target rack
2) Slide the node in RU29 of the source rack forward and support it with the data center server lifter and remove it from the rails.
3) Roll the data center server lifter with the node over to the target rack and install it on the rails in RU29.
4) Push the server all the way in until it locks.
5) Repeat the above steps for the node in RU30 to install it in RU30 of the target rack.
6) Remove the rails from RU29 and RU30 of the source rack and install them in RU31 and RU32 of the target rack
7) Slide the node in RU31 of the source rack forward and support it with the data center server lifter and remove it from the rails.
8) Roll the data center server lifter with the node over to the target rack and install it on the rails in RU31.
9) Push the server all the way in until it locks.
10) Repeat the above steps for the node in RU32 to install it in RU32 of the target rack.

Remove the Network and Power Cable Bundles

1) For future reference when repositioning the cable bundles in the target rack, note the position on the bundles that aligns roughly with RU32 of the rack. This is the highest point at which servers can be positioned in the rack.
2) Undo the Velcro straps holding the cables to the server rails. On the right, this bundle contains the fibre and power cables. On the left, the bundle contains the breakout cables, power, and Cat5e cables.
3) Carefully remove the bundle of network fibre cables (teal blue) from the right-hand side of the rack by undoing the Velcro straps that hold the bundle to the rack itself (some Velcro straps only hold the bundle). Put the Velcro straps back around the bundle for reuse later
4) Remove the bundle of network cables from the left side of the rack by undoing the Velcro straps that hold the bundle to the rack itself (some Velcro straps only hold the bundle). Put the Velcro straps back around the bundle for reuse later.

PN *TBD*	EC H48789A				
8 of 13	12/08/2022				

5) Unplug all the power cables from the six PDUs. The power cable for the console doesn't detach and must be kept with the console.
6) Remove the bundle of power cables from both sides of the rack. Excluding the console power cable which was already removed along with the console itself.
7) Make a note to indicate from which side of the rack each bundle was taken. It is important that the bundles are put onto the same side of the target rack, or else the cables may not be long enough to reach their connection points.

Remove the PDUs and Transfer to the Target Rack

1) Disconnect any line cords extensions that may be attached to the PDUs in the pockets of the rack. Not all models of PDUs support these extensions, so they may not be present.
2) Refer to the instructions in the PDF document linked below about how to remove the PDUs from the source rack.

   https://www.ibm.com/docs/en/flashsystem-9x00/8.4.x?topic=STSLR9_8.4.0/com.ibm.fs9200_840.doc/rack/p9hbf_installpduplus.html

3) Assuming there are no side pockets in the target rack, the four PDUs from the pockets of the source rack need to be mounted horizontally using the mounting brackets provided in the transfer kit.
4) Mount the four PDUs in positions RU37, RU38, RU39, and RU40 and orient the PDUs such that the line cords to the supply power outlets alternate between the left and right sides of the rack.
5) Remove the PDUs from RU35 and RU36 of the source rack and mount them in RU35 and RU36 of the target rack such that the line cords to the supply power outlets are one on the left and one on the right side of the rack.
6) Optionally, reconnect any line cord extensions that were attached to the PDUs in the source rack. The extensions were provided to make it easier to attach line cords to the PDUs in the rack pockets.

Install the Power Cables

If there is any question about the PDU outlet to which the power cable for a particular component should be connected, refer to the table in the reference section, Power Cable Information, on page 12.

1) Make sure the PDUs in the target rack are **not** connected to a power source.
2) Remove the power cables from the bundles of network and power cables. Be careful to keep the remaining network cables in the bundle intact.

PN *TBD*	EC H48789A				
9 of 13	12/08/2022				

Figure 5: Example Power Cable Labels

3) Reuse as many of these power cables from the source rack as possible to reconnect the power supplies of the components to the PDUs. Some cables will not be long enough to connect the components to power because of the new locations of the PDUs near the top of the target rack. Use the power cables provided in the transfer kit as replacements for these cables that are now too short. Be sure to label these replacement power cables using the labels in the transfer kit, with matching labels at both end of the cable.

4) When running the power cables between the components and the PDUs, make sure that you choose a cable that is long enough that the cable can run up the side of the rack.

Installing the Network Cables

The last items to install are the network cable bundles.

1) Take the network cable bundle that was removed from the right side of the source rack.

2) Using the Velcro straps, fasten the bundle into position by aligning the reference mark at roughly the U32 position of the target rack. U32 is the highest point in the rack where servers are placed.

3) Using the labels on the ends of the cables as guides, reconnect each network cable to its specified port.

4) Take the network cable bundle that was removed from the left side of the source rack.

5) Using the Velcro straps, fasten the bundle into position by aligning the reference mark at roughly the U32 position of the target rack. U32 is the highest point in the rack where servers are placed.

6) Using the labels on the ends of the cables as guides, reconnect each network cable to its specified port.

Reconnect the Console

If a KVM console was included with the rack, it needs to be reconnected.

1) Reconnect the power of the console. To determine which plug to use, refer to the table in the reference section, Power Cable Information, on page 12.

2) Connect the video and USB cables of the console to the server in position RU7.

PN *TBD* 10 of 13	EC H48789A 12/08/2022				

© *Copyright IBM Corp.2022*

Final Steps

After all the components have been moved successfully and all cables have been reconnected, make a final inspection of all the connections to ensure they are in the correct location and that they are firmly in place.

Inspect the Velcro straps used to secure the cable bundles and re-adjust them to so that they hold the bundles together securely.

Reference Material

Power Cable Information

IEC 320-C13 Receptacle (PDU 5 and 6)	Product	Circuit Breaker	Phase Grouping	Power Jumper	RU Position
1		1	A	C13 to C14	
2	SR645 Server			C13 to C14	30
3	SR645 Server	2		C13 to C14	29
4	SR645 Server			C13 to C14	17
5		3	B	C13 to C14	
6	SR665 GPU Server			C13 to C14	27/28
7		4		C13 to C14	
8				C13 to C14	
9	SR665 GPU Server	5	C	C13 to C14	25/26
10				C13 to C14	
11	SR645 Server	6		C13 to C14	16
12				C13 to C14	

IEC 320-C13 Receptacle (PDU 3 and 4)	Product	Circuit Breaker	Phase Grouping	Power Jumper	RU Position
1		1	A	C13 to C14	
2	SR645 Server			C13 to C14	15
3	SR645 Server	2		C13 to C14	14
4	SR645 Server			C13 to C14	13
5	SR645 Server	3	B	C13 to C14	12
6				C13 to C14	
7	SR645 Server	4		C13 to C14	11
8	SR645 Server			C13 to C15	10
9		5	C	C13 to C14	
10	SR645 Server			C13 to C14	9
11	SR630 AFM Server	6		C13 to C14	24
12	SR630 AFM Server			C13 to C14	23

PN *TBD* 12 of 13	EC H48789A 12/08/2022				

IEC 320-C13 Receptacle (PDU 1 and 2)	Product	Circuit Breaker	Phase Grouping	Power Jumper	RU Position
1	KVM Console	1	A	C13 to C14	22
2	SR645 Server			C13 to C14	8
3	SN3700C Switch	2		C13 to C14	21
4	SN3700C Switch			C13 to C14	20
5	AS4610 Switch	3	B	C13 to C14	19
6	AS4610 Switch			C13 to C14	18
7	SR645 Server	4		C13 to C14	7
8	SR645 Server			C13 to C15	6
9	SR645 Server	5	C	C13 to C14	5
10	SR645 Server			C13 to C14	4
11	SR645 Server	6		C13 to C14	3
12	SR645 Server			C13 to C14	2

PN *TBD*	EC H48789A				
13 of 13	12/08/2022				