

# Reporting enhancements to RMF Parallel Sysplex InfiniBand and InterSystem Channel-3 Coupling Facility links on IBM zEnterprise EC12

APAR OA37826 introduces RMF support for the gathering and reporting of coupling facility link characteristics for channel paths of type Parallel Sysplex InfiniBand – PSIFB (CIB) and InterSystem Channel-3 – ISC-3 (CFP) on IBM zEnterprise EC12 (zEC12) servers. The requirements of the support are as follows:

- To report or display the additional channel path information for directly-connected CFs, z/OS must be running on a zEC12 processor.
- To report or display the additional channel path information for remotely-connected CFs, the directly-connected CF must be running on a zEC12 processor (CFLEVEL 18 or higher).

For full exploitation of this new support in a sysplex environment it is necessary to install APAR OA37826 on all systems of the sysplex.

This article includes details on the enhancements as well as sample reports from the zPET environment.

The following reports have been updated:

1. Monitor I – Coupling Facility Activity Report
2. Monitor III – Coupling Facility Systems Report
3. RMF Distributed Data Server – Coupling Facility Systems View Report available through the RMF Data Portal

## Monitor I – Coupling Facility Activity Report

The Coupling Facility Activity report is enhanced with the addition of a CHANNEL PATH DETAILS section to the:

- SUBCHANNEL ACTIVITY report, where it lists each channel path configured in a reported coupling facility by ID and type. For CIB and CFP links its operation mode, degraded status, distance, physical channel ID, HCA ID and port and the IDs of accessible I/O processors is shown.

- CF TO CF ACTIVITY report, where it lists each channel path connected to a remote coupling facility by ID and type. Operation mode, degraded status, and distance are provided for CIB and CFP coupling links.

**Note:** A system that does not have at least one CIB or CFP channel path defined as available is not included in the Channel Path Detail list.

For example, Figure 1 shows the CHANNEL PATH DETAILS section of the SUBCHANNEL ACTIVITY report for a z196 CF. Both systems, Z2 and Z4, reside on a zEC12.

CHANNEL PATH DETAILS											
SYSTEM NAME	ID	TYPE	OPERATION MODE		DEGRADED	DISTANCE	PCHID	HCA ID	HCA PORT	-----	IOP IDS
Z2	A4	CIB	12X	IFB	HCA3-0	Y	<1	70A	0002	01	0F
	A5	CIB	12X	IFB	HCA3-0	Y	<1	70B	0002	01	0F
	A6	CIB	12X	IFB	HCA3-0	Y	<1	70C	0002	01	0F
	A7	CIB	12X	IFB	HCA3-0	Y	<1	70D	0002	01	0F
Z4	A4	CIB	12X	IFB	HCA3-0	Y	<1	70A	0002	01	0F
	A5	CIB	12X	IFB	HCA3-0	Y	<1	70B	0002	01	0F
	A6	CIB	12X	IFB	HCA3-0	Y	<1	70C	0002	01	0F
	A7	CIB	12X	IFB	HCA3-0	Y	<1	70D	0002	01	0F

Figure 1: CHANNEL PATH DETAILS section of the SUBCHANNEL ACTIVITY report for a z196 CF.

On the other hand, looking at the CHANNEL PATH DETAILS section of the CF TO CF report for the same z196 CF, you don't see the new details. Remember that to report or display the additional channel path information for remotely-connected CFs, the directly-connected CF must be running on a zEC12 processor (CFLEVEL 18 or higher) and in this case it is on a z196 (Figure 2).

CHANNEL PATH DETAILS						
PEER CF	ID	TYPE	OPERATION MODE		DEGRADED	DISTANCE
CF21	A4	CIB				
	A5	CIB				
	A6	CIB				
	A7	CIB				
CF23	9E	CIB				
	9F	CIB				
	B0	CIB				
	B1	CIB				
	B2	CIB				
	B3	CIB				

Figure 2: CHANNEL PATH DETAILS section of the CF TO CF report for a z196 CF.

In contrast, here is what the CHANNEL PATH DETAILS section of the CF TO CF report for our zEC12 CF looks like with the additional details (Figure 3):

CHANNEL PATH DETAILS							
PEER CF	ID	TYPE	OPERATION MODE			DEGRADED	DISTANCE
CF22	A4	CIB	12X	IFB	HCA3-0	Y	<1
	A5	CIB	12X	IFB	HCA3-0	Y	<1
	A6	CIB	12X	IFB	HCA3-0	Y	<1
	A7	CIB	12X	IFB	HCA3-0	Y	<1
CF23	AC	CIB	12X	IFB	HCA3-0	N	<1
	AD	CIB	12X	IFB	HCA3-0	N	<1
	AE	CIB	12X	IFB	HCA3-0	N	<1
	AF	CIB	12X	IFB	HCA3-0	N	<1

Figure 3: CHANNEL PATH DETAILS section of the CF TO CF report for a zEC12 CF

## Monitor III – Coupling Facility Systems Report

The Subchannels and Paths pop-up panel of the RMF Monitor III Coupling Facility Systems Report is modified to show a scrollable list of all channel paths that are available to the listed coupling facility.

Here are some of the current coupling facilities in our Plex 1:

----- Coupling Facility -----	----- Processor -----			Request	- Storage -							
Name	Type	Model	Lvl	Dyn	Util%	Def	Shr	Wgt	Effect	Rate	Size	Avail
CF2	2827	HA1	18	OFF	36.8	4	0		4.0	168K	200G	126G
CF3	2817	M80	17	OFF	32.2	4	0		4.0	96196	160G	112G
CF4	2097	E64	16	OFF	32.9	4	0		4.0	89914	160G	93G

Note that CF2 resides in a zEnterprise EC12, CF3 resides in a zEnterprise 196 and CF4 resides in a System z10.

To get to the Subchannels and Paths pop-up panel in RMF Monitor III, do the following:

1. From the RMF Monitor III Primary Menu, choose option S for Sysplex reports.
2. From the Sysplex reports, choose option 6 for Coupling Facility systems report.
3. Place your cursor under the system on which you want to view the Subchannel and Paths' report and hit enter.

For example, let's look at system JB0 (zEC12) to CF3 (z196) 'Subchannels and Paths' report. We expect to see the new details since JB0 is on a zEC12 even though CF3 is on a z196, and we do:

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RMF Coupling Facility - Subchannels and Paths

Press Enter to return to the Report panel.

Details for System      : JB0
Coupling Facility      : CF3

Subchannels  Generated : 49
              In Use   : 40
              Max      : 49

```

Channel Path Details:

ID	Type	Operation Mode	Deg	Distance	PCHID	---HCA---		ID Port	--IOP IDs--
									More: +
01	CFP	2Gbit			0 0181			0F	
04	CFP	2Gbit			0 0191			04	
05	CFP	2Gbit			0 0198			04	
A0	CIB	12x IFB HCA3-O	N		<1 070C	0002	01	0F	
A2	CIB	12x IFB HCA3-O	N		<1 070E	0002	01	0F	

## RMF Distributed Data Server – Coupling Facility Systems View Report available through the RMF Data Portal

From the RMF Data Portal, go to Explore and then choose sysplex level metrics, as shown in Figure 4.



Figure 4: Explore section of the RMF Data Portal

Next choose CFSYS – Coupling Facility Systems View report as shown in Figure 5.



Figure 5: Partial list of the sysplex level RMF Reports available in RMF Data Portal

CFSYS report is very large, and complete screen shots will not fit here. Basically you get the same details you get in RMF Monitor I and III reports. For example Figure 6 is a subset of the data available where each row represents a single LPAR that is connected to the CF in question. In the actual report below columns are repeated for each path that exists between an LPAR and the CF the report is for.

Path1 ID	Path1 Type	Path1 Operation Mode	Path1 Degraded	Path1 Distance	Path1 PCHID	Path1 HCA ID	Path1 HCA port number	Path1 IOP IDs
C6	CIB	12x IFB HCA2-O	N	<1	0726	0016	02	07
C6	CIB	12x IFB HCA2-O	N	<1	0726	0016	02	07
C6	CIB	12x IFB HCA2-O	N	<1	0726	0016	02	07
C6	CIB	12x IFB HCA2-O	N	<1	0726	0016	02	07

*Figure 6: Part of the CFSYS report in RMF Data Portal*