z/OS 2.4 IBM Education Assistance (IEA)

Solution (Epic) Name: LPAR Group Control Support

Element(s)/Component(s): BCPii

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Agenda

- Trademarks
- Session Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Session Summary
- Appendix

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Session Objectives

- Discuss new BCPii support on behalf of LPAR Groups and Group Profiles
- Usage and example related to accessing LPAR Groups and Group Profiles

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Overview

- Who (Audience)
  - z/OS BCPii customers

- What (Solution)
  - Support for LPAR Groups and Group Profiles
  - These enhancements will allow an application to connect to both group types, list corresponding group members, and query and set attributes specific to the group type.

- Wow (Benefit / Value, Need Addressed)
  - To allow simplified programmatic control over LPAR Groups, both live and saved profiles, in the same manner that BCPii already provides for other hardware configuration entities.

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Usage & Invocation

BCPii added support for LPAR Groups and Group Profiles defined on a CPC

LPAR Group (**LPAR Capacity Group**)

- *Provides the user with real time information regarding what is currently configured for the group*
- *Updates will take effect immediately for all active images associated with the group*

Group Profile

- *These profiles allow the user to provide and alter information that will be used when an image is activated*
- *The updates will not take effect until all active CPC images that correspond to the referenced Group Profile are deactivated and then re-activated*

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Usage & Invocation – Security Setup

Both LPAR Groups and Group Profiles are entities associated with a particular CPC.

In order for a BCPii application to interact with these entities, BCPii needs a profile defined in the FACILITY resource class that represents the particular CPC:

`HWI.TARGET.`*`netid.nau`*

where *`netid.nau`* represents the 3- to 17-character SNA name of the particular CPC

The access level required for the particular profile depends on the service that the BCPii application attempts to issue. The application needs READ access in order to LIST, CONNECT, or QUERY and it needs UPDATE access in order to SET.

For example, if user Joe needs the ability to QUERY attributes associated with a specific Group Profile on CPC NET1.CPC001, the following RACF commands would be issued:

```
RDEFINE FACILITY HWI.TARGET.NET1.CPC001 UACC(NONE)
PERMIT HWI.TARGET.NET1.CPC001 CLASS(FACILITY) ID(JOE) ACCESS(READ)
SETROPTS RACLIST(FACILITY) REFRESH
```

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Usage & Invocation – LPAR Groups

LPAR Groups

- Use **HWILIST** with ListType **HWI_LIST_LPAR_GROUPS** to list the LPAR Groups available on a CPC
- Use **HWICONN** with ConnectType of **HWI_LPAR_GROUP** to connect to a specific LPAR Group available on a CPC
- Use **HWILIST** with ListType **HWI_LIST_IMAGES** to list the CPC images (LPARs) associated with a specific LPAR Group
- The following attributes are supported for **HWIQUERY / HWISET/ HWISET2** request associated with an LPAR Group

Attributes	Supported for HWIQUERY	Supported for HWISET/ HWISET2
HWI_NAME	x	
HWI_OBJTYPE	x	
HWI_GROUP_PROFILE_CAPACITY	x	x
HWI_GROUP_PROF_ABSCAP	x	x
HWI_GROUP_PROF_ABSCAPVAL	x	x
HWI_GROUP_PROF_ICFABSCAP	x	x
HWI_GROUP_PROF_ICFABSCAPVAL	x	x
HWI_GROUP_PROF_IFLABSCAP	x	x
HWI_GROUP_PROF_IFLABSCAPVAL	x	x
HWI_GROUP_PROF_IIPABSCAP	x	x
HWI_GROUP_PROF_IIPABSCAPVAL	x	x

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Usage & Invocation – Group Profiles

Group Profiles

- Use **HWILIST** with ListType **HWI_LIST_GROUP_PROFILES** to list the Group Profiles available on a CPC
- Use **HWICONN** with ConnectType of **HWI_GROUP_PROFILES** to connect to a specific Group Profile available on a CPC
- Use **HWILIST** with ListType **HWI_LIST_IMAGE_ACTPROF** to list the image activation profiles associated with a specific Group Profile
- The following attributes are supported for **HWIQUERY / HWISET/ HWISET2** request associated with an Group Profile

Attributes	Supported for HWIQUERY	Supported for HWISET/ HWISET2
HWI_NAME	x	
HWI_OBJTYPE	x	
HWI_PROFILE_DESCRIPTION	x	x
HWI_GROUP_PROFILE_CAPACITY	x	x
HWI_GROUP_PROF_ABSCAP	x	x
HWI_GROUP_PROF_ABSCAPVAL	x	x
HWI_GROUP_PROF_ICFABSCAP	x	x
HWI_GROUP_PROF_ICFABSCAPVAL	x	x
HWI_GROUP_PROF_IFLABSCAP	x	x
HWI_GROUP_PROF_IFLABSCAPVAL	x	x
HWI_GROUP_PROF_IIPABSCAP	x	x
HWI_GROUP_PROF_IIPABSCAPVAL	x	x

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Usage & Invocation

Attribute definitions specific for LPAR Group and Group Profile support:

Attributes	Description
HWI_NAME	The name of the object the LPAR Group or Group profile.
HWI_OBJTYPE	The type of object the group profile object represents.
HWI_PROFILE_DESCRIPTION	The description of the profile.
HWI_GROUP_PROFILE_CAPACITY	The capacity value of the object the LPAR Group or Group profile represents.
HWI_GROUP_PROF_ABSCAP	Used to enable/disable absolute capping for General Purpose Processors.
HWI_GROUP_PROF_ABSCAPVAL	The value used for absolute capping for General Purpose Processors.
HWI_GROUP_PROF_ICFABSCAP	Used to enable/disable absolute capping for Internal Coupling Facility (ICF) processors.
HWI_GROUP_PROF_ICFABSCAPVAL	The value used for Internal Coupling Facility (ICF) absolute capping.
HWI_GROUP_PROF_IFLABSCAP	Used to enable/disable absolute capping for Integrated Facility for Linux (IFL) processors.
HWI_GROUP_PROF_IFLABSCAPVAL	The value used for Integrated Facility for Linux (IFL) absolute capping.
HWI_GROUP_PROF_IIPABSCAP	Used to enable/disable absolute capping for z Integrated Information Processor (zIIP) processors.
HWI_GROUP_PROF_IIPABSCAPVAL	The value used for z Integrated Information Processor (zIIP) absolute capping.

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Usage & Invocation

Example code snippets listing the image activation profile associated with a specific Group Profile:

```
...
ListType = HWI_LIST_GROUP_PROFILES
address bcpii  "hwilist
                ReturnCode
                CPCConnectToken
                ListType
                GRPList.
                DiagArea."
...
GRPName = GRPList.4
...

ConnectType = HWI_GROUP_PROFILE
ConnectTypeValue = left( strip(GRPName), 8 )
address bcpii "hwiconn
                ReturnCode
                CPCConnectToken
                GRPConnectToken
                ConnectType
                ConnectTypeValue
                DiagArea."
...

ListType = HWI_LIST_IMAGE_ACTPROF
address bcpii "hwilist
                ReturnCode
                GRPConnectToken
                ListType
                myQueryParm.
                DiagArea."
```

First you want to list the Group Profiles available on the CPC and obtain the name of the profile you're interested in

Once the specific Group Profile is identified, you want to connect to it which will provide you with a connection token associated with the Group Profile

Now you can issue a request to list the Image Activation Profiles associated with the specified Group Profile

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Interactions & Dependencies

- To exploit this item, all systems in the Plex must be at the new z/OS level: No

- Software Dependencies
  - None

- Hardware Dependencies
  - LPAR Groups: only available targeting z14 and higher with the appropriate micro code update
  - Group Profiles:
    - LIST image activation profiles: available targeting z14 and higher with the appropriate micro code update
    - All other attribute support was introduced various times from z9 through z13 GA2, consult the IBM Z SNMP Application Programming Interfaces for further details

- Exploiters
  - None

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Session Summary

- In z/OS 2.4 BCPii introduced support for query and modification of LPAR Groups and Group Profiles. This allows the user to adjust capacity settings associated with LPAR Groups in real time and for future image activations.

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Appendix

- Publication References
  - IBM Z/OS MVS Programming: Callable Services for High-Level Languages
  - IBM Z SNMP Application Programming Interfaces

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