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Deck Migration Function

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Extensions to the Deck Migration Function

The migration function, originally intended to allow customers a one-time step conversion of MVSCP and IOCP input data set to the IODF, is being used more and more often as a capability to make configuration changes with an editor in a data set. By running the conversion process using the incremental update capability of the migration batch utility, it is even possible to change the configuration definitions without using the HCD ISPF dialog front-end.

The reasons for the migration extension range from performance to usability aspects:

- Entering the dialog and making the definitions manually may take more time than starting a job which migrates a configuration deck.
- The object list panels do not show the context of the connected configuration objects. The user has to enter other panels to get the information.
- The definition task requires to follow a certain sequence (e.g. a control unit has to be defined before a device can be connected to it).

Using this approach in the past had some essential disadvantages:

- IOCP and MVSCP decks did not allow to define all configuration objects and their connections. For example, a switch object together with its ports could not be defined via this method. Also, the switch ports to which channel paths or control units are connected could not be specified in the deck.
- Not all parameters could be specified with the deck, such as serial numbers or descriptions with devices and control units. Certain devices have parameters for the operating system (private to the UIM) which could only be added via the HCD dialog, for example, the LIBRARY parameter of D/T 3490.
- Although it was possible to recreate an IOCP deck from a processor configuration, information kept in the IODF was lost. For example, the serial number and descriptions of the devices did not appear in a generated IOCP deck.

With APAR OW12423 (PTFs UW90163, UW90164, UW90165 for HCD 5.1, PTFs UW90166, UW90167 for HCD 5.2) the extended migration function removes these pitfalls.

Note: There might be cases where it is still necessary to make configuration changes directly in the HCD dialog. Examples are:

- Deleting certain configuration objects or attributes
- Generating or updating internal switch configurations

The migration function is extended to allow the specification of additional parameters in the IOCP/MVSCP input data set. Analogously, when building an IOCP input data set from the IODF, information is generated which describes the additional parameters of the configuration objects.

The additional information consist of

- Processor description
- Processor serial number
- Processor SNA address
- Partition description
- Channel path description
- Coupling facility (CF) connection information
- Entry switch/port connected to a channel path
- Switch/port connected to a control unit
- CU serial number
- CU description
- Device serial number
- Device description
- Device user parameters
- Operating system description
- EDT description
- Switch information

The syntax of the extended keywords and statements are checked during the assembly step. A syntax error results in migration return code 12, the flagged statements are shown in the LISTING data set together with an MNOTE indicating the error.

Validation checking of syntactically correct statements is done via the HCD validation routines.

New Parameters and Statements

The ID statement is extended by the

- DESC parameter which allows the specification of a description for the processor
If specified, the processor description is added or updated.
- SERIAL parameter which allows the specification of the processor serial number
If specified, the serial number is added or updated.
- SNAADDR parameter which allows to specify the SNA address (network name, system name) for a processor in a CECPLEX
If specified, the SNA address is added or updated.

Example:

```
ID      MSG1='Message 1',          *
        SERIAL=1234569021,       *
        DESC='This is the first processor'
```

The IOCONFIG statement is extended by the

- DESC parameter which allows the specification of a description for the operating system
If specified, the OS description is added or updated.

Example: IOCONFIGID=01,DESC='MVS 5.1 LPAR system'

The RESOURCE statement is extended by the DESCL keyword which allows to specify descriptions for all the partitions defined.

Example:

```
RESOURCE PART=(LP1,1),(LP2,2),(CF1,3), *
          DESCL=('Logical Partition 1', *
                'System 3', *
                'Coupling Facility')
```

The CHPID statement is extended by the

- DESC parameter which allows the specification of a description
- SWPORT parameter which allows the specification of entry switch ports
- TPATH parameter which allows the specification of a connected CF channel path and the CFS control unit and CFS devices used for the connection

Example:

```
CHPID PATH=(35),SWITCH=03,TYPE=CNC, *
       SWPORT=((03,FB)), *
       DESC='Chpid connected to switch'

CHPID PATH=(10),TYPE=CFS,PART=LP4, *
       TPATH=(PROCL,11,FFFE,FFF0)
```

The CNTLUNIT statement is extended by the

- DESC parameter which allows the specification of a description
- SERIAL parameter which allows the specification of a serial number
- SWPORT parameter which allows the specification of connected switch ports

Example:

```
CNTLUNIT CUNUMBR=9032,PATH=(35), *
         UNITADD=((00,256)), LINK=FE, *
         UNIT=9032,SWPORT=(03,FE), *
         SERIAL=0123456789, *
         DESC='Switch description'
```

The IODEVICE statement is extended by the

- DESC parameter which allows the specification of a description
- SERIAL parameter which allows the specification of a serial number
- ZZERPRM parameter which allows the specification of OS parameters private to a UIM

Example:

```
IODEVICE ADDRESS=0111,UNIT=3490, *
         CUNUMBR=777,ZZERPRM=(LIBRARY,YES)

IODEVICE ADDRESS=0112,UNIT=NCP, *
         CUNUMBR=778,ADAPTER=TYPE1,ZZERPRM=( *
         (PUTYPE,2),(TIMEOUT,840),(DELAY,4), *
         (TPSFPEAT,NONE))
```

The EDT statement is extended by the

- DESC parameter which allows the specification of a description

Example: EDTID=00,DESC='Eligible Device Table 1'

A new SWITCH control statement is accepted which allows to define a SWITCH to the IODF. It allows you to specify

- SWID parameter which defines the switch id (mandatory)
- UNIT parameter which defines the switch unit (mandatory)
- MODEL parameter which defines the switch model (optional)
- DESC parameter which allows the specification of a description (optional)
- SERIAL parameter which allows the specification of a serial number (optional)
- PORT parameter which defines the installed ports (default from UIM, optional)
- SWPORT parameter which allows to specify the chained switch connections (optional)

Example:

```
SWITCH SWID=02,UNIT=9032,MODEL=3, *
       PORT=((80,FB)), *
       DESC='9032-3 switch, installed 07/15/95', *
       SWPORT=(C0,01,D1)
```

Generating IOCP Input Data Sets

When generating an IOCP deck from an IODF, HCD generates the additional keywords if the information is available. In order to allow the deck to be processed by IOCP, the new parameters contain the special HCD tag '\$HCD\$' in front of the data set record which is interpreted by IOCP as a comment (and therefore ignored).

Additionally, whole control statements are tagged with the string '\$HCD\$' starting in column 1 before the operation code.

When remigrating the deck into the IODF, HCD recognizes the HCD tags and processes the additional information. This processing is only done if a corresponding HCD profile contains the following entry:

```
MIGRATE_EXTENDED = YES
```

Specifying MIGRATE_EXTENDED = NO (which is default) will avoid generating the additional keywords during IOCP data set build. Also, the migration function would ignore the commented '*\$HCDC' and '*\$HCD\$' tags.

New Messages

For each CHPID statement which replaces a channel path in the processor configuration, warning message CBDA578I is given indicating that all connections of the channel path are redefined by the input control statements.

For each CNTLUNIT statement which replaces a control unit in the processor configuration, warning message CBDA577I is given indicating that the whole LCU of the control unit, that is, the set of control units that share devices among each other and the devices, are redefined by the input control statements.

If the parsing macro used to parse the input control statements does not match the version of the current migration function, message CBDA581I is given and the migration function is terminated.

Supported Hardware Report

The Supported HW Report is extended to contain the following for the Supported MVS Devices:

- An indication whether a device parameter is required
- An indication which parameters are private to a UIM, that is, which parameters have to be specified with keyword ZZPRM on the IODEVICE control statement for the extended migration function
- The list of possible values for a parameter if the UIM has specified a selection list for them, that is, a prompt is available in the dialog

Additional IOCP Changes

Together with APAR OW12830 (PTFs UW90176, UW90177, UW90178 for HCD 5.1, PTFs UW90179, UW90180 for HCD 5.2) which gives support for processor types 9672-Rx2 and 9672-Rx3, the generated IOCP data set contains control unit and device types of 8 characters and a device model of up to 4 characters. Such an IOCP input data set can now be processed by IOCP (with APAR OW13343) and remigrated to HCD without the need to correct the control unit and device types that exceed the 5 character UNIT and 2 character MODEL value limitation.

The generated IOCP data set now contains an all-character readable token which allows the user to preserve the dynamic capability when performing a stand-alone IOCP run on a S/390 microprocessor cluster CPC.

SPE APAR OW12830 also introduces the checking of channel packaging rules for the new processor types when building a production IODF and contains channel path conversion tables which facilitates processor upgrades from 9672-Rx1 to 9672-Rx2 or 9672-Rx3 models.

These changes are documented in the MVS/ESA Hardware Configuration Definition: Functional Enhancements, SC33-6473-00.

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