

# Setting Up a Sub-Capacity SAS<sup>®</sup> License

On newer mainframe systems, customers can subdivide the CPU capacity that they want to allow for SAS software by using logical partitions (LPAR). To accommodate this model, SAS Institute offers sub-capacity pricing for qualified customers who are upgrading their SAS software or are adding SAS workload to a large IBM mainframe (z/OS). Sub-capacity pricing is based on the capacity of a partition, that is, a subset of the full box. In order for SAS to generate a correct SETINIT for sub-capacity pricing, qualified customers need to submit system-specific information, which is described in this document. In addition, this document tells you how to find that information and how to change (if necessary) the capacity definition for logical partitions by using the Hardware Management Console (HMC).

## System-Specific Information and LPAR Capacity

To create a correct SETINIT for sub-capacity licensing on logical partitions, SAS needs the

- System Information Sequence Code (“serial number”) and LPAR information
- defined capacity setting for the logical partition (LPAR).

## Displaying System-Specific Information

Issue the following command from the LPAR system console to display the pertinent system-specific and LPAR information:

```
D M=CPU
```

Submit a copy of the entire display (as shown in Display 1) to SAS.

```
D M=CPU
IEE174I 12.01.41 DISPLAY M 944
PROCESSOR STATUS
ID CPU CR SERIAL
00 + + 02345A2066
01 + . 12345A2066

CPC ND = 002066.0A2.IBM.02.00000002345A
CPC SI = 2066.0A2.IBM.02.000000000002345A
CPC ID = 00
CPC NAME = P002345A
LP NAME = TST1 LP ID = 1
MIF ID = 1
```

Display 1. LPAR System Console

## Determining the LPAR Defined Capacity

To determine the setting for the LPAR defined capacity, follow these steps:

1. Run the following job to verify the defined capacity that is in effect on the running z/OS system. The SMF file that is used as the SMFIN DD in the SMF step must contain the time range that is specified in the START and END parameters.

```
//JOBNAME JOB
//*
//SMF EXEC PGM=IFASMFDP
//SMFIN DD DSN=SYS1.MAN1,DISP=SHR <== SET TO YOUR SMF DATASET
//RMF DD DSN=&&RMFIN,UNIT=SYSDA,SPACE=(CYL,(4,2)),DISP=(,PASS)
//SYSPRINT DD SYSOUT=*
    /* PICK RECORDS FOR ANY RMF INTERVAL. */
    /* THIS EXAMPLE PICKS UP THE 8:00 INTERVAL */
START(0759)
END(0801)
INDD(SMFIN,OPTIONS(DUMP))
OUTDD(RMF,TYPE(70))
//*
//RMF EXEC PGM=ERBRMFPP,COND=(0,LT)
//MFPINPUT DD DSN=&&RMFIN,DISP=SHR
REPORTS(CPU)
```

2. In the job's output, locate the MFR00001 output data set from the RMF step, as shown in Display 2.

```
BROWSE - MFR00001      RMF      - Page 2      Line 3      Cols 1-132
COMMAND ==>
      z/OS V1R8                SYSTEM ID T0A2                DATE 10/25/2006
                                RPT VERSION V1R8 RMF                TIME 13.45.00
```

|                                 |         |                               |
|---------------------------------|---------|-------------------------------|
| MVS PARTITION NAME              | TST1    | NUMBER OF PHYSICAL PROCESSORS |
| IMAGE CAPACITY                  | 30      | CP                            |
| NUMBER OF CONFIGURED PARTITIONS | 3       | ICF                           |
| WAIT COMPLETION                 | NO      |                               |
| DISPATCH INTERVAL               | DYNAMIC |                               |

```
----- PARTITION DATA ----- -- LOGICAL PARTITION PROCESSOR DATA --
```

| NAME       | S | WGT | ---MSU--- |     | -CAPPING-- |      | PROCESSOR- |      | ---DISPATCH TIME DATA--- |              |
|------------|---|-----|-----------|-----|------------|------|------------|------|--------------------------|--------------|
|            |   |     | DEF       | ACT | DEF        | WLM% | NUM        | TYPE | EFFECTIVE                | TOTAL        |
| TST1       | A | 10  | 30        | 2   | NO         | 0.0  | 2          | CP   | 00.01.15.130             | 00.01.19.224 |
| PROD       | A | 80  | 0         | 21  | NO         | 0.0  | 2          | CP   | 00.13.48.895             | 00.13.54.044 |
| *PHYSICAL* |   |     |           |     |            |      |            |      |                          |              |
|            |   |     |           |     |            |      |            |      | 00.00.13.264             |              |
| TOTAL      |   |     |           |     |            |      |            |      | 00.15.04.026             | 00.15.26.533 |

Display 2. MFR00001 Output Data Set and Partition Data Report

In the PARTITION DATA report, verify that the capacity setting is correct for the image. Return to SAS the defined capacity that is to be licensed. Instructions for changing the LPAR defined capacity are explained in the next section.

**Note:** A capacity definition of 0 indicates full use of the image capacity.

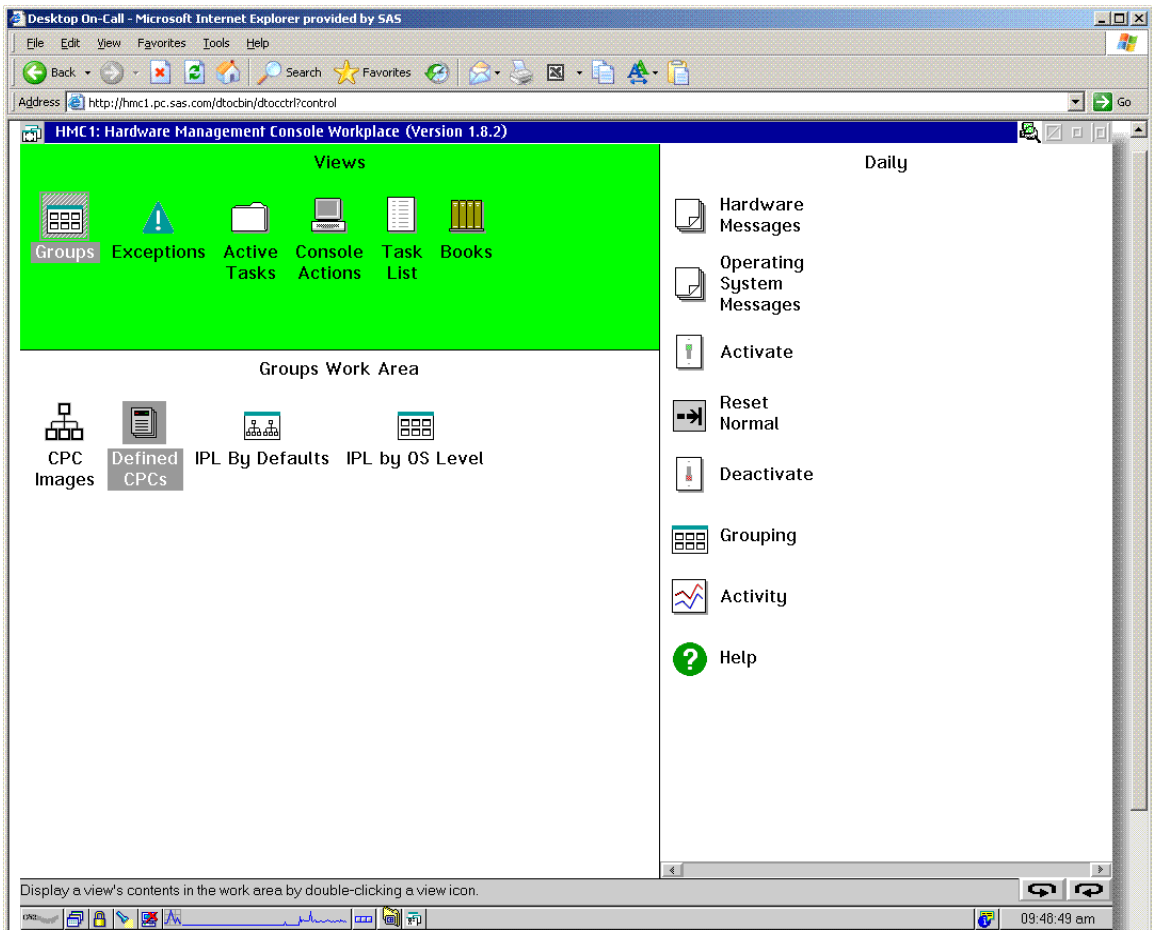
## ***Changing the LPAR Defined Capacity Using the Hardware Management Console***

You can use the Hardware Management Console (HMC) to set the defined capacity values (in millions of service units, or MSU) both dynamically and permanently in the image profile. If you change the capacity setting for an LPAR dynamically, the effect on the active LPAR is immediate. However, this setting will be lost unless the change is also propagated to the Image Profile that is used to activate the image (often done after an Image Activation function or a power-on reset function is performed).

### **Accessing the Setting for the LPAR Defined Capacity**

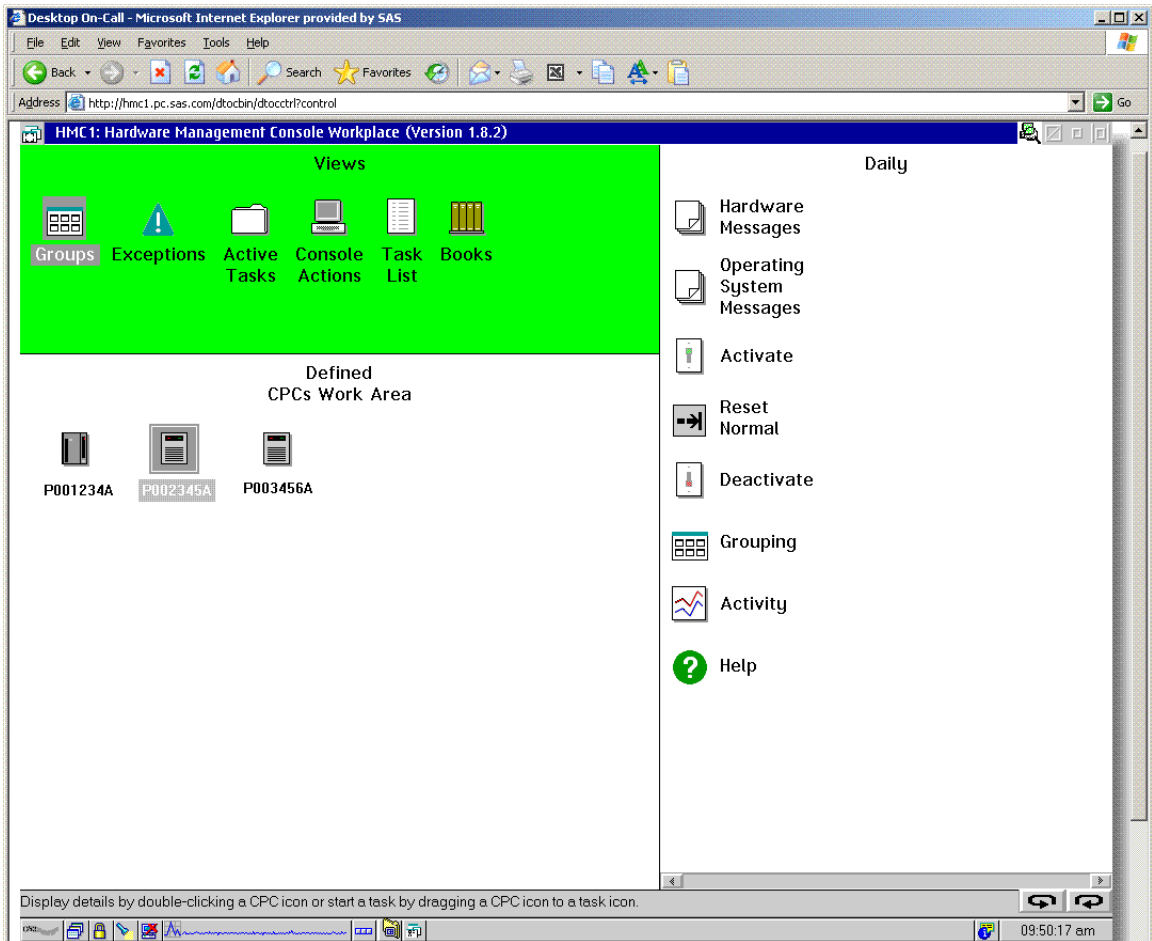
To access the setting for the LPAR defined capacity, follow these steps:

1. Log on to the HMC with a user ID that has permission to change the MSU. Usually, this ID is the SYSPROG user ID.
2. When the HMC1: Hardware Management Console Workplace appears, left double-click the `Groups` icon in the `Views` panel in the upper-left corner of the window (Display 3). After you click an icon, its background changes to gray.
3. Left double-click the `Defined CPCs` icon in the `Groups Work Area` in the lower-left panel in the window (see Display 3), which brings up the `Defined CPCs Work Area`.



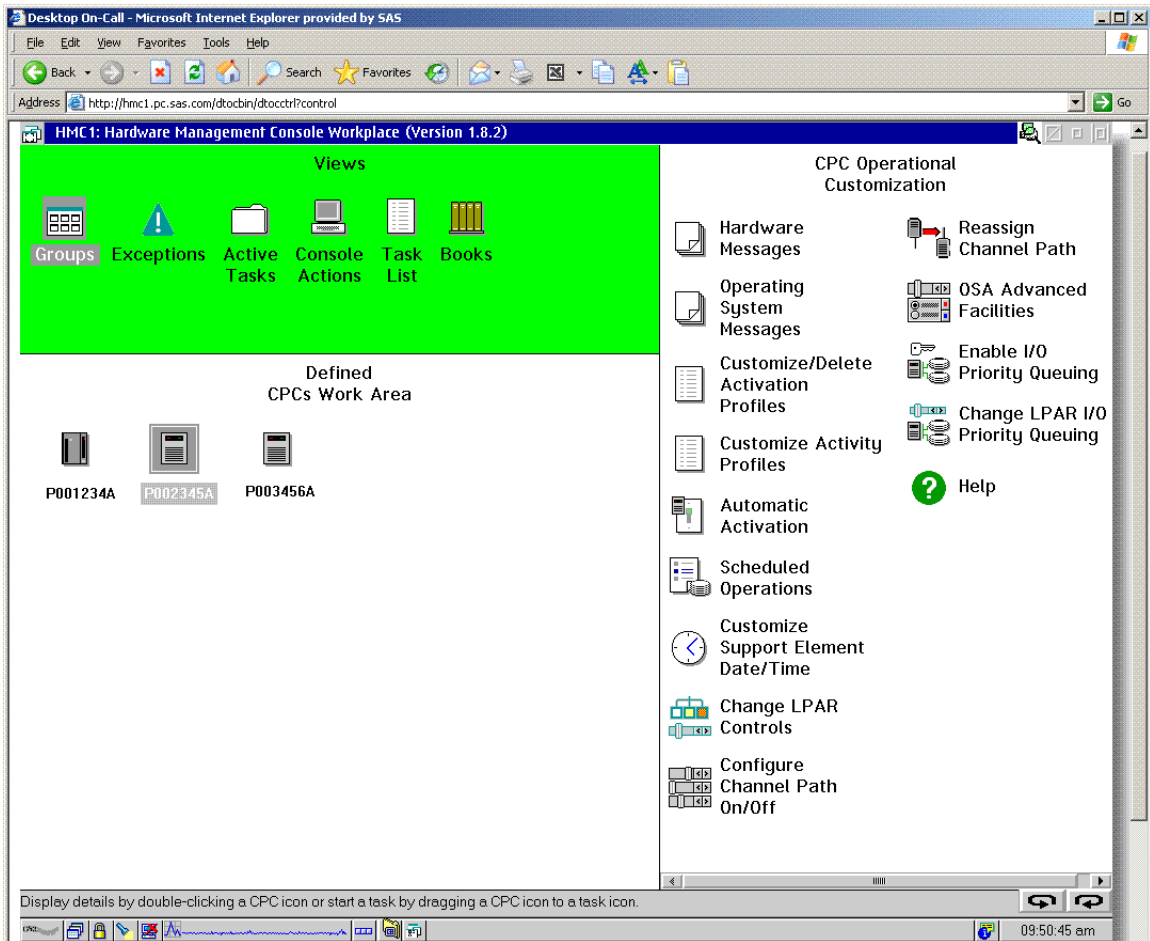
Display 3. HMC 1: Hardware Management Console Workplace

4. In the Defined CPCs Work Area, left-click the appropriate icon in the lower-left panel in the window that represents the Central Processor Complex (CPC) on which the LPAR that is being changed is defined (see Display 4).



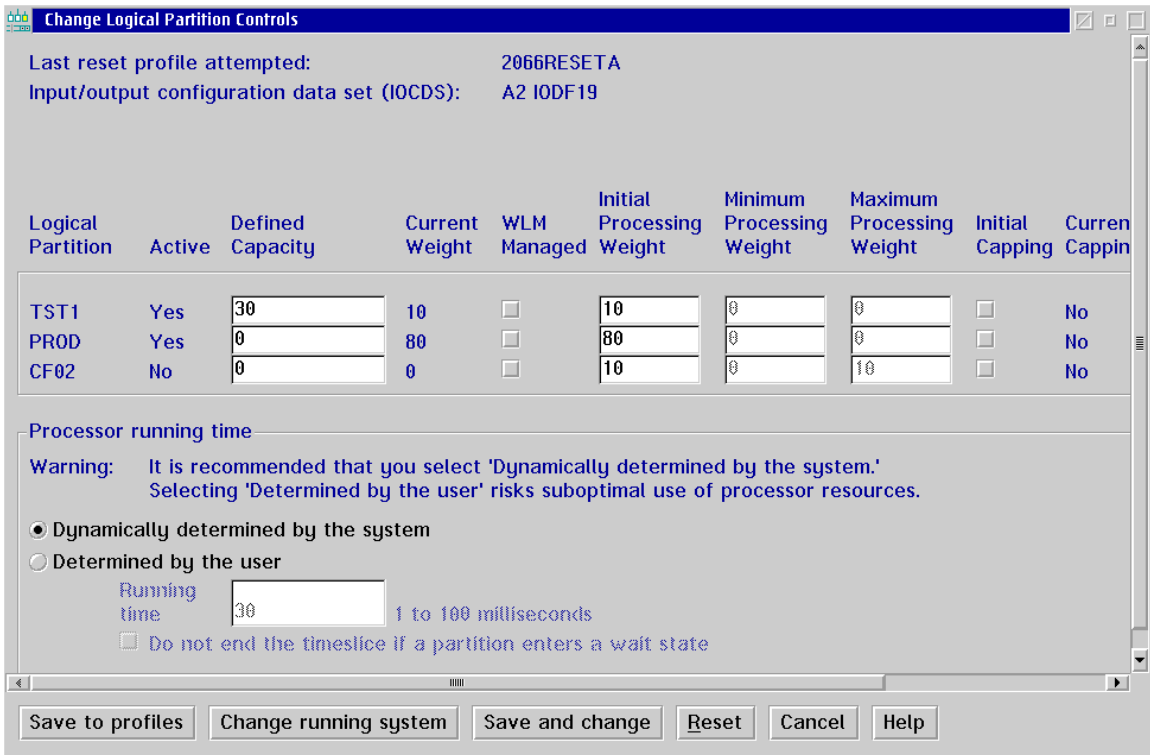
*Display 4. Central Processor Complex (CPC) on Which the LPAR IS Redefined*

5. After you highlight the CPC icon, left-click one of the pair of arrows in the lower-right corner of the window until the CPC Operational Customization task list appears (Display 5).



Display 5. CPC Operational Customization Task List

6. Using the right button, select and drag the CPC icon from the Defined CPCs Work Area to the CPC Operational Customization panel and drop it onto the Change LPAR Controls icon to open the Change Logical Partition Controls window (Display 6). You can also open this window by left double-clicking the Change LPAR Controls icon when the correct CPC icon is highlighted.



Display 6. The Change Logical Partition Controls Window

7. In the Change Logical Partition Controls window, locate the `Defined Capacity` column for the LPAR that is being modified. Type in the new MSU value.

## Changing the LPAR Defined Capacity

You can change the LPAR's defined-capacity either dynamically (temporarily) or permanently. If you change the system dynamically, the setting only remains in effect until you perform the next power-on reset or the next LPAR activation.

### ***Changing the Defined Capacity Dynamically***

To change the setting dynamically, click the `Change running system` button at the bottom of the Change Logical Partition Controls window. A confirmation window will open.

### ***Changing the Defined Capacity Permanently***

To change the defined capacity permanently, click the `Save to profiles` button at the bottom of the Change Logical Partition Controls window. This action permanently saves the new MSU settings in **all** activation profiles for the images that are being displayed, and it opens a confirmation window.

As an alternative, you can edit the activation profiles using the `Customize/Delete Activation Profiles` function in the `CPC Operational Customization` panel. If an LPAR has multiple activation profiles that might be used in the future, then you **MUST** use this method to change these profiles in order to reflect the new MSU settings. Otherwise, old MSU settings will be in effect after the image is activated.

## ***Related Documentation***

The following documentation for the Processor Resource/Systems Manager and for the Hardware Management Console is available at the Resource Link Web site ([www-01.ibm.com/servers/resourcelink/svc03100.nsf?OpenDatabase](http://www-01.ibm.com/servers/resourcelink/svc03100.nsf?OpenDatabase)). This site requires a valid IBM user ID and password.

- *SB10-7036-02 Processor Resource/Systems Manager Planning Guide - Level 2*
- *SB10-7036-03 Processor Resource/Systems Manager Planning Guide - Level 03*
- *SB10-7036-04 Processor Resource/Systems Manager Planning Guide - Level 04*
- *SC28-6830-01 Hardware Management Console Operations Guide 1.8.2*
- *SC28-6821-00 Hardware Management Console Operations Guide 2.9.0*
- *SC28-6857-00 Hardware Management Console Operations Guide 2.9.1*

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