

Sysplex Calculator (PlexCalc)

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Sysplex Calculator Overview

The Sysplex Calculator (PlexCalc) is a no-charge, downloadable tool from IBM that can help you assess whether your Parallel Sysplex qualifies for aggregation. This tool is designed to analyze Systems Measurement Facility (SMF) data from two or more machines and produce a report describing which Parallel Sysplex each machine belongs to, if any, based upon the 50 percent criterion stated on this website.

The Sysplex Calculator is designed to analyze SMF data from any mainframe running an eligible operating system that generates RMF-compliant SMF70 records. While the Sysplex Calculator is designed to assist you in determining eligibility for Parallel Sysplex Aggregation, final eligibility determination can only be made by IBM through your IBM representative.

Key points are as follows:

- The Sysplex Calculator calculates the average utilization over a 40-hour prime shift window of time during a normal work week.
- The body of the report summarizes data as 'average MSUs consumed per hour'.
- The default input is 9am to 5pm, Monday through Friday (40 hours total) which represents IBM's view of 'prime shift'. The defaults may be adjusted through the parameters but it is still expected that you analyze 40 total hours from 5 consecutive business days. The 'prime shift' cannot cross the midnight boundary.
- In establishing your prime shift hours, IBM will allow you to eliminate up to 2 consecutive hours per day if you wish not to consider lunchtime utilization, in the case that your lunchtime utilization patterns are not aligned with your 'prime shift' utilization patterns.
- In the event that different LPARs are running in different timezones, you may specify which LPAR represents local time (referred to as the MASTER) and all other LPAR timestamps will be adjusted to match the master.

Updated 19 September 2017 The Sysplex Calculator has been made available to support the new IBM z14 processors. The "Release date" stated in the PlexCalc report is 2 August 2017.

Sysplex Calculator: Downloading the tool

Starting on 11 April 2007 IBM has introduced a new method for customers to register for and download the Sysplex Calculator (PlexCalc) tool.

The new method takes advantage of the standard IBM tools downloading process which uses the IBM Registration process many customers have already used to create their personal IBM ID. When selecting the "Download" link below a new browser window will open and take you directly to a sign-in screen entitled "z Systems Software Licensing Tool Downloads".

- If you already have an IBM ID then simply click the "Sign in" link to continue.
- If you have not yet registered for an IBM ID then click the "register now" link on that same page to create an IBM ID.

After you sign in you will be asked to verify that your personal information (such as email id) has not changed. Scroll down towards the bottom of the page, check the box indicating you agree to the standard license for the Sysplex Calculator (this is a No Charge tool), and click the "I confirm" link. You will then be taken to the Sysplex Calculator download page where you can click the "Download now" button.

- [Download the Sysplex Calculator \(PlexCalc\)](#)

Sysplex Calculator: Selecting SMF Data for the Input Stream

The Sysplex Calculator is an SMF post-processor. It can post process SMF70 records from any mainframes that generate RMF-compliant SMF70 records. SMF data in the input stream need not be sorted. You may list multiple physical datasets in the SMF DD statement of the Sysplex Calculator.

The Sysplex Calculator's intent is to determine which Parallel Sysplex, if any, a mainframe belongs to based upon IBM's 50% Parallel Sysplex Aggregation criterion. To make such a determination, you must include SMF70 records from **every** MVS-based LPAR on a given mainframe in the input datastream. The reason that the Sysplex Calculator needs data every LPAR is because the calculator is using a field in the SMF70 record which only appears in the header section (i.e., SMF70XNM is not an indexed field). If you wish to analyze more than one mainframe at a time, simply include all the SMF data in the input datastream.

The Sysplex Calculator is designed to analyze 40 'prime shift' hours (default is 9am to 5pm, Monday through Friday). If necessary, you may use the Sysplex Calculator parameters to specify a different range of days and/or a different range of hours, but the range cannot cross the midnight boundary. You may also eliminate up to 2 consecutive hours per day if you wish not to consider lunchtime utilization, in the case that your lunchtime utilization patterns are not aligned with your 'prime shift' utilization patterns.

Please be sure to structure your input data stream to include all necessary records. If you analyze less than 40 hours or fail to include SMF70 records from all LPARs on a given machine, the Sysplex Calculator may draw incorrect conclusions.

Sysplex Calculator: How to Run the Tool

Overview

- [Download](#) the Sysplex Calculator, it is contained in a self-extracting zip file
- Launch the Sysplex Calculator file (plexcalc.exe) on your PC to de-compress the file; the decompressed file will be named plexcalc.bin
- Upload the file (PLEXCALC.BIN) to your host system. Use binary transfer and move the file to an 80 byte fixed dataset. FTP is the recommended method of file transfer.
- Customize and run the job to run on your host system.
- Download the job output (a text file) from your host system to your PC.
- View the downloaded output file with any spreadsheet or text editor that recognizes the "comma separated values" file format.

Details

Create a Dataset On the Host

Go to ISPF 3.2 to allocate a new 80 byte fixed dataset called HLQ.CALC.JCL

1. Record Format = FB for Fixed Block
2. Record Length = 80
3. Directory Blocks = 0
4. Block Size = 0 (system determined block size)

Upload to the Host From Your PC

1. [Download](#) the Sysplex Calculator
2. Begin FTP Session - command is "ftp"
3. Change FTP mode to binary - command is "bin"
4. Put the PLEXCALC.BIN file onto the host, overwriting the new MVS file called CALC.JCL - command is "put PLEXCALC.BIN CALC.JCL"

Back on the Host, Customize the Job

1. customize the jobcard to fit your environment

```
//PLEXCALC JOB ( , ),MSGLEVEL=1,MSGCLASS=O,NOTIFY=NAME
```
2. verify parameters, see [comments in job](#) (TXT, 4KB) for more details

```
//EXTR EXEC PGM=LOADER,PARM=' / , , , CUSTOMERNAME '
```
3. change SMF DD to point to your SMF dataset

```
//SMF DD DISP=SHR,DSN=HLQ.SMF.DATA
```
4. change the output dataset name to fit your environment
NOTE: since the LRECL for this dataset is unusual, you might be better off sending the output to a new dataset

```
//OUTPUT DD DISP=( ,CATLG) ,DSN=HLQ.PLEXCALC.CSV,UNIT=SYSDA,  
//          SPACE=(TRK,(15,15))
```

Sysplex Calculator: How to Interpret the Output

The output from the Sysplex Calculator job is referred to as the Sysplex Calculator Report or PlexCalc Report. This report is broken in to four major sections in the following order: overview, disclaimer, summary and interval-by-interval details. Each section is explained below:

Overview and Disclaimer Sections

- release date of the tool
- customer name (read from parameter)
- Serial number of each machine being analyzed (only last four digits of serial number can be determined from the SMF70 record)
- Software MSU rating for each machine being analyzed
- List of LPARs for each machine being analyzed
- Footnote beside an LPAR name if an LPAR is being used as the MASTER timezone
- Footnote beside an LPAR name if an LPAR with general purpose CPs exists on a machine but no SMF data was provided
- legal disclaimers regarding the tool (always review your Sysplex Calculator reports with IBM to ensure validity)

Summary Section

Based upon the data analyzed, the Sysplex Calculator will make a determination about which Parallel Sysplex each machine belongs to, based on the 50 percent criterion contained within IBM's Parallel Sysplex aggregation rules. A machine is said to belong to a particular Parallel Sysplex only if 50% or more of the eligible operating system workload participates in the Parallel Sysplex. For each machine, the following are the three conclusions that the Sysplex Calculator may reach, based on analysis of the prime-shift weekday intervals:

- If (looking at an average over the 40 hour prime shift data in the input stream) 50% or more workload is generated by a particular Parallel Sysplex, then the Sysplex Calculator will conclude that the machine officially belongs to that Parallel Sysplex.
- If the average utilization show that a machine belongs to one Parallel Sysplex for part of the period and another Parallel sysplex for part of the period, then the Sysplex Calculator will conclude that the machine belongs to **mixed** Parallel Sysplex. This means that the machine cannot aggregate with other machines.
- If the average utilization shows that a machine belongs to no Parallel Sysplex, then the Sysplex Calculator will conclude that the machine belongs to **none** Parallel Sysplex. This means that the machine cannot aggregate with other machines.

Interval-by-Interval Section

There are seven header rows shown in the Interval-by-Interval section:

1. The first header row shows the machine for each LPAR analyzed.
2. The second header row shows the LPAR name for each LPAR analyzed.
3. The third header row shows the SYSID name for the instance of z/OS running in each LPAR analyzed.

4. The fourth header row shows the System Name for the instance of z/OS running in each LPAR analyzed (this is used to correlate with the System Name in the Coupling Facility Activity Reports).
5. The fifth header row shows the the Parallel Sysplex name for each LPAR analyzed.
6. The sixth header row shows the average utilization contribution (in %) of each LPAR's workload, as a percentage of workload on the machine over the 40 hour prime shift period.
7. The seventh header row shows the average utilization contribution (in MSUs) of each LPAR's workload, over the 40 hour prime shift period.

For each interval, you will see an MSU value listed for each MVS-based LPAR analyzed. The MSU value represents the average MSUs consumed by that LPAR, during that interval.

Help with the Sysplex Verification Package (SVP) and the Sysplex Calculator (PlexCalc) Tool

For help completing a Sysplex Verification Package (SVP), help using the Sysplex Calculator (PlexCalc), or help interpreting the PlexCalc Report, please contact IBM via email. **Please be sure to include all of the following information in any correspondence with the Sysplex Calculator Support Team:**

- Your name
- Your email address
- Your Company's name
- Your IBM Customer Number
- A thorough description of the problem or question
- The CSV output file from PlexCalc (if appropriate)
- The full JCL and any parameters used when running PlexCalc (if appropriate)
- The full SYSPRINT output from the running of PlexCalc (if appropriate)
- The email address for the Sysplex Calculator Support Team is: sysplex@us.ibm.com

The Sysplex Calculator Support Team maintains business hours of 9:00am to 5:00pm US Eastern Time, Monday through Friday. We will normally respond to your question/problem within five business days, however some complex issues may require more time to research.