

Sub-Capacity for Z Software - Sub-Capacity Corner

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Basic Sub-Capacity Rules and Billing Dates

Initial Sub-Capacity Billing Effective Date (April 30, 2002)

MSU changes submitted on Sub-Capacity Reports for programs with recurring charges will be billed effective the first day of the month following the month in which the Sub-Capacity Report was received. Recurring charges are Monthly License Charges (MLC) and IPLA software maintenance which is also referred to as Subscription and Support (S&S). This means that when you initially decide to implement sub-capacity for an Operating System Family on a machine you will not see the changes reflected in your billing until the first day of the month following the submission of the report. For example, if you collect data for the January reporting period (from January 2nd through February 1st) and submit the report at the beginning of February (between February 2nd and 9th) the billing changes will become effective March 1st. For January and February the billing will be at full capacity. Billing is not done in arrears. Although March's billing is determined by data collected in January, the bill is for the license to use the software during the month of March. (Note: This is different for US Federal customers, see the US Federal Government section on this page.)

MSU changes submitted on Sub-Capacity Reports for programs with IPLA One Time Charges (OTC) will be billed effective with the processing of the report by IBM.

Sub-Capacity Pricing and Priced Features (03 October 2000)

Priced features of a base program will be charged at the same MSU value as the base program, on a machine-by-machine basis. The Sub-Capacity Reporting Tool will only report on the MSUs of the base program. Determination of the presence of a priced feature is solely on IBM's listing of priced features which are installed in machine's inventory, according to our inventory systems. For example, DB2 MSUs on machine1 are 100 and on machine2 are 200. Our inventory system reflects QMF on machine1, therefore QMF will be charged only on machine1 at the 100 MSU level. Changes to installed inventory should be communicated to IBM in writing and will become effective on the 1st day of the month following IBM's receipt of the notification.

Sub-Capacity Billing for New Middleware Licenses (10 July 2006)

When a brand new Middleware product license not eligible for Single Version Charging is added to a standalone Sub-Capacity machine or into an aggregated sysplex for the first time, Sub-Capacity measurements for the new product are not initially available. Therefore, the new product MSUs for each

new license on a machine are set at the same level as the Operating System MSUs (including the zNALC or z/OS.e MSUs if applicable) on that machine for the initial month billing period.

If the new Middleware product is eligible for Single Version Charging please read the appropriate SVC sections for additional information.

If Multi-Version Measurement (MVM) has been implemented in place of SVC please see the [MVM web page](#).

New Middleware Licenses in a Sysplex Special Case (22 July 2016)

If a Middleware product is already licensed to one or more machines in an existing aggregated sysplex, additional licenses for that product may be added with 0 MSUs to the other machines in that aggregated sysplex upon request.

Sub-Capacity Billing for New Operating System Version Licenses (23 July 2013)

When a new version of an Operating System is added to a machine already receiving Sub-Capacity for that Operating System Family (whether a standalone machine or an aggregated machine), the new version MSUs on that machine are set at the same level as the previous version MSUs for the first billing month, regardless of SVC status.

If the new Operating System version is eligible for Single Version Charging or the Migration Pricing Option please read the appropriate SVC or MPO sections for additional information.

If Multi-Version Measurement (MVM) has been implemented in place of SVC or MPO please see the [MVM web page](#).

Middleware Not Appearing on Sub-Capacity Report (10 July 2006)

Once a Sub-Capacity eligible MLC middleware product is past the initial month billing period, it is IBM's policy to charge for that Sub-Capacity eligible MLC product based upon the MSUs reported for that product on the customer's Sub-Capacity Reports. Therefore, if a product does not appear in certain months, the customer should not be charged for that product on that machine. However, there is a 3 MSU minimum for each Sub-Capacity eligible product per environment. In a standalone machine environment, the customer must pay a minimum of 3 MSUs per Sub-Capacity eligible MLC product per month. In an aggregated environment, the customer must meet the 3 MSU minimum per Sub-Capacity eligible product across the aggregation (e.g., 1 MSU on box1, 1 MSU on box2 and 1 MSU on box3).

Note: It is a requirement of the sub-capacity process that customers accurately update the appropriate NO89 DD product statements in the SCRT JCL to indicate in which LPARs those products executed at any time during that reporting period.

Product Discontinuance Rule (25 March 2003)

The product discontinuance rule is invoked when the customer notifies IBM in writing that they wish to discontinue a licensed product. The product discontinuance rule indicates that the product will be discontinued effective the first day of the month following the month in which the discontinuance

communication was received by IBM. At the time the product is discontinued, all billing should cease permanently.

Due to the nature of the lag between data collection, Sub-Capacity reporting, and billing effective date, there may be one reporting period when the product is reported but not billed following the discontinuation. For example, if a product is discontinued in January, the product may still appear in the January Sub-Capacity Report but not in the February Sub-Capacity Report. Even though it appears in the January Sub-Capacity Report (which is effective March 1st) the product would not be billed in March. If the product continues to appear in Sub-Capacity Reports for data collected after the month of discontinuance, IBM will consider this a violation of our terms and conditions.

US Federal Government customer Sub-Capacity Billing Effective Dates (April 30, 2002)

MSU changes submitted on Sub-Capacity Reports for programs with recurring charges will be billed in arrears effective the first day of the month in which the Sub-Capacity Report was received. Recurring charges are Monthly License Charges (MLC) and IPLA software maintenance which is also referred to as Subscription and Support (S&S). This means that when you initially decide to implement sub-capacity on a machine you will not see the changes reflected in your billing until the first day of the month following the submission of the report.

US Federal Government accounts follow the following process:

Customer Actions (example)	IBM Actions	IBM Invoices US Federal Customer in Arrears (example)
Customer submits Sub-Capacity Report to IBM by September 9th for data collection period of August 2nd to September 1st.	IBM receives and processes monthly Sub-Capacity Report.	Customer receives system generated invoice dated September 30. Invoice reflects period dates of September 1st to September 30th. The invoice is based on prices in effect / billing effective date as of September.

MSU changes submitted on Sub-Capacity Reports for programs with IPLA One Time Charges (OTC) will be billed effective with the processing of the report by IBM.

Getting Help

For help with the Sub-Capacity Reporting Tool (SCRT) or questions related to Sub-Capacity pricing, please see the z Systems Software Pricing [Help](#) page.

Sub-Capacity Single Version Charging (SVC) Rules

Please note that this SVC page describes processes for standard Sub-Capacity. SVC is not supported in [Country Multiplex Pricing \(CMP\)](#) environments nor in [Multi-Version Measurement](#) environments.

Sub-Capacity Operating System Single Version Charging (SVC) (10 October 2011)

When a machine has Sub-Capacity pricing, and a version to version Operating System migration is taking place, and if IBM has determined that the migration is eligible for SVC for a certain migration period (up to a maximum of 12 months), then as long as the machine remains eligible for SVC the charges for the previous version are waived. The new Operating System version is charged at the combined concurrent peak MSUs for all versions of that Operating System, reported on the customer's Sub-Capacity Report for that month.

Migration Pricing Option (MPO) (12 April 2016)

For z/OS V1 customers migrating to z/OS V2, IBM introduced a new option called the Migration Pricing Option (MPO) which replaces Single Version Charging (SVC). The MPO provides an up to 24 month migration period where Sub-Capacity customers pay for z/OS V2 at the combined concurrent peak MSU value of z/OS V1 and z/OS V2. Full capacity customers pay for z/OS V2 only. All customers are eligible from the day they license z/OS V2 for up to 24 months MPO while actively migrating.

For z/VSE V4 or V5 customers migrating to z/VSE V6, IBM introduced a new option called the Migration Pricing Option (MPO) which replaces Single Version Charging (SVC). The MPO provides an up to 18 month migration period where Sub-Capacity customers pay for z/VSE V6 at the combined concurrent peak MSU value of z/VSE V4, V5, and V6. Full capacity customers pay for z/VSE V6 only. All customers are eligible from the day they license z/VSE V6 for up to 18 months MPO while actively migrating.

The same 18 month MPO terms also replace SVC for customers migrating to CICS TS for z/VSE V2 (5655-VSE) and IBM TCP/IP for z/VSE V2 (5686-CS1). For more information about MPO for z/VSE see the [z/VSE MPO web page](#).

When two or more versions of a program are reported by SCRT, the combined concurrent peak MSU value reported for that program [reported as the (All) value] will be charged against the latest program version licensed on that machine. This includes when all but one version has been discontinued either during or after the MPO period, the last remaining version will be charged using the (All) value for any reporting period when the (All) value appears on the report.

After the MPO period expires, for as long as more than one version remains licensed, each version will be billed separately at the MSU value reported on the Sub-Capacity report for that program version.

Sub-Capacity Single Version Charging (SVC) Special Case 1 (29 March 2005)

In the case where Sub-Capacity SVC applies but the new version MSUs are not yet available on the Sub-Capacity Report, then charges for the previous version will be waived and the new version will be charged at the reported previous version MSUs.

Sub-Capacity Middleware Single Version Charging (SVC) (29 March 2005)

When a machine has Sub-Capacity pricing, and a version to version Middleware migration is taking place, and if IBM has determined that the migration is eligible for SVC for a certain migration period (up to a maximum of 12 months), then as long as the machine remains eligible for SVC the charges for the previous version are waived. The new Middleware version is charged at the higher of:

- The new version MSUs, reported on the customer's Sub-Capacity Report for the reporting period
- The previous version MSUs, reported on the customer's Sub-Capacity Report for the reporting period

Sub-Capacity Middleware Single Version Charging (SVC) Special Case 2 (16 Dec. 2005)

In the case where Sub-Capacity SVC applies but the previous product version does not have a variable pricing metric (for example FWLC or TWLC), charges for the previous version will be waived and the new product MSUs charged on that machine are set at the same level as the Operating System MSUs (plus the zNALC or z/OS.e MSUs if applicable) until such time as the new version appears on the Sub-Capacity Report.

Getting Help

For help with the Sub-Capacity Reporting Tool (SCRT) or questions related to Sub-Capacity pricing, please see the z Systems Software Pricing [Help](#) page.

Sub-Capacity Rules for moving Programs and/or moving Workloads

Permanently Moving Product Licenses from One Machine to Another

IBM licenses software on a machine-by-machine basis. If you move a product from one machine to another you must immediately notify IBM in writing of this event so that the license can be redesignated in the inventory. When a product is moved between two Sub-Capacity machines it will appear on the Sub-Capacity Reports for both machines for that reporting period. In addition to the written notification, you should also indicate in the "Customer Comments" field of both Sub-Capacity Reports that a product has been moved, for example, "5655-G53 was moved from 2817-12345 to 2827-34567 on July 17". IBM will use the higher of the two MSU numbers reported as the billing value for that product that reporting period (capped, if appropriate, by the Full-Capacity MSU value of the target machine).

If a product is moved from a Full-Capacity machine to a Sub-Capacity machine then the billing value will be the higher of the Full-Capacity MSU value of the first machine and the reported Sub-Capacity MSU value of the operating system from the target machine (again, capped as appropriate).

Moving Workload from One LPAR to Another on a Machine

MLC software required to support a workload is licensed to a machine, not to an individual LPAR. Let's say you want to run DB2 in LPARA for the first part of a month and then move DB2 to LPARB for the second part of the month. How you do your migration will affect the billable MSUs for DB2. If you plan carefully, you can ensure DB2 does not run in both LPARA and LPARB during any intervals. That is, bring DB2 down in LPARA during hour X and then wait until hour Y to bring DB2 up in LPARB. If you run DB2 in both LPARA and LPARB for some intervals during the migration, then SCRT will consider the combined rolling 4 hour average of LPARs A and B during those intervals when the overlap occurs.

Moving Workload from One Machine to Another

Let's say you want to run LPARA on Machine1 during the first part of a month and then move LPARA to Machine2 for the second half of the month. Be prepared to see the products in LPARA, and their MSUs, appear on the Machine1 Sub-Capacity Report and also appear on the Machine2 Sub-Capacity Report. IBM charges for software on a machine-by-machine basis. Therefore, SCRT analyzes one machine at a time and determines the applicable MSUs per product for each machine. The fact that LPARA moved from Machine1 to Machine2 is unknown **and irrelevant** to SCRT **and, therefore, not factored into any calculations**. Each product running on any machine at any time during the month will be charged on each machine. Also, if moving LPARA from Machine1 to Machine2 introduces any new software products on to Machine2 which were not previously licensed, please notify your IBM representative to ask that the new licenses be added to Machine2, and possibly discontinued from Machine1, if applicable.

Getting Help

For help with the Sub-Capacity Reporting Tool (SCRT) or questions related to Sub-Capacity pricing, please see the z Systems Software Pricing [Help](#) page.

Procedures for running SCRT and submitting Sub-Capacity Reports

How to Update the NO89 DD section in the SCRT JCL

The SCRT JCL contains a NO89 DD section which lists the sub-capacity eligible MLC programs and IPLA Execution-based programs which do not create SMF89 or SCRT89 records. Customers must modify each entry in the NO89 DD section to indicate the name(s) of the LPAR(s) where that program ran at any time during the reporting period, or use the keywords *NONE or *ALL as appropriate. Only the MLC programs and IPLA Execution-based programs included by IBM in the NO89 DD section are supported by the SCRT release which came with that release of the JCL. If new NO89 programs are announced it will be necessary to download a new release of SCRT to support them, it is not possible to manually add new product ids into the old JCL without updating the release of SCRT. Products which are supported with SMF89 or SCRT89 data records cannot be added into the NO89 DD section.

It is also not necessary and not possible to add the product ids of any IPLA z/OS-based or IPLA Reference-based programs into the NO89 DD section in order to cause them to be reported by SCRT. It is also not possible to delete individual product ids from the NO89 DD section, although z/OS customers who do not run z/VSE may delete the entire set of z/VSE NO89 product ids if they wish.

How to Submit Sub-Capacity Reports

Sub-Capacity Reports may be submitted in one of two ways: via the web or via email. Sub-Capacity customers should submit their SCRT report(s) via the Internet submission procedures described on the [SCRT Submit](#) page and the [SCRT Country](#) page.

The following file formats are acceptable:

- .csv** - Comma Separated Values format
- .txt** - Plain Text file in CSV format

Unless you have been informed otherwise, all Sub-Capacity customers in countries where the License Management Support (LMS) application has been implemented must use LMS to submit your sub-capacity reports to IBM. You may choose either of the following methods to send your sub-capacity report to LMS:

- **LMS Web** to upload and submit your sub-capacity report using the LMS Web interface.
- **LMS eMail** to send your sub-capacity report to LMS as an e-mail attachment.

In countries or regions where LMS has not yet been implemented customers will continue to use their current e-mail submission process until notified by IBM that they must migrate to LMS. For submitting Sub-Capacity Reports via email, please use the appropriate email address for your [country or region](#). Send each report as a separate file attached to the email.

When to Submit Sub-Capacity Reports

Sub-Capacity Reports, whether submitted via email or via the web, must be submitted to IBM by the close of business of the 9th day of the month. The billable MSUs listed in the Product Summary Section of the Sub-Capacity Report affect customer billing the month after the report is received. Failure to

submit a Sub-Capacity Report for a given month will result in one month of Full-Capacity charges for that machine.

For example, if you are collecting data from January 2nd - February 1st, then your submission deadline for this reporting period (January 2nd through February 1st) is February 9th. The billable MSUs listed in this Sub-Capacity Report will be used to establish the billing, effective March 1st for the month of March. In this case, if the January 2nd - February 1st Sub-Capacity Report is not received by IBM by February 9th, then the billable MSUs for March would be based upon the full MSU rated capacity of the machine. Full-machine billing would continue until the next Sub-Capacity Report is submitted.

Handling Sub-Capacity Reports for a Machine Model Upgrade or Downgrade

The Sub-Capacity contract terms require that a customer notify IBM about any machine upgrade or downgrade at the time it happens. Customers must not wait until the next time they submit their SCRT Report to notify IBM about the change to the machine. If IBM is not properly notified at the time when the change happens the next invoice may be incorrect.

Machine model changes (when the machine type and serial are not changed) are handled by the Sub-Capacity Reporting Tool (SCRT) without any intervention. The Sub-Capacity Report will indicate with a comment that the machine model has changed, and the MSU values on the report will be the peaks seen for that entire reporting period. For machine model upgrades the MSU values on the report will be used to set the billing as usual. But this means that for machine model downgrades the billing cannot be handled correctly without notification to IBM prior to the submission of the Sub-Capacity Report. Since SCRT will report the highest machine model and MSU value seen during the reporting period, without notification to IBM about the model downgrade the higher MSU values from before the downgrade would be the ones billed which could be in excess of the full capacity of the downgraded machine.

Handling Sub-Capacity Reports for a Machine Migration or Replacement

IBM contract terms require that a customer notify IBM about the migration of all licenses from one machine to another at the time it happens. Customers must not wait until the next time they submit their SCRT Report to notify IBM about the movement of software licenses. If IBM is not properly notified at the time the migration happens the next invoice may be incorrect.

When the machine type and/or the serial number changes there will be two Sub-Capacity Reports generated. SCRT will interpret the data as being from two different machines even though the data represents only one customer workload for the month. The customer must submit both Sub-Capacity Reports and must indicate in the "Customer Comments" field of each Report both Sub-Capacity Reports that a migration has occurred, for example, "2097-12345 has migrated to 2828-34567". IBM will check to see that the Data Collection % on the first Report plus the Data Collection % on the second Report sum to 95% or more. For each product appearing on both Reports, IBM will use the higher of the two MSU numbers reported as the billing value for that product that month (capped, if appropriate, by the Full-Capacity MSU value of the target machine). Customers must complete the migration within a calendar month. The original box should no longer be installed or functional in future months.

Handling Sub-Capacity Reports for Machine Consolidations

The case when one or more machines are consolidated onto a different machine is similar to the Machine Upgrade scenario in some respects. For example, with a Consolidation from Box1 and Box2 onto Box3:

- There will be Sub-Capacity Reports generated for each month when any activity takes place on a machine. In this example that includes each of the old machines (Box1 and Box2) as well as the new machine (Box3).
- The customer must indicate in the "Customer Comments" field of all the Sub-Capacity Reports that a consolidation has occurred, for example, "2097-11111 and 2097-22222 have consolidated onto 2817-33333".
- For the Sub-Capacity Reports from the Reporting Period prior to the consolidation: IBM will check to see that the Data Collection % on Box 1 and Box 2 are each 95% or more (business as usual).
- For the billing invoice the month after the consolidation: for all the Sub-Capacity Reports for each product IBM will use the sum of the MSU numbers reported for Box 1 and Box2 as the billing value on Box 3 for that product that month (capped, if appropriate, by the Full-Capacity MSU value of Box3).
- For the Sub-Capacity Reports from the Reporting Period of the month of the consolidation: IBM will check to see that (the higher of the Data Collection % on Box 1 or Box 2) plus (the Data Collection % on Box 3) sums to 95% or more.
- For the billing invoice two months after the consolidation: for all the Sub-Capacity Reports for each product IBM will use the higher of (the sum of the MSU numbers reported for Box 1 and Box2) compared to (the MSU number reported for Box3) as the billing value on Box 3 for that product that month (capped, if appropriate, by the Full-Capacity MSU value of Box3).

Customers must complete the consolidation to Box3 within a calendar month, Box1 and Box2 should no longer be installed or functional in future months.

Example Reports from Reporting Period Prior to the Consolidation

Product	Report One 2097-11111	Report Two 2097-22222	No Report for 2817-33333
z/OS	100	50	--
DB2	98	46	--
CICS	87	49	--

Using the example Sub-Capacity Reports from the month before the consolidation, the applied rules would render the following billing the month after the consolidation:

$$z/OS = 100+50 = 150$$

$$DB2 = 98+46 = 144$$

$$CICS = 87+49 = 136$$

Applied to machine serial 2817-33333

(example continues on next page)

Example Reports from Reporting Period Of the Consolidation

Product	Report One 2097-11111	Report Two 2097-22222	Report Three 2817-33333
z/OS	100	50	155
DB2	97	47	135
CICS	88	48	125

Using the example Sub-Capacity Reports from the month of the consolidation, the applied rules would render the following billing the second month after the consolidation:

z/OS = (100+50) vs. 155= 155

DB2 = (97+47) vs. 135 = 144

CICS = (88+48) vs. 125 = 136

Applied to machine serial 2817-33333

Technology involved with SCRT and the Rolling 4-Hour Average

How SCRT Determines the Rolling 4-Hour Average Value per Hour

SCRT determines which sub-capacity eligible products are executing in each LPAR on a machine and the rolling 4-hour average utilization of each LPAR on an hourly basis

There were two factors that drove IBM to select hourly granularity 1) SMF89 records are generally cut once per hour and 2) customers generally cut SMF70 records at least once per hour

Within each hour, there are 'n' number of SMF70 records, in each of those records, SCRT looks at the value in SMF70LAC which is the rolling 4-hour average utilization of the LPAR at the end of the interval. For example, In the case of 20 minute RMF intervals, for a given hour SCRT will read 3 SMF70 records per LPAR per hour

Lastly, SCRT averages together all of the SMF70LAC values within the hour to get the "rolling 4-hour average utilization" for that hour

Illustrated Example of How SCRT Works

Under Sub-Capacity terms and conditions, IBM charges for Sub-Capacity eligible products on a machine based upon the rolling 4-hour average of the LPAR(s) on that machine where and when the product executes. This example, below, further explains the concept. In this example, you see that SCRT analyzes 720 hours of measurement, one for each day in the month. For each hour, SCRT looks at information about each LPAR on that machine, LPAR A and LPAR B. The information being considered by SCRT is 1) the rolling 4-hour average of that LPAR during that hour and 2) which sub-capacity eligible products are running in that LPAR during that hour.

Hour	1	1	2	2	3	3	...	719	719	720	720
LPAR	A	B	A	B	A	B		A	B	A	B
r4hr avg*	70	30	75	30	50	50		100	30	100	10
z/OS	yes	yes	yes	yes	yes	yes		yes	yes	yes	yes
DB2	yes		yes		yes						

SCRT will correctly identify z/OS's peak as 130 MSUs which occurs in hour 719 on that machine. SCRT will also identify DB2's peak on that machine as 75 MSUs which occurs in hour 2.

SCRT will not add the peak for LPAR A (100 MSUs) to the peak of LPAR B (50 MSUs) because those peaks do not occur in the same interval and SCRT only looks at simultaneous peaks for a product running in multiple LPARs on a machine. Likewise, SCRT will not choose LPAR A's peak of 100 MSUs for DB2 because DB2 was not executing during the interval when LPAR A reached that 100 MSU peak.

*all MSUs are rolling 4-hour average utilization, in MSUs, per LPAR, per machine.

Products in the Sub-Capacity Reporting Tool

SCRT reports on all sub-capacity eligible MLC products. It also reports on all Sub-Capacity IPLA (OTC) products which fall into the Execution-based category, such as WebSphere Application Server and many application development tools. These products are hardcoded into SCRT and the product list cannot be altered by the end user.

Each of these Sub-Capacity eligible IBM products may or may not generate SMF89 records. The SMF89 record serves many purposes but SCRT uses it solely to determine 1) where a product is executing and 2) when a product is executing.

- If the product generates SMF89 records (DB2, CICS, MQSeries, WebSphere, etc), then SCRT can automatically determine where/when the product is executing. So, for example, SCRT knows that DB2 ran in LPARA during every interval in the reporting period and DB2 ran in LPARB only from May 15 at 10:00 - May 23rd at 12:00.
- If the product does not generate SMF89 records (COBOL compiler, PL/1 compiler, Netview, Tivoli Workload Scheduler, OPC, etc), then SCRT cannot automatically determine where/when the product is executing. SCRT relies on customer input to determine where these "NO89" products are executing. The customer provides this input via the 'NO89 DD' statement in the SCRT's JCL. If a customer indicates that COBOL runs in LPARA, then SCRT assumes that COBOL was executing in all the intervals that LPARA was online. If a customer incorrectly lists NO89 products which are not executing or are not licensed, then the report will be incorrect. For example, if a customer accidentally listed 5648-A25 (COBOL for OS/390 and VM V2) when they really were actually running 5688-197 (AD Cycle COBOL/370), then IBM would contact the customer to ask whether the customer really wants a license for 5649-A25 on that machine.

Using Defined Capacity to Control LPAR Rolling 4-hour Average Utilization

Beginning with zSeries running z/OS in 64-bit mode in October 2000, IBM added another setting for customers to use when setting up their LPARs, called "Defined Capacity." Instead of using hardcaps, many Sub-Capacity customers choose to use the more flexible (and more appropriate) defined capacity. Defined capacity allows you to set a size of a partition, in MSUs. This setting is not relative to any other LPAR. Once you set a defined capacity, you are telling WLM to monitor the rolling 4-hour average utilization of that LPAR. If the rolling 4-hour average utilization of the LPAR is less than the defined capacity, then nothing happens. If the rolling 4-hour average utilization of the LPAR exceeds the defined capacity, then WLM signals to PR/SM and requests that something called 'softcapping' be initiated. Softcapping constrains the workload of the LPAR to the level of the defined capacity.

More information about LPARs and using Defined Capacity is available in the [Understanding and Controlling LPARs White Paper \(PDF, 245KB\)](#).

Analyzing on an Interval-by-Interval Basis

You can view a per interval utilization (in MSUs) and a per interval rolling 4-hour average utilization (in MSUs) by using the Sub-Capacity Planning Tool, an SMF70 post-processor available for [download from the web](#). This tool will provide information for each LPAR and also information for the entire machine. Instructions for using this tool are available on the website listed above. You may also be interested in some of the online monitoring abilities provided by RMF Monitor III. RMF has a [Newsletter on their website \(PDF, 499KB\)](#) which describes each of these monitors (please ignore pricing information on this site).