



**Quick Start Guide**

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**SySAM 2**

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Sybase, Inc., One Sybase Drive, Dublin, CA 94568.

# Contents

<b>Conventions</b> .....	<b>1</b>
<b>Getting Started</b> .....	<b>3</b>
Understanding License Generation .....	3
Determining Your License Deployment Model .....	4
Comparing License Deployment Models .....	5
Fault Tolerance, License Grace, and Redundancy .....	6
Served License Deployment Model .....	6
License Servers .....	7
Determining Host IDs .....	7
Determining Host IDs for Machines with Multiple Network Adapters .....	8
Using Alternate Host IDs on Windows .....	8
Knowing the Product License Type .....	8
Optional Feature Licenses .....	9
<b>Generating Licenses at SPDC</b> .....	<b>11</b>
Logging in to SPDC and Beginning License Generation .....	12
Generating Unserved Licenses .....	13
Generating Served Licenses .....	14
Regenerating, Renewing, and Rehosting Licenses .....	15
Managing License Hosts .....	16
Modifying Individual Licenses .....	16
<b>Generating Licenses at SMP</b> .....	<b>17</b>
Generating License Keys .....	17
<b>Mobile Licensing</b> .....	<b>19</b>
Using Mobile Licenses .....	19
Borrowing Licenses Using Imutil Imborrow .....	19
Returning a Borrowed License Before It Expires .....	20
<b>SySAM Sub-capacity Licensing</b> .....	<b>21</b>

## Contents

Configuring SySAM Sub-capacity .....	21
sysamcap Utility .....	22
SySAM Sub-capacity Glossary of Definitions .....	25
<b>Index</b> .....	<b>27</b>

# Conventions

These style and syntax conventions are used in Sybase® documentation.

- In a sample window display, commands to be entered exactly as shown appear in:  
*this font*
- In a sample window display, words that you should replace with the appropriate value for your installation are shown in:  
*this font*
- In the regular text of this document, the names of files and directories appear in this font:  
`/usr/u/sybase`
- The names of programs, utilities, procedures, and commands appear in this font:  
**sqlupgrade**
- Commands for both the C shell and the Bourne shell are provided, when they differ. The initialization file for the C shell is called `.cshrc`. The initialization file for the Bourne shell is called `.profile`. If you are using a different shell, such as the Korn shell, refer to your shell-specific documentation for the correct command syntax.

**Table 1. SQL syntax conventions**

Key	Definition
<b>command</b>	Command names, command option names, utility names, utility flags, and other keywords are in a bold san-serif font.
<i>variable</i>	Variables, or words that stand for values that you fill in, are in <i>italic</i> .
{ }	Curly braces indicate that you choose at least one of the enclosed options. Do not include braces in your option.
[ ]	Brackets mean choosing one or more of the enclosed options is optional. Do not include brackets in your option.
( )	() are to be typed as part of the command.
	The vertical bar means you can select only one of the options shown.
,	The comma means you can choose as many of the options shown as you like, separating your choices with commas, which are typed as part of the command.

## Conventions

# Getting Started

Sybase® Software Asset Management (SySAM) is the Sybase product licensing and asset management system, which is built on FLEXnet technology from Acresso Software.

This section includes information about the SySAM licensing system that may be useful when you generate product licenses using the procedures in this document.

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**Note:** In addition to the SySAM licensing components described in this guide, SySAM 2 includes optional utilities and reporting tools, which are not covered. See the *Sybase Software Asset Management (SySAM) 2 Users Guide* for details.

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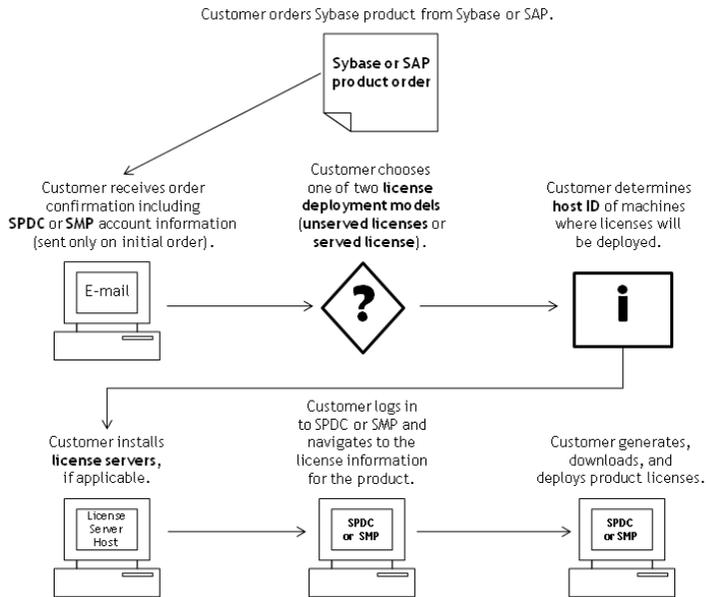
## Understanding License Generation

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When you purchase SySAM 2-enabled Sybase products, you must generate, download, and deploy SySAM product licenses.

- If you purchased your product from Sybase or an authorized Sybase reseller, go to the secure Sybase Product Download Center (SPDC) at <https://sybase.subscribenet.com> and log in to generate license keys. The license generation process may vary slightly, depending on whether you ordered directly from Sybase or from a Sybase reseller.
- If you ordered your product under an SAP® contract and were directed to download from SAP Service Marketplace (SMP), you can use SMP at <http://service.sap.com/licensekeys> to generate license keys for Sybase products that use SySAM 2-based licenses.

**Figure 1: SySAM 2 Licensing Process**



When you purchase SySAM 2-licensed products from a Sybase reseller, your product package may include a Web key certificate that contains the location of the SPDC Web key login page at <https://sybase.subscribenet.com/webkey> and the activation string to use for the login name.

## Determining Your License Deployment Model

Before you generate licenses for SySAM 2-enabled products, determine the license deployment model to use.

There are two license deployment models from which to choose: the served license model or the unserved license model.

When you use the unserved license deployment model, you generate and download a separate license for each machine where the product runs.

Sybase recommends that you use a license server if you run products on more than several machines, as this simplifies and centralizes license administration providing more control over software assets.

After you download the unserved licenses, you can install your Sybase products.

## Comparing License Deployment Models

Learn about license deployment models.

Unserviced Licenses	Served Licenses
Licenses can be used only on the machine for which the license was generated.	Licenses can be distributed from a network license server to products running on any network machine.
<p>Generate licenses at SPDC or SMP for each machine that will run the product:</p> <ol style="list-style-type: none"> <li>1. Specify the host ID of the machine where the product will run.</li> <li>2. Generate a license for that machine.</li> <li>3. Save the license to the specified machine.</li> <li>4. Repeat steps 1 – 3 for each machine where the product will run.</li> </ol>	<p>Generate licenses at SPDC or SMP for products running on multiple machines:</p> <ol style="list-style-type: none"> <li>1. Specify the host ID of the license server.</li> <li>2. Specify the number of required licenses.</li> <li>3. Save the licenses to the license server host machine.</li> </ol>
No license administration is required. However, when new licenses are required for product updates, you must update and deploy each license for each machine where the product update will run.	The license server requires administration. When new licenses are required for product updates, SPDC or SMP lets you update all licenses for a specific license server in a single step.
No license reporting or asset management capabilities are available.	Allows license monitoring and reporting of license use, capacity planning, and asset management using SAMreport.
Installed locally and always available.	Requires a functioning license server and network. If the license server or network fails, you must fix the problem or install an alternate license server before the product grace period expires.
If a machine where the product is running fails, you must regenerate all of its licenses and deploy those licenses to the replacement machines.	<p>If a machine where the product is running fails, you can move the product to a new machine, and it will acquire licenses from the running license server.</p> <p>If the license server host machine fails, use the Manage License Hosts functionality at SPDC or SMP to move its licenses to a new network license server host.</p>
License files are distributed across each machine running a product, and therefore they are difficult to manage and control.	License files are centrally located and managed.
Unserviced Standalone Seat (SS) licenses do not allow product use via Remote Desktop Connection or other terminal services clients.	Products can be used via Remote Desktop Connection or other Terminal Services clients, irrespective of the type of license in use.

## **Fault Tolerance, License Grace, and Redundancy**

Sybase products check out licenses on start-up, and perform periodic heartbeat checks to verify that licenses are still available. If a license is unavailable, the product determines whether it can be awarded on grace.

The grace period starts from the time a license was last in use and persists for 30 days for server products and 15 days for tool products. At the end of the grace period, the product performs an orderly shutdown, if running, or fails to start up, unless the license (or a replacement license) becomes available, at which point the cycle continues with the heartbeat, noting the last use of the license.

This tolerance for temporary licensing failure is usually sufficient. However, in certain circumstances, you may choose to use “three-license-server redundancy.” For example:

- A grace period is not provided for Sybase Floating License (FL) type licenses.
- Standby copy systems rarely qualify for grace as they are unlikely to have been used within the last 30 days.
- Company policy dictates the use of redundancy.

For three-server redundancy, use three machines that each:

- Run the same version of the SySAM license server.
- Have good intermachine communication.
- Use a separate copy of the same license files.

A product that uses per-processor licensing checks out a license quantity equal to the number of processors it can use, or awards runtime grace if an insufficient quantity is available. If the number of processors is dynamically increased while the product is running and the product is unable to check out additional licenses, runtime grace is also awarded. If the additional licenses are not made available within the runtime grace period the product shuts down. Decreasing the number of processors that a product can use while it is running does not reduce the required license quantity. You must restart the product on the correct number of processors.

## **Served License Deployment Model**

When you choose the served license deployment model, licenses are deployed to one or more SySAM license servers.

After you install the required license servers and generate served licenses, you can install your Sybase products. You can configure the products to obtain licenses from one or more license servers.

## License Servers

The license server is a lightweight application that serves licenses to products running on any operating system.

A license server can run on a low-end machine or a machine with spare cycles. For example, a license server running on a Solaris UltraSparc-60 serving 100 different licenses to 200 product instances, used 50MB of memory, 5 minutes of CPU time per week, and 100MB of disk space per year.

To download the license server software and installation instructions, go to the SySAM Standalone License Server Install page at <http://www.sybase.com/sysam/server> and select the download link.

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**Note:** You cannot start the license server until there is at least one served license saved to the `licenses` directory on the license server host machine.

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## Determining Host IDs

When you generate licenses at SPDC or SMP, you must specify the host ID of the machine where the licenses will be deployed.

- For unserved licenses, specify the host ID of the machine where the product will run. If you are running a product with per-CPU or per-CHIP licensing that supports SySAM sub-capacity, and you want to run the product in a virtualized environment, see *SySAM Sub-capacity Licensing* for information about determining the host ID for unserved licenses.
- For served licenses, specify the host ID of the machine where the license server will run.

SPDC or SMP remembers the host information so that you can select the same license server when generating additional licenses.

To determine the host ID of the machine, run the **lmutil** utility from a terminal window or the Windows command prompt. For example:

```
lmutil lmhostid
```

---

**Note:** You can download the **lmutil** utility from the Flexera Software Web site at [http://www.globes.com/support/fnp\\_utilities\\_download.htm](http://www.globes.com/support/fnp_utilities_download.htm).

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You can also determine the host ID using native operating system commands. See the Frequently Asked Questions topic "What is my Host ID?":

- SPDC: <https://sybase.subscribenet.com/control/sybs/faqs#30-4>
- SMP: <https://websmp208.sap-ag.de/~sapidb/011000358700001006652011E>

## Determining Host IDs for Machines with Multiple Network Adapters

On some platforms, the host ID is derived from the network adapter address.

If the machine where your product is installed or where the license server is hosted has multiple network adapters, running **lmutil lmhostid** returns one host ID for each network adapter, and returns output similar to this:

```
The FLEXlm host ID of this machine
is "0013023c8251 0015c507ea90"
Only use ONE from the list of hostids.
```

It is important that you:

- Choose only one host ID to enter during license generation.
- Use the value associated with the primary wired Ethernet adapter.
- Do not use values associated with internal loopback or virtual adapters.

If you cannot determine the host ID using the **lmutil lmhostid** output, use the native operating system commands to get additional details.

## Using Alternate Host IDs on Windows

If your Windows machine does not have a network adapter, SySAM allows you to use an alternate host ID based on the hard disk serial number.

1. At a Windows command prompt on the machine where you will deploy your license, enter:

```
lmutil lmhostid -vsn
```

This returns output similar to:

```
The FLEXlm host ID of this machine is
"DISK_SERIAL_NUM=70ba7a9d"
```

2. Use the complete output (DISK\_SERIAL\_NUM=70ba7a9d) for the host ID value requested during license generation.

## Knowing the Product License Type

Sybase sells products under different license types, which entitle the customer to different rights of use. For example, whether a product is entitled to be used in production, or standby, or development and test environments.

The license type determines the quantity of licenses required; dictating, for example, whether a license is required for each machine; or for each CPU, or CPU chip; or per terabyte of storage.

For example, a product purchased under the CPU License (CP) type requires one license per CPU on the machine, partition, or resource set where it will run. The same product purchased

under the Server License (SR) type requires a single license for the machine, partition, or resource set.

Your account can have the same product licensed under multiple license types. Make sure you select the correct license type when you generate your SySAM license file.

When you generate licenses, each license type is presented on the License Information screen in bold font. For example:

License Type: CPU License (CP)

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**Note:** The End User License Agreement for your region, available from the Sybase Software Licenses Web page at <http://www.sybase.com/softwarelicenses>, contains a definition for each license type. It also describes rights of use, such as whether licenses can be used only on a specific machine, partition, or resource set, or can float and whether you need more than one license for use on a specific machine, partition, or resource set. In addition, check the Product Specific License Terms Web page at <http://www.sybase.com/pslt>.

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## **Optional Feature Licenses**

Some Sybase applications are offered as base products with optional features that require a separate license.

Customers can mix license types. For example, customers can order Adaptive Server® Enterprise under the Server License (SR) license type and order an optional feature (for example, High Availability or Enhanced Full Text Search) under the CPU License (CP) type.

Optional features are licensed only with the base product of the same product edition. For example, if you order Adaptive Server Enterprise, you cannot use a Small Business Edition optional feature license with the Enterprise Edition base product. In addition, the entitled use of the license types must be compatible; for example, both types should allow use in a production environment.



## Generating Licenses at SPDC

Before you log in to SPDC and generate licenses, use this information as a reminder of the information you should have available and the tasks that you should have completed.

**Table 2. Information Needed Before License Generation**

Required Information or Action	License Model		Description
	Served	Un-served	
License deployment model	X	X	Decide whether to use a served or unserved license deployment model.  Typically, this is a company-wide decision that is made only once. Therefore, this is one of the most important things to determine before license generation.
Product machine host ID		X	Determine the host ID of the machine, or machine partition where the product will run.
License server – download and install	X		Download and install the SySAM license server before you generate the product’s licenses, and before you install the product.
License server host ID	X		Determine the host ID of the machine where the license server will run.
License server host name	X		Determine the host name of the machine where the license server will run.
License server TCP/IP port numbers	X		Determine the port numbers on which the license server will listen for license requests.  <b>Note:</b> If you do not specify the license server port numbers during license generation, the license server uses the first available ports in the range 27000 to 27009. If a firewall exists between the server and the client machines, fix the license server port numbers to allow access to the ports. See <i>Access Through a Firewall or VPN</i> in the <i>Sybase Software Asset Management (SySAM) 2 Users Guide</i> .

## Logging in to SPDC and Beginning License Generation

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Once you log in to SPDC and begin license generation, complete your product's license generation using the procedure that applies to the license deployment model you chose, either for generating served licenses or for generating unserved licenses.

If your product has been ordered from a Sybase reseller, perform the “Web Key step” instructions, where noted.

1. Go to the SPDC login page at <https://sybase.subscribenet.com>.
  - Go to the SPDC Web Key Registration page at <https://sybase.subscribenet.com/webkey>.
2. Enter the login ID and password, then click **Login**. If you forget your password, click **Password Finder**. Your password is sent to you in an e-mail message.
  - Enter the authorization string from the Web Key Certificate provided by the reseller when your Sybase product was purchased, then click **Submit Web Key**.

---

**Note:** If you do not know your SPDC account login ID and password, or Web Key Certificate authorization string, contact the person who ordered your product.

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- At the Web Key Registration page, enter your account information, then click one of these options:
    - **Submit My Registration Information** – to register your product using your direct account information.
    - **Anonymous Activation** – to activate your product anonymously.
3. Select the product family that includes the product for which you want to generate a license; for example, Adaptive Server Enterprise.
  4. Depending on the product family you choose, you may see an additional Product Information page.
    1. Product suites – if your product is included in one or more suites, select the suite that includes your product; for example, ASE Small Business Edition.
    2. Product version and platform – select the product version, name, and operating system that matches your product order.
  5. If this is the first time you selected a specific product edition and platform, you must accept the Sybase License Agreement before you are allowed to generate a license for that product.
  6. If your product software installation requires a license key (also referred to as the license file), click **License Keys** on the Product Download page.
  7. On the License Information page:

1. Select the option button to the left of the product for which to generate a license; for example, “CPU License (CP), ASE Enterprise Edition 15.7 for Sun Solaris SPARC 64-bit.”
  2. Scroll down and click **Select to Generate**.
8. In the Generate Licenses wizard, choose a license deployment model:
- **Served license** – go to *Generating Served Licenses* to complete the license generation and download process.
  - **Unserved license** – go to *Generating Unserved Licenses* to complete the license generation and download process.

---

**Note:** Some Sybase products or license types do not offer a choice of license deployment models and do not display this page. If this is the case, continue through the Generate Licenses wizard to generate your license.

---

Click **Next**.

## Generating Unserved Licenses

Generate and download an unserved license for your product.

1. Enter the number of machines (up to 10) for which to generate unserved licenses, and click **Next**.
2. Enter:
  - **Node Host ID** – enter the host ID of the machine where the product will be run. If you do not know the host ID, select **What Is My Host ID?** or see *Determining Host IDs*.
  - **Host Name** – enter the machine host name.

For some license types, you must enter the number of licenses to generate. If you are unsure of the license quantity, select **How Many Licenses Should I Generate?**.

3. Click **Generate**.
4. When the license has generated, review the information on the View Licenses page, then, if the license information is correct, select one of:
  - If you generated only one license, click **Download License File**.
  - If you generated several licenses, click **Download All Licenses for Host**.

---

**Note:** Before you download and save generated licenses, you can select **Print Friendly** to print a paper copy of the license, or **License Overview** to return to the License Information page and generate additional licenses.

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- To correct license information before downloading the license, click **License Overview**, select the license to be corrected and click **Check In** to reset the license to its original state. Repeat the license generation process.
5. If you chose to download licenses, when the File Download dialog box opens, click **Save**.

## Generating Licenses at SPDC

6. Save the generated licenses with a `.lic` file name extension. Although `$$SYBASE / SYSAM-2_0/licenses` is typically the directory where unserved licenses are located, your product may have a different requirement. See your product installation guide and release bulletin for product-specific information.

---

**Note:** If you do not save the license files with a `.lic` extension, SySAM does not recognize the licenses.

---

Next, install your licensed product using the instructions in the product installation guide and release bulletin.

## Generating Served Licenses

Generate and download a served license for your product.

1. Enter the number of licenses to generate and click **Next**.

If you are unsure of the license quantity, select **How Many Licenses Should I Generate?**.

2. Select an existing license server host, or enter the host ID, and an optional host name and port number, of a new license server host.

When completing this step, use these recommendations:

- If you do not know the license server host ID, select **What Is My host ID?** or see *Determining Host IDs*.
- Although the host name is optional, Sybase recommends that you provide the host name to ease future license administration.
- The port number is optional unless your product configuration is going to use three-server redundancy (see the next bullet item). Any unused port number between 0 and 64000 is valid. On UNIX, choose a port number greater than 1024; most port numbers less than 1024 are privileged port numbers. If you do not specify a TCP/IP port number, a default port between 27000 and 27009 is used.
- To generate a license for a three-server redundant configuration, enter the required information: license server host ID, host name, and port number for all three machines. Enter a port number outside of the 27000 to 27009 range. You must enter the fully qualified domain name (FQDN) as the host name if any client machine requires an FQDN to contact a license server machine.

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**Note:** You cannot upgrade SySAM 1.0 licenses and use them in a three-server redundant configuration.

---

3. Click **Generate**.
4. When the license has generated, review the information on the View Licenses page, then, if the license information is correct and you do not need to generate additional licenses, select one of:
  - If you generated only one license, click **Download License File**.

- If you generated several licenses, click **Download All Licenses for Host**.

---

**Note:** Before you download and save generated licenses, you can select **Print Friendly** to print a paper copy of the license.

---

- To correct license information, click **License Overview**, select the license to be corrected and click **Check In** to reset the license to its original state. Repeat the license generation process, starting with step 1 of this procedure.
  - To generate additional licenses, click **License Overview** and repeat the generation process for the additional product licenses.
- When the File Download dialog box opens, click **Save**.
  - Save the license files with a `.lic` file name extension to the `SYSAM-2_0/licenses` directory of the license server installation.

---

**Warning!** If you do not save the license files with a `.lic` extension, SySAM does not recognize the licenses.

---

- After you save the license files to the license server, enter on the machine where your license server is running:

```
sysam reread
```

Your new licenses are registered with the license server.

## Regenerating, Renewing, and Rehosting Licenses

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Learn when licenses must be regenerated, renewed, and rehosted.

Licenses must be upgraded to the latest versions when:

- Your support contract is renewed. Updated licenses enable you to use the newest versions of the products that become available during your support period.
- A new product version is added to your entitlement.

Licenses need to be rehosted when:

- You entered incorrect machine information when generating the license.
- The host ID of the machine has changed due to a hardware upgrade.
- You transfer products to a new machine.

You can either upgrade or rehost all licenses that were previously generated for a specific host (see *Managing License Hosts*), or you can modify individual licenses (see *Modifying Individual Licenses*).

## **Managing License Hosts**

Learn how to manage licenses of license hosts.

1. Select **Licenses** on the left pane of the SPDC main page, and then select **Manage License Hosts**.
2. Select or search for the existing license host.
3. Select one of these buttons to perform the desired operation on all licenses previously generated for the specified host:
  - **Upgrade All** – upgrades all licenses on the host to their latest versions.
  - **Re-host All** – migrates all licenses to a new host. You provide details on the next screen.
  - **Return All** – returns all licenses to the available licenses pool for future redeployment.

If you select **Upgrade All** or **Re-host All**, new licenses are sent via e-mail message to your e-mail address, and to any additional e-mail addresses you specify.

## **Modifying Individual Licenses**

Learn about modifying individual licenses.

1. Follow instructions in *Logging in to SPDC and Beginning License Generation* through the step for selecting options that identify the license you want to change.
2. On the License Information page, select the desired license order.
3. Select one of:
  - **Check in** – returns the license to the available license pool. To rehost the license, follow instructions in *Generating Unserved Licenses* or *Generating Served Licenses*.
  - **Upgrade** – upgrades the license to its latest version. Click **Upgrade** to generate a new license file. Download the license file, save it, and deploy it. The **Upgrade** option appears only if newer versions of the license are available.

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**Note:** Each product limits the number of times you can check in and rehost its licenses. If you reach your check-in limit, and the **Check-in** option does not appear, contact your company's designated person in Sybase Technical Support.

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## Generating Licenses at SMP

Before you log in to SMP and generate licenses, use this information as a reminder of the information you should have available and the tasks that you should have completed.

**Table 3. Information Needed Before License Generation**

Required Information or Action	License Model		Description
	Served	Un-served	
License deployment model	X	X	Decide whether to use a served or unserved license deployment model.  Typically, this is a company-wide decision that is made only once. Therefore, this is one of the most important things to determine before license generation.
Product machine host ID		X	Determine the host ID of the machine, or machine partition where the product will run.
License server – download and install	X		Download and install the SySAM license server before you generate the product’s licenses, and before you install the product.
License server host ID	X		Determine the host ID of the machine where the license server will run.
License server host name	X		Determine the host name of the machine where the license server will run.
License server TCP/IP port numbers	X		Determine the two port numbers on which the license server will listen for license requests.

## Generating License Keys

If you have purchased Sybase products that use SySAM 2-based licenses under SAP contract and are directed to download from SAP Service Marketplace (SMP), you can use SMP to generate license keys.

1. Go to the SAP Marketplace main page at <http://service.sap.com>.
2. Select **SAP Support Portal**.
3. Log in using your SMP credentials.

## Generating Licenses at SMP

4. Select **Keys & Requests > License Keys**.
5. Follow the instructions in the "How to generate license keys for SAP Sybase products" presentation available under the "Documentation and Helpful Resources" quick access link.

# Mobile Licensing

Learn about SySAM mobile licensing.

When a SySAM-enabled product uses unserved license, you can use the product offline, because the licenses and product are installed on the same machine.

However, when a SySAM-enabled product uses served licenses and is disconnected from the license server, you may not be able to work offline. SySAM provides a mobile licensing option that allows you to use served-license products without being connected to a license server.

To use SySAM mobile licensing, you borrow licenses for a specified period of time. You can use the licensed product offline until the borrowed licenses expire.

When borrowed licenses expire, you must reconnect to the network license server and borrow licenses again for the product to work offline. If you do not reborrow licenses before your currently borrowed licenses expire, the product runs only for a runtime grace period, then ceases to function.

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**Note:** Typically, the maximum duration for which you can borrow a license is 30 days.

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## Using Mobile Licenses

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You can borrow mobile licenses by using GUI functionality provided by some products, or by using the **lmutil** licensing utility and **lmborrow**, one of its parameters.

Products generally provide the GUI functionality that allows you to borrow and return SySAM 2 licenses. See your product's documentation to determine if it has this functionality, and if so, how to use it.

Some products automatically borrow licenses whenever they are used, so first check whether licenses are already borrowed on the machine:

```
lmutil lmborrow -status
lmutil - Copyright (c) 1989-2006 Macrovision Europe Ltd. and/or
Macrovision Corporation. All Rights Reserved.
Vendor      Feature      Expiration
-----
SYBASE      PD_SHELL    23-Feb-09 16:59
```

## Borrowing Licenses Using lmutil lmborrow

Learn how to borrow a license using **lmutil lmborrow**.

1. Shut down the SySAM-enabled products for which you want to borrow licenses.
2. Run the following commands: for each license you want to borrow, where *borrow-end-date* (dd-mon-yyyy) is the date on which you want the borrowed license to expire, and

*borrow-end-time* (optional) is the 24-hour clock time (hh:mm) at which you want the borrowed license to expire:

```
lmutil lmborrow SYBASE borrow-end-date [borrow-end-time]
```

For example, to borrow a license that expires at 1 PM (13:00) on August 20th, 2012, enter:

```
lmutil lmborrow SYBASE 20-aug-2012 13:00
```

---

**Note:** To continue using a SySAM-enabled served-license product offline, without interruption, you must renew the borrowed license before the license expires.

---

3. Restart your SySAM-enabled products; licenses are borrowed on the product machine for offline use.
4. Before running any product for which you do not want to borrow licenses, enter:  

```
lmutil lmborrow -clear
```
5. Disconnect from the network.

To determine the status of a license borrowed for a SySAM-enabled product's offline use, enter:

```
lmutil lmborrow -status
```

## Returning a Borrowed License Before It Expires

Learn how to return a borrowed license before it expires.

1. From the product machine, that is using a borrowed license, connect to the network.
2. Shut down your SySAM-enabled Sybase products.
3. Return each borrowed license by entering:

```
lmutil lmborrow -return  
[-c location_of_license_file] name_of_license
```

# SySAM Sub-capacity Licensing

You can license a physical machine, machine partition, or a resource partition using sub-capacity licensing.

Subject to the terms of your software license agreement and product documentation, you may be able to license a subset of the CPUs available on a physical machine using the SySAM Sub-capacity license functionality. See your software license agreement and product documentation to determine whether SySAM Sub-capacity licensing is allowed and if so, what type of partition or resource allocation technologies are supported.

There are also new and changed definitions you will encounter. See *SySAM Sub-capacity Glossary of Definitions*.

## Configuring SySAM Sub-capacity

---

Configure SySAM to use a license quantity appropriate to the containment level and to share licenses at the machine, partition, or resource level.

### Prerequisites

To configure machine-level licensing on platforms other than AIX logical partitions and HP-UX virtual partitions, run **sysamcap** on the physical machine or control domain for the virtualization technology (such as VMware ESXi/ESX console, the Microsoft Hyper-V host, the Red Hat KVM host, the XEN dom0) as a user with root permissions.

### Task

1. Obtain the SYBASE\_SAM\_CAPACITY environment variable for the containment level you are licensing.
  - a) To get machine-level information, enter:
 

```
sysamcap MACHINE
```
  - b) To get partition-level information, enter:
 

```
sysamcap PARTITION
```
  - c) To get resource-set-level information, enter:
 

```
sysamcap RESOURCESET
```
2. Set the SYBASE\_SAM\_CAPACITY environment variable to the value reported by **sysamcap**.
3. Start your sub-capacity-enabled Sybase product.

## sysamcap Utility

---

Use the **sysamcap** utility to configure sub-capacity licensing for the containment level (machine, partition, or resource set) and optionally, the name or ID of the resource set.

Run **sysamcap** and set the **SYBASE\_SAM\_CAPACITY** environment variable to the value it reports prior to running your product.

### Syntax

```
sysamcap capacity-level [resource_set_name] [-q] [-v]
```

### Parameters

- **capacity-level** – designates the containment level to be licensed:
  - **MACHINE** – the complete physical machine.
  - **PARTITION** – a sub-capacity partition of your machine.
  - **RESOURCESET** – a sub-capacity partition governed by a resource set.
    - *resource\_set\_name* (optional) – set this parameter to indicate the resource set that will govern the product. The product is always be licensed based on the resource set it is actually governed by so this parameter is only to aid administration or to allow the product to verify that it is running under the intended resource set.  
On Solaris and HP-UX, the *resource\_set\_name* is the PSET ID obtained when creating the processor resource set via the **psrset** command, or equivalent.  
On AIX, the *resource\_set\_name* is the name specified to **mkrset**, or equivalent.
  - **DEFAULT** – default configuration settings. SySAM uses the default license check pre-sub-capacity-support mechanism to check for licenses. Sub-capacity functionality is not available under the default setting.
- **-v** – verbose output contains diagnostic messages.
- **-q** – quiet mode reports only the environment variable.

### Examples

- **Licensing a machine to allow any number of VMware virtual machines –**
  1. Enable ESXi server tech support mode and log in to the VMware ESXi console with root privileges.

---

**Note:** You must use the Linux version of **sysamcap**.

---

2. Run **sysamcap**, specifying machine-wide licensing:

```
sysamcap MACHINE
```

Example output:

```
Set the following environment variable prior to starting the product. This only needs to be done once for each instance of
```

the product that will run.

```
SYBASE_SAM_CAPACITY=MACHINE:FC2F63B3C5C2F2770A2
```

Using this configuration licensing will be based on 32 logical processor(s), 16 processor core(s) and 2 processor chip(s).

Sybase recommends use of a SySAM License Server, but if you wish to generate un-served licenses for using the product within this environment then you will need to specify the following host-id when generating licenses at the Sybase Product Download Center.

```
MACHINE-ID=782bcb2f04e3
```

---

**Note:** Starting with version 2.2.0.9, **sysamcap MACHINE** reports the real MAC address. In earlier versions, the command reported the VMWare MAC address. Therefore, the host ID for unserved shared-capacity (**sysamcap MACHINE**) licenses for VMware ESX virtual machines may have changed. Existing licenses continue to work but you must check in and regenerate the licenses at SPDC for any VMs added after the SYBASE\_SAM\_CAPACITY environment variable was last generated. Check the host ID reported by **sysamcap MACHINE** against the HOSTID field in the unserved license to determine whether the license needs to be regenerated.

---

3. Log in to a VMware VM to set the **SYBASE\_SAM\_CAPACITY** environment variable to the value report by **sysamcap** and to run the product. Use the mechanism appropriate for the operating system that the VM is running.

On a VM running Windows XP:

1. Right-click **My Computer**, and then click **Properties > Advanced > Environment variables > System variables > New**.
2. In the Variable name field, enter the value: SYBASE\_SAM\_CAPACITY.
3. In the Variable value field enter the value reported by **sysamcap**, for this example:
 

```
MACHINE:FC2F63B3C5C2F2770A2
```
4. Click **OK**.

On a VM running Linux/UNIX and using a Korn shell:

1. Set the environment variable:
 

```
export SYBASE_SAM_CAPACITY=MACHINE:FC2F63B3C5C2F2770A2
```

4. Start the product.
- 

**Note:** Repeat these steps to run the product on a VM that was created after running **sysamcap**.

---

- **Licensing an individual logical partition such as AIX LPAR, HP vPar, HP Integrity Virtual Machine, Microsoft Hyper-V, Red Hat KVM, Solaris LDOM, VMware VM, and Xen domU –**

1. Log in to the machine partition, for example, using an xterm running the Korn shell.
2. Run **sysamcap**, specifying partition-wide licensing:

```
sysamcap PARTITION
```

## SySAM Sub-capacity Licensing

Example output:

Set the following environment variable prior to starting the product. This only needs to be done once for each instance of the product that will run.

```
SYBASE_SAM_CAPACITY=PARTITION
```

Using this configuration, licensing is based on 4 logical processors, 1 processor core and 1 processor chip.

Sybase recommends using a SySAM License Server; however, to generate an unserved licenses for your SySAM sub-capacity-enabled product you must specify the following type of host-id when generating licenses at the Sybase Product Download Center.

```
PARTITION-ID=83f828fb
```

3. Set the environment variable:

```
export SYBASE_SAM_CAPACITY=PARTITION
```

4. Start the product.

- **Licensing a Solaris container –**

1. Log in to the container, for example, using an xterm running the Korn shell.

2. If desired, determine the name of the resource set by which the product will be governed.

3. Run **sysamcap**, specifying resource set licensing and optionally the desired *resource\_set\_name*, for example, using PSET 1:

```
sysamcap RESOURCESET 1
```

Example output:

Set the following environment variable prior to starting the product. This only needs to be done once for each instance of the product that will run.

```
SYBASE_SAM_CAPACITY=RESOURCESET,1:8C348011FAC4836A6C
```

Using this configuration licensing will be based on 2 logical processor(s), 2 processor core(s) and 1 processor chip(s).

Sybase recommends use of a SySAM License Server, but if you wish to generate un-served licenses for using the product within this environment then you will need to specify the following host-id when generating licenses at the Sybase Product Download Center.

```
RESOURCESET-ID=2179c53d-737f-11dc-b683-8b3cbe475233-PSET-1
```

4. Set the environment variable:

```
export SYBASE_SAM_CAPACITY=RESOURCESET,1:8C348011FAC4836A6C
```

5. Start the product.

---

**Note:** Refer to your product documentation to determine the sub-capacity technologies you can use.

---

## SySAM Sub-capacity Glossary of Definitions

---

Definitions for SySAM 2.2 sub-capacity licensing.

- **Host-ID** — identifier that locks a license to a specific host or virtual environment. SySAM 2 uses the default **FLEXlm** host-ID identifiers. With SySAM 2.2, the host-ID used for unserved licenses can be the default **FLEXlm** host-ID, the machine-ID, the partition-ID, or the resource-set-ID, depending upon your configuration.
- **Machine-wide licensing** — licenses a physical machine.
- **Partition-wide licensing** — licenses only a partition.
- **Resource-wide licensing** — licenses only a specific resource.
- **Machine-ID** — identifier for a specific physical machine. You can split the machine into multiple partitions.
- **Machine partition** — a logically separate system within a physical machine, typically using its own operating system rather than a partitioning of a machine's resources. A machine partition can be a virtual machine (VM), AIX Logical Partition (LPAR), HP-UX Virtual Partition (vPar), or Solaris Logical Domain (LDOM). The term "machine partition" refers to a separate logical system (typically using its own operating system) rather than to partitioning of a machine's resources.
- **Resource partition** — a sub-capacity operating environment within a physical machine that limits the processing capacity for an application, such as a Solaris Container, an AIX WPAR, or an HP Secure Resource Partition.
- **Partition-ID** — identifier for a specific machine partition.
- **Resource-set-ID** — identifier for a specific processor resource-set.
- **License quantity** — the number of licenses needed for a particular containment level.
- **Containment level** — a particular division of a machine such as a partition or resource set.



# Index

## B

borrowing a license 19

## F

features, separately licensed optional 9

## G

generating  
     served licenses 14  
     unserved licenses 13  
 grace period 6

## H

heartbeat 6  
 host IDs  
     determining 7  
     lmutil utility 7  
     on Windows platforms 8  
     with multiple network adapters 8

## L

license deployment models  
     comparison of 5  
     recommendations 5  
 license servers 6  
     borrowing mobile licenses 19  
 licenses 16  
     borrowing mobile 19  
     recommendations for license models 5  
     regenerating 15  
     rehosting 15  
     renewing 15  
     returning 20

## M

mobile licenses  
     borrowing 19

mobile licensing  
     disconnected use 19  
 modifying individual licenses 16

## O

offline product use, borrowing mobile licenses for  
     19

## R

recommendations  
     license models 5  
 redundancy 6  
 returning a license 20

## S

SAP Service Marketplace 3  
 separately licensed optional features 9  
 served licenses 14  
     license servers 6  
 servers, license 6  
 SPDC  
     generating served licenses 14  
     generating unserved licenses 13  
 style conventions  
     fonts 1  
 sub-capacity glossary 25  
 Sybase Product Download Center  
     login page for Sybase reseller sales 3  
 SySAM licensing 9  
     borrowing mobile licenses 19  
     license servers 6  
 SySAM Sub-capacity 21  
 sysamcap utility 22

## U

unserved licenses 13  
 using SySAM 2 21  
 using SySAM Sub-capacity 21

