# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audience</td>
<td>xiii</td>
</tr>
<tr>
<td>How to Use This Book</td>
<td>xiii</td>
</tr>
<tr>
<td>Related Documents</td>
<td>xiii</td>
</tr>
<tr>
<td>- Other Sources of Information</td>
<td>xiv</td>
</tr>
<tr>
<td>Conventions Used in this Manual</td>
<td>xv</td>
</tr>
<tr>
<td>If You Need Help</td>
<td>xv</td>
</tr>
<tr>
<td>- Technical Support</td>
<td></td>
</tr>
</tbody>
</table>

## 1. Introduction

**Description of Adaptive Server Enterprise Monitor**

- Monitor Components                                                   | 1-1  |
- Monitor Architecture                                                  | 1-2  |
- Interaction with sp_sysmon                                             | 1-3  |

## 2. Configuring Monitor Server

**Monitoring SQL Server Release 11.0.x**

**Initial Configuration on UNIX Platforms**

- Assumptions on UNIX Platforms                                         | 2-1  |
- Results of Installation on UNIX Platforms                             | 2-2  |
- Configuration Procedures on UNIX Platforms                           | 2-3  |
- What’s Next?                                                         | 2-8  |

**Initial Configuration on Microsoft Windows NT**

- Assumptions on Windows NT                                             | 2-8  |
- Results of Installation on Windows NT                                 | 2-9  |
- Configuration Procedures on Windows NT                               | 2-10 |
- Setting up the Automatic Startup Service                              | 2-15 |
- Setting Up the Server Startup Order                                  | 2-17 |
- Changing the Default Configuration                                   | 2-18 |
- Changing Startup Information in the NT Registry                      | 2-18 |
- Changing the .bat File                                               | 2-19 |
- Configuring Another Monitor Server                                   | 2-19 |
- What’s Next?                                                         | 2-20 |

**Monitor Server Startup Parameters**

- Function                                                             | 2-21 |
- Syntax                                                               | 2-21 |
- Parameters                                                           | 2-22 |
Adjusting Monitor Server Runtime Configuration .................................. 2-26
  Monitor Server Configuration File ................................................. 2-26
  Initial Scan Interval ............................................................ 2-27
  Heartbeat Interval ............................................................... 2-27
  Configuring Monitor Server Heap Space Usage ............................. 2-28
    Summary Buffer Size .......................................................... 2-29
    Number of Summary Buffers per Event Summary Request ............... 2-29
    Maximum Number of Event Summaries per Connection ................. 2-30
Adaptive Server Configuration Issues that Affect Monitor Server .... 2-31
  Restrictions on Length of Adaptive Server Name ......................... 2-32
  Configuring Event Buffers ...................................................... 2-32
    Understanding Event Buffers and Event Loss ............................ 2-32
    Determining a Value for event buffers per engine Parameter ....... 2-33
    Changing the event buffers per engine Parameter ...................... 2-34
  Configuring SQL Text Buffers .................................................. 2-35
    Understanding the SQL Text Feature ....................................... 2-35
    Determining a Value for the max SQL text monitored Parameter . 2-36
    Changing the max SQL text monitored Parameter ......................... 2-37

3. Starting, Verifying, and Stopping Monitor Server
Starting, Verifying, and Stopping Monitor Server on UNIX Platforms .... 3-1
  Starting Monitor Server on UNIX ............................................. 3-1
  Verifying that Monitor Server is Running on UNIX ....................... 3-2
  Stopping Monitor Server on UNIX ............................................ 3-3
Starting, Verifying, and Stopping Monitor Server on Windows NT ....... 3-3
  Starting Monitor Server on Windows NT ..................................... 3-4
  How Startup Parameters are Inferred on Windows NT ................... 3-4
  Verifying that Monitor Server is Running on Windows NT ............. 3-5
  Stopping Monitor Server on Windows NT .................................... 3-6
Orderly Shutdowns and Restarts .................................................. 3-6
  Orderly Shutdowns ............................................................. 3-6
  Automatic Shutdowns ........................................................... 3-7
  Orderly Restarts ............................................................... 3-7
Connecting to Clients ............................................................. 3-8

4. Monitor Server isql Commands
Using the Commands ........................................................................ 4-1
  sms_shutdown ........................................................................... 4-2
  sms_status ............................................................................... 4-3
A. Troubleshooting Monitor Server

Error Messages ................................................. A-1

Common Problems ............................................ A-7
  Monitor Server Fails to Start ............................ A-7
  Access Violations .......................................... A-7
  Check the NT Registry Services Entry (NT Only) .... A-8
  Client Errors ............................................. A-8
  Maximum Connection Errors ......................... A-8
  ct_netlib Errors (Windows NT) .................... A-9

Messages in Adaptive Server Error Log ................. A-9
| Figure 1-1: | Adaptive Server Enterprise Monitor architecture | 1-2 |
| Figure 2-1: | Services window | 2-15 |
| Figure 2-2: | Service dialog box | 2-16 |
## List of Tables

<table>
<thead>
<tr>
<th>Table 2-1:</th>
<th>Monitor Server startup command parameters</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2-2:</td>
<td>Client Requests Resulting in Event Summaries</td>
<td>2-31</td>
</tr>
</tbody>
</table>
List of Tables
About this Book


**Audience**

This user’s guide is for individuals responsible for configuring and administering Monitor Server.

**How to Use This Book**

This book contains the following chapters:

- Chapter 1, “Introduction,” describes Adaptive Server Enterprise Monitor components and architecture.
- Chapter 2, “Configuring Monitor Server,” describes how to configure Monitor Server on both UNIX and Microsoft Windows NT platforms.
- Chapter 4, “Monitor Server isql Commands,” describes administrative commands for Monitor Server.

**Related Documents**

Use the following books for more information about Adaptive Server Enterprise Monitor:

ASE Monitor Server User’s Guide
• *Adaptive Server Enterprise Monitor Release Bulletin* contains release notes and important information about the current release of Monitor Server.

• *Managing and Monitoring Adaptive Server Enterprise* describes how to use Monitor Viewer to access the statistics that Monitor Server collects. The manual provides instructions for viewing the monitoring windows, as well as hints on using the displayed information to tune Adaptive Server for better performance.

• *Adaptive Server Enterprise Monitor Client Library Programmer’s Guide* describes how to write applications that access data collected by Monitor Server.

• *Adaptive Server Enterprise Monitor Historical Server User’s Guide* describes how to manage Historical Server. It also describes the isql command interface to Historical Server.

**Other Sources of Information**

Use the following books for more information about Adaptive Server configuration and tuning:

• *Open Client/Server™ Configuration Guide for UNIX* and *Open Client/Server Configuration Guide for Desktop Platforms* describe the utilities that enable client/server connections, such as dsedit.

• *Adaptive Server Enterprise Utility Programs* is a guide to Adaptive Server utilities, such as isql.

• *Adaptive Server Enterprise System Administration Guide* contains information on tuning and configuring Adaptive Server.


Use the SyBooks™ and SyBooks-on-the-Web online resources to learn more about your product:

• SyBooks documentation is on the CD that comes with your software. The DynaText browser, also included on the CD, allows you to access technical information about your product in an easy-to-use format.

  Refer to *Installing SyBooks* in your documentation package for instructions on installing and starting SyBooks.

• SyBooks-on-the-Web is an HTML version of SyBooks that you can access using a standard Web browser.
To use SyBooks-on-the-Web, go to http://www.sybase.com, and choose Documentation.

**Conventions Used in this Manual**

The following table describes the style conventions used in this manual.

<table>
<thead>
<tr>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command names, command parameters, and other keywords appear in the text in <strong>bold</strong> typeface.</td>
<td>The <code>-S</code> parameter is required.</td>
</tr>
<tr>
<td>Bold typeface also indicates emphasis or that a definition accompanies the highlighted term.</td>
<td>The <code>-T1</code> parameter is not recommended for production systems.</td>
</tr>
<tr>
<td>Variables, file names, path names, database names, and Adaptive Server table names appear in the text in <strong>italic</strong> typeface.</td>
<td><code>-Username</code>&lt;br&gt;<code>master database</code></td>
</tr>
<tr>
<td>User input appears in <strong>Courier bold</strong> typeface.</td>
<td><code>isql -Usybase -Psa -Sserver1</code></td>
</tr>
<tr>
<td>Computer output, such as error messages and command output, appears in <strong>Courier</strong> typeface.</td>
<td>Unable to attach with shared memory.</td>
</tr>
<tr>
<td>Brackets indicate that the enclosed item is <strong>optional</strong>. Do not type the brackets.</td>
<td><code>[no_wait]</code></td>
</tr>
</tbody>
</table>

**If You Need Help**

You can get help on Monitor Server from the documentation and from the Technical Support Center.

**Technical Support**

Each Sybase installation has a person designated to contact the Technical Support Center. If you cannot solve a problem using the manuals or online help, ask the designated person at your site to contact the Technical Support Center for help.
1

Introduction

This chapter introduces Adaptive Server Enterprise Monitor features and architecture.

Description of Adaptive Server Enterprise Monitor

Adaptive Server Enterprise Monitor provides a way to monitor Adaptive Server performance in real time or in a historical data-gathering mode. System administrators can use this information to identify potential resource bottlenecks, to research current problems, and to tune for better performance. Adaptive Server Enterprise Monitor provides feedback for tuning at several levels:

- Adaptive Server configuration
- Database design
- SQL statements in applications and stored procedures

Monitor Components

Adaptive Server Enterprise Monitor consists of four components that gather or display Adaptive Server performance data:

- Adaptive Server Enterprise Monitor Server (Monitor Server) – This server collects Adaptive Server performance data in real time and makes the data available to the other Adaptive Server Enterprise Monitor components. Monitor Server is a Sybase Open Server™ application.

- Adaptive Server Enterprise Monitor Historical Server (Historical Server) – This server obtains Adaptive Server performance data from Monitor Server and saves the data in files for deferred analysis. Historical Server is a Sybase Open Server application.


- Adaptive Server Enterprise Monitor Client Library (Monitor Client Library) – This application programming interface (API) to Monitor Server is available to users for developing monitoring applications. Historical Server and the monitors in the Adaptive
Server Enterprise Plug-in for Sybase Central are Monitor Client Library applications.

**Monitor Architecture**

The following figure shows the relationships between Adaptive Server and the various components of Adaptive Server Enterprise Monitor.

![Diagram of Adaptive Server Enterprise Monitor architecture](image)

Adaptive Server saves performance data in a shared memory area that Monitor Server reads. Because of this shared memory technique, Monitor Server must be installed and running on the same machine as the Adaptive Server being monitored. A one-to-one relationship exists between an Adaptive Server and a Monitor Server.

Monitor Client Library applications obtain Adaptive Server performance statistics from Monitor Server. These applications are clients of Monitor Server. For performance reasons, Sybase recommends running Monitor Client Library applications on machines other than the ones where pairs of Adaptive Server and

The Adaptive Server Enterprise Plug-in for Sybase Central includes a set of monitors showing different aspects of Adaptive Server resource usage at various levels of detail. Each open monitor is a separate application, with a unique client connection to Monitor Server. In Sybase Central, each Adaptive Server installation has its own Monitors folder containing the set of monitor objects. See *Managing and Monitoring Sybase Adaptive Server Enterprise* for more information about the monitors.

Historical Server collects performance information from Monitor Server and saves the information in files for deferred analysis. Historical Server interfaces let users specify the data to collect and the time period desired. They also include a historical data playback feature. The interfaces are:

- A command interface in `isql`. For more information, see *Sybase Adaptive Server Enterprise Monitor Historical Server User’s Guide*.
- A programming interface using Monitor Client Library. For more information, see *Sybase Adaptive Server Enterprise Monitor Client Library Programmer’s Guide* and *Sybase Adaptive Server Enterprise Monitor Historical Server User’s Guide*

**Interaction with sp_sysmon**

The `sp_sysmon` stored procedure and Monitor Server use the same internal counters. When `sp_sysmon` is invoked, it resets these counters to 0, which has the effect of resetting session totals that Monitor Server might be collecting on behalf of its clients. Do not expect to use `sp_sysmon` and Monitor Server clients simultaneously.
Configuring Monitor Server

This chapter describes the following topics:

• Monitoring SQL Server Release 11.0.x 2-1
• Initial Configuration on UNIX Platforms 2-1
• Initial Configuration on Microsoft Windows NT 2-8
• Monitor Server Startup Parameters 2-21
• Adjusting Monitor Server Runtime Configuration 2-26
• Adaptive Server Configuration Issues that Affect Monitor Server 2-31

Follow procedures in one of the first two sections to perform an initial Monitor Server configuration. Use the other sections to learn more about configuring Monitor Server and to make adjustments to the original configuration.

Monitoring SQL Server Release 11.0.x

If you are using Monitor Server release 11.5 to monitor SQL Server release 11.0.x, do not configure Monitor Server as described in the following sections. Instead, do the following:


2. Optionally, enable non-sa_role monitoring. For instructions, see step 9 in “Initial Configuration on UNIX Platforms”, or step 8 in “Initial Configuration on Microsoft Windows NT”.

Initial Configuration on UNIX Platforms

This section explains how to configure Monitor Server on UNIX platforms.
Assumptions on UNIX Platforms

These procedures make the following assumptions:

- You are monitoring Adaptive Server 11.5.
- The Adaptive Server you want to monitor is installed and configured.
- The Adaptive Server installation includes two-phase commit. (This is required only if you intend to enable non-sa_role monitoring.)
- The Monitor Server software is unloaded from the delivery media, using the sybsetup utility as described in Installing Sybase Adaptive Server Enterprise on UNIX Platforms.
- The Monitor Server is configured using the Build Servers option in sybsetup, as described in Installing Sybase Adaptive Server Enterprise on UNIX Platforms.
- The Monitor Server and Adaptive Server reside on the same machine and are installed in the same Sybase directory.

Results of Installation on UNIX Platforms

The sybsetup utility (with the Build Servers option) does the following regarding Monitor Server:

- Copies Monitor Server files from the delivery media to the Sybase installation directory.
- Adds Monitor Server configuration information in the interfaces file under the Sybase installation directory.
- Creates a Monitor Server startup file in the install directory under the Sybase installation directory. This file contains default startup parameters.
- Executes the installmon script, which inserts the following Monitor Server stored procedures into Adaptive Server:
  - mon_rpc_attach. This procedure executes when you start Monitor Server, to attach Monitor Server to Adaptive Server shared memory. The user identified by the -U parameter in the Monitor Server startup command must have execute permission on mon_rpc_attach.
  - mon_rpc_connect. Monitor Server executes this procedure when a client connects to it to complete the client/server connection.
Users must be granted execute permission on `mon_rpc_connect` before they can run a client of Monitor Server.

- `mon_authorize_non_sa`. In previous releases, clients to Monitor Server were required to have a login with `sa_role`. In this release, logins without `sa_role` can connect to Monitor Server. This stored procedure enables monitoring by clients who do not have `sa_role`.

The next section describes the additional steps that you should perform before using Monitor Server

### Configuration Procedures on UNIX Platforms

To complete Monitor Server configuration on a UNIX platform:

1. Set the `$SYBASE` environment variable to the value of the Sybase directory where you installed Adaptive Server and Monitor Server.

2. Log onto the UNIX machine using the “sybase” account or some other account that has read, write, and search (execute) permissions on the `$SYBASE` directory.


4. Verify that a valid shared memory file exists.

   When Adaptive Server is booted, it creates the shared memory file. The file resides in the `$SYBASE` directory. A valid shared memory file has a name in the following format:

   `AdaptiveServerName.krg`

   Check that `AdaptiveServerName` is the entire name, and is not truncated. If `AdaptiveServerName` is truncated, Monitor Server will not start. See “Restrictions on Length of Adaptive Server Name” on page 2-32 for ways to correct this situation.

5. Connect to Adaptive Server using Sybase Central or `isql`.

6. Change the `event buffers per engine` configuration parameter. The `isql` command is:

   `sp_configure "event buffers per engine", number`

   where `number` is the maximum number of events to be buffered per engine.

   The default setting for this parameter is 100, which is not adequate for most sites running Monitor Server. The recommended value for an initial configuration is 2000.
You might need to adjust this value again later. Monitor Server reads event information from these buffers. If this number is too low, event buffer overruns can occur and events can be lost. See “Configuring Event Buffers” on page 2-32 for more information on fine tuning this parameter.

7. Change the **max SQL text monitored** configuration parameter. The `isql` command is:

```sql
sp_configure "max SQL text monitored", bytes_per_connection
```

where `bytes_per_connection` is the maximum number of bytes reserved for each client connection to hold the SQL text of the currently executing batch. Adaptive Server stores the text in reserved buffers in shared memory. Monitor Server obtains the text when asked to do so by one of its clients. SQL text is helpful in tuning long running statements or researching hung processes.

The default setting for this parameter is 0, which does not allow Adaptive Server to buffer any SQL text. The recommended value for an initial configuration is 1024. The theoretical limit is 2,147,483,647, but Adaptive Server immediately rejects very large values because they do not leave enough space for data and procedure cache.

You might need to adjust this value again later. If a connection’s batch text is larger than `bytes_per_connection`, the text is truncated in the buffer. See “Configuring SQL Text Buffers” on page 2-35 for more information about the SQL text feature.

8. Stop and restart Adaptive Server, and verify that it started correctly.

This step is necessary to put into effect the new values for the configuration parameters you just changed.


   a. Execute the `mon_authorize_non_sa` stored procedure, located in the `master` database. If the `mon_authorize_non_sa` stored procedure is not in the `master` database or if it issues an error message indicating that two-phase commit needs to be installed, some steps were omitted during the Adaptive Server and Monitor Server installation process. See the latest Release Bulletin for Adaptive Server Monitor for specific instructions.

   b. Add user names to the `master` database.
If a Monitor Server client uses an Adaptive Server login that does not have sa_role, the login must be associated with a user in the master database. Therefore, you probably need to add user names to master. You can either:

- Add a user to master for each login that will be a Monitor Server client, or
- Add one user to master and associate multiple logins to it through aliases.

To add a user to master, the SQL commands are:

```sql
use master
go
sp_adduser userName

go
```

c. Give these user names permission to execute the mon_rpc_connect stored procedure. The SQL commands are:

```sql
use master
go
grant execute on mon_rpc_connect to userName

go
```

➤ **Note**

All user names who want to connect to Monitor Server must have this permission, whether they have sa_role or not.

10. Add connectivity information for Monitor Server.

Sybase client/server connection information can exist in an interfaces file or in a directory service. See Open Client/Server Configuration Guide for UNIX for more information about any of the following procedures or the dsedit, dscp, dsedit_dce, and dscp_dce utilities.

If you are relying on interfaces files for making client/server connections, you do not need to do anything. The Server Build option in sybsetup adds the Monitor Server connection information to the interfaces file.

➤ **Note**

To verify or change the information, use either dsedit (if your system is running X windows) or dscp (a command line utility).
If you are relying on a directory service for making client/server connections:

- Make sure that the $SYBASE/config/libtcl.cfg file on the machine where Monitor Server was installed points to the appropriate directory service. Use an editor to check and update libtcl.cfg files.

- Add Monitor Server to the directory service, using dsedit_dce (if your system is running X Windows) or dscp_dce (a command line utility). You need to know the Monitor Server name to complete this step.


This step enables clients to connect to Monitor Server. Clients to Monitor Server are users of Historical Server, Monitor Viewer, or other Monitor Client Library applications. Each client machine must be configured appropriately.

If you are relying on interfaces files (or sql.ini files for clients running on Windows platforms) for making client/server connections:

a. Update all of the interfaces or sql.ini files used by Monitor Server clients. Use dsedit or dscp. The files must contain entries for:

- Monitor Server
- Adaptive Server that you want to monitor

b. To add these entries, you must know the following information:

- Adaptive Server and Monitor Server names
- Port numbers or network addresses assigned to these servers when they were configured. If you need to research this information, use dsedit or dscp on the server machine to examine the appropriate interfaces file.

If you are relying on a directory service for making client/server connections, then make sure that the libtcl.cfg file on all Monitor Server client machines points to the appropriate directory service. Use a text editor to check and update libtcl.cfg files on UNIX platforms; use dsedit on Windows platforms.

12. Add Monitor Server to the Sybase Central machine.

If users intend to connect to Monitor Server by using Monitor Viewer in Sybase Central, add entries for Monitor Server to the...
sql.ini file on the Sybase Central machine. Use dsedit on the Sybase Central machine to add this entry.

13. Review the startup script file. Make sure the parameters are suitable for your site.

The script file contains the Monitor Server startup command, monserver, and its parameters. A script file ensures that correct startup parameters are used each time someone starts Monitor Server. The file name is $SYBASE/install/run_monServerName, where $SYBASE is the installation root directory and monServerName is the name used by the sybsetup Server Build option.

When editing the file:

- Do not include a space between an option and its argument.
- Do not use carriage returns within the command. Use the standard UNIX continuation character (a backslash) to continue the command on more than one physical line.
- See Table 2-1 on page 2-22 for descriptions of the Monitor Server startup parameters.

Some parameter values must match in the Adaptive Server and Monitor Server startup commands:

- The same shared memory file name must be specified or implied when starting Adaptive Server and Monitor Server. Therefore, the implicit or explicit values of the -M parameter for Adaptive Server and the -m parameter for Monitor Server must match.

- The same Adaptive Server name must be specified in both startup commands. Therefore, the values of the -s parameter for Adaptive Server and the -S parameter for Monitor Server must match. (In the Adaptive Server startup command, the -s option names the Adaptive Server to start. In the Monitor Server startup command, the -S option names the Adaptive Server to monitor.)

14. Check the permissions on the startup script file.

The same UNIX account must be used to start Adaptive Server and Monitor Server to ensure appropriate access to shared memory. If necessary, use the chmod command to give the appropriate account execute permission on the new file.
What’s Next?

Configuration of the new Monitor Server is now complete. Go to Chapter 3, “Starting, Verifying, and Stopping Monitor Server”, for instructions on starting the server, verifying that it is running correctly, and connecting to it using clients.

Depending on conditions at your site, you might need to adjust the default runtime configuration of Monitor Server. See “Adjusting Monitor Server Runtime Configuration” on page 2-26 for more information.

Initial Configuration on Microsoft Windows NT

This section explains how to configure Monitor Server on Windows NT machines for Adaptive Server release 11.5. If you are monitoring SQL Server release 11.0.x, see “Monitoring SQL Server Release 11.0.x” on page 2-1.

The section contains the following topics:

• Assumptions on Windows NT 2-8
• Results of Installation on Windows NT 2-9
• Configuration Procedures on Windows NT 2-10
• What’s Next? 2-20
• Setting up the Automatic Startup Service 2-15
• Setting Up the Server Startup Order 2-17
• Changing the Default Configuration 2-18
• Configuring Another Monitor Server 2-19

Assumptions on Windows NT

These procedures make the following assumptions:

1. The Adaptive Server you want to monitor is installed and configured.
2. The Adaptive Server installation includes two-phase commit. (This is required only if you intend to enable non-sa_role monitoring.)
3. The Monitor Server software is loaded from the delivery media, using the instructions provided with the delivery media.
4. The Monitor Server software was installed on the same machine and into the same Sybase directory used by the Adaptive Server you want to monitor.

**Results of Installation on Windows NT**

On the Windows NT platform, the Sybase Adaptive Server installation process performs a nearly complete configuration of a companion Monitor Server for Adaptive Server. The installation process does the following regarding Monitor Server:

- Copies Monitor Server files from the delivery media to the Sybase installation directory.
- Adds Monitor Server configuration information to the NT Registry.
- Adds Monitor Server configuration information in the sql.ini file in the ini directory under the Sybase installation directory.
- Creates a run server file (.bat file) in the install directory under the Sybase installation directory. The .bat file contains default startup parameters.
- Executes the `installmon` script, which inserts the following required Monitor Server stored procedures into Adaptive Server:
  - `mon_rpc_attach`. This procedure executes when you start Monitor Server, to attach Monitor Server to Adaptive Server shared memory. The user identified by the -U parameter in the Monitor Server start-up command must have execute permission on `mon_rpc_attach`.
  - `mon_rpc_connect`. Monitor Server executes this procedure when a client connects to it to complete the client/server connection. Users must be granted execute permission on `mon_rpc_connect` before they can run a client of Monitor Server.
  - `mon_authorize_non_sa`. In previous releases, clients to Monitor Server were required to have a login with sa_role. In this release, logins without sa_role can connect to Monitor Server. This stored procedure enables monitoring by clients who do not have sa_role.
- Creates the “mon_user” account which is used as the default Monitor Server superuser account in the Monitor Server startup command.
The next section describes the few additional steps that you should perform before using Monitor Server.

### Configuration Procedures on Windows NT

To complete Monitor Server configuration on the Windows NT platform:

2. Verify that a valid shared memory file exists.
   
   When Adaptive Server is booted, it creates the shared memory file. The file resides in the `%SYBASE%` directory. A valid shared memory file has a name in the following format:

   ```plaintext
   AdaptiveServerName.krg
   ```

   Check that `AdaptiveServerName` is the entire name, and is not truncated. If `AdaptiveServerName` is truncated, Monitor Server will not start. See “Restrictions on Length of Adaptive Server Name” on page 2-32 for information about correcting this situation.

3. Use Sybase Central or `isql` to connect to Adaptive Server.

4. Change the `event buffers per engine` configuration parameter. The `isql` command is:

   ```sql
   sp_configure "event buffers per engine", number
   ```

   where `number` is the maximum number of events to be buffered per engine.

   The default setting for this parameter is 100, which is not adequate for most sites running Monitor Server. The recommended value for an initial configuration is 2000.

   You might need to adjust this value again later. Monitor Server reads event information from these buffers. If this number is too low, event buffer overruns can occur and events can be lost. See “Configuring Event Buffers” on page 2-32 for more information.

5. Change the `max SQL text monitored` configuration parameter. The `isql` command is:

   ```sql
   sp_configure "max SQL text monitored", bytes_per_connection
   ```

   where `bytes_per_connection` is the maximum number of bytes reserved for each client connection to hold the SQL text of the currently executing batch. Adaptive Server stores the text in
reserved buffers in shared memory. Monitor Server obtains the text when asked to do so by one of its clients. SQL text is helpful in tuning long running statements or researching hung processes.

The default setting for this parameter is 0, which does not allow Adaptive Server to buffer any SQL text. The recommended value for an initial configuration is 1024. The theoretical limit is 2,147,483,647, but Adaptive Server immediately rejects very large values because they do not leave enough space for data and procedure cache.

You might need to adjust this value again later. If a connection’s batch text is larger than \textit{bytes\_per\_connection}, the text is truncated in the buffer. If your Monitor Server users complain of consistently truncated batch text, you might want to make this value larger. See “Configuring SQL Text Buffers” on page 2-35 for more information about SQL text.

6. Stop and restart Adaptive Server, and verify that it started correctly. You can use Sybase Central to stop and start Adaptive Server if Sybase Central and Adaptive Server are running on the same machine.

This step is necessary for the configuration parameter changes you made in steps 6 and 7 to take effect.

7. The Monitor Server process priority must match the process priority of the Adaptive Server being monitored. By default, the Monitor Server process runs at normal priority. If the Adaptive Server runs at a different priority, you must change the priority for Monitor Server.

To run Monitor Server at high priority, use the -\texttt{p} parameter to the Monitor Server startup command. To change the Monitor Server priority to any other priority level, use a third-party tool. For example, you can use the Microsoft Visual C++ Process Viewer.

8. (Optional). Enable non-sa\_role monitoring.

a. Execute the \texttt{mon\_authorize\_non\_sa} stored procedure, located in the \textit{master} database. If the \texttt{mon\_authorize\_non\_sa} stored procedure is not in the \textit{master} database or if it issues an error message indicating that two-phase commit needs to be installed, some steps were omitted during the Adaptive Server and Monitor Server installation process. See the latest \textit{Release Bulletin for Adaptive Server Monitor} for specific instructions.
b. Add user names to the *master* database.

If a Monitor Server client uses an Adaptive Server login that does not have sa_role, the login must be associated with a user in the *master* database. Therefore, you probably need to add user names to *master*. You can either:

– Add a user to *master* for each login that will be a Monitor Server client, or
– Add one user to *master* and associate multiple logins to it through aliases.

To add a user to *master*, the SQL commands are:

```sql
use master
go
sp_adduser userName
go
```

c. Give the user names permission to execute the *mon_rpc_connect* stored procedure. The SQL commands are:

```sql
use master
go
grant execute on mon_rpc_connect to userName
go
```

➤ *Note*

All user names who want to connect to Monitor Server must have this permission, whether they have sa_role or not.

9. Check that the connectivity protocol has a Net-Library driver associated with it.

Start `ocscfg` from the Sybase program group. Choose the Net-Library tab. If the protocol you are using has the value <Not Set> for the Net-Library driver, choose a driver from the Net-Lib Drivers drop-down box. For example, associate NLWNSCK with TCP.

10. Add or adjust connectivity information for Monitor Server.

You need to assign a port or network address to Monitor Server to enable client/server connections. Add connection information either to `sql.ini` files or to a directory service.

If you are relying on `sql.ini` files for making client/server connections, then check the server listings in the `sql.ini` file. For Monitor Server to run, this file must contain entries for:
- any Adaptive Server you want to monitor
- Monitor Server paired with each Adaptive Server

Entries for Monitor Server should exist, since the Sybase installation process adds them. Use `dsedit` to add or change entries to a `sql.ini` file. To add these entries, you must know the following information:

- Monitor Server and Adaptive Server names
- Port number or network address assigned to Adaptive Server when it was configured. If you need to research this information, use `dsedit`.

➤ Note

The Adaptive Server name must **not** be an alias name. It must be the name that Monitor Server knows it by. For example, use the value you used in the `-S` parameter in the Monitor Server startup command.

If you are relying on a directory service for making client/server connections:

- Make sure that the `%SYBASE%\ini\libtcl.cfg` file on the machine where Monitor Server was installed points to the appropriate directory service. Use `ocscfg` to check and update `libtcl.cfg` files.

- Add Monitor Server to the appropriate directory service, using `dsedit`. You need to know the Monitor Server name to complete this step. The default name created by the installation process is in the format `machineName_ms`. For example, `smith_ms`.

See [Open Client/Server Configuration Guide for Desktop Platforms](#) for more information on `ocscfg` or `dsedit`. You can start these utilities from the Sybase program group created during installation.

11. Add connectivity information for clients on client machines.

   This task enables clients to connect to Monitor Server. Clients to Monitor Server are users of Historical Server, Monitor Viewer, and other Monitor Client Library applications. Each client machine must be configured appropriately.

   If you are relying on `sql.ini` files (or `interfaces` files for clients running on UNIX platforms) for making client/server connections, then update **all** of the `sql.ini` and `interfaces` files used by Monitor Server clients. These must contain entries for both
Adaptive Server and Monitor Server. Use `dsedit` to add entries to a `sql.ini` file; use `dsedit` or `dscp` to add entries to an `interfaces` file. To add these entries, you must know the following information:

- Monitor Server and Adaptive Server names
- port numbers or network addresses assigned to these servers when they were configured. If you need to research this information, use `dsedit` on the server machine to examine the appropriate `sql.ini` file.

If you are relying on a directory service for making client/server connections, then make sure that the `libtcl.cfg` file on all Monitor Server client machines points to the appropriate directory service. Use `ocscfg` to check and update `libtcl.cfg` files on Windows platforms; use any text editor to do the same on UNIX platforms.

12. Add Monitor Server to the Sybase Central machine.

   If users intend to connect to Monitor Server by opening monitors in Sybase Central, add entries for Monitor Server to the `sql.ini` file on the Sybase Central machine. Use `dsedit` on the Sybase Central machine to add this entry.

13. Review the Monitor Server startup parameters inserted into the NT Registry and the startup `.bat` file at installation time. Make sure that the parameters are suitable for your site.

   See “Changing the Default Configuration” on page 2-18 for instructions on changing the parameters. See “Monitor Server Startup Parameters” on page 2-21 for a description of the parameters. Some parameters are marked “required.” The ones with default values can be omitted if the default values are acceptable.

14. (Optional step.) Set up the automatic startup service so that Monitor Server starts automatically each time you log in or reboot. The next section describes procedures for setting up the automatic startup service.
Setting up the Automatic Startup Service

To add Monitor Server to the Windows NT automatic startup service:

1. From the Control Panel, select Services. The Services window opens.

   ![Services window](image)

   Figure 2-1: Services window

   The Services window lists available servers. If the server is running, the status designation is Started. The Startup column indicates if the startup is manual or automatic. If the Startup is Manual, you must manually start the server each time you reboot the machine.

2. Select the service that corresponds to Monitor Server. For example, if the name of the Monitor Server is TESTSRV_MS, the service name may be called Sybase MONServer_TESTSRV_MS.

3. Double click the service name or choose Startup... and the Service dialog box opens.
4. In the Startup Type box, select Automatic.
5. Choose OK.

The automatic startup takes effect the next time you reboot or log in. Before you reboot, set up the Adaptive Server and Monitor Server startup order. Adaptive Server must start before Monitor Server can successfully start.
Setting Up the Server Startup Order

To make sure that Adaptive Server starts before Monitor Server:

1. Start the NT Registry Editor (regedit32.exe).
2. Select `\HKEY_LOCAL_MACHINE`.
3. Save or print the existing settings before proceeding. From the Registry menu, select the Save Subtree As command or the Print command.
4. In the tree view, highlight the following entry (double-click on top-level entries to expand them):
   \HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services
5. From the list of available services that appears, select the name of the service that corresponds to the Monitor Server. For example, if the name of the Monitor Server is TESTSRV_MS, the registry key may be SYBMON_TESTSRV_MS.
   The current configuration values appear.
6. From the title bar, select Edit.
7. From the dropdown window, choose Add Value. The Add Value dialog box appears.
   In the Value Name box, enter:
   DependOnService
   In the Data Type box, accept the default if it is correct or use the scroll bar to select the following data type:
   REC_MULTI_SZ
   Choose OK. The String Editor dialog box opens.
8. In the String Editor Data box, enter:
   SYBSQL_AdaptiveServer
   where AdaptiveServer is the name of the Adaptive Server to be monitored and select OK.
9. From the Registry Editor menu bar, select Edit.
10. From the drop-down window, select Add Value. The Add Value dialog box opens. In the Value Name box, enter:
    DependOnGroup
    In the Data Type box, select:
    REC_MULTI_SZ
Select OK. The String Editor dialog box opens.

11. Leave the String Editor Data box empty, select OK, and exit the Registry Editor.

When you reboot or log in again, Adaptive Server and Monitor Server will automatically start and in the correct order: Adaptive Server first, Monitor Server second.

Changing the Default Configuration

This section describes how to change the default configuration performed by the installation process. The section contains the following topics:

- “Changing Startup Information in the NT Registry” on page 2-18
- “Changing the .bat File” on page 2-19

Changing Startup Information in the NT Registry

To change startup parameters in the NT Registry:

1. Start the NT Registry Editor (regedt32.exe).
2. Select `\HKEY_LOCAL_MACHINE`.
3. Save or print the existing settings before proceeding. From the Registry menu, select the Save Subtree As command or the Print command.
4. In the tree view, highlight the following entry (double-click on top-level entries to expand them):
   ```plaintext
   HKEY_LOCAL_MACHINE\SOFTWARE\SYBASE\Server\srvrName\Parameters
   ```
   where `srvrName` is the name of the server whose startup parameters you want to change.

   On the right side of the window, review the list of existing startup parameters. They appear in the following format:
   ```plaintext
   argx, dataType, parameter
   ```
   where:
   - `x` is an integer in sequential order
   - `dataType` defines the type of data in the parameter value
- *parameter* is a startup option, preceded by a dash and followed by the parameter value.

An example containing the Monitor Server -M startup parameter is:

```
Arg0:REG_SZ:-MTESTSRV_MS
```

5. To add a new startup parameter:
   - From the Edit menu, choose Add Value.
   - In the resulting dialog box, in the Value Name box, enter Arg x where x is the next integer not currently assigned.
   - From the Data Type drop-down list, choose REG_SZ.
   - In the String dialog box, enter the parameter and value.

6. To modify existing parameters:
   - Double-click the parameter line you want to change.
   - In the String dialog box, correct the entry.

7. From the Registry menu, choose Exit.

**Changing the .bat File**

The .bat file created by the Sybase installation process is located in %SYBASE%\install. To change the startup parameters specified in the .bat file, edit the file with a text editor. Do not add carriage returns within the command. The entire file must be one physical line.

**Configuring Another Monitor Server**

You can use the Server Configuration utility to configure a new Monitor Server on your machine. To start the utility, choose Server Config from the Sybase folder or execute syconfig.exe from the bin directory under the Sybase installation directory.

Although the Configure Sybase Servers dialog box lets you provide an Adaptive Server name when you configure a new Monitor Server, the name that you provide is not used. Instead, the system uses the value of the DSQUERY environment variable as the Adaptive Server name.

To work around this problem, you can change the value of DSQUERY before configuring the new Monitor Server, or you can edit the NT Registry and the Monitor Server startup .bat file after configuring the new Monitor Server.
To change the DSQUERY environment variable:

1. From the Control Panel, open the System icon.
2. In the dialog box, highlight DSQUERY in the list of system environment variables.
3. In the Value box, change the value.
4. Click Set.

What’s Next?

Configuration of the new Monitor Server is now complete. Go to Chapter 3, “Starting, Verifying, and Stopping Monitor Server”, for instructions on starting the server, verifying that it is running correctly, and connecting to it using clients.

Depending on conditions at your site, you might need to adjust the default runtime configuration of Monitor Server. See “Adjusting Monitor Server Runtime Configuration” on page 2-26 for more information.
Monitor Server Startup Parameters

This section describes the Monitor Server startup command and parameters. The section applies to Monitor Server running on both UNIX and NT platforms.

Function

Starts Monitor Server. The Adaptive Server to be monitored must be running before you start Monitor Server.

Syntax

{monserver|monsrvr}
   -M monServerName -S AdaptiveServerName -U userName
   [-L configFile] [-m krgDirectory] [-n maxConnections]
   [-O] [-p] [-T flag] [-v]

The executable name is monserver on UNIX platforms and monsvr on Windows NT.
Monitor Server Startup Parameters

Table 2-1 describes the parameters to the Monitor Server startup command.

**Table 2-1: Monitor Server startup command parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| -E             | Specifies that a new instance of Monitor Server should **not** start if a `AdaptiveServerName.mrg` file already exists (where `AdaptiveServerName` is the name specified in the `-S` parameter). Monitor Server creates the `.mrg` file at startup, and it deletes the `.mrg` file during a graceful shutdown. If an `.mrg` file exists, it could mean either of the following:  
  • An instance of Monitor Server for the Adaptive Server named in the `-S` parameter is already running.  
  • An instance of Monitor Server for the Adaptive Server named in the `-S` parameter terminated ungracefully and could not delete its `.mrg` file.  
  The `-E` and `-O` options specify opposite behavior:  
  • `-E` specifies that the new Monitor Server instance will not start if an `.mrg` file exists. You must manually delete the `.mrg` file. It is located in the same directory as the `.krg` file. See the `-m` option for details.  
  • `-O` specifies that the new Monitor Server will start by **overwriting** the existing `.mrg` file.  
  The `-O` behavior is the default if neither `-E` nor `-O` are specified. Use the `-E` option to ensure exclusive access to Adaptive Server by only one Monitor Server. Sites that give Monitor Server startup permission to more than one user might prefer this option to prevent inadvertent duplicate startups. Use the `-O` option to ensure that rebooting Adaptive Server and Monitor Server is successful after an ungraceful shutdown. Sites that depend on automatic startups using script files without operator intervention might prefer this option to prevent startup script failures during reboots. |
| -i interfacesFile | Specifies the path name of the connectivity file. This is the `interfaces` file on UNIX platforms and the `sql.ini` file on Windows NT. If this parameter is omitted, Monitor Server looks for the following default path name:  
  UNIX: `$SYBASE/interfaces`  
  Windows NT: `%SYBASE%\sql.ini` |
### Monitor Server startup command parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>-l logFile</code></td>
<td>Specifies the path name of the log file in which information and error messages are logged. The default is <code>ms.log</code> in the current directory.</td>
</tr>
<tr>
<td><code>-L configFile</code></td>
<td>Specifies the name of the Monitor Server configuration file. The configuration file is optional. If specified, the values in the file override default runtime parameters otherwise used by Monitor Server. For more information about the configuration file and Monitor Server runtime parameters, see “Adjusting Monitor Server Runtime Configuration” on page 2-26.</td>
</tr>
<tr>
<td><code>-M monServerName</code></td>
<td>Required. Specifies the name of the Monitor Server to start.</td>
</tr>
<tr>
<td><code>-m krgDirectory</code></td>
<td>Specifies the name of the directory where the Adaptive Server shared memory file (<code>AdaptiveServername.krg</code>) is located.</td>
</tr>
<tr>
<td></td>
<td>The same shared memory file name must be specified or implied when starting Adaptive Server and Monitor Server. Therefore, the implicit or explicit values of the <code>-M</code> option for Adaptive Server and the <code>-m</code> option for Monitor Server must match.</td>
</tr>
<tr>
<td><code>-n maxConnections</code></td>
<td>Specifies the maximum number of concurrent Open Client connections allowed to Monitor Server. Valid values are 1 through 20. The default is 5.</td>
</tr>
</tbody>
</table>

An Open Client connection to Monitor Server is any of the following:

- A monitor in Sybase Central.
- An active Historical Server recording session currently collecting data, regardless of when or how it was initiated.
- A Historical Server recording session that has been defined but has not yet reached its start time.
- A connection to Monitor Server from a Monitor Client Library application.

For example, if a Sybase Central user opens the Performance Summary Monitor and the Cache Statistics Monitor, that user has two Open Client connections to Monitor Server. If the default configuration of five connections is in effect, three additional connections to Monitor Server are available for that user or other users.
Monitor Server Startup Parameters

Table 2-1: Monitor Server startup command parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| -O        | Specifies that a new instance of Monitor Server should start by overwriting an existing AdaptiveServerName.mrg file (where AdaptiveServerName is the name specified in the -S parameter). Monitor Server creates the .mrg file at startup, and it deletes the .mrg file during a graceful shutdown. If the .mrg file already exists, it could mean either of the following:  
  • An instance of Monitor Server for the Adaptive Server named in the -S parameter is already running.  
  • An instance of Monitor Server for the Adaptive Server named in the -S parameter terminated ungracefully and could not delete its .mrg file.  
The -E and -O options specify opposite behavior. See the description of -E for more information. |
| -P password | Specifies the password of the user specified with the -U option. If you do not want to explicitly store a password in a file, see the following notes for alternatives.  
  Notes for UNIX: If this parameter is omitted, Monitor Server prompts for a password during startup. To configure a Monitor Server startup script to prompt for a password at startup, make the following changes.  
  • Remove the -P parameter and the ampersand (&) from the startup script file.  
  • Execute the Monitor Server startup script file.  
  • When prompted for a password, enter the password that is valid with the account you specified in the -U parameter.  
  • Put the Monitor Server process in the background.  
  Notes for Windows NT: The Monitor Server installation process creates a user account mon_user. If you omit both the -U and -P parameters, the mon_user account is the default superuser account. If the mon_user account has been deleted from the Adaptive Server, and you use the NT startup services to start Monitor Server, both the -U and -P parameters are required in the NT Registry entry. In a Monitor Server .bat startup file, you can omit the -P option, and Monitor Server prompts for the password during startup. |
| -p        | Applies to Windows NT only. Sets the execution priority of Monitor Server to high priority. Use this parameter only if you set the Adaptive Server priority to high. The execution priorities for Adaptive Server and Monitor Server must match. |
### Monitor Server startup command parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>-SAdServerName</strong></td>
<td>Required. Specifies the name of Adaptive Server to monitor. Must match the value used in the <code>-s</code> parameter in the Adaptive Server startup command.</td>
</tr>
<tr>
<td><strong>-T0</strong></td>
<td><code>-T0</code> specifies that error messages received from Adaptive Server are not printed.</td>
</tr>
<tr>
<td><strong>-T1</strong></td>
<td><code>-T1</code> specifies that Monitor Server does not shut itself down when Adaptive Server shuts down. In general, Sybase does not recommend this parameter for production environments. By default, Monitor Server periodically checks to see if Adaptive Server is down and shuts itself down when it detects that Adaptive Server is down. See “Heartbeat Interval” on page 2-27 for more information. To activate both of the conditions, use two <code>-T</code> arguments in your command: <code>-T0 -T1</code></td>
</tr>
</tbody>
</table>
| **-Uusername** | Specifies the user name of the Monitor Server superuser. The name, along with the password provided with the `-P` parameter, must be a valid login account in the Adaptive Server being monitored. It must have permission to execute the `master.mon_rpc_attach` stored procedure installed in the Adaptive Server being monitored. Monitor Server uses the superuser account in the following ways:  
  - To connect to Adaptive Server to run the `mon_rpc_attach` stored procedure and to determine the location and attributes of Adaptive Server shared memory.  
  - To verify shutdown requests. The superuser and the “sa” user are the only accounts allowed to shut down the Monitor Server.  
  **Notes for UNIX:** This parameter is required unless the `$USER` environment variable is set. If `$USER` is set and you omit the `-U` and `-P` parameters, Monitor Server prompts for the password associated with `$USER` during startup. Sybase recommends that you use the “sa” or “sybase” user account as the Monitor Server superuser.  
  **Notes for Windows NT:** This parameter is optional if the “mon_user” account exists in the Adaptive Server being monitored. The Monitor Server installation procedure creates the “mon_user” account, and Monitor Server uses it as the default Monitor Server superuser when the `-U` parameter is omitted. If the “mon_user” account is deleted from Adaptive Server, the `-U` parameter is required. |
Adjusting Monitor Server Runtime Configuration

You can tune Monitor Server execution by overriding default values for certain runtime configuration parameters. An optional Monitor Server configuration file provides the method for overriding the default values.

This section describes the configuration file and the parameters that you can change. The topics discussed are:

- Monitor Server Configuration File 2-26
- Initial Scan Interval 2-27
- Heartbeat Interval 2-27
- Configuring Monitor Server Heap Space Usage 2-28

Another configuration condition that you can change is the maximum number of client connections allowed for Monitor Server. This number is controlled by the `-nmax_connections` parameter to the Monitor Server startup command. See “Monitor Server Startup Parameters” on page 2-21 for more information.

Monitor Server Configuration File

The Monitor Server configuration file is optional. To specify a configuration file to Monitor Server, use the `-L` parameter in the Monitor Server startup command.

If a parameter is not in the configuration file, or if no configuration file is specified in the startup command, Monitor Server uses default or initial computed values for the parameters.

In the Monitor Server configuration file, specify parameters one to a line, using the following format:

```
parameter_name parameter_value
```

Any number of whitespace characters can separate the parameter name and value fields. The parameter names are case-sensitive. All parameter values are numeric.
**Initial Scan Interval**

Many Monitor Viewer windows and Historical Server views cause Monitor Server to create summaries of monitoring events.

The scan interval specifies how often Monitor Server obtains new information from Adaptive Server event buffers. The scan interval at startup is an *initial* scan interval. During execution, if Monitor Server detects that event loss has occurred or is about to occur, it reduces the scan interval in an attempt to prevent losses. For the remainder of execution, the scan interval remains at the reduced level.

You can view the current value of `scan_interval` with the `sms_status scan_interval` command. See “sms_status” on page 4-3 for more information about this command.

By default, Monitor Server computes an initial scan interval at startup. The calculation is based on the `event buffers per engine` Adaptive Server configuration parameter. You can override the computed value for the initial scan interval with the Monitor Server `scan_interval` configuration parameter.

➤ *Note*

Overriding the default computation for initial scan interval is generally not necessary. If you notice that the scan interval tends to reduce over time, a more effective method of ensuring that Monitor Server does not lose events is to increase the `event buffers per engine` Adaptive Server configuration parameter. Increasing the number of event buffers makes Monitor Server scan less frequently. See "Configuring Event Buffers" on page 2-32 for more information.

The configuration file entry for this parameter is:

```
scan_interval value
```

where the `value` is specified in milliseconds. The minimum valid scan interval is 1 millisecond. The default is calculated by Monitor Server and is generally sufficient.

**Heartbeat Interval**

Monitor Server periodically checks whether Adaptive Server is running or not by examining appropriate counter values. When Monitor Server detects that the Adaptive Server it is monitoring is
down, Monitor Server shuts itself down. This is called the heartbeat mechanism.

To bypass the heartbeat mechanism, use the -T1 parameter when you invoke Monitor Server. In that case, Monitor Server continues to run, even if the Adaptive Server being monitored is down.

◆ WARNING!  
Bypassing the heartbeat mechanism is not recommended. Allowing Monitor Server to run after Adaptive Server shuts down ties up the shared memory segment from the previous Adaptive Server instance and might prevent Adaptive Server from allocating enough resources to restart. Other memory problems might also occur.

When the heartbeat mechanism is active, the heartbeat_interval controls the frequency that Monitor Server checks on Adaptive Server. The default value is 120 seconds. You can change the default with the heartbeat_interval parameter. The configuration file entry for this parameter is:

```
heartbeat_interval value
```

where value is specified in seconds. The minimum value is 1 second. The maximum value 2678400 seconds (31 days). The default is 120 seconds.

Configuring Monitor Server Heap Space Usage

Monitor Server collects information from two sources in Adaptive Server shared memory space:

- **Counters** collect information at a high level, such as the number of times a certain activity occurs server-wide or per engine or per database device.

- **Events** are data structures in Adaptive Server shared memory containing detailed information about activities in Adaptive Server. Monitor Server collects information from these events and summarizes it. Monitor Server maintains event summaries at a level of detail specified by its clients.

Monitor Server allocates the following internal buffers in heap space to hold this information:
• For each client connection, when the connection initially occurs, Monitor Server allocates a small buffer to hold a snapshot of counter values before the values are sent to the client.

• For each event summary request enabled over a client connection, Monitor Server allocates a summary buffer. If a summary buffer fills up, Monitor Server allocates additional buffers dynamically. The size and number of these buffers are controlled by three Monitor Server configuration parameters:
  - `bufsize` controls the size of each summary buffer
  - `max_mem_blks` controls how many buffers may be allocated for each event summary request
  - `max_summaries` controls how many event summaries may be requested by each client connection

The amount of heap space per summary buffer is typically 32KB, but it can vary with the volume of data encountered. There is a risk that, if the Monitor Server uses too much heap space, its heap will collide with the location at which Adaptive Server shared memory is attached. In that case, you should reconfigure and reboot Adaptive Server so that it uses a higher virtual memory starting address, which allows Monitor Server to do the same. This effectively provides more heap space to Monitor Server.

**Summary Buffer Size**

The `bufsize` parameter controls the size of each buffer allocated for summarized event data. The configuration file entry for this parameter is:

```
bufsize value
```

where `value` is specified in kilobytes. The maximum valid value is 16,384, which equals 16MB. The minimum buffer size is 32K, which is also the default value.

**Number of Summary Buffers per Event Summary Request**

The Monitor Server allocates buffers dynamically to accumulate summaries of event-related data. Monitor Server acquires a separate set of buffers on behalf of each enabled summary. The `max_mem_blks` parameter controls the maximum number of buffers that may be allocated to any one summary.
The configuration file entry for this parameter is:

```
max_mem_blks value
```

The maximum valid value is 1024. The minimum valid value is 1. The default is 32. That is, by default, up to 32 summary buffers may be acquired for a single summary request.

**Maximum Number of Event Summaries per Connection**

By default, a maximum of 15 summary requests can be enabled concurrently on a single client connection. You can reset this maximum by specifying the `max_summaries` parameter.

The configuration file entry for this parameter is:

```
max_summaries value
```

where `value` is the maximum number of event summaries that may be active on a client connection. The maximum value is 1024. The minimum value is 1.

You must shut down Monitor Server and restart it for this change to take effect.

Various Monitor Viewer monitors in Sybase Central and Historical Server views cause event summaries to be created in Monitor Server. The more windows or views that are active on a given client connection, the more summaries are likely to be created. The following messages received by a client indicates that the maximum summaries were reached:

- Unable to retrieve data
- Unable to obtain initial information
- Maximum number of concurrent summaries already enabled

Table 2-2 shows which client requests cause event summaries. This information might help you to estimate a reasonable value for `max_summaries` for your site. The right-hand column indicates which windows or data items have the potential to create summaries, but it does not indicate an actual number of summaries. For example, some Monitor Viewer monitors might consume multiple summaries. Depending on how data items are combined in views, some data items in Historical Server or Monitor Client Library might share summaries.
Table 2-2: Client Requests Resulting in Event Summaries

<table>
<thead>
<tr>
<th>Client Type</th>
<th>Requests Resulting in Event Summaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor Viewer monitors</td>
<td>Cache Monitor</td>
</tr>
<tr>
<td></td>
<td>Process Activity Monitor</td>
</tr>
<tr>
<td></td>
<td>Object Page I/O Monitor</td>
</tr>
<tr>
<td></td>
<td>Stored Procedure Activity Monitor</td>
</tr>
<tr>
<td></td>
<td>Process Current SQL Statement Monitor</td>
</tr>
<tr>
<td>Historical Server data items</td>
<td>all “current statement” data items</td>
</tr>
<tr>
<td></td>
<td>CPU Percent</td>
</tr>
<tr>
<td></td>
<td>CPU Time</td>
</tr>
<tr>
<td></td>
<td>Lock Count</td>
</tr>
<tr>
<td></td>
<td>Locks Granted After Wait</td>
</tr>
<tr>
<td></td>
<td>Locks Granted Immediately</td>
</tr>
<tr>
<td></td>
<td>Locks Not Granted</td>
</tr>
<tr>
<td></td>
<td>Logical Page Reads</td>
</tr>
<tr>
<td></td>
<td>Page Hit Percent</td>
</tr>
<tr>
<td></td>
<td>Page I/O</td>
</tr>
<tr>
<td></td>
<td>Page Writes</td>
</tr>
<tr>
<td></td>
<td>Physical Page Reads</td>
</tr>
<tr>
<td></td>
<td>Procedure Elapsed Time</td>
</tr>
<tr>
<td></td>
<td>Procedure Execution Count</td>
</tr>
<tr>
<td>Monitor Client Library data items</td>
<td>all “current statement” data items</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_CPU_PCT</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_CPU_TIME</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_LOCK_CNT</td>
</tr>
<tr>
<td></td>
<td>SMC_NAMELOCKS_GRANTED_AFTER_WAIT</td>
</tr>
<tr>
<td></td>
<td>SMC_NAMELOCKS_GRANTED_IMMEDIATE</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_LOCKS_NOT_GRANTED</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_PAGE_HIT_PCT</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_PAGE_IO</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_PAGE_LOGICAL_READ</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_PAGE_PHYSICAL_READ</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_PAGE_WRITE</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_STP_ELAPSED_TIME</td>
</tr>
<tr>
<td></td>
<td>SMC_NAME_STP_NUM_TIMES_EXECUTED</td>
</tr>
</tbody>
</table>

Adaptive Server Configuration Issues that Affect Monitor Server

Since Monitor Server and Adaptive Server share memory, a few coordination issues exist between them. This section discusses:

- Restrictions on Length of Adaptive Server Name 2-32
Restrictions on Length of Adaptive Server Name

If your system is configured with a limit on the length of file names, the operating system truncates file names that exceed the limit. Monitor Server cannot run if the Adaptive Server shared memory file name has been truncated. If you encounter this limitation and cannot reconfigure your machine with a larger maximum file name length, you must take the shared memory file name length into consideration when assigning a Adaptive Server name.

When you install Adaptive Server, its shared memory file is created from the name of the server and the suffix .krg. Therefore, the maximum length you should use for a Adaptive Server name is the maximum file name length configured for your machine, minus four (to allow for the .krg suffix).

For example, if the Adaptive Server name is test_sql_server11_5, the shared memory file name will be test_sql_server11_5.krg, unless that name is too long. If your machine is configured with a maximum allowable file name length of 15 characters, the shared memory file name will be test_sql_server, which will not work.

Configuring Event Buffers

Event buffers are configured in Adaptive Server, but Monitor Server uses them. This section describes how to configure event buffers for Monitor Server.

Understanding Event Buffers and Event Loss

Adaptive Server Monitor uses several mechanisms to collect data. One source of data is low-level Adaptive Server monitoring events, which each Adaptive Server engine writes to its own event buffer in shared memory. Monitor Server scans the event buffers at regular intervals and summarizes the events according to client specifications.

The writing of event records by the Adaptive Server and reading of events by the Monitor Server are not directly synchronized in any way. This is essential to avoid impacting the throughput of Adaptive
Server, but it opens the possibility of event buffer overruns and lost events. Events can be lost if:

- The number of event buffers per engine configured for Adaptive Server is too small, or
- The Monitor Server scan interval is too long.

When Monitor Server detects that events were lost, it dynamically reduces the scan interval to a value at which event loss no longer occurs. It also writes the following message in the log file:

Event buffer wrap: <n> events lost.

You configure the number of event buffers per engine using the event buffers per engine Adaptive Server configuration parameter. The following sections contain information about sizing and changing this parameter.

Monitor Server automatically computes the frequency of event buffer scans. The calculation is based on the number of events that can be stored in the event buffers configured in Adaptive Server. You can affect this frequency in two ways:

- Change the value of the event buffers per engine Adaptive Server configuration parameter. The computed interval between scans varies in direct proportion to the size of the event buffers.
- Override the Monitor Server computed scan interval by specifying the scan_interval Monitor Server configuration parameter.

In either case, Monitor Server dynamically reduces the initial scan interval if it detects that the event buffers are filling too rapidly. See “Initial Scan Interval” on page 2-27 for more information about the scan_interval parameter.

### Determining a Value for event buffers per engine Parameter

The event buffers per engine Adaptive Server configuration parameter specifies the maximum number of events to be buffered per engine. The default is 100, a number which most users will want to increase. Tradeoffs are involved in selecting an optimal buffer size, since a low number forces more frequent scans by the Monitor Server, but a large buffer size reduces the amount of memory available for other uses, such as procedure cache.

You should balance the possibility of event loss against the memory costs of a large number of event buffers. The following calculation
determines how much Adaptive Server memory your setting will use:

\[
\text{Adaptive Server} = 100 \text{ bytes} \times \text{number of memory (bytes)} \times \text{number of event buffers} \times \text{active engines}
\]

The recommended procedure is to first reset the event buffer size to a somewhat larger number. A size of 2000 usually is large enough to avoid event buffer overruns.

➤ Note

For very active servers, you may need to set this parameter to a considerably higher number to avoid event loss.

You may want to increase the event buffer size beyond the minimum size that prevents overruns because larger event buffers decrease the frequency of scans by Monitor Server.

### Changing the event buffers per engine Parameter

To change the `event buffers per engine` configuration parameter in Adaptive Server:

1. Make sure that Adaptive Server is running and Monitor Server is not running.
2. Change the `event buffers per engine` parameter using either of the following methods:

#### Using Sybase Central

1. Select the appropriate Adaptive Server folder.
2. From the File menu, choose Configure.
3. In the scroll box, find the entry for `event buffers per engine`. In the Value column, change the number to the desired number of event buffers per engine.
4. Click Ok. The new value appears in the Pending column until you reboot Adaptive Server.

#### Using `isql`

1. Open an `isql` connection to the appropriate Adaptive Server.
2. In `isql`, issue the following commands:
   
   1> `sp_configure "event buffers per engine", number`  
   2> `go`  
   
   where `number` is the desired number of event buffers per engine.
3. Stop and restart Adaptive Server, and verify that it starts correctly.

4. Start Monitor Server, and verify that it starts correctly.

To verify that Monitor Server has started correctly, run `isql` with the following command:

```
    isql -U username -P password -S monitor_server
```

where `username` is the name specified with the `-U` parameter when starting the Monitor Server, and `password` is that user’s password.

Then execute the following commands:

```
1> sms_status server
2> go
```

You should see the following output, showing the Adaptive Server that your Monitor Server is monitoring:

```
    Server Name
    -------------------
    AdaptiveServerName
```

To verify that the correct number of event buffers is in effect, execute the following command:

```
1> sms_status numeventbuf
2> go
```

You should see the following output showing the number of event buffers you have just configured for the Adaptive Server being monitored:

```
    Number of Event Buffers
    -----------------------
    number
```

### Configuring SQL Text Buffers

SQL text buffers are configured in Adaptive Server. This section describes how to configure SQL text buffers for Monitor Server.

### Understanding the SQL Text Feature

Adaptive Server Monitor can obtain the text of the currently executing SQL batch in each client connection to Adaptive Server. Viewing the SQL text of long-running batches helps you debug hung
processes or fine-tune long statements that are heavy resource consumers.

To enable collection of SQL text, Adaptive Server must be configured to collect the text and write it to shared memory, where it is read by Monitor Server when Monitor Server clients request such data. The client requests might come from the Process Current SQL Statement Monitor in Sybase Central, Monitor Historical Server, or from other Monitor Client Library applications.

The \texttt{max SQL text monitored} Adaptive Server configuration parameter controls whether SQL batch text is collected and how much text is stored per client connection.

For each client connection, text of only the currently executing batch is available. The text of a new batch overwrites the text of previously executed batches. If the batch text is larger than the value of \texttt{max SQL text monitored}, the remainder is truncated.

**Determining a Value for the \texttt{max SQL text monitored} Parameter**

The total amount of memory allocated for the SQL text feature is:

\[
\text{max SQL text monitored} \times \text{number of user connections}
\]

where \texttt{max SQL text monitored} is specified in bytes. The space is reserved in the shared memory area shared by Adaptive Server and Monitor Server.

Sybase recommends an initial value of 1024 bytes for \texttt{max SQL text monitored}. The default when Adaptive Server is installed is 0 bytes. The theoretical limit is 2,147,483,647 bytes; however, Adaptive Server immediately rejects very large values because they do not leave enough memory for data and procedure caches.

Consider the following when configuring the amount of batch text that you want Adaptive Server to save per client connection:

- Batches of SQL text that exceed the allocated amount of memory are truncated without warning.

- The amount of memory you reserve for SQL text reduces the amount of memory available for data and procedure caches. A shortage of memory for data and procedure cache can impact Adaptive Server performance.

If users of Monitor Server clients notice that batch text is consistently truncated, consider increasing the size of \texttt{max SQL text monitored}. Remember that Adaptive Server must be rebooted before the new value takes effect.
Changing the max SQL text monitored Parameter

To change the max SQL text monitored configuration parameter:

1. Make sure that Adaptive Server is running and Monitor Server is not running.
2. Change the max SQL text monitored parameter using either of the following methods:

<table>
<thead>
<tr>
<th>Using Sybase Central</th>
<th>Using isql</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Select the appropriate Adaptive Server folder.</td>
<td>1. Open an isql connection to the appropriate Adaptive Server.</td>
</tr>
<tr>
<td>2. From the File menu, choose Configure.</td>
<td>2. In isql, issue the following commands:</td>
</tr>
<tr>
<td>3. In the scroll box, find the entry for max SQL text monitored. In the Value column, change the number to the desired number of bytes of SQL text to save per client connection.</td>
<td>1&gt; sp_configure &quot;max SQL text monitored&quot;, number</td>
</tr>
<tr>
<td>4. Click Ok. The new value appears in the Pending column until you reboot Adaptive Server.</td>
<td>2&gt; go</td>
</tr>
<tr>
<td>where number is the desired number of bytes of SQL text to save per client connection.</td>
<td>where number is the desired number of bytes of SQL text to save per client connection.</td>
</tr>
</tbody>
</table>

3. Stop and restart Adaptive Server, and verify that it starts correctly.
4. Start Monitor Server, and verify that it starts correctly.

To verify that Monitor Server has started correctly, run isql with the following command:

isql -U username -P password -S monitor_server

where username is the name specified with the -U parameter when starting the Monitor Server, and password is that user’s password.

Execute the following isql statements:

1> sms_status server
2> go

You should see the following output showing the name of the Adaptive Server that Monitor Server is monitoring:

Server Name
----------------------------------
AdaptiveServerName
Starting, Verifying, and Stopping Monitor Server

This chapter contains the following topics:

• Starting, Verifying, and Stopping Monitor Server on UNIX Platforms 3-1
• Starting, Verifying, and Stopping Monitor Server on Windows NT 3-3
• Orderly Shutdowns and Restarts 3-6
• Connecting to Clients 3-8

Starting, Verifying, and Stopping Monitor Server on UNIX Platforms

This section describes how to start and stop Monitor Server running on UNIX platforms. It also describes how to verify if Monitor Server is running.

Starting Monitor Server on UNIX

On a UNIX platform, you can start Monitor Server in two ways:

• by executing the monserver command from a UNIX shell prompt. If you use this method, you must type all appropriate parameters each time.

• by executing a script file that contains the monserver command and all appropriate parameters. If you followed the configuration instructions in Chapter 2, you would start Monitor Server using the following command:

```
install_dir/install/RUN_monServerName
```

where:

install_dir is the Sybase root directory
monServerName is the name of the Monitor Server you want to start.

You could also add the Monitor Server startup command to the machine’s automatic startup script.

Regardless of which method you use, observe the following:

• The Adaptive Server to be monitored must be started first.
• Use the same UNIX account to start both Adaptive Server and Monitor Server. The same account is required to ensure appropriate access to the Adaptive Server shared memory file. Sybase recommends that you use the “sybase” account to start both Adaptive Server and Monitor Server.

• Set the SYBASE environment variable to the root directory of the Sybase installation.

  The SYBASE environment variable also identifies the default location of the interfaces or sql.ini file and the Adaptive Server shared memory .krg file used by Monitor Server. Use parameters to the monserver command to override the default locations of these files.

Monitor Server displays the following message to indicate that startup was successful:

  Initialization is over. Ready to accept connections.

Monitor Server writes messages to its log file during startup. You can ignore these messages if startup was successful. If startup is not successful, examine the log file to research the problem.

  The default path name for the Monitor Server log file is ms.log in the current directory at the time of startup. You can override this default path name with the -l parameter (the letter l) to the monserver command.

Verifying that Monitor Server is Running on UNIX

To verify that Monitor Server has started correctly, run isql with the following command:

  isql -U username -P password -S monitorServerName

where:

  username is the name specified with the -U parameter when starting the Monitor Server

  password is that user’s password

  monitorServerName is the Monitor Server whose status you want to verify.

Then execute the following isql statements:

  1> sms_status server
  2> go
You should see the following output showing the name of the Adaptive Server that your Monitor Server is monitoring:

<table>
<thead>
<tr>
<th>Server Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdaptiveServerName</td>
</tr>
</tbody>
</table>

### Stopping Monitor Server on UNIX

The only users who can stop Monitor Server are the “sa” user and the Monitor Server superuser. The superuser is the one whose account was specified in the `-U` and `-P` parameters to the Monitor Server startup command.

In its default configuration, Monitor Server detects when Adaptive Server is not running and stops itself automatically. For more information about this feature, see “Heartbeat Interval” on page 2-27.

To stop Monitor Server manually on a UNIX platform, connect to Monitor Server. Use the following `isql` command:

```
   isql -U username -P password -S mon_server
```

where:

- `username` is either “sa” or the same user name that was specified with the `-U` parameter when Monitor Server was started
- `password` is the password associated with `username`
- `mon_server` is the name of the Monitor Server you want to stop.

When the `isql` prompt appears, issue the `sms_shutdown` command:

```
1> sms_shutdown
2> go
```

This command tells Monitor Server to complete all currently executing commands, release all held resources, and then terminate.

The `no_wait` option (`sms_shutdown no_wait`) allows shutdown to occur immediately, even when an outstanding command from another client connection exists against Monitor Server.

### Starting, Verifying, and Stopping Monitor Server on Windows NT

This section describes how to start and stop Monitor Server running on Windows NT.
Starting, Verifying, and Stopping Monitor Server on Windows NT

Starting Monitor Server on Windows NT

On Windows NT, you can configure Monitor Server to start automatically on reboots. See “Setting up the Automatic Startup Service” on page 2-15 for instructions.

If Monitor Server does not start automatically, you can start it manually with any of these methods:

- The Windows NT Control Panel’s Services window. The startup user must be an Administrator.
- A batch (.bat) file containing the startup command and parameters. The Sybase installation procedure creates a default .bat file in $SYBASE\install\RUN_sqlServerName_MS.bat, where sqlServerName is the name of the Adaptive Server being monitored. Sybase recommends invoking the batch file from a command line shell utility (such as MS-DOS Prompt) rather than double-clicking it in File Manager. The command line shell utility captures startup error messages, if any occur, whereas the File Manager does not.
- The startup command typed directly from a command prompt window. The name of the Monitor Server executable file for Windows NT is monsrvr.exe.
- If Monitor Server is running on the Sybase Central machine, you can start it in Sybase Central. Right-click the Monitor Server icon, and choose Start from the menu.

When you use a .bat file or a command line command to start Monitor Server, the server process is linked to your current login account. When you log off, the server shuts down.

For production systems, Sybase recommends starting Monitor Server using the Windows NT Control Panel Services Manager. When started as a service, Monitor Server persists across logins. Also, you can configure Monitor Server to start automatically on reboots.

How Startup Parameters are Inferred on Windows NT

The Monitor Server installation process adds startup parameters for Monitor Server in the following NT Registry entry:

```
\\HKEY_LOCAL_MACHINE\SOFTWARE\SYBASE\SERVER\servername\Parameters
```
When you start Monitor Server using the Control Panel, Monitor Server reads its startup parameters from this NT Registry entry. If you start Monitor Server from a command line or by means of a batch file, the startup parameters are taken from both the Registry entry and from the command. If the same parameter appears in both places, the value specified in the command takes precedence over the value in the Registry entry. If you do not specify any startup parameters in the command, by default all of the NT Registry entry parameters are used.

See “Changing Startup Information in the NT Registry” on page 2-18 for information on editing the NT Registry entries.

Verifying that Monitor Server is Running on Windows NT

On Windows NT, use the following methods to determine if Monitor Server is running:

- Check the status on the Windows NT Control Panel Services window.
- Check the status using isql. To use this method, run isql with the following command:

  \texttt{isql -U username -P password -S monitorServerName}

  where \texttt{username} is the name specified with the \texttt{-U} parameter when starting the Monitor Server, and \texttt{password} is that user’s password, and \texttt{monitorServerName} is the Monitor Server you are verifying.

  Then execute the following \texttt{isql} statements:

  \begin{verbatim}
  1> sms_status server
  2> go
  \end{verbatim}

  If Monitor Server is running, you should see the following output:

  \begin{verbatim}
  Server Name
  -----------------------------
  AdaptiveServerName
  \end{verbatim}

  where \texttt{AdaptiveServerName} is the name of the Adaptive Server being monitored.
**Stopping Monitor Server on Windows NT**

The only users who can stop Monitor Server are the “sa” user and the Monitor Server superuser. The superuser is the one whose account was specified in the `-U` and `-P` parameters to the Monitor Server startup command.

In its default configuration, Monitor Server detects when Adaptive Server is not running and stops itself automatically. For more information about this feature, see “Heartbeat Interval” on page 2-27.

To stop Monitor Server manually on Windows NT, you can use the stop button on the Windows NT Control Panel Services window. This method stops Monitor Server immediately. It does not wait for outstanding commands from other client connections to complete.

Another way to shut down Monitor Server is with an `isql` command. To use this method, connect to Monitor Server using `isql`:

```
isql -U username -P password -S monitorServerName
```

where `username` is either “sa” or the same user name that was specified with the `-U` parameter when Monitor Server was started; `password` is the password associated with `username`, and `monitorServerName` is the Monitor Server you want to stop.

When the `isql` prompt appears, issue the `sms_shutdown` command as follows:

```
1> sms_shutdown
2> go
```

This command tells Monitor Server to complete all currently executing commands, release all held resources, and then terminate.

The `no_wait` option (`sms_shutdown no_wait`) allows shutdown to occur immediately, even when an outstanding command from another client connection exists against Monitor Server.

**Orderly Shutdowns and Restarts**

This section describes the recommended sequence for shutting down Adaptive Server, Monitor Server, and its clients.

**Orderly Shutdowns**

Sybase recommends the following restart procedure:
1. Disconnect all Monitor Viewer connections and terminate all active Historical Server recording sessions that are using this Adaptive Server/Monitor Server pair.
2. Stop Monitor Server.
5. Restart Monitor Server.
6. Restart clients.

**Automatic Shutdowns**

The Monitor Server heartbeat mechanism causes Monitor Server to shut itself down when it detects that Adaptive Server is no longer running. Before automatic shutdown occurs, Monitor Server writes the following message in its log file:

```
Adaptive Server seems to be down. Shutting down Monitor Server.
```

If clients remain connected to Monitor Server, Monitor Server can not shut down gracefully. You can ignore an abnormal termination in this case.

The `-T1` parameter in the Monitor Server startup command bypasses the heartbeat mechanism. If you use this option on startup, Monitor Server does not shut down when Adaptive Server stops.

**Orderly Restarts**

If Adaptive Server shuts down, you should make sure that Monitor Server is shut down before restarting Adaptive Server. Monitor Server must be shut down to release resources, including the shared memory segment. Otherwise, the new Adaptive Server might not have enough resources to allocate a new shared memory segment, causing startup to fail.

If the heartbeat mechanism is in effect, Monitor Server automatically detects the termination of the Adaptive Server within the specified `heartbeat_interval` and shuts itself down. The default `heartbeat_interval` is 120 seconds. See “Heartbeat Interval” on page 2-27 for more information.
Therefore, before attempting to restart Adaptive Server after a shutdown, you must either wait for the automatic shutdown of Monitor Server to occur or explicitly stop Monitor Server yourself.

**Connecting to Clients**

To access performance data that Monitor Server collects, you must connect to Monitor Server using one of its clients. Monitor Server clients are:

- Monitor Viewer in Sybase Central. See *Managing and Monitoring Adaptive Server Enterprise* for more information.
- A user-written or third-party application using Monitor Client Library. See *Adaptive Server Enterprise Monitor Client Library Programmer’s Guide* for information on creating and running your own client applications.
Monitor Server isql Commands

This chapter describes the isql interface to Monitor Server. The interface consists of two commands:

• **sms_shutdown** – provides a way to manually stop Monitor Server
• **sms_status** – provides some status information about a running Monitor Server

Using the Commands

The only users who can issue these commands are the “sa” user and the Monitor Server superuser. The superuser is the account named or implied in the -U parameter of the Monitor Server startup command.

To use these commands, open an isql session and connect to the Monitor Server that you want to stop or obtain status information about. Use the following command syntax:

```
isql -U username -P password -SmonitorServerName
```

where:

* **username** is the name specified with the -U parameter to the Monitor Server startup command

* **password** is the password for **username**

* **monitorServerName** is the Monitor Server you want to stop or obtain status information about
sms_shutdown

Function
Terminates Monitor Server.

Syntax
sms_shutdown [no_wait]

Parameters

no_wait - terminates Monitor Server immediately, without waiting for commands executing on other client connections to complete. This parameter allows Monitor Server to release all resources, such as shared memory, before termination.

If this parameter is omitted, Monitor Server terminates after waiting for active commands executing on other client connections to complete. No new commands are accepted.

Comments

Only the “sa” or the Monitor Server superuser can use this command.

The Monitor Server heartbeat feature detects when Adaptive Server is down and shuts down Monitor Server as a result. See “Heartbeat Interval” on page 2-27 for more information.
sms_status

Function
Displays information about the state of Monitor Server.

Syntax
sms_status {server | numeventbuf | scan_interval}

Parameters
server – displays the name of the Adaptive Server being monitored.
	numeventbuf – displays the value of the number of event buffers Adaptive Server configuration parameter. See “Configuring Event Buffers” on page 2-32 for more information.

scan_interval – displays the current scan interval in Monitor Server. This value might not be the value of the scan_interval Monitor Server configuration parameter at startup, since Monitor Server dynamically recomputes the scan interval if it detects that events are being lost. See “Initial Scan Interval” on page 2-27 for more information.
Monitor Server isql Commands
Troubleshooting Monitor Server

This chapter contains the following topics:

• Error Messages   A-1
• Common Problems   A-7
• Messages in Adaptive Server Error Log   A-9

Error Messages

This section describes the error messages that might appear in the Monitor Server error log. The error log file name is specified in the -l parameter to the Monitor Server startup command. The default path name is ms.log in the current working directory.

The messages are listed alphabetically. Possible causes and resolutions follow each message. Sometimes several messages have the same root cause and the same solution. If you see messages grouped together in the error log, consider whether the same solution might address all of them.

Allocation failure for <n> bytes: all configured summary buffers in use.

A client connection has exceeded the configured maximum per-connection buffer allocations. To increase the maximum size of the buffers or the maximum number of buffers per connection, increase the value of the bufsize or the max_mem_blks Monitor Server configuration parameters. See “Configuring Monitor Server Heap Space Usage” on page 2-28 for more information.

Event buffer wrap: <n> events lost.

Low-level monitoring information is being written by Adaptive Server into its event buffers more rapidly than Monitor Server can extract it.

The recommended procedure is to first reset the event buffers per engine Adaptive Server configuration parameter to a larger number. See “Configuring Event Buffers” on page 2-32 for procedures. If event loss still occurs, consider overriding the default value of the scan_interval Monitor Server configuration parameter.

Upon detecting event loss, Monitor Server dynamically reduces its scanning interval from its initially computed value to a value at
which event loss no longer occurs. You can determine this recomputed scanning interval by using the `sms_status scan_interval` command. Enter the value returned by this command in the Monitor Server configuration file as the value of the `scan_interval` parameter. This causes Monitor Server to scan at or below this interval, rather than starting at its calculated interval whenever it is booted. See “Initial Scan Interval” on page 2-27 for more information.

Failed to allocate a chunk of <n> bytes for summarized event data.

Monitor Server tried to allocate space for summary data but no more space was available. This condition occurs most often when data for many Historical Server views is being collected.

To resolve this condition, you can increase the ceiling of the address space available to Monitor Server by changing the `shared memory starting address` Adaptive Server configuration parameter. Specifying a higher shared memory starting address provides more heap space to Monitor Server.

The problem is independent of the amount of memory Adaptive Server starts with as dictated by the `sp_configure` memory command. It is dependent on the amount of memory available between the size of the Monitor Server binary and the starting address of shared memory.

To change the shared memory starting address:
1. Make sure that Adaptive Server is running and Monitor Server is not running.

2. Change the **shared memory starting address** parameter using either of the following methods:

<table>
<thead>
<tr>
<th>Using Sybase Central</th>
<th>Using isql</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Select the appropriate Adaptive Server folder.</td>
<td>1. Open an <code>isql</code> connection to the appropriate Adaptive Server.</td>
</tr>
<tr>
<td>2. From the File menu, choose Configure.</td>
<td>2. Issue the following commands:</td>
</tr>
<tr>
<td>3. In the scroll box, find the entry for <strong>shared memory starting address</strong>. In the Value column, change the number to a properly aligned starting address that is higher than the current value. For example, to start shared memory at the 16MB address, use 16777216.</td>
<td><code>1&gt; sp_configure &quot;shared memory starting address&quot;, number</code></td>
</tr>
<tr>
<td>4. Click OK. The new value appears in the Pending column until you reboot Adaptive Server.</td>
<td><code>2&gt; go</code></td>
</tr>
</tbody>
</table>

3. Stop Adaptive Server, restart it, and verify that it starts correctly. See step 5 if Adaptive Server fails to start.


5. If Adaptive Server fails to start with the new shared memory starting address, edit the Adaptive Server configuration file. The file resides in the SYBASE root directory. Its name is `servername.cfg`, where `servername` is the Adaptive Server name. Search for the phrase “shared memory starting address” and change the associated value to the previously used value. To find the most recently used configuration values for your Adaptive Server, look in the file whose name is `servername.nnn`. If there are multiple files with `.nnn` extenstions for `servername`, the file with the highest value for `.nnn` is the latest one.

After editing the configuration file and successfully restarting Adaptive Server, try changing the starting address again, making sure to use a shared memory address valid for your platform.
ftok(<$SYBASE/install/sqlServerName>.krg) failed: No such file or directory.

Fatal error -1 detected

Monitor Server is unable to locate the Adaptive Server .krg file, which it requires in order to attach to shared memory. In the message text, sqlServerName is the Adaptive Server being monitored. Check the following:

- The implied or explicit value of the -M parameter in the Adaptive Server startup command must match the implied or explicit value of the -m parameter in the Monitor Server startup command. These parameters specify the location of the .krg file.
- The sqlServerName in the message text must not be truncated. Truncation might occur if the operating system has a limitation on the number of characters in file names, and the Adaptive Server name plus the four characters required for the .krg extension exceeds this limit. If your system imposes a limit on file name lengths, the Adaptive Server name must be four characters less than the limit if you want to monitor that Adaptive Server.

Monitor Server has encountered a fatal error and is quitting.

Monitor Server detected an unrecoverable error condition and is terminating. A message describing the error condition is written to the Monitor Server log file, if possible. The exit status of Monitor Server may be of use to Sybase Technical Support in diagnosing the problem if the log file does not provide sufficient information.

Stored procedure 'master..mon_rpc_attach' not found.

Monitor Server attempted to call the mon_rpc_attach stored procedure, but the procedure is not in Adaptive Server. Either the stored procedure was not created during Monitor Server installation, or it was deleted from the Adaptive Server.

Create the stored procedure in the Adaptive Server you are monitoring by executing the installmon batch file in isql. The installmon batch file contains the SQL text to create two stored procedures required by Monitor Server. Follow these steps:
1. Make sure Adaptive Server is configured and running. Monitor Server can be running or not running.

2. Execute `isql`, attaching to the Adaptive Server you are monitoring, and using the `installmon` batch file as input. Example `isql` commands are:

   UNIX:  `isql -U user -P passwd -S sqlServer <$SYBASE/scripts/installmon`
   NT:    `isql -U user -P passwd -S sqlServer <%SYBASE%/scripts/installmon`

   msgid:20073 -- os_attachment_region: shmget(0xc70e0703): No such file or directory
   msgid:20111 -- kbattach: couldn’t attach to Kernel region
   Unable to attach with shared memory.
   Fatal error -1 detected

For Monitor Server to attach to Adaptive Server shared memory, the user account that starts Monitor Server must have:

- Read and write permissions on the Adaptive Server shared memory file (`sqlServerName.krg`) and on the shared memory segment that Adaptive Server created.
- The same level of permissions as the user account that started Adaptive Server.

Log in using the same account that started Adaptive Server and attempt to start Monitor Server again.

   msgid:20112 -- kbattach: attached to wrong Kernel region
   Unable to attach with shared memory.
   Fatal error -1 detected

A version mismatch between Monitor Server and Adaptive Server exists. Make sure that Monitor Server is attached to a supported Adaptive Server release.

<n> failures to allocate space for summarized data - no more will be logged.

Check earlier messages in the error log describing failed attempts to allocate memory for summarizing event-based monitoring information. Take the actions prescribed for those error messages.
No server log file open; Using stderr for log.
Open Server:  Error: 16012/10/0: Can’t open log file
’$SYBASE/install/ms.log’
OpenServer srv_init call failed.
Monitor Server has encountered a fatal error and quitting

Start Monitor Server as a user who has permission to read and write
to the Monitor Server log file.

Open Server: Fatal Error: 16029/20/0: Failed to start any
network listeners

Monitor Server is already running or you specified a port number in
the interfaces file that is already in use by another application.
for ways to verify whether Monitor Server is running. If a Monitor
Server is not running for Adaptive Server, change the Monitor Server
port number used in the interfaces file. Then restart Monitor Server.

Open Server:  Error: 16104/10/1: Unable to allocate stack, size
34816, for new thread

The starting address of the shared memory segment that Monitor
Server is sharing with Adaptive Server is too low. It is not a fatal error
for Monitor Server, but no new connections can be made.
To change the shared memory starting address to a higher number,
follow the procedures described earlier in this chapter for the error
message: Failed to allocate a chunk of <n> bytes for
summarized event data.

Adaptive Server seems to be down. Shutting down the monitor
server.

In its default configuration, Monitor Server shuts itself down
gracefully if Adaptive Server has been down for approximately 2
minutes. After restarting Adaptive Server, restart Monitor Server.
The Monitor Server heartbeat feature checks periodically to see if
Adaptive Server is still running. When Monitor Server detects that
Adaptive Server is down, it shuts itself down. The heartbeat_interval
Monitor Server configuration parameter controls the frequency that
Monitor Server checks on Adaptive Server. The default value is 120
seconds.
Unable to attach with shared memory.


Check for these situations:

• The .krg file is left over from a previous Adaptive Server startup.
• The .krg file exists in a directory other than the directory identified to Monitor Server in its startup command.
• Someone has copied the .krg file to the current directory from some other directory, thus changing the file’s characteristics.

To confirm that a .krg file is old, compare the date of the .krg file to the last Adaptive Server startup date. You can find the last Adaptive Server startup date by checking the Adaptive Server error log. If the dates do not match, Monitor Server was trying to access a bad version of the .krg file.

Also check the usage of startup parameters for both Monitor Server and Adaptive Server. The value specified for the -M parameter in the Adaptive Server startup command must match the value for the -m parameter in the Monitor Server startup command. The -M parameter tells Adaptive Server where to put the .krg file, and the -m parameter tells Monitor Server where to look for it.

Do not move the .krg file after Adaptive Server starts.

Common Problems

This section describes some common problems that might not be reported or detected in error messages.

Monitor Server Fails to Start

Check the Monitor Server error log file and resolve any problems reported there. This section describes some additional reasons for startup failure.

Access Violations

If you receive an access violation error when starting Monitor Server, check the TCP/IP connection information in the interfaces, sql.ini, or
other Directory Service file. Either correct the TCP/IP connection entry in the file, or try removing the connection entry and adding a new connection for a different network protocol.

**Check the NT Registry Services Entry (NT Only)**

Using the Services Manager, the Monitor Server may fail to start and no error message is logged. Using the NT Registry Editor (regedt32.exe), perform the steps below to correct this problem.

1. Start the **regedt32** utility.
2. Open the registry key `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SYBMON_MonServerName` where `MonServerName` is the name of the Monitor Server.
3. Open the DependOnService value.
4. Choose OK.
5. Exit **regedt32**, shutdown and restart Windows NT.

**Client Errors**

Clients to Monitor Server might receive errors indicating problems with Monitor Server configuration.

**Maximum Connection Errors**

Clients to Monitor Server might receive messages stating that no more connections to Monitor Server are possible. When this occurs, try the following resolutions:

1. Close other connections. Users who receive the connection messages might have multiple client connections opened. They should close other unneeded connections before making a new connection.
2. Increase the number of connections permitted. The number of connections allowed to Monitor Server is controlled by the `-n` parameter to the Monitor Server startup command. Increasing this parameter value allows more client connections. The default value is 5. The maximum value is 20.
3. Change the starting address of the Adaptive Server shared memory region. Use this solution if the connection messages occur before the maximum number of connections is reached. In this case, the current configuration does not allow enough
memory to support the number of connections requested. To remedy this problem, reconfigure the Adaptive Server being monitored to start its shared memory region at a higher virtual address. Increase the address by 50K per additional connection required.

For instructions on changing the shared memory starting address, see the description of the following error message: Failed to allocate a chunk of <n> bytes for summarized event data.

**ct_netlib Errors (Windows NT)**

If clients receive ct_netlib connection errors, make sure the local machine has a Net-Library driver associated with it.

Start `oscfg` from the Sybase program group. Choose the Net-Library tab. If the protocol you are using has the value <Not Set> for the Net-Library driver, choose a driver from the Net-Lib Drivers drop-down box. For example, associate NLWNSCK with TCP.

**Messages in Adaptive Server Error Log**

Client monitoring processes cause `dbcc traceon` messages to be written to the Adaptive Server error log. You can ignore these messages.
Symbols

$DSQUERY 2-19
$SYBASE 2-3, 2-10, 2-23, 3-2
$USER 2-25
.bat startup file 2-14, 2-19, 3-4
.krg file 2-3, 2-10, 2-23, 2-32, A-4, A-7
.mrg file 2-22, 2-24
A
Accounts
"mon_user" 2-24, 2-25
"sa" 2-25, 3-3
"sybase" 2-3, 2-25
Adaptive Server
configuring 2-4, 2-10, 2-29, A-2
messages from 2-25
restarting 3-6
starting 2-7
Adaptive Server Monitor
components 1-1
overview 1-1
Adaptive Server name 2-7, 2-25, A-4
truncation and 2-3, 2-10, 2-32
Add Value dialog box 2-17
Adding
second Monitor Server 2-19
stored procedures A-4
Address
shared memory starting 2-29, A-6
Application programming interface 1-1
Automatic startups 2-14, 2-15, 2-22
B
Batch file A-4
Batch text
See SQL text
Buffers
See Event buffers; Event summary buffers; SQL text buffers
bufsize parameter 2-29, A-1
Bypassing heartbeat mechanism 2-25, 2-27
C
Changing
.bat startup file 2-19
See also Configuring; Parameters 2-18
NT Registry entries 2-18
Client connections
See Connections
Commands
monserver 2-21
monsrvr 2-21
sms_shutdown 4-2
sms_status 2-27, 2-35, 4-3
Components, of Adaptive Server Monitor 1-1
Configuration file 2-23
format of 2-26
Configuring
Adaptive Server 2-4, 2-29, A-2
event summary buffers 2-29, 2-30
heap space 2-28
Monitor Server on NT 2-8–2-19
Monitor Server on UNIX 2-1–2-8
Monitor Server runtime parameters 2-26–?
Monitor Server startup parameters 2-21–2-26
second Monitor Server 2-19
shared memory 2-28
Connections 2-30, 3-8
maximum number of 2-23
Control Panel window 3-5
Controlling event buffer overruns 2-10, 2-32–2-35
Counters 2-28
Creating
stored procedures A-4
D
dbcc traceon messages A-9
Dialog boxes
Add Value 2-17
Service 2-15
E
-E parameter 2-22
Environment variables
$DSQUERY 2-19
$SYBASE 2-3, 2-10, 2-23, 3-2
$USER 2-25
Error file
See Log file
Error messages
   See Messages
**event buffers per engine** parameter 2-3, 2-10, 2-27, 2-33, A-1
Event loss
   See Event buffers
Event summaries 2-28
   number of 2-30
Event summary buffers
   configuring 2-29
   number of 2-29
Events 2-28
Files
   .bat startup file 2-14, 2-19
   .krg 2-3, 2-10, 2-23, 2-32, A-4, A-7
   .mrg 2-22, 2-24
   configuration 2-23
   **installmon** A-4
   log 2-23, 3-2, A-6
   ms.log
   permissions and 2-7
G
   Graphical user interface 1-1
H
   Heap space 2-28, A-2
   Heartbeat mechanism
   bypassing 2-25
   **-T** parameter and 2-25
**heartbeat_interval** 2-27
   Historical Server 2-23, 2-27, 2-30
   isql interface to 3-8
   Monitor Client Library and 1-3
   playback and 1-3
   Sybase Central interface to 3-8
I
   **-i** parameter 2-22
   Initial scan interval
   See **scan_interval** parameter 2-27
Installation
   instructions for 2-2, 2-8
   results of on NT 2-9
**installmon** batch file A-4
**installmon** script 2-2
Interfaces files 2-5
**isql**
   commands 4-1–4-3
   Historical Server and 3-8
L
   **-L** parameter 2-23, 2-26
   **-l** parameter 2-23, 3-2
   Log file 2-23, 3-2, A-6
   Log messages
   See Messages
   Losing events A-1
M
   **-M** parameter 2-7, 2-23, A-4, A-7
   **-m** parameter 2-7, 2-23, A-4, A-7
   **max sql text monitored** parameter 2-4, 2-10, 2-36
   **max_mem_blks** parameter 2-29, A-1
   **max_summaries** parameter 2-29, 2-30
   Maximum number of connections 2-23
Memory
   See Shared memory; Virtual memory
   starting address 2-29
Messages
   from Adaptive Server 2-25
   from Monitor Server 2-33, A-1–A-7
   in Adaptive Server error log A-9
   mon_authorize_non_sa stored procedure 2-3
   mon_rpc_attach stored procedure 2-2, 2-9, 2-25, A-4
   mon_rpc_connect stored procedure 2-2, 2-9
   "mon_user" account 2-24, 2-25
   Monitor Client Library 1-1, 1-2, 2-23, 3-8
   Historical Server and 1-3
   Monitor Server 1-1
   Adaptive Server and 1-2
   Monitor Viewer 1-1, 1-3, 2-27, 2-30, 3-8
   Monitors in Sybase Central 2-23
   **monsrvr** command 2-21
   **monsrvr** command 2-21
   ms.log file 3-2
N
   **-n** parameter 2-23, 2-26
Names
ASE Monitor Server User's Guide

Index-3

ASE Monitor Server Version 11.5

of Adaptive Server 2-3, 2-10, 2-25, 2-32, A-4
of Monitor Server 2-23
no_wait option 3-3, 4-2
NT
adding second Monitor Server on 2-19
configuring Monitor Server on 2-8–2-19
starting Monitor Server on 3-4
stopping Monitor Server on 3-6
verifying Monitor Server on 3-5

NT Registry 2-14, 3-4
changing entries in 2-18
editor 2-17, 2-18

O
-O parameter 2-22, 2-24
Open Client 2-23
Open Server 1-1
Order of startup 2-17
Overruns, in event buffers 2-3, 2-10, 2-32–2-35
Overview, of Adaptive Server Monitor 1-1
Overwriting the .mrg file 2-24

P
-P parameter 2-24
-p parameter 2-11, 2-24
Parameters
bufsize 2-29, A-1
-E 2-22
event buffers per engine 2-3, 2-10, 2-27, 2-33, A-1
heartbeat_interval parameter 2-27
+i 2-22
-L 2-23, 2-26
-2-23, 3-2
-M 2-7, 2-23, A-4, A-7
-m 2-7, 2-23, A-4, A-7
max sql text monitored 2-4, 2-10, 2-36
max_mem_blks 2-29, A-1
max_summaries 2-29, 2-30
-n 2-23, 2-26
-O 2-22, 2-24
-P 2-24
-p 2-11, 2-24
runtime configuration 2-26–??
-S 2-7, 2-22, 2-24, 2-25
scan_interval 2-27, 2-33, A-1
shared memory starting address A-2
startup 2-21–2-26
-T 2-25, 2-27, 3-7
-U 2-25, 2-35, 2-37, 3-2, 3-3, 3-5, 3-6
-v 2-26
Password
in Monitor Server startup command 2-24
prompting for 2-24
Permissions
on Monitor Server files 2-7
shared memory and A-5

Playback 1-3

Ports A-6
Priority, process 2-11, 2-24

Procedure text
See SQL text
Process priority 2-11, 2-24
Prompting for password 2-24
R
regedt32.exe 2-17, 2-18
Registry
See NT Registry
Related information xiii

Restarting servers 3-6
Results of installation 2-9
Runtime configuration 2-26–??
S
-S parameter 2-7, 2-22, 2-24, 2-25
"sa" account 2-25, 3-3
sa_role 2-3

scan_interval parameter 2-27, 2-33, A-1

Scripts

for startup 2-7
installmon 2-2, A-4
startup 2-22

Service dialog box 2-15
Services window 2-15

Setting
See also Parameters 2-22
process priority 2-11, 2-24
startup order 2-17

Shared memory 1-2, 2-3, 2-10, 2-23, 2-29, A-
Index-4

ASE Monitor Server Version 11.5

See also Event buffers; SQL text buffers; Event summary buffers
configuring 2-28
permissions and A-5
Shared memory file
See .krg file
shared memory starting address parameter A-2, A-6
sms_shutdown command 3-3, 4-2
sms_status command 2-27, 2-35, 4-3
sp_sysmon stored procedure 1-3
SQL Server release 11.0.x 2-1
SQL text buffers 2-4, 2-10, 2-35–2-37
Starting
Adaptive Server 2-7
automatically 2-22
Monitor Server on NT 3-4
Monitor Server on UNIX 3-1
script files for 2-7
Startup
order 2-17
parameters 2-21–2-26
script files 2-22
Statement text
See SQL text
Stopping
heartbeat mechanism and A-6
Monitor Server on UNIX 3-3
Monitor Server on Windows NT 3-6
superuser and 2-25
-T parameter and 2-25
Stored procedures
creating A-4
mon_authorize_non_sa 2-3
mon_rpc_attach 2-2, 2-9, 2-25, A-4
mon_rpc_connect 2-2, 2-9
sp_sysmon 1-3
Summaries
See Event Summaries
Superuser 2-24, 2-25, 3-3, 3-6
"sybase" account 2-3, 2-25
Sybase Central 1-3, 2-30
Sybase Central monitors 2-23

T
-T parameter 2-27
-T parameter 2-25, 3-7
Technical support xv
Text
See SQL text
Truncating
Adaptive Server name 2-3, 2-10, 2-32
U
-U parameter 2-25, 2-35, 2-37, 3-2, 3-3, 3-5, 3-6
UNIX
configuring Monitor Server on 2-1–2-8
interfaces files on 2-5
starting Monitor Server on 3-1
stopping Monitor Server on 3-3
verifying Monitor Server on 3-2
V
-v parameter 2-26
Verifying
startup on UNIX 3-2
startup on Windows NT 3-5
Version, of Monitor Server 2-26, A-5
Virtual memory starting address 2-29, A-2
W
Windows
Services 2-15