C H A P T E R

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OS/390: XMS Access Method

SAS/SHARE

System Administrator or User

To use the cross-memory services (XMS) access method with an OS/390 host for SAS/SHARE, perform these tasks:

1 Verify that you have met all your site and software requirements.

2 Verify that the resources for the XMS access method have been defined.

3 Verify that you know how to set SAS options.

4 Set the SAS/SHARE SUBSYSID option, if applicable.

System and Software Requirements for SAS/SHARE

SAS/SHARE requires the following levels of system software to support the XMS access method:

1 XMS has been installed at your site.

2 SAS has been installed on the OS/390 host.

Defining Resources for the XMS Access Method

Network Administrator

Before you can use SAS/SHARE with the XMS access method, you must first define XMS resources for t use SAS/SHARE with the XMS access method, you must first define XMS resources for the OS/390 system. See "System Configuration for the XMS Access Method" on page 150 for the tasks to define resources for SAS/SHARE.

Setting SAS Options

You may specify a SAS option in any of several forms, as follows:

□ in an OPTIONS statement in a SAS session or in an AUTOEXEC file:

OPTIONS *option-name=value*;

Example:

```
options subsysid=sas0;
```

□ in a SAS configuration file or at a SAS invocation:

option-name=value

Example:

```
set subsysid=sas0
```

□ as a CLIST variable:

Add *variable-name*(*default value*) to the SAS CLIST. Then add *variable-name*(*current value*) at the SAS invocation.

Example CLIST:

```
subsysid(rmthost) /* XMS options */
```

Specify the CLIST at the SAS invocation, as follows:

```
sdssas subsysid(sast) ('comamid=xms')
```

If you set multiple forms of the same option, here is the order of precedence that is followed:

OPTIONS statement

AUTOEXEC file

SAS invocation

SAS configuration file

CLIST variable.

SUBSYSID Option

SUBSYSID=*anchor-point*

stands for subsystem identifier, which specifies the cross-memory anchor point that identifies the inactive OS/390 subsystem. The subsystem is defined by your network administrator during the XMS access method configuration. See "System Configuration for the XMS Access Method" on page 150 for more information.

Defining an inactive subsystem causes the OS/390 host to create a subsystem communications vector table (SSCVT) at IPL time. The SSCVT chain is in

common memory and is easily accessible to the XMS access method routines. The SSCTSUSE field of the SSCVT is available to these routines and is used as the anchor point for their control blocks.

The default value for SUBSYSID is SAST. You must set this option to enable clients to access the server with the XMS communications access method. Set this option at both the SAS/SHARE server and at each client host that will access the server.

Client Tasks

User or Applications Programmer

To prepare for accessing a server, perform the following tasks:

1 Specify the XMS access method.

2 Specify a server name.

Specifying the XMS Access Method

Note: XMS is the default communications access method on the OS/390 platform. You may omit specifying the access method in a COMAMID statement and the XMS access method is assumed, by default. △

If you specify the XMS communications access method at the client before you access a server, use the following syntax to specify the XMS access method at each connecting client:

```
OPTIONS COMAMID=access-method-id;
```

where COMAMID is an acronym for Communications Access Method Identification. *access-method-id* identifies the method used by the client to communicate with the server. XMS (an abbreviation for Cross-Memory Services) is an example of an *access-method-id*.

Example:

```
options comamid=xms;
```

The server is accessed using the XMS access method.

You may specify the COMAMID option in an OPTIONS statement, at a SAS invocation, or in a SAS configuration file.

Additionally, you may use the COMAUX1 and COMAUX2 options to designate auxiliary communications access methods. See Table 1.3 on page 10 for the supported access methods by host. If the first method fails to access a server, the second method is attempted, and so on. You can specify up to two auxiliary access methods, depending on the number of methods that are supported between client and server hosts.

COMAUX options can be specified only at a SAS invocation or in a SAS configuration file. The syntax for the COMAUX options follows:

```
COMAUX1=alternate-method
COMAUX2=alternate-method
```

An example of configuration file entries for an OS/390 client connecting to an OS/390 server follows:

```
comamid=xms
comaux1=tcp
comaux2=appc
```

If the server cannot be reached using the XMS access method, a second attempt is made with the TCP/IP access method, and a third attempt with the APPC access method.

Specifying a Server Name

To use the XMS access method, a server and a client must be running on the same OS/390 system.

You must specify the server name in the LIBNAME and PROC OPERATE statements using the following syntax:

```
SERVER=server-id
```

where *server-id* is a name that you assign to the server. The name may contain up to eight characters.

See *SAS Language Reference: Dictionary* for details about SAS naming rules. See *SAS/SHARE User's Guide* for details about the LIBNAME and PROC OPERATE statements.

Client Example

The following example illustrates the statements that you specify in an OS/390 client configuration file to access a server with the XMS access method:

```
libname sasdata 'edc.prog2.sasdata' server=share1;
```

The XMS access method is assumed by default. The LIBNAME statement specifies the data library that is accessed through the server SHARE1.

Note: The XMS access method is the default access method on the OS/390 platform. △

Server Tasks

Network Administrator
   Ensure that the SAS SVC routine has been installed.

Installing the SAS SVC Routine

The SAS SVC control program routine is an interface between the OS/390 operating system and a specific request, such as "third-party checking." This facility provides verification in the form of calls for authentication of both the userid and password and of library authority.

1 Install the SAS SVC routine, if necessary.

   If you have already installed the SAS SVC routine for Release 6.09 of SAS software, do not repeat the step here. If you need to perform the installation, see the *Installation Instructions and System Manager's Guide, The SAS System under MVS* for details.

   Because SAS SVC in Release 6.09 is backward compatible, it replaces the SAS SVC routines from previous releases. You may continue using previous releases of base SAS and SAS/SHARE with the Release 6.09 SAS SVC that is installed on your system.

2 Verify the SAS options for the SVC routine.

You must verify that the SAS system for the SVC routine accurately reflect the way that the SAS SVC is installed. The SAS option SVC0SVC should be set to the number at which the SAS SVC is installed (for example, 251 or 109). If the SAS SVC is installed at 109 as an ESR SVC, the SAS option SVC0R15 should be set to the ESR code (for example, 4).

3 Verify installation on all CPUs, as needed.

If you have more than one CPU, verify that the SAS SVC routine is installed on the systems that will be running SAS/SHARE at your site.

Server Administrator

To set up a server and make it accessible to a connecting client, perform the following tasks:

1 Specify the XMS access method.

2 Specify the server name.

Specifying the XMS Access Method

XMS is the default communications access method on the OS/390 platform. You may omit specifying the access method in a COMAMID statement and the XMS access method is assumed, by default.

If you specify the XMS communications access method at the server before you create a SAS/SHARE server, use the following syntax at the server:

```
OPTIONS COMAMID=access-method-id;
```

where COMAMID is an acronym for Communications Access Method Identification. *access-method-id* identifies the method used by the server to communicate with the client. XMS (an abbreviation for Cross-Memory Services) is an example of an *access-method-id*.

For a server that is running on a host on which only one communications access method is available, use only the COMAMID option.

Example:

```
options comamid=xms;
```

The server will be available only to SAS/SHARE sessions that use the XMS access method.

You may specify the COMAMID option in an OPTIONS statement, at a SAS invocation, or in a SAS configuration file.

However, if the host on which a server is running supports multiple access methods, you may specify up to two auxiliary access methods by which clients may access the server by using the COMAUX1 and COMAUX2 options. See Table 1.3 on page 10 for the supported access methods by host.

All of the access methods initialize when the server initializes. The activation of multiple access methods makes a server available to several groups of clients, each using a different communications access method simultaneously.

COMAUX options can be specified only at a SAS invocation or in a SAS configuration file. The syntax for the COMAUX options follows:

```
COMAUX1=alternate-method
COMAUX2=alternate-method
```

An example of configuration file entries for a server that is running on an OS/390 host follows:

```
comamid=xms
comaux1=tcp
comaux2=appc
```

When the server starts, all of the communications access methods are initialized. The server is simultaneously available to client sessions that use the XMS access method as well as to clients that use the TCP/IP and APPC access methods.

Specifying a Server Name

To use the XMS access method, a server and a client must be running on the same OS/390 system.

You must specify the server name in the PROC SERVER statement using the following syntax:

```
SERVER=server-id
```

where *server-id* is a name that you assign to the server. The name may contain up to eight characters.

See *SAS Language Reference: Dictionary* for details about SAS naming rules. See *SAS/SHARE User's Guide* for details about the PROC SERVER statement.

Server Example

The following statements are specified in a SAS session on the OS/390 remote host at which you start a server:

```
proc server id=share1;
run;
```

The XMS access method is assumed by default, and the server SHARE1 is started on the OS/390 host.

Note: XMS is the default access method on the OS/390 platform. △

System Configuration for the XMS Access Method

Network Administrator Tasks

To configure the OS/390 system for the XMS access method, perform the following tasks:

   1 Install the SASVXMS load module.

   2 Define an anchor point.

Installing the SASVXMS Load Module

To use the XMS access method for communication between a SAS/SHARE server and a client, you must copy the module SASVXMS0 from the SAS load library data set into an authorized link list library. You must then rename this module SASVXMS by removing the 0.

When SAS/SHARE loads the module SASVXMS, it must find that module to be marked authorized, re-entrant, and reusable and to have been loaded from an authorized library.

The version of SASVXMS that is distributed with each maintenance release of SAS/SHARE software can be used only with that maintenance release.

Detailed procedures on how to install the SASVXMS load module follow:

1 Copy SASVXMS0 into an authorized link list library.

You can copy the module SASVXMS0 into any authorized library that is part of the link list. Alternatively, you can install this module into the link pack area. You can use any standard utility program to copy the module SASVXMS0 from your *HLQ*.LIBRARY data set to your link list library.

2 Rename SASVXMS0.

After copying SASVXMS0 into the appropriate library, you must rename it. You can use any standard utility to rename the module.

If you do not have a previous release of SAS/SHARE installed, rename SASVXMS0 to SASVXMS. Specify the communications access method as XMS in the SAS configuration file for batch processing and in the TSO CLIST.

See "Specifying the APPC Communications Access Method" on page 90 for details about specifying the access method.

If you have a previous release of SAS/SHARE installed, rename SASVXMS0 to SASVXMS*n*, where *n* is the last digit of the release of SAS. Specify the communications access method as XMS*n*.

For example, for Release 6.08, rename SASVXMS0 to SASVXMS8 and specify the access method as XMS8. See "Specifying the APPC Communications Access Method" on page 90 for details about specifying the access method.

Defining an Anchor Point

To use the default XMS access method for communication between a SAS/SHARE server and a client, you must define an anchor point. The anchor point is a place in common memory that can be located by servers and clients and that is used to store and retrieve cross-memory communication information. If you have defined an anchor point for a previous release of SAS/SHARE software, it is not necessary to repeat this step now.

Detailed procedures on defining an anchor point follow:

1 Define an inactive OS/390 subsystem.

The anchor point is specified by defining an inactive OS/390 subsystem. Doing this causes OS/390 to create a subsystem communications vector table (SSCVT) at IPL time. The SSCVT chain is in common memory and easily accessible to the cross-memory access method routines. The SSCTSUSE field of the SSCVT is available to these routines and is used as the anchor point for their control blocks.

Although you define a subsystem to OS/390, the subsystem will never be considered active and will provide no system services because the SSCTSSVT field of the SSCVT will never be non-zero.

You can define the inactive subsystem by adding an entry to any of the following:

□ the SCHEDULER SYSGEN macro instruction

□ the IEFJSSNT member of 'SYS1.LINKLIB'

□ an IEFSSN*xx* member of 'SYS1.PARMLIB'.

Consult OS/390 system initialization and tuning documentation for details about each option.

Regardless of which method you choose, you must include the subsystem name, but you must not specify an initialization routine name. Use the name SAS0 unless it conflicts with standards or conventions at your site.

2 Set the SAS option SUBSYSID to specify the inactive subsystem that you defined.

　　The name that you specify for the inactive subsystem that is defined as the anchor point for the XMS access method must also be specified as the value of the SAS option SUBSYSID. See "SUBSYSID Option" on page 146 for information about setting this SAS option.

You have completed the configuration of the XMS subsystem for SAS/SHARE.

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