



CHAPTER

22

VSE: APPC Access Method

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SAS Support for APPC on VSE

Note: Beginning with Version 7, the VSE platform is not supported. Information about VSE is included here for Version 6 users. △

Tasks That Are Common to SAS/CONNECT and SAS/SHARE

Network Administrator, System Administrator, or User

To use the APPC access method with a VSE host for SAS/CONNECT and SAS/SHARE, perform these tasks:

- 1 Verify that you have met all your site and software requirements.
- 2 Verify that the resources for the APPC access method have been defined.
- 3 Verify that you know how to set options in SAS.
- 4 Set the SAS/CONNECT and SAS/SHARE options that you want.

System and Software Requirements for SAS/CONNECT and SAS/SHARE

Ensure that the following conditions have been met:

- 1 APPC has been installed at your site.
- 2 SAS is installed on both the local and remote hosts.
- 3 VTAM, Version 3, Release 2 or a subsequent release has been installed.

Defining Resources for the APPC Access Method

Network Administrator

APPC is the IBM strategic enterprise connectivity solution. Based on System Network Architecture (SNA) logical unit type 6.2 (LU 6.2), APPC is the foundation for distributed processing within an SNA network. In this book, APPC is used to refer to the SNA LU 6.2 distributed processing method.

Before you can use SAS/CONNECT or SAS/SHARE with the APPC access method, you must first define APPC resources for the VSE system that allow it to behave as either a local or a remote host in a SAS/CONNECT session or as a SAS/SHARE server or client. See “System Configuration for the APPC Access Method” on page 326 for the tasks that you perform to define resources for SAS/CONNECT and SAS/SHARE .

Setting SAS Options

You may need to set specific SAS options to establish the connections that you want with SAS/CONNECT and SAS/SHARE using the APPC communications access method.

Consult with your network administrator to determine what options must be set and what values to assign to them.

You may specify a SAS option

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

`OPTIONS variable-name=value;`

Example:

```
options appcsec=_prompt_;
```

Additionally, you may specify options on the VSE host in the following forms:
system configuration file

user configuration file

PARM= parameter on the JCL EXEC statement

options list.

Values for options may contain up to eight characters, consisting of alphanumeric characters, the percent sign (%), the dollar sign (\$), the pound sign (#), the at sign (@), and the underscore (_).

For information about setting SAS options on the VSE host and the order of precedence that is followed if multiple forms of an option are set, see the *SAS documentation* for your operating environment.

SAS/CONNECT and SAS/SHARE Options

For SAS/CONNECT and SAS/SHARE, you must set the APPCSEC option in order to pass a remote host userid and password to a remote SAS/CONNECT host or to a SAS/SHARE server for verification. After the userid and the password have been verified, the connection to the remote SAS/CONNECT host or the SAS/SHARE server can proceed.

Values for the APPCSEC option are

APPCSEC=_NONE_ | _PROMPT_ | *userid.password* | _SECURE_

NONE

must be set at the SAS/CONNECT local host or the SAS/SHARE client. This is the default.

Setting this value does not establish secure sessions for connecting SAS/CONNECT local hosts or SAS/SHARE clients.

PROMPT

must be set at the SAS/CONNECT local host or the SAS/SHARE client.

PROMPT specifies that SAS prompt the user for userid and password information. When prompted for a password, the input field is not displayed. Choosing to prompt for a userid and a password provides more security than assigning the userid and password to the system option.

userid.password

must be set at the SAS/CONNECT local host or the SAS/SHARE client.

This value specifies both the userid and password. Assigning the userid and password directly to the APPCSEC option at the SAS/CONNECT local host or SAS/SHARE client may inadvertently publicize this information and compromise the security of the SAS/CONNECT remote host or the SAS/SHARE server. Assigning the value to the option in a file allows anyone to read it.

SECURE

must be set at the SAS/SHARE server.

The **_SECURE_** value for the APPCSEC option requires a SAS/SHARE client to supply both a valid userid and password to the remote host on which the server is running, in order to allow client access to the server.

Make sure that you specify the APPCSEC option before you start a server.

Examples:

```
options appcsec=_none_;
options appcsec=_prompt_;
options appcsec=bass.time2go;
options appcsec=_SECURE_;
```

See “Setting SAS Options” on page 318 for examples of the forms that you can use to specify the APPCSEC option.

APPCAPPL=APPC-application-id

must be set at the SAS/CONNECT local host and the remote host and at the SAS/SHARE client only.

APPCAPPL specifies the APPC VTAM application identifier that causes VTAM to initialize for the APPC access method.

You must set this option as part of SAS initialization. Ask your network administrator for advice about setting this option.

APPCLOGM=APPC-logmode

must be set at the SAS/CONNECT local host and at the SAS/SHARE client only.

APPCLOGM specifies the communications mode and its properties (for example, protocol and performance parameters). The default mode name is SASAPPC. Mode properties are defined through the MODEENT macro. See “Defining the Logon Mode Table Entries” on page 327 for details about defining mode properties.

Alternatively, you may set this option as part of SAS initialization or user invocation. Ask your network administrator for advice about setting this option.

SAS/CONNECT

Local Host Tasks

User or Applications Programmer

To connect a VSE local host to a remote host, perform these tasks at the local host:

- 1 Specify the communications access method.
- 2 Specify the remote host name.
- 3 Sign on to the remote host.

Specifying the APPC Communications Access Method

You must specify the APPC communications access method to make a remote host connection. Use the following syntax:

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

where COMAMID is an acronym for Communications Access Method Identification. *access-method-id* identifies the method used by the local host to communicate with the remote host. APPC (an acronym for Advanced Program-to-Program Communication) is an example of *access-method-id*.

Example:

```
options comamid=appc;
```

Specifying the Remote Host Name

To connect a VSE local host to a remote host, use the following syntax:

```
OPTIONS REMOTE=remote-session-id;
```

where *remote-session-id* specifies the logical unit of the remote host that you are connecting to. Types of valid values follow:

Table 22.1 VSE APPC SAS/CONNECT REMOTE= Values

Type of Remote Host	Remote Session Identifier
MVS/ESA	LU name that is configured to the APPC /MVS scheduler
CMS	name of AVS gateway
OS/2	name of control-point LU or other OS/2 locally defined LU
Windows NT, Windows 95	name of control-point LU or other SNA server locally defined LU
VSE	name of VTAM APPL ID (ACBNAME) that was set up for APPC LU6.2 communications

Example:

```
options remote=N02SV01;
```

The remote node N02SV01 is the LU name that is assigned to the APPC/MVS scheduler that you want to connect to. Ask your network administrator for the *remote-session-id*.

Signing On to the Remote Host

To complete your sign on to the remote host, enter the SIGNON statement, as follows:

```
signon;
```

You do not need to use a script file for all connections that use the APPC access method because APPC has the ability to interface with the APPC/VSE subsystem to initiate a remote session. If you previously identified a script file in an RLINK fileref statement, you will receive an error message when you attempt to make a connection. If you do not want to omit the RLINK fileref but want to prevent the error, use the NOSCRIPT option in the SIGNON and SIGNOFF statements as follows:

```
signon noscript;
.
.
.
signoff noscript;
```

Local Host Example

The following example illustrates the statements that you specify in a VSE local host configuration file:

```
appcappl=sasappr
appclogm=sasappc
```

The APPCAPPL option is set to specify the APPC VTAM identifier that causes VTAM to initialize for the APPC access method. The APPCLOGM option specifies the communications mode and its properties.

The following example illustrates the statements that you specify in a VSE local host SAS session to connect to a remote host with the APPC access method.

```
options appcsec=_prompt_ comamid=appc
      remote=remotelu;
signon;
```

The APPCSEC option specifies that connecting local hosts be prompted for a username and a password that are valid on the remote host. The APPC communications access method is declared, and the remote host REMOTELU is identified. The SIGNON statement performs the sign-on process.

Remote Host Task

System Administrator

- 1 Specify the remote host name.
- 2 Optionally, set several remote host options.

Specifying the Remote Host Name

You must declare a remote host name at both the local host and the remote host in a SAS/CONNECT session. At both hosts, you specify an OPTIONS statement as follows:

```
OPTIONS REMOTE=remote-host-id;
```

where the *remote-host-id* that you specify at the remote host is based on the type of remote host that you are connecting to. See Table 22.1 on page 321 for valid values.

The remote host identifiers that you specify at both the local and remote hosts must be identical.

Example:

```
options remote=remotelu;
```

Alternatively, you may specify this OPTIONS statement at a SAS invocation or in a SAS configuration file.

Setting Options at the Remote Host

Although sign-on script files are not used for the APPC access method, you may set remote host options at the remote host. It is recommended that you set these options:

NOSSYNTAXCHECK

allows the continuation of statement processing at the remote host regardless of syntax error conditions.

This option is valid as part of a configuration file, at a SAS invocation, or in an OPTIONS statement.

NOTERMINAL

specifies whether a terminal is attached at SAS invocation. If NOTERMINAL is specified, requestor windows are not displayed.

Setting NOTERMINAL at the remote host is advisable so that no terminal is associated with the remote session. This option prevents SAS from displaying error messages and dialog boxes on the remote host, which requires user intervention.

This option is valid as part of a configuration file or at a SAS invocation. An example of configuration file entries for a remote host that is using the APPC method follows:

```
no$syntaxcheck
noterminal
```

See *SAS Language Reference: Dictionary* for details about this option.

Remote Host Example

The following example illustrates the statements that you specify in a VSE remote host configuration file to prepare for a connection from a local host with the APPC access method.

```
appcappl=sasappr
```

The APPCAPPL variable specifies the APPC VTAM identifier that causes VTAM to initialize for the APPC access method.

SAS/SHARE

Client Tasks

System Administrator or User

To prepare to create or access a SAS/SHARE server, you must perform the following tasks:

- 1 Set the server's userid and password for connecting clients.
- 2 Specify the APPC access method.
- 3 Know how to specify a server name.

Setting the Server Userid and Password

Requiring connecting clients to supply both a valid server userid and password enforces server security. At the client, set the APPCSEC option to store the server's userid and password. See "SAS/CONNECT and SAS/SHARE Options" on page 319 for more information about setting the APPCSEC option.

Specifying the APPC Communications Access Method

You must specify the APPC communications access method at the client before you access a server.

Use the following syntax to specify the APPC 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. APPC (an abbreviation for Advanced Program-to-Program Communication) is an example of an *access-method-id*.

Because the server runs on a host on which only one communications access method is available, use only the COMAMID option. See Table 1.3 on page 10 for the supported access methods by host.

Example:

```
options comamid=appc;
```

The server is accessed using the APPC access method.

You may specify the COMAMID option in an OPTIONS statement, at a SAS invocation, or in a SAS configuration file. An example of how to specify the APPC access method in a configuration file follows:

```
comamid=appc
```

Specifying a Server Name

You must specify the server name in the LIBNAME and PROC OPERATE statements as follows:

```
SERVER=server-id
```

The value of *server-id* is based on the type of host on which the server runs, where *server-id* is defined in an APPL statement when you configure the VSE system for use with the APPC access method. See “System Configuration for the APPC Access Method” on page 326 for acceptable values for *server-id*.

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 a VSE client's configuration file:

```
appcappl=sasappr
appclogm=sasappc
```

The APPCAPPL option is set to specify the APPC VTAM identifier, which causes VTAM to initialize for the APPC access method. The APPCLOGM option specifies the communications mode and its properties.

The following example illustrates the statements that you specify in a VSE client SAS session to access a server with the APPC access method:

```
options comamid=appc appcsec=_prompt_;
libname sasdata 'edc.prog2.sasdata' server=share1;
```

The APPC access method is declared. The APPCSEC option specifies that clients be prompted for a username and a password that are valid on the server. The LIBNAME statement specifies the data library that is accessed through the server SHARE1. The *server-id* is the name of the VTAM APPL ID (ACBNAME) that was set up for APPC LU6.2 communications.

Server Tasks

Server Administrator

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

- 1 Set server security through the APPCSEC option.
- 2 Specify the APPC access method.
- 3 Specify the server name.

Setting Server Security

You may use file permissions to restrict a user's access to libraries and files through a server. A secured server allows connections only from those clients that provide valid userids and passwords for the host at which the server is running. A secured server uses a validated userid and password to verify a user's authority to access a SAS library or a file.

Make sure that you have set the value `_SECURE_` for the APPCSEC option at the SAS/SHARE server before you start the server. Also, verify that connecting clients have set the APPCSEC option to the appropriate userids and passwords. See "SAS/CONNECT and SAS/SHARE Options" on page 319 for information about setting the APPCSEC system option.

Specifying the APPC Access Method at the Server

You must specify the APPC communications access method at the server before you create a SAS/SHARE server.

Use the following syntax to specify the APPC access method 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. APPC (an abbreviation for Advanced Program-to-Program Communication) is an example of an *access-method-id*.

Because the server runs on a host on which only one communications access method is available, use only the COMAMID option. See Table 1.3 on page 10 for the supported access methods by host.

Example:

```
options comamid=appc;
```

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

You may specify the COMAMID option in an OPTIONS statement, at a SAS invocation, or in a SAS configuration file. An example of configuration file entries for a server that is running on a VSE host follows:

```
comamid=appc
```

Specifying a Server Name

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

```
SERVER=server-id
```

The value of *server-id* is based on the type of host on which the server runs, where *server-id* is defined in an APPL statement when you configure the VSE system for use with the APPC access method. See “System Configuration for the APPC Access Method” on page 326 for acceptable values for *server-id*.

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 example illustrates the statements that you specify in a SAS session on the VSE host at which you start a server:

```
options appcsec=_secure_ comamid=appc;
proc server id=share1;
run;
```

The `_SECURE_` value for the APPCSEC option requires clients to supply a userid and a password that are valid on the server. The APPC access method is declared and the server SHARE1, which is the name of the VTAM APPL ID (ACBNAME) that was set up for APPC LU6.2 communications, is started on the VSE host.

System Configuration for the APPC Access Method

VTAM Systems Personnel

To configure resources for the VSE system that enable it to behave as either a local or a remote host in a SAS/CONNECT session or as a SAS/SHARE client and server with the APPC access method, perform the following tasks:

- 1 Configure the VSE APPC environment with an application (APPL) definition statement.
- 2 Add entries to the logon mode table.

This section highlights the general tasks that you must perform to configure the VSE system for use with the APPC access method. For full details about configuring the APPC subsystem, see “References” on page 328 for a list of related documents.

Using an APPL Definition Statement to Configure the VSE Environment

Specify an APPL definition statement to configure the VSE environment. Use a comma to separate each entry. Here is an example. This APPL statement allows for 32,767 sessions (16,384 contention winners and 16,383 contention losers) per LU/MODE pair.

```
SASAPPC APPL APPC=YES,
ACBNAME=SASAPPC,
AUTH=(ACQ,NOCNM),
AUTOSES=1,
DDRAINL=NALLOW,
DMINWNL=16384,
DMINWNR=16383,
DRESPL=NALLOW,
DSESLIM=32767,
```

MODETAB=SASAPPC,
 PARSESS=YES,
 SECACPT=CONV

An explanation of each entry follows:

APPL

declares an APPL definition statement.

APPC=YES

tells APPC that the application program can issue APPCCMD macros.

ACBNAME=SASAPPC

is the application name, which must be identical to the value assigned to the APPCAPPL option. See "SAS/CONNECT and SAS/SHARE Options" on page 319 for information about the APPCAPPL option.

AUTH=(ACQ,NOCNM)

specifies that the program can use the OPNDST macro instruction with the ACQUIRE option. The NOCNM argument means that the program cannot use (NO) the Communication Network Management (CNM) interface.

AUTOSES=1

tells the APPC subsystem how many sessions to start automatically after CNOS (Change Number of Sessions) negotiation.

DDRAINL=NALLOW

does not allow the application to drain its allocation requests during shutdown.

DMINWNL=16384

specifies the minimum number of parallel sessions of which the local LU is guaranteed to be the contention winner.

DMINWNR=16383

specifies the minimum number of parallel sessions of which the remote LU is guaranteed to be the contention winner.

DRESPL=NALLOW

requires the remote partner to deactivate sessions.

DSESLIM=32767

defines the maximum session limits.

MODETAB=SASAPPC

defines the session logon mode table.

PARSESS=YES

indicates support for parallel session capability.

SECACPT=CONV

indicates that FMH5 security subfield information is accepted.

See *VTAM Installation and Resource Definition (SC23-0111)* for more information about these parameters.

Defining the Logon Mode Table Entries

A logon mode table contains one or more sets of session properties, which contain session protocols that describe how the session will be conducted. These entries support session binding to a secondary LU that resides within the local VTAM domain.

Refer to the BIND LU description in *Technical Reference 3, SNA Formats* and the MODEENT discussion in *Technical Reference 5, VTAM Customization* for complete information. Contact IBM for information about this documentation.

The following example shows a typical logon mode table that contains two sets of entries.

The first entry is a reserved mode name that is used by VTAM for control operator functions.

The second entry is the mode that defines the parameters for sessions between VSE and its partner LUs. The value for the mode name (SASAPPC in this example) must be identical to the value assigned to the APPCLOGM option. See “SAS/CONNECT and SAS/SHARE Options” on page 319 for information about the APPCLOGM option.

```

SNASVCMG MODEENT LOGMODE=SNASVCMG,
                  FMPROF=X'13',
                  TSPROF=X'07',
                  PRIPROT=X'B0',
                  SECPROT=X'B0',
                  COMPROT=X'50B3',
                  PSERVIC=X'0602000000000000000000000300',
                  TYPE=X'00'

SASAPPC MODEENT LOGMODE=SASAPPC,
                FMPROF=X'13',
                TSPROF=X'07',
                PRIPROT=X'B0',
                SECPROT=X'B0',
                COMPROT=X'50B1',
                PSERVIC=X'0602000000000000000000000100F00',
                TYPE=X'00'

```

Note: The SNASVCMG entry is required to support SNA services that are initiated through a boundary NCP. △

SNASVCMG is a reserved mode name that is used by VTAM for control operator functions. SASAPPC is the mode name that defines the session parameters that exist between the local and remote applications.

After you add these entries to the logon mode table, you must re-assemble and link edit the table so that it resides in the VSE librarian sublibrary that contains the VTAM configuration definitions. This sublibrary is usually named PRD2.CONFIG.

You have completed the VSE host configuration process.

References

For complete details about how to install and configure the APPC system, see the following documents:

SNA Technical Overview (GC30-3073)

SNA Formats (GA27-3136)

VTAM Programming for LU6.2 (SC31-6410)

VTAM Installation and Resource Definition (SC23-0111)

Contact IBM for information about obtaining this documentation.

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