

# Changes and Enhancements

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## Introduction

*Note:* Information about changes and enhancements that were implemented in Version 8 is preceded by **V8**. All other changes and enhancements described in this section were implemented in Version 7. If your site upgraded directly from Version 6 to Version 8, then all of the changes and enhancements described here are new to you. If you upgraded from Version 7 to Version 8, then only the items preceded by **V8** are new to you.  $\Delta$

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## SAS/SHARE Services Extend to the Internet

A SAS/SHARE\*NET server is a SAS/SHARE server for which SAS/SHARE\*NET software is licensed. SAS/SHARE\*NET software represents the Data Services component of SAS/IntrNet software. SAS/SHARE\*NET is the licensable right to send requests to a SAS/SHARE server from a client that is not a SAS application. Examples of clients that are not SAS applications are:

### htmSQL

runs a Web server and offers a gateway to your SAS data from a Web browser. It enables you to incorporate data into a Web page by using SQL queries.

### Java applet or application

uses SAS/SHARE\*NET driver for JDBC, which enables you to write Java applets or applications that can view and update data through a direct connection to a SAS/SHARE\*NET server.

### C program

uses the SAS SQL Library for C. The SAS SQL Library is an applications programming interface (API) that enables you to create applications that use SQL queries and statements to access data in SAS data sets and in other database management systems.

An application that uses the ODBC driver, such as Microsoft Excel uses the ODBC driver, which provides ODBC-compliant Windows applications that have “read” and “write” access to local and remote SAS data sets.

**¶8 OLE DB consumer or ADO application**

(new in Version 8) uses ShareProvider to view and update data through a direct connection to a SAS/SHARE\*NET server. ShareProvider implements the Microsoft OLE DB specification and can be used by any OLE DB- compliant or ADO-enabled application.

It is also possible for a SAS/SHARE server to be a client to another server such as an ORACLE DBMS server. The preceding client interfaces or applications are documented by their own respective vendors or developers.

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## **PROC SERVER Options for Performance and Security**

The following new options in the PROC SERVER statement improve the performance and security of the SAS/SHARE server.

**ACCTLVL=**

is a performance-tuning parameter. It enables you to examine server resource consumption during different parts of your application's execution.

**LOG=values**

is a performance-tuning parameter. Three new values (ACTIVETIME, BYTECOUNT, and ELAPSEDTIME) provide more efficient resource usage statistics than the now obsolete values IO and CPU.

**AUTHENTICATE=**

is a security feature that specifies whether a client must supply a valid userid and password in order to access the server.

**PT2DBPW=**

is a security feature that specifies the password that is required for clients that run an SQL CONNECT TO REMOTE statement that includes the DBMS= option.

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## **LIBNAME Statement Option for the Remote Engine**

The LIBNAME statement supports the ROPTIONS option.

**ROPTIONS=**

specifies options to the remote engine that are used to process the SAS data library in the server session.

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## **Version 8 and Version 6 SAS/SHARE Are Compatible**

Version 8 and Version 6 SAS/SHARE client/server applications are compatible. This enables you to convert your applications incrementally rather than at one time. For example, you can convert your client from Version 6 to Version 7 or later and still communicate with a Version 6 server. After successfully converting the client, the server can then be converted. Another approach would be to convert the server first and then the client. Otherwise, both client and server would need to be converted simultaneously, which generally increases the cost and risk of the conversion.

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## Data Encryption

Encryption services protect data that is sent between hosts across a network. Encryption services use a reversible algorithm to convert plain-text data into an unintelligible form, thus protecting data from being used by unauthorized parties.

For the OS/390, OpenVMS, OS/2, and UNIX platforms, the purchase of a license for SAS/SECURE is necessary. SAS/SECURE provides access to the encryption services of the RSA BSAFE Crypto-C Toolkit.

√8 In Version 8, SAS/SECURE introduces support for the RSA BSAFE Crypto-J Toolkit for Java clients of the SAS server.

SAS system options for data encryption for the RSA BSAFE Crypto-C Toolkit and the Microsoft CryptoAPI (for Windows) are:

### NETENCRYPT

specifies the requirement to operate in encryption mode; for example, both the client and the server sessions must be operating in encryption mode.

### NETENCRYPTALGORITHM

specifies one or more encryption algorithms to use in a SAS/SHARE client/server session.

### NETENCRYPTKEYLEN

specifies the key length - 40-bit or 128-bit - to be used by the encryption algorithm.

### NETMAC

controls the use of Message Authentication Codes (MACs) on network communications. A MAC is the equivalent of a checksum that is used to ensure that the original message has not been modified.

Other documentation explains options that are applicable to RSA BSAFE Crypto-J Toolkit Java clients.

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## The ALLOCATE SASFILE Command in a PROC SERVER Statement

The PROC SERVER statement ALLOCATE SASFILE command specifies that one or more SAS data sets can be opened for the duration of a server session until you terminate the server. Keeping SAS data sets open until a server terminates can enhance server performance by reducing overhead from users opening and closing data sets during the server's processing. In each ALLOCATE SASFILE command, you can specify up to 20 SAS data set names with accompanying data set options. Syntax for the ALLOCATE SASFILE command follows:

```
PROC SERVER <options>;
```

```
  ALLOCATE SASFILE SAS-data-set1 (data-set-options)
    <SAS-data-set2 (data-set-options) ...
    SAS-data-set20 (data-set-options)>;
```

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## SAS/SHARE Supports Base SAS Enhancements

SAS/SHARE supports the following enhancements that have been implemented for base SAS software:

- long names

- concatenated libraries
- concatenated catalogs
- generation data sets
- integrity constraints.

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## Version 8 Method to Secure the SAS/SHARE Server

**V8** Version 8 introduces a new method to secure the SAS/SHARE server by means of the USER= and PASSWORD= options to these SAS/SHARE statements:

```
PROC OPERATE
LIBNAME
Remote SQL Pass-Through
```

These security options can be set on any Version 8 SAS/SHARE client accessing a SAS/SHARE server that runs any version of SAS. The USER= and PASSWORD= options to these statements take precedence over the security options that vary according to the client host and the communications access method used.

Client Host	Communications Access Methods			
	APPC	TCP/IP	DecNET	NetBIOS
Security Options				
	APPCSEC or APPC_SECURE*	TCPSEC	SASSECUR	SASSECUR
CMS	•	•		
OS/390	•	•		
OpenVMS		•	•	
OS/2	•	•		
UNIX	•	•		
Windows	•	•	•	•

\* APPCSEC applies to CMS and OS/390 hosts. APPC\_SECURE is used for OS/2, UNIX, and Windows hosts.

To establish SAS/SHARE security in Version 8, you specify the USER= and PASSWORD= options in the appropriate statement on the client. On the server, you assign \_SECURE\_ to the security option that is appropriate for the access method that you use; for example, TCPSEC=\_SECURE\_.

If a Version 7 security option remains set on the client, the Version 8 specification of USER= and PASSWORD= in a SAS/SHARE statement overrides the previously set security option on the client. For example, the Version 8 USER= and PASSWORD= options in the LIBNAME statement will override the TCPSEC= \_PROMPT\_ option set on a UNIX client.

If a Version 8 client does not set USER= and PASSWORD= options, the Version 7 TCPSEC option, if set, would remain in effect in Version 8 because Version 8 maintains backward compatibility with Version 7.

Syntax and definitions are:

```
USER | USERNAME | USERID | UID= username | _PROMPT_
PASSWORD | PASSWD | PWD | PW= password | _PROMPT_
```

You must specify a username and password in order to access data by means of a secure SAS/SHARE server. Specifying these options allows clients whose usernames and passwords have been verified to access the server.

*Username* specifies the username of the remote host on which the server runs. For a username on a Windows NT remote host only, the username can also include the domain name, which locates the specified username in a domain.

*Password* specifies the password of the remote host on which the server runs.

Supplying a userid and password by using the USER= and PASSWORD= options is more secure than assigning them by means of a security option (such as TCPSEC), which can be inadvertently publicized in a configuration file or in a log that contains an expanded security macro.

`_PROMPT_` specifies that the SAS System prompts the client for *userid* and *password*. Hardcoding a username and password value to the USER= and PASSWORD= options limits the assignment to a single user whereas prompting permits any user to supply a username and password that are valid.

The values supplied for the USER= and PASSWORD= options are valid for the duration of the server connection. Subsequent client connections to the same server or to a different server require you to specify these options again. By contrast, as an example, the values assigned to TCPSEC in a client configuration file endure for subsequent connections to the same server and to different servers.

Here is a Version 8 example:

```
libname test user=joeblack password=born2run; # client side
%let tcpsec=_secure_; # server side
```

In this example, the values for USER= and PASSWORD= endure for the current server connection. Subsequent connections to the same server or to a different server require that you supply a username and password again. The `_SECURE_` value assigned to the TCPSEC macro variable on the server persists for the duration of the current server session.

As a security precaution, USER= and PASSWORD= field entries in the client log are replaced with Xs.

If `_PROMPT_` were specified, when presented with a prompt for *password* during a server connection, the client's entry would not be displayed on the screen.

If a Version 8 client on a Windows host set `_PROMPT_` in a LIBNAME statement for connection to a server by using the TCP/IP access method, then the Version 8 behavior will override a conflicting setting in the client's configuration file. For example, the Version 8 **USER=joeblack** and **PASSWORD=born2run** settings take precedence over the following TCPSEC option set to `_PROMPT_` in a client's configuration file.

```
-set tcpsec _prompt_;
```



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