

IBM Application Support Facility for z/OS



Customization (Last update: 21.03.2003)

Version 3 Release 3

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Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 33.

First Edition, March 2003

This edition applies to version 3 release 3 of IBM Application Support Facility for z/OS (product number 5655-002) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Contents

About this book	v
How to get more information.	v
How to send your comments.	v
System setup and configuration	1
Multiserver and multihost support	1
Defining the ASF server to WebSphere Application Server	2
Configuring the HTTP server.	2
Configuring WebSphere Application Server	4
Access authorizations for the HTTP Server and the WebSphere Application Server	5
Configuring the ASF server and network connections	6
Modifying the ASF server configuration file	6
Modifying the ASF network configuration file	9
Adding new connections	14
Removing existing connections	14
Configuring MQSeries.	14
Configuring the Web browser	15
Configuring the Microsoft Internet Explorer	15
Internet Explorer settings for the editor	15
Internet Explorer settings for debugging.	16
Installing AFP Viewer	16
Installing and customizing the Listener	17
CICS environment considerations	18
CICS connection considerations.	18
Node error program DFHZNEP	19
Program error program DFHPEP	19
Terminal definition parameters	19
UCTRAN parameter—TYPETERM definition	19
TCTUA—CICS terminal definition.	19
SIGNOFF parameter—TYPETERM definition	20
Lost term exit DFHXTENF	20
SIT parameter SPOOL	20
PLIDUMP considerations.	20
IMS environment considerations	21
IMS connection considerations	21
IMS procedures	21
MFS formats	21
Preloaded programs	21
IMS Connect TimeOut parameter	22
DCF considerations.	22
Interaction with DCF programs (CICS)	22

Interaction with DCF programs (IMS and batch)	22
DB2 setup	23
Setup environments for DB2.	23
Migrating databases to DB2	25
Running batch utilities with databases in DB2.	25
DB2 considerations	25
Using PL/I in an IMS and DB2 environment	26
Performance considerations for the CLL	26
Space requirements for CLL and SLL tables.	26
Performance considerations for continuous formatting.	26
Selected control statement with impact on the performance	27
DB2 utilities and commands.	27
Using the RUNSTATS utility.	27
Using the STOSPACE utility.	28
Using the DB2 DISPLAY command	28
DB2 definitions and system table information	29
Organization of the table space.	29
Index organization	29
OPEN and CLOSE of INDEXSPACES and TABLESPACES	30
Space reservation parameters	30
Buffer pools	31
DB2 parameter LOCALE LC_TYPE	31
DB2 parameters for resource definition	31
CREATE TABLE.	31
CREATE TABLESPACE	32
CREATE INDEX.	32

Notices	33
Programming interface information	35
Trademarks	35

Glossary of terms and abbreviations	37
--	-----------

Related publications	43
The ASF library	43
Other IBM publications	43

Index	45
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About this book

This book provides customization information for IBM Application Support Facility for z/OS™ (ASF) Version 3 Release 3. It gives an overview of Application Support Facility and the new Web client interface provided with the feature Document Connect for ASF.

How to get more information

Visit the ASF Web page at <http://www.ibm.com/software/office/asf/index.html> to see the latest information available about the product.

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other ASF documentation, send your comments by using:

- Internet. The e-mail address is: swsdid@de.ibm.com.
- The form at the back of this book. Return it by mail or fax, or give it to an IBM representative. The fax number is: +49-7031-164892.

Be sure to include the name of the book, the version of ASF and, if applicable, the specific location of the text you are commenting on (for example, a page number or a table number).

System setup and configuration

This chapter provides detailed information about setting up your ASF system and on the impact of some system definitions on your setup. Information is provided on:

- “Multiserver and multihost support”
- “Defining the ASF server to WebSphere Application Server” on page 2
- “Configuring the HTTP server” on page 2
- “Configuring WebSphere Application Server” on page 4
- “Access authorizations for the HTTP Server and the WebSphere Application Server” on page 5
- “Configuring the ASF server and network connections” on page 6
- “Configuring MQSeries” on page 14
- “Configuring the Web browser” on page 15
- “Configuring the Microsoft Internet Explorer” on page 15
- “Installing AFP Viewer” on page 16
- “Installing and customizing the Listener” on page 17
- “CICS environment considerations” on page 18
- “IMS environment considerations” on page 21
- “DCF considerations” on page 22
- “DB2 setup” on page 23
- “DB2 considerations” on page 25

Multiserver and multihost support

The Web client is defined to WebSphere as a Web application. The names of the Web application and the associated URL identify an installed example of a Web client. Invoking the Web client from a browser means sending an HTTP request containing a Web client URL to the HTTP server. During an explicit sign-on, the user is asked for the user ID, password, and host name. During an implicit sign-on (for example, via the 3270 Listener), this information—with the exception of the password—is obtained from the host screen and included in the URL.

The HTTP server for the Web client supports various types of connections to various types of ASF host systems:

- IMS, via MQSeries
- IMS, using IMS Connect
- CICS, using the CICS Transaction Gateway
- CICS, via MQSeries

Host systems and connections are defined in the DocNetworkConfiguration XML document. The basic concept is the *host nickname* which defines an ASF host system to the HTTP server. You define the type of connection and the attributes of the host system using the host nickname. For more information, refer to “Modifying the ASF network configuration file” on page 9.

Any instance of the Document Connect for ASF server can talk to all host nicknames defined in its **DocNetworkConfiguration.xml** file. This means a server

can be connected to multiple IMS and/or CICS systems, and even use different types of connections at the same time. This is shown in Figure 1.

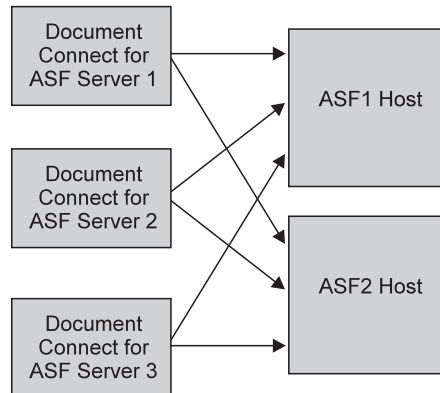


Figure 1. ASF multiserver support

Defining the ASF server to WebSphere Application Server

To use the Web client, you need to configure the HTTP server, WebSphere Application Server, and the ASF server.

The ASF server consists of static elements, such as HTML documents, JavaScript™ programs, and XSL files. The ASF server operates as a servlet, and the executable servlet is located in the file **docserver.jar**, in the *webclient_root/bin/servlets/* directory.

webclient_root is the root directory where the installed image of the Web client component of ASF is located. The default directory is **/usr/lpp/fsn/V3R3M0**. If you have installed the Web client into another directory, you must adapt the directives accordingly.

To make the ASF server known to WebSphere Application Server, you must define:

- A Web application and update the configuration files **httpd.conf** and **was.conf**.
- The file system paths and the rerouting of URLs in **httpd.conf**.
- The servlet in **was.conf**.

The servlet engine of WebSphere Application Server starts the ASF servlet whenever the Web application is started. The servlet waits for input, namely HTTP requests coming from the HTTP server.

Configuring the HTTP server

To configure the HTTP server, you need to update the configuration file **httpd.conf** of the HTTP server that hosts WebSphere Application Server. This update is necessary to provide the HTTP server with the entry point to the application server's request processing for the Web client. Additionally the HTTP server must protect the ASF server configuration servlets. The configuration file is located in the installation root directory of the HTTP server.

You can find a sample configuration file for the HTTP server in the *webclient_root/samples/z-series* directory. *webclient_root* is the root directory where the installed image of the Web client component of ASF is located. The default

directory is `/usr/lpp/fsn/V3R3M0`. If you have installed the Web client into another directory, you must adapt the directives accordingly.

The Web application name is called `dc4asf` in this example. You can rename this Web application name in your installation.

To define protection for the configuration servlets against the HTTP server, you must define the following **Protection** and **Protect** directives in the configuration file. **Protection** and **Protect** directives must be placed before any **ServerInit**, **Service**, **Pass** or **Exec** directives.

```

Protection      dc4asf_configuration_servlets {
  ServerID      dc4asf-configuration-servlets
  AuthType      Basic
  PasswdFile    %%SAF%%
  Mask          define_here_your_userids
}
Protect /dc4asf/DocASFServerConfigServlet*      dc4asf_configuration_servlets
Protect /dc4asf/DocASFNetworkConfigServlet*    dc4asf_configuration_servlets
Protect /dc4asf/DocASFNetworkConfigProcessServlet* dc4asf_configuration_servlets

```

Note: The underlined directives in the **Protection** and the **Protect** directives must match.

The subdirectives of the **Protection** directive are described in the following:

ServerID

Identifies the **Protection** setup to requestors. You can adapt this value to your needs to identify the **Protection Group**.

AuthType

Specifies the authentication type. If you define the value **Basic** here, and a user requests a URL that is specified in the **Protect** directive, this user is prompted to enter a user ID and a valid password.

PasswdFile

If you define a value of `%%SAF%%`, it specifies that a SAF-based security system, such as OS/390 RACF, is used to perform the validation using your MVS system IDs and passwords.

Mask Define valid user IDs for the **Protection** directive. Use a comma without blanks to separate the user names from each other. As these users are allowed to change the configuration of the ASF server, you should only grant access to those users who are familiar with the settings.

To provide the HTTP server with the entry point to the application server's request processing for the Web client, add and update the following HTTP server directives between the **ServerInit** and the **ServerTerm** directives to the configuration file:

```

Service /dc4asf/servlet/*      appserver_root/bin/was350plugin.so:service_exit
Service /dc4asf/DocASFServerConfigServlet appserver_root/bin/was350plugin.so:service_exit
Service /dc4asf/DocASFNetworkConfigServlet appserver_root/AppServer/bin/was350plugin.so:service_exit
Service /dc4asf/DocASFNetworkConfigProcessServlet appserver_root/AppServer/bin/was350plugin.so:service_exit
Pass    /dc4asf/*              webclient_root/www/*

```

appserver_root is the root directory where the installed image of WebSphere Application Server is located. The default directory is **/usr/lpp/WebSphere**. If you have installed WebSphere into another directory, you must adapt the directives accordingly.

webclient_root is the root directory where the installed image of the Web client component of ASF is located. The default directory is **/usr/lpp/fsn/V3R3M0**. If you have installed the Web client into another directory, you must adapt the directives accordingly.

The **Service** directives tell the HTTP server to pass all URLs that start with **http://hostname/dc4asf/** to the WebSphere Application Server.

After you have changed the configuration of the HTTP server, you must restart the server to use the new values.

For more information, refer to the HTTP server and WebSphere Application Server documentation.

Configuring WebSphere Application Server

To configure WebSphere Application Server, you need to update the configuration file **was.conf** located at *appserver_root*/**AppServer/properties**. *appserver_root* is the root directory where the installed image of WebSphere Application Server is located. The default directory is **/usr/lpp/WebSphere**.

You can find a sample configuration file for the WebSphere Application Server in the *webclient_root*/**samples/z-series** directory.

1. Configure the parameter `appserver.libpath`, as follows:

```
appserver.libpath=mq_root/java/lib:webclient_root/bin:cicstg_root/bin
```

Specify the path *mq_root*/**java/lib** only if you use MQSeries.

mq_root is the root directory where the installation image of MQSeries is located. The default directory is **/usr/lpp/mqm**.

webclient_root is the root directory where the installed image of the Web client component of ASF is located. The default directory is **/usr/lpp/fsn/V3R3M0**.

Specify the path *cicstg_root*/**bin** only if you use CICS Transaction Gateway.

cicstg_root is the root directory where the installation image of the CICS Transaction Gateway is located.

2. Configure the parameter `appserver.classpath`, as follows:

```
appserver.classpath=mq_root/java/lib:webclient_root/bin/java:  
cicstg_root/classes
```

Specify the path *mq_root*/**java/lib** only if you use MQSeries.

Specify the path *cicstg_root*/**classes** only if you use CICS Transaction Gateway.

3. Configure the Web application with the following default values:

```

deployedwebapp.dc4asf.host=default_host
deployedwebapp.dc4asf.rooturi=dc4asf
deployedwebapp.dc4asf.classpath=webclient_root/bin/servlets
deployedwebapp.dc4asf.documentroot=webclient_root/www
deployedwebapp.dc4asf.autoreloadinterval=0

webapp.dc4asf.servlet.DocASFServlet.code=com.ibm.doc.server.DocASFServlet
webapp.dc4asf.servlet.DocASFServlet.servletmapping=/servlet
webapp.dc4asf.servlet.DocASFServlet.initargs=configpath=webclient_root/config/DocConfiguration.xml
webapp.dc4asf.servlet.DocASFServlet.autostart=true

```

Note: The underlined parameter **deployedwebapp.dc4asf.rooturi** must match the underlined entry **Service** in the configuration file **httpd.conf** of the HTTP server (see “Configuring the HTTP server” on page 2).

4. Configure the configuration servlets of the Web client, for example:

```

webapp.dc4asf.servlet.DocASFServerConfigServlet.code=com.ibm.doc.server.DocASFServerConfigServlet
webapp.dc4asf.servlet.DocASFServerConfigServlet.servletmapping=/DocASFServerConfigServlet
webapp.dc4asf.servlet.DocASFServerConfigServlet.initargs=configpath=
  webclient_root/config/DocConfiguration.xml,configxsl=
  webclient_root/www/xsl/docconfig.xsl
webapp.dc4asf.servlet.DocASFServerConfigServlet.autostart=true

webapp.dc4asf.servlet.DocASFNetworkConfigServlet.code=com.ibm.doc.server.DocASFNetworkConfigServlet
webapp.dc4asf.servlet.DocASFNetworkConfigServlet.servletmapping=/DocASFNetworkConfigServlet
webapp.dc4asf.servlet.DocASFNetworkConfigServlet.initargs=configpath=
  webclient_root/config/DocConfiguration.xml,networkconfigxsl=
  webclient_root/www/xsl/docnetworkconfig.xsl
webapp.dc4asf.servlet.DocASFNetworkConfigServlet.autostart=true

webapp.dc4asf.servlet.DocASFNetworkConfigProcessServlet.code=
  com.ibm.doc.server.DocASFNetworkConfigProcessServlet
webapp.dc4asf.servlet.DocASFNetworkConfigProcessServlet.servletmapping=
  /DocASFNetworkConfigProcessServlet
webapp.dc4asf.servlet.DocASFNetworkConfigProcessServlet.initargs=configpath=
  webclient_root/config/DocConfiguration.xml,networkconfigprocesspath=
  webclient_root/etc/DocNetworkConfigurationProcess.xml,networkconfigxsl=
  webclient_root/www/xsl/docnetworkconfigprocess.xsl
webapp.dc4asf.servlet.DocASFNetworkConfigProcessServlet.autostart=true

```

After you have changed the configuration of the WebSphere server, you must restart the server to use the new values.

For more details, refer to the WebSphere Application Server documentation.

Access authorizations for the HTTP Server and the WebSphere Application Server

The HTTP server and the WebSphere Application Server need READ access to the *webclient_root* directory and to all subdirectories and files. To update the ASF server configuration the servers need UPDATE access to the *webclient_root/config* directory and to all files in this directory. Additionally UPDATE access to the following directories is required:

```

webclient_root/log
webclient_root/www/preview

```

EXECUTION access to all directories and to all files in *webclient_root/bin* is required. Additionally PROGRAM CONTROLLED BIT must be set for these files.

Configuring the ASF server and network connections

To use the Web client interface, the ASF server and network connections must be configured.

The configurations are stored in the following files:

- **DocConfiguration.xml** for the configuration of the ASF server.
- **DocNetworkConfiguration.xml** for the configuration of the connection to the z/OS host and the host subsystems (IMS, CICS, IMS via MQSeries).

If you are configuring the ASF server for the first time, you must adapt the paths to the installation image of the Web client component of ASF. The default directory is */usr/lpp/fsn/V3R3M0*.

The configuration files reside in the *webclient_root/config* subdirectory and can be updated using online dialogs.

Modifying the ASF server configuration file

To modify the **DocConfiguration.xml** file:

1. Open the Microsoft® Internet Explorer.
2. Enter **http://default_host/dc4asf/DocASFServerConfigServlet**, where *default_host* is the host name of the ASF server. If the HTTP server does not listen to the default port 80, you must append *:port* to the *default_host*, where *port* is the port number you want to use. If you do not want to use the name **dc4asf** for the Web application name (as shown in “Configuring the HTTP server” on page 2), you must replace this name with the Web application name of your choice.
3. Depending on the configuration of the servlet **DocASFServerConfigServlet**, you might be prompted by a dialog requesting a user ID and password. Enter one of the user names and passwords with the required access rights as defined in the **Protection** directive. For more information refer to “Configuring the HTTP server” on page 2.
4. The Configuration form is displayed. The language in which this form is displayed is determined by the section **ASF servlet, Default language**.
5. Select the section you want to change, and modify the relevant fields:

- **Language**

Under **Selectable languages** select the languages supported by the ASF server. You can choose one or several languages from the following list:

Code	Language
da	Danish
de	German
en	U.S. English (default)
es	Spanish
fr	French
nl	Dutch

Note: You must select the default language under **ASF servlet, Default language**.

Language path:

The location of the resource files that contain language-specific messages and strings used by the ASF server. By default this is `/usr/lpp/fsn/V3R3M0/resources`.

- **Network**

- **Configuration file for network configuration:**

- The fully-qualified file name of the network configuration file. By default, this is `/usr/lpp/fsn/V3R3M0/config/DocNetworkConfiguration.xml`.

- **Document Conversion**

- Specifies information for document conversion:

- **Document conversion path:**

- Specifies the directory where the DCF to HTML and HTML to DCF conversion XSL files are stored. By default, this is `/usr/lpp/fsn/V3R3M0/www/xsl`.

- **Configuration file for document conversion:**

- Specifies the fully qualified configuration file for document conversion. By default, this is `/usr/lpp/fsn/V3R3M0/config/DocXSLConversion.xml`.

- For more information refer to the *ASF Administration Guide*.

- **Logging**

- Specifies the information for logging:

- Note:** For information on the format and organization of the log file, refer to the *Application Support Facility for z/OS: Diagnosis Guide*.

- **Logging enabled:**

- Specifies if logging is enabled. By default, logging is enabled.

- **Generic file name:**

- The name of the log file. By default, this is `/usr/lpp/fsn/V3R3M0/log/logfile`.

- **File extension:**

- The file extension of the log file. By default, this is `.log`.

- **Number of generations:**

- The number of generations. By default, this is 10.

- **Maximum size in kilobytes:**

- The maximum size of the log file in kilobytes; must be at least 9 kilobytes. By default, 3096 KB are defined.

- **Record length in bytes:**

- The record length in bytes; must be at least 100 bytes. By default, 330 bytes are defined.

- **Tracing**

- Specifies the information for tracing:

- Note:** For information on the format and organization of the trace file and the meaning of trace types, refer to the *Application Support Facility for z/OS: Diagnosis Guide*.

- **Tracing enabled:**

- Specifies if tracing is enabled. By default, tracing is disabled.

- **Session trace:**

- Specifies if session trace is enabled. By default, session trace is disabled.

- **Generic file name:**

The generic name of the trace file. By default, this is `/usr/lpp/fsn/V3R3M0/log/trcfile`.

– **File extension:**

The file extension of the trace file. By default, this is `.trc`.

– **Record length in bytes:**

The record length in bytes; must be at least 100 bytes. By default, 3300 bytes are defined.

– **Traceable class names:**

Specifies one or more class names from which the trace messages must be issued. By default, this is `DocASFNe*`, `DocASFSe*`, and `DocASFPro*`.

– **Traceable trace types:**

Specifies one or more types of traces to be written to the trace file. Valid types are:

Trace	Description
AL	All traces
BU	Buffer trace (default)
CN	Constructor trace (default)
ER	Error trace (default)
LG	Log trace
PF	Performance trace (default)
US	User trace (default)

• **ASF servlet**

Specifies the information for the core servlet of ASF:

– **Default language:**

The default language code for the ASF servlet. Valid codes are:

Code	Language
da	Danish
de	German
en	U.S. English (default)
es	Spanish
fr	French
nl	Dutch

Note: You must ensure that the ASF servlet default language has been selected under **Selectable languages** in the **Language** section.

– **Session cleanup period:**

Specifies a period of time, in minutes, after which cleanup is to start. By default, this is 60 minutes.

– **Session maximum age:**

The maximum live time of a session in minutes. By default, this is 180 minutes.

– **Print preview type:**

The preview type for printing.

Note: Currently only AFP is supported.

– **Preview directory:**

The directory to which all preview files are written. By default, this is `/usr/lpp/fsn/V3R3M0/www/preview`.

– **Preview HTML path:**

The path to preview HTML documents. By default, this is **preview**.

– **Performance check enabled:**

This field is reserved for future use.

• **Dictionaries**

Specifies the dictionaries to be used by the editor during spell check:

– **Spell check enabled:**

Specifies whether spell check is enabled.

– **Dictionary path:**

The path where the dictionaries are located. By default, this is **/usr/lpp/fsn/V3R3M0/www/dictionaries**.

– **Dictionaries:**

The language dictionaries to be used by the editor during spell check. You can select one or more language dictionaries from the list of installed dictionaries.

• **Customer specific data**

Specifies data for the customer and reference information:

– **Customer name:**

Type the customer name. This field is currently used for reference only.

– **Comment:**

The administrator can enter and store comments here.

– **Last changed timestamp:**

Displays when the configuration file was last changed and stored. This field is READ only. The time stamp format is **YYYYMMDDhhmmssmmmm**.

6. Click **OK** to save your changes, or click **Reset** to undo the changes. To confirm the update, click **OK** on the confirmation dialog. A message is displayed stating that the configuration files were successfully updated. If you do not want to update the files, click **Cancel**.

Note: After you have updated the configuration, restart the server to use the new values.

Modifying the ASF network configuration file

To modify the **DocNetworkConfiguration.xml** file:

1. Open the Microsoft Internet Explorer.
2. Enter **http://default_host/dc4asf/DocASFNetworkConfigServlet**, where *default_host* is the host name of the ASF server, where *default_host* is the host name of the ASF server. If the HTTP server does not listen to the default port 80, you must append *:port* to the *default_host*, where *port* is the port number you want to use. If you do not want to use the name **dc4asf** for the Web application name (as shown in “Configuring the HTTP server” on page 2), you must replace this name with the Web application name of your choice.
3. Depending on the configuration of the servlet **DocASFNetworkConfigServlet**, you might be prompted by a dialog requesting a user ID and password. Enter one of the user names and passwords with the required access rights as defined in the **Protection** directive, described in “Configuring the HTTP server” on page 2.
4. The Network Configuration form is displayed. The language in which this form is displayed is determined by the section **ASF servlet, Default language**.
5. You can do the following in separate steps, or together:

- Modify values of existing connections.
 - Remove connections (see “Removing existing connections” on page 14).
 - Add new connections (see “Adding new connections” on page 14).
6. In the Network Configuration form, select the section you want to change, and modify the relevant fields:
- **General configuration**
Specifies the information for general configuration:
 - **Timeout:**
Specifies a time period in milliseconds to determine when to delete unused connections.
 - **Threshold:**
The maximum number of connections in the connection pool that are not used. If the number of unused connections in this pool is exceeded, the oldest unused connection in the pool is deleted.
 - **IMS connection configuration**
Specifies the information for the IMS connection configuration. Each IMS connection is represented by a table entry.
 - **Remove connection:**
Click the check box if you want to mark a connection for removal.
 - **Host nickname:**
The nickname of the host; this must be unique.
 - **Host connection data:**
The information for the host connection:
 - **Connection type:**
The connection type, IMS.
 - **Conversational IMS Processing:**
If the check box is clicked on, IMS processing is conversational, otherwise it is non-conversational.
 - **IMS name:**
The TCP/IP host name of the machine that runs IMS Connect. For more information, refer to the IMS Connect documentation.
 - **XCode:**
The ASF transaction code for IMS. The code must be specified as xxxE, where xxx is the ASF prefix, such as FSNE.
 - **Port number:**
The port number, which is used by IMS Connect. For more information, refer to the IMS Connect documentation.
 - **Datastore name:**
The name of the target IMS datastore, which is defined in the IMS Connect configuration file. For more information, refer to the IMS Connect documentation.
 - **User ID:**
The user ID for IMS.
 - **Change password:**
Click the check box if you want to change the stored password. If this field is:
 - Not selected, the stored password is not changed.

- Selected, the stored password is replaced by the encryption of the new password, which you have entered.
- **New password/Confirm password:**
The passwords for the IMS user ID. Use these fields to replace the stored password with an encrypted new password. Both fields must match.
- **IMSMQ connection configuration**
Specifies the information for the IMSMQ connection configuration:
 - **Remove connection:**
Click the check box if you want to mark a connection for removal.
 - **Host nickname:**
The nickname of the host.
 - **Host connection data:**
The information for the host connection:
 - **Connection type:**
The connection type, IMSMQ.
 - **Conversational IMS Processing:**
If the check box is clicked on, IMS processing is conversational, otherwise it is non-conversational.
 - **Queue manager:**
The name of the local MQSeries queue manager to which you want to connect. For more information, refer to the MQSeries documentation.
 - **Server in-queue:**
The name of the MQSeries queue, which is used to receive messages from IMS. It can be a local queue or point to a remote queue. For more information, refer to the MQSeries documentation.
 - **Server out-queue:**
The name of the local MQSeries queue, which is used to send messages to IMS. For more information, refer to the MQSeries documentation.
 - **XCode:**
The ASF transaction code for IMS. The code must be specified as xxxE, where xxx is the ASF prefix, such as FSNE.
 - **User ID:**
The user ID for IMS.
 - **Change password:**
Click the check box if you want to change the stored password. If this field is:
 - Not selected, the stored password is not changed.
 - Selected, the stored password is replaced by the encryption of the new password, which you have entered.
 - **New password/Confirm password:**
The passwords for the IMS user ID. Use these fields to replace the stored password with an encrypted new password. Both fields must match.
 - **Wait interval:**

Specifies a time period, in milliseconds, to determine how long MQSeries waits for an incoming message. If you specify a value of 25 for the wait interval, MQSeries waits 25000 milliseconds for a message from IMS.

- **CICS connection configuration**

Specifies the information for the CICS connection configuration:

- **Remove connection:**

Click the check box if you want to mark a connection for removal.

- **Host nickname:**

The nickname of the host.

- **Host connection data:**

The information for the host connection:

- **Connection type:**

The connection type, CICS.

- **CICS URL:**

The URL for CICS, which is used to attach to a CICS Transaction Gateway. The format to set a URL property to specify the location of the CICS Transaction Gateway is: <protocol>://<hostname>:<port>. You can use a special protocol called "local:" to indicate to the machine on which the CICS connector client is running that the CICS Transaction Gateway is local. For more information, refer to the CICS Transaction Gateway documentation.

- **CICS server name:**

The CICS server name, which is defined in the server definition of the CICS Transaction Gateway configuration. It is not a CICS region name. For more information, refer to the CICS Transaction Gateway documentation.

- **CICS program:**

The CICS program name of the ASF program, which is called on the host. You must specify **FSNWRFRC**.

- **User ID:**

The user ID for CICS.

- **Change password:**

Click the check box if you want to change the stored password. If this field is:

- Not selected, the stored password is not changed.
- Selected, the stored password is replaced by the encryption of the new password, which you have entered.

- **New password/Confirm password:**

The passwords for the CICS user ID. Use these fields to replace the stored password with an encrypted new password. Both fields must match.

- **CICSMQ connection configuration**

Specifies the information for the CICSMQ connection configuration:

- **Remove connection:**

Click the check box if you want to mark a connection for removal.

- **Host nickname:**

The nickname of the host.

– **Host connection data:**

The information for the host connection:

– **Connection type:**

The connection type, CICS MQ.

– **Server in-queue:**

The name of the MQSeries queue, which is used to receive messages from CICS. It can be a local queue or point to a remote queue. For more information, refer to the MQSeries documentation.

– **Server out-queue:**

The name of the local MQSeries queue, which is used to send messages to CICS. For more information, refer to the MQSeries documentation.

– **Queue manager:**

The name of the local MQSeries queue manager to which you want to connect. For more information, refer to the MQSeries documentation.

– **CICS program:**

Specifies the CICS program name of the ASF program, which is called on the host.

Notes:

- a. This field is read-only.
- b. It must contain a value of **FSNWRFRFC**.

– **Wait interval:**

Specifies a time period, in milliseconds, to determine how long MQSeries waits for an incoming message. If you specify a value of 25 for the wait interval, MQSeries waits 25000 milliseconds for a message from CICS.

– **User ID:**

The user ID for CICS.

– **Change password:**

Click the check box if you want to change the stored password. If this field is:

- Not selected, the stored password is not changed.
- Selected, the stored password is replaced by the encryption of the new password, which you have entered.

– **New password/Confirm password:**

The passwords for the IMS user ID. Use these fields to replace the stored password with an encrypted new password. Both fields must match.

7. Decide how you want to continue:

- Click **OK** to save your changes. To confirm the update, click **OK** on the confirmation dialog. A form with the title **Additional connections** is displayed, where you can define new connections as described in “Adding new connections” on page 14.
- If you want to undo the changes, click **Reset**.
- If you do not want to update the files, click **Cancel**.

Note: After you have updated the configuration, restart the server to use the new values.

Adding new connections

Add a new connection by modifying the network configuration file.

1. Open the Microsoft Internet Explorer.
2. Enter `http://default_host/dc4asf/DocASFNetworkConfigServlet`, where `default_host` is the host name of the ASF server.
3. In the form displayed, locate the fields for connections to be added: **Number of IMS connections to be added**, **Number of IMSMQ connections to be added**, **Number of CICS connections to be added**, or **Number of CICSMQ connections to be added**.
4. Specify in the relevant field or fields how many connections you want to add. You can add different types of connections at the same time.
5. Click **OK**. A form with the title **Additional connections** is displayed for defining the new connections.
6. Fill in the required information.
7. Click **OK** to save your changes, or click **Reset** to undo the changes. To confirm the update, click **OK** on the confirmation dialog. A message is displayed stating that the network connections were successfully updated. If you do not want to update the files, click **Cancel**.

Note: After you have updated the configuration, restart the server to use the new values.

Removing existing connections

Remove existing connections by modifying the network configuration file.

1. Open the Microsoft Internet Explorer.
2. Enter `http://default_host/dc4asf/DocASFNetworkConfigServlet`, where `default_host` is the host name of the ASF server.
3. In the form displayed, locate the connection you want to remove.
4. Click the relevant **Remove connection** check box.
5. Click **OK** to remove the selected connections, or click **Reset** to undo the changes. To confirm the update, click **OK** on the confirmation dialog. A message is displayed stating that the network connections were successfully updated. If you do not want to update the files, click **Cancel**.

Note: After you have updated the configuration, restart the server to use the new values.

Configuring MQSeries

Installation prerequisites are listed in the *Application Support Facility for z/OS: Licensed Program Specifications*. Ensure that the queue manager name, the input queue name, and the output queue name are correctly configured in the network configuration (see “Configuring the ASF server and network connections” on page 6).

Add the following system parameters to the start procedure of the WebSphere Application Server:

1. STEPLIB
 - SYS1.MQMxxx.SCSQANLE
 - SYS1.MQMxxx.SCSQAUTHwhere `xxx` is the queue manager name.
2. CLASSPATH

- /usr/lpp/mqm/java/lib/com.ibm.mq.jar
- /usr/lpp/mqm/java/lib/com.ibm.mqjms.jar
- /usr/lpp/mqm/java/lib/providerutil.jar
- /usr/lpp/mqm/java/lib/fscontext.jar
- /usr/lpp/mqm/java/lib

where **/usr/lpp/mqm/java/lib** is the installation path of the MQSeries Fix Pack MA88.

3. Set the bit 'program controlled' for the following MQSeries libraries:

- /usr/lpp/mqm/java/lib/libwmqjbind.so
- /usr/lpp/mqm/java/lib/libwmqjbatch.so

where **/usr/lpp/mqm/java/lib** is the installation path of the MQSeries Fix Pack MA88.

Configuring the Web browser

In the Web browser, check that the file cache and the execution of JavaScript is enabled. See the documentation of your Web browser to determine how to activate these options. For information on customizing the Web browser, refer to the *ASF Administration Guide*.

Configuring the Microsoft Internet Explorer

You can configure the Internet Explorer, for example, to improve or enable the display and for debugging purposes.

Internet Explorer settings for the editor

You can configure your Internet explorer and connection settings to improve your efficiency. To modify or set the required Internet properties:

1. Click **Start-> Settings->Control panel** to open the **Control Panel**.
2. Click **Internet Options** to open the **Internet Properties** dialog.

The following description lists the required settings:

- On the **General** tab, in the **Temporary Internet files** field, click **Settings** to open the **Settings** dialog. Then make sure that you have not selected **Never** on this dialog.
- On the **Security** tab, select **Local intranet**, then click **Custom Level...** to open the **Security Settings** dialog and to define your settings as follows:
 - Under **ActiveX controls and plug-ins**, select **Enable**
 - Under **Run ActiveX controls and plug-ins**, select **Enable**
 - Under **Downloads->File download**, select **Enable**
 - Under **Microsoft VM->Java permissions**, make sure that **Disable Java** is not selected.

Note: If the option **Custom** is selected, click the **Java Custom Settings...** button to display the **Local intranet** dialog. Open the **Edit permissions** tab and select:

- Under **Unsigned Content->Run Unsigned Content**, select **Run in sandbox**
- Under **Additional Unsigned Permission**, select **Enable**.
- Under **Scripting** select **Enable** for the following items:

- **Active Scripting**
- **Scripting of Java applets**
- Under **Miscellaneous**->**Submit nonencrypted form data**, select **Enable**.
- On the **Advanced** tab, select **Multimedia**->**Show pictures**.

Internet Explorer settings for debugging

Note: This information is for administrators only.

If you notice errors or problems when displaying information using the Web client or the Listener and you can reproduce these errors, you should obtain detailed debugging information in form of an HTML file as follows.

To get the detailed debugging information, the following settings are required in the Microsoft Internet Explorer:

1. Open the Internet Explorer and click **Tools**->**Internet Options** to display the **Internet Options** dialog.
2. On the **Security** tab, click **Custom Level...** to open the **Security Settings** dialog and to select **Enable** or **Prompt** for the following items under **ActiveX controls and plug-ins**:
 - **Download signed ActiveX controls**
 - **Run ActiveX controls and plug-ins**
 - **Script ActiveX controls marked safe for scripting**

Notes:

1. You must have installed the Microsoft Windows Script Host. If you have installed the Microsoft Windows Script Debugger, the Microsoft Windows Script Host is included.
2. To download the Windows Script Host (WSH) you can do one of the following:
 - Use the following URL:
`http://msdn.microsoft.com/downloads/default.asp?URL=/downloads/sample.asp?url=/msdn-files/027/001/733/msdncompositedoc.xml`
 - Open the **Microsoft Developer Network Internet** page to select **MSDN Downloads**-> **Web Development** -> **Windows Script**.
3. Like Microsoft Internet Explorer, WSH serves as a controller of ActiveX scripting engines. WSH allows scripts to be run directly on the Windows desktop without being embedded in an HTML document.

To obtain the detailed debugging information in form of an HTML file:

1. Click inside the Web client or Listener.
2. Press **ALT + 9** to open a Notepad window that contains the HTML code.
3. Save the content of the Notepad window and send it together with the trace file and a detailed description of the problem to IBM for a thorough analysis.

Installing AFP Viewer

With the Web client, ASF can use the **Print preview** function to create an AFP data stream that can be viewed on client workstations. When requested, the AFP data stream is created on the host using DCF, and it is transferred to the server and stored in the server's preview directory. Then the ASF servlet responds with a URL pointing to the AFP file.

If an AFP Viewer plug-in is available on the client workstation, Microsoft Internet Explorer loads the plug-in with the AFP data stream and the formatted document is displayed in the plug-in.

The Document Connect for ASF feature package contains the installation file for the IBM AFP Viewer plug-in, which is also available for download from <http://www-3.ibm.com/software/data/ondemand/support71.html>.

To install the viewer plug in, click the download button on the sign-on panel of Document Connect for ASF, and follow the instructions.

Installing and customizing the Listener

The 3270 Listener is a Microsoft Windows® application that can be downloaded from the HTTP server for Document Connect for ASF. The Listener enables the connection of a 3270 mainframe application to the Web client browser application. The Listener runs on the client Microsoft Windows PC and, when active, watches all active 3270 emulator sessions for Web client invocation parameters. When these parameters appear on the 3270 screen, the Listener creates an invocation URL and loads it into a Web browser ActiveX control.

Notes:

1. A list of emulator products that are supported is provided in the *Application Support Facility for z/OS: Licensed Program Specifications*.
2. A command flag is used to select the emulator. Usually, only one emulator is installed on a workstation. This emulator adds its install directory to the Windows PATH environment variable. This is required for the Listener to run, because the Listener loads the WHLAPI32.dll of the emulator product. If a user has installed more than one emulator, the PATH variable must be modified to contain the correct emulator directory, otherwise the Listener may crash. Also, the emulator must be enabled for the HLLAPI API, and emulator sessions must have a short name (A, B, C and so on) assigned. For more information refer to the documentation of the emulator installed.
3. "Internet Explorer settings for debugging" on page 16 provides information if problems occur.

To install the Listener:

1. Download the Listener by clicking the download button on the sign-on panel to display an HTML document containing instructions and links to the downloadable files.
2. Selecting the download option for the Listener.
An InstallShield installation .exe file will be stored in your download directory.
3. Install the Listener from the installation .exe file. When prompted, enter the language and the emulator to use.
The installation installs the program in the directory you specify and creates a Windows Programs entry for the Listener that you can use to invoke the Listener.

The Listener accepts the following invocation flags:

Table 1. Invocation flags accepted by the Listener

Flag	Meaning
/lang=en	Language is English

Table 1. Invocation flags accepted by the Listener (continued)

/lang=de	Language is German
/lang=es	Language is Spanish
/lang=dk	Language is Danish
/lang=nl	Language is Dutch
/lang=fr	Language is French
/pcom	Run with IBM Personal Communications
/extra	Run with Attachmate Extra
/reflection	Run with WRQ Reflection
/autostart	Start listening initially without the need to start listening manually
/trace	Create a trace file in the Windows temp directory (the directory name is determined by the TEMP variable of the Windows environment.)

The language and emulator are set by the installation. Set the other options manually.

CICS environment considerations

This section provides information on CICS connection considerations and discusses the following CICS system definitions:

- Node error program (NEP)
- Program error program (PEP)
- Terminal definition parameters
 - UCTRAN
 - TCTUA
 - SIGNOFF
- Lost term exit DFHXTENF
- SIT parameter SPOOL
- PLIDUMP

CICS connection considerations

When running ASF V3 R3 under CICS, you can choose one of the following ways to connect the ASF host part with the Web client:

- MQSeries (refer to “Configuring MQSeries” on page 14)

It is assumed that:

- MQSeries is installed and configured correctly
- The MQSeries - CICS Bridge is installed and configured correctly

For more information refer to *MQSeries for OS/390 Version 5 Release 2 Concepts and Planning Guide* and *MQSeries for OS/390 Version 5 Release 2 System Setup Guide*.

- CICS Transaction Gateway

It is assumed that the CICS Transaction Gateway is installed and configured correctly. For more information refer to *CICS Transaction Gateway: z/OS Administration V5.0* and *CICS Transaction Gateway V5.0: The WebSphere Connector for CICS (Redbook)*.

Node error program DFHZNEP

For details on the purpose of the NEP for ASF, refer to the *ASF Administration Guide*.

A complete sample NEP is provided that needs to be merged with the node error program in DFHZNEP provided by CICS. Assemble and link DFHZNEP to get a running version supporting node error handling for your system.

In an MRO environment, DFHZNEP must be installed in the terminal-owning region (TOR).

Program error program DFHPEP

For details on the purpose of the PEP for ASF, refer to the *ASF Administration Guide*.

A complete sample PEP is provided, that needs to be merged with the program error program in DFHPEP provided by CICS. Assemble and link DFHPNEP to get a running version supporting the program error handling of your system.

In an MRO environment, DFHPEP must be installed in each application-owning region (AOR).

Terminal definition parameters

A number of CICS terminal definition parameters has impact on functions of ASF.

UCTRAN parameter—TYPETERM definition

Do not specify UCTRAN=YES in the TYPETERM definitions in the TCT entries for the terminals that you use with ASF.

Use UCTRAN=NO or UCTRAN=TRANID.

In the profile definitions UCTRAN=NO must be specified.

If you specify UCTRAN=YES, you cannot enter text or parameter names in uppercase and lowercase.

TCTUA—CICS terminal definition

ASF uses 16 bytes of the TCTUA to handle node error situations with the NEP and program error situations with the PEP.

The usage of the TCTUA is optional but it is a prerequisite for NEP and PEP to work correctly.

ASF updates of the TCTUA and **must not** be defined with attribute TCTUAKEY=CICS. Use TCTUAKEY=USER for the ASF NEP and PEP handling.

To avoid use of the TCTUA by ASF, either do not define a TCTUA in the CICS terminal definitions or specify an offset in tailoring parameter **TCTDISP**, which provides a part of the TCTUA for ASF that is shorter than 16 bytes.

If TCTUA is not used, the reset function (FSNA transaction) must be used to reset pending ASF sessions after node errors and program failures.

Defining tailoring parameter **SESSCTL** with a value of **3** is another possibility to allow sign-on from terminals with different terminal IDs after node errors or program failures. For further information on the parameter **SESSCTL**, refer to the *ASF Administration Guide*.

SIGNOFF parameter—TYPETERM definition

The specification of the **SIGNOFF** option in the **TYPETERM** definitions is closely connected to the internal timeout function of ASF. For details on this timeout function, refer to the *ASF Administration Guide*.

To fully support the internal timeout of a terminal, specify **SIGNOFF=LOGOFF** in the **TYPETERM** definitions. If **SIGNOFF=LOGOFF** is specified, the terminal is logged off from CICS and from VTAM. The logoff from VTAM includes starting of **DFHZNEP** causing the ASF session to be deactivated. This prevents unauthorized users from continuing the session. Signing-on again is possible from any terminal.

If **SIGNOFF=YES** (CICS default) is specified, the terminal is only logged off from CICS and **DFHZNEP** is not started.

For more information on the CICS parameter **SIGNOFF**, refer to the *CICS Transaction Server for OS/390 Version 1.3 Resource Definition Guide*.

Lost term exit DFHXTENF

In an MRO environment with more than one application-owning region (AOR, ASF sample MRO configuration) the CICS terminal not found exit **DFHXTENF** must be implemented.

To implement this, you need the following parts:

- The modified CICS exit **DFHXTENF**
- The CICS sample enable program **FSNXTENF**
- Sample **PLT** table

SIT parameter SPOOL

If you want to use the remote print functions of document composition, specify **SPOOL=YES** in the **SIT** overwrite parameter section of your CICS startup job.

PLIDUMP considerations

To write a **PLIDUMP** to a **TRANSIENT DATA QUEUE**, define this queue in your **CSD** either by specifying:

```
CPLD   DFHDCT TYPE=EXTRA,DESTID=CPLD,DSCNAME=PLIDUMP
PLIDUMP DFHDCT TYPE=SDSCI,DSCNAME=PLIDUMP,BLKSIZE=137,RECSIZE=133,
        RECFORM=VARUNB,TYPEFLE=OUTPUT,BUFNO=1
```

or by specifying:

```
CPLD   DFHDCT TYPE=INDIRECT,DESTID=CPLD,INDEST=CPLI
```

To write a **PLIDUMP** to **SYSOUT**, add the following **JCL** statement to your CICS startup job:

```
//PLIDUMP SYSOUT=*,DCB=(RECFM=V,BLKSIZE=137)
```

IMS environment considerations

This section provides information on IMS connection considerations and discusses the following IMS definitions:

- IMS procedures
- Conversation—non-conversational mode
- MFS formats
- Preloaded programs

IMS connection considerations

When running ASF V3 R3 under IMS, you can choose one of the following ways to connect the ASF host part with the Web client:

- MQSeries (refer to “Configuring MQSeries” on page 14)

It is assumed that:

- MQSeries is installed and configured correctly
- The MQSeries - IMS Bridge is installed and configured correctly

For more information refer to *MQSeries for OS/390 Version 5 Release 2 Concepts and Planning Guide* and *MQSeries for OS/390 Version 5 Release 2 System Setup Guide*.

- IMS Connect

It is assumed that IMS Connect is installed and configured correctly. For more information refer to *IMS Connect Guide and Reference Version 1.2* and *IMS Connector for Java, V1R2, User's Guide and Reference*.

IMS procedures

To install and administer ASF, you need the following IMS procedures:

- DLIBATCH

If you use DBRC=N, do the following in the applicable installation jobs:

- Update the DLIBATCH and the IMSUT EXEC statements with the parameters you need, for example, DBRC=N, IRLM=N, IRLMN=N (except for step RESO).
- Data sets RECON1, RECON2, and RECON3 in the instream procedure IMSUT are not needed.

- MFSUTL
- DBDGEN
- PSBGEN
- ACBGEN

MFS formats

ASF supports terminals with 24, 32, and 43 lines. The shipped formats contain MFS statements for these terminal types. Make sure that table DFSUDT0x supports the ASF MFS formats accordingly.

Preloaded programs

To improve performance and response time for ASF transactions, make the following online programs in library SFSNLOD0 resident with the IMS preload function:

- FSNASF1I
- FSNWEB1I
- FSNASF3I

- FSNT000I
- FSNT100I
- FSNTTRMI
- FSNTxxxI (where xxx is the language installed)
- FSN9xxx (where xxx is the language installed)

IMS Connect TimeOut parameter

If the Java™ application or servlet does not respond, a message is sent to the host system and the Java application or servlet waits for a reply. This situation can occur for example if a transaction input message is sent to IMS, but a message processing region is not available to process the transaction. In this case, the input message is placed in the IMS message queue and remains there until a message region is available to process it. The Java application or servlet waits for a reply.

If you do not want your Java application to wait for such a reply, change the:

- Default TimeOut value in the configuration member of IMS Connect.
- Value of the TimeOut parameter in the TCP/IP statement to a value greater than 0. If the timeout value is greater than 0, IMS Connect closes the socket to the Java application if it does not receive a response from IMS within the specified time.

Note: The TimeOut value is specified in hundredths of seconds. For example, a TIMEOUT value of 1000 specifies a 10 second timeout.

The Java application receives the exception message HWSJ029E in CCF and ICO0005E in J2C. The connection is not available for reuse. When the IMS application program completes and returns the output message to IMS Connect, IMS Connect will display the message HWSD0252W with service code NFNDSVT on the console (because the connection is not available to return the message to the Java application).

For more information on IMS Connect interruptions between server and host refer to the *IMS Connector for Java, V1R2, User's Guide and Reference* and to the *IMS Connect Guide and Reference Version 1.2*. For more information on CICS Transaction Gateway interruptions between server and host refer to the *CICS Transaction Gateway V5.0: Messages*.

DCF considerations

The following sections list the DCF programs used for online formatting and continuous formatting.

Interaction with DCF programs (CICS)

For online formatting with DCF, ASF interfaces with the DCF program DSMATS40.

Interaction with DCF programs (IMS and batch)

The DCF program DSMMVS40 is required for the DB2-based continuous formatting in batch as well as for all online formatting functions such as Quick Preview and Print Preview. DSMMVS40 is shipped as PTF for DCF Release 4. Make sure that you have applied the required DCF PTFs as described in *Application Support Facility for z/OS: Licensed Program Specifications*.

DB2 setup

Activating DB2 support is very similar to using VSAM or DL/I data sets. You need to perform the required installation steps such as defining the databases and tables, to set up environments for DB2, and to migrate your databases.

Setup environments for DB2

Environments are used in ASF to define transaction families, databases, and related settings. You can decide for each environment whether or not this environment uses DB2 databases by setting environment tailoring parameter **DB2OPR** to 0 or 1. As for VSAM or DL/I databases, the environment definitions allow to specify which databases are to be used for DB2. This means you can set up several environments using their own set of DB2 databases.

Having set tailoring parameter **DB2OPR** to 1, the *GIL*, *CLL*, and *SLL* become DB2 databases. The other databases, such as *UPL*, *USL*, or *ISL*, remain VSAM or DL/I databases.

In DB2, each of the ASF databases consists of several tables and indices. Instead of tables and indices, you can also use views or aliases. With the help of the ASF V3 R3 installation procedures, you have to create the required DB2 objects such as tables or views for each environment with **DB2OPR** set to 1.

The connection between the DB2 objects and the environments defined in *FSNT100C/I* is achieved by environment tailoring parameter **DB2CID**. To understand this connection, it is important to know about some DB2 concepts such as collections, bind process, or authorization IDs in the names of tables, views, or aliases. ASF makes use of DB2 collections. The collections used are created by the DB2 bind process during installation of ASF V3 R3. They all have the same content, that is, are built from the same distributed DBRM members (the content may differ only for different PTF levels of ASF), but can differ in the bind options. By one of these options the qualifier is specified that is implicitly used as the authorization ID in DB2 object names. Therefore, the collection name specified for the tailoring parameter **DB2CID** indirectly defines the authorization ID in the names of the DB2 objects.

For a better understanding, consider an example where four environments are defined with the following characteristics:

- Environments 1, 2, and 3 use DB2 databases, whereas environment 4 only works with VSAM or DL/I databases.
- Environment 1 uses a separate set of DB2 databases.
- Environments 2 and 3 share the *GIL* in DB2, but use different *CLL* and *SLL* databases.

Environment definitions

```
Environment 1:
  ENVNAME = FSNE0001
  DB2OPR  = 1
  DB2CID  = FSNCOLL1      bound with QUALIFIER(FSN01)
  ISLNAME = FSNISL

Environment 2:
  ENVNAME = FSNE0002
  DB2OPR  = 1
  DB2CID  = FSNCOLL2      bound with QUALIFIER(FSN02)
  ISLNAME = FSNISL

Environment 3:
  ENVNAME = FSNE0003
  DB2OPR  = 1
  DB2CID  = FSNCOLL3      bound with QUALIFIER(FSN03)
  ISLNAME = FSNISL

Environment 4:
  ENVNAME = FSNE0004
  DB2OPR  = 0
  DB2CID  =
  ISLNAME = FSNISL
```

Database usage

```
Environment 1:
  GIL:      DB2 tables FSN01.FSNTGIL_xxx
  CLL:      DB2 tables FSN01.FSNTCLL_xxx
  SLL:      DB2 tables FSN01.FSNTSLL_xxx
  ISL:      VSAM or DL/I data set as specified in ISLNAME
  etc.

Environment 2:
  GIL:      DB2 tables FSN02.FSNTGIL_xxx
  CLL:      DB2 tables FSN02.FSNTCLL_xxx
  SLL:      DB2 tables FSN02.FSNTSLL_xxx
  ISL:      VSAM or DL/I data set as specified in ISLNAME
  etc.

Environment 3:
  GIL:      DB2 aliases FSN03.FSNTGIL_xxx
             for tables FSN02.FSNTGIL_xxx
  CLL:      DB2 tables FSN03.FSNTCLL_xxx
  SLL:      DB2 tables FSN03.FSNTSLL_xxx
  ISL:      VSAM or DL/I data set as specified in ISLNAME
  etc.

Environment 4:
  GIL:      VSAM or DL/I data set as specified in GILNAME
  CLL:      VSAM or DL/I data set as specified in CLLNAME
  SLL:      VSAM or DL/I data set as specified in SLLNAME
  ISL:      VSAM or DL/I data set as specified in ISLNAME
  etc.
```

If you want to have an environment share all DB2 databases with another environment, you can use the same collection name for tailoring parameter DB2CID for both environments. If you want, however, to have an environment share some, but not all DB2 databases with another environment, you must use

different collections. In this case you have to set up DB2 aliases or views in order to share the databases. See environments 2 and 3 in the above example.

It is recommended to use the ASF V3 R3 installation procedures for setting up multiple environments. This helps to define the DB2 objects and bind the required collections according to your environment choices.

Migrating databases to DB2

You can migrate your VSAM or DL/I GIL and SLL databases to DB2 at installation time or at any later time. Because of the environment concept, you can also start with migrating some environments first and others later. Take care of the following:

- Within one environment, the GIL and SLL databases must be migrated to DB2 at the same time.
- The environment definitions for running with databases in DB2 must have been completed, and the environments must be active in the system.
- The collections defined in your environment tailoring parameters DB2CID and DB2TBCID must have been bound. The corresponding DB2 objects, that is, tables, views, or aliases, must exist.

If you want to migrate a database from a predecessor release to DB2, you must run all the required version-to-version migrations. The last step is always running the resource reload utility of ASF V3 R3, to insert the data into the ASF V3 R3 database. If the environment used for the reload step is set up for working with DB2, your GIL and SLL records will be loaded into the DB2 tables.

For ASF V3 R3 databases, you can exchange records between DB2 databases and VSAM or DL/I databases at any time. You perform this exchange by running the resource unload utility FSNBRUL and the resource reload utility FSNBRRL. You only need the corresponding environment and database definitions. If you want to migrate records from your ASF V3 R3 VSAM or DL/I databases to DB2, choose the environment with your VSAM or DL/I databases for the resource unload step. For the reload step choose the environment with the DB2 target databases which are to obtain your data. For more information about exchanging records between databases, refer to the *ASF Administration Guide*.

If you migrate all your environments to DB2, it is recommended to assign the same value for both the base tailoring parameters GILLTH and ISLLTH before starting the migration to DB2.

Running batch utilities with databases in DB2

If you run batch utilities like FSNBRUL or FSNBRRL with databases in DB2, you have to specify the corresponding environment name as value of the keyword ENV. Two other keywords are required in addition:

- With the help of the DB2SSNM keyword, you specify the name of the DB2 subsystem which you want to use.
- As value for the DB2PLAN keyword, you specify the name of the DB2 application plan which is used with the batch utility. It is recommended to specify the application plan FSNDB2S.

DB2 considerations

If your system uses DB2, you are recommended to read the following sections.

Using PL/I in an IMS and DB2 environment

If your IMS application programs use SQL facilities provided by DB2, you must add user ABENDS 777 and 778 to the list of ABEND codes to be ignored by the PL/I error handler. Thus, deadlocks can be successfully resolved by IMS. For more information on modifying the IBMBXITA ABEND CODES table, refer to the *Enterprise PL/I for z/OS and OS/390 Version 3.1 Programming Guide*.

Performance considerations for the CLL

To enable an even distribution of the generated CLL entries in the CLL table, an inverted key is used with DB2 tables. The LRR key in the ISL database is also inverted by setting base tailoring parameter ILRRKEY to 1.

Space requirements for CLL and SLL tables

For each LTD, one header entry is generated (FSNTxLL_H). For each referenced paragraph as well as for each LTD within an LTD, one FSNTxLL_OBJCOMP entry is created. Each FSNTxLL_OBJPRM entry corresponds to one referenced parameter. FSNTxLL_TXT is used for individual text or modified SPs.

One entry is created for every 50 lines or 3750 characters (whichever limit is reached first). FSNTCLL_RSQ contains information about the internal buffer mapping. The number of referenced SPs, LTDs, parameters, and so on, determines the number of entries.

To optimize the use of FSNTCLL_OBJCOMP, it is recommended to specify the GILLTH in the same way as the ISLLTH in base tailoring FSNT000x (C/I). At least one RSQ entry is used per LTD.

Performance considerations for continuous formatting

To improve the performance of continuous formatting, you can start more than one formatting task in parallel. It is recommended to use different SELECT statements for the parallel formatting processes, since this reduces the number of locks. The most efficient access is ensured when the WHERE clause of the SELECT statement covers exactly one partition of the optionally partitioned table space of the CLL.

Example: Use Numparts 2 when defining the CLL table spaces.

When defining the primary index of CLL_H, use the following definition:

```
CLUSTER (PART 1 VALUES('5          '),
         PART 2 VALUES ('9999999999999999'))
)
```

Use the FSNIN parameter for the first formatting task:

```
SQL('SELECT * FROM %AUTHID%.FSNTCLL_H
    WHERE DLRR_REC_IDE < "5          "
    FOR FETCH ONLY')
)
```

For the second formatting task, use the FSNIN parameter:

```
SQL('SELECT * FROM %AUTHID%.FSNTCLL_H
    WHERE DLRR_REC_IDE >= "5          "
    FOR FETCH ONLY')
)
```

These values ensure that the generated CLL entries are evenly distributed over the two partitions (using the inverted key). The SELECT statements ensure that no overlap of CLL entries occurs during the formatting processes.

To tune performance further, the **FOR FETCH ONLY** clause is used.

Selected control statement with impact on the performance

INTERVAL(30)

The parameter **INTERVAL** controls how long the batch formatting task waits after an unsuccessful SELECT attempt. If you define a small value for this parameter, online performance may suffer and overhead can occur during continuous formatting. It is recommended to use a minimum value of 30 seconds.

DB2 utilities and commands

The following utilities can be used to enhance the performance of ASF running under DB2.

Using the RUNSTATS utility

The RUNSTATS utility scans table spaces or indexes and collects data on space utilization and index efficiency. It uses this data to update statistical information in DB2 catalog tables.

The RUNSTATS utility serves three purposes:

1. It updates the DB2 catalog and thus provides current information for DB2 on path selection.

With the RUNSTATS utility, you can collect statistics on non-indexed as well as on indexed columns.

You should invoke RUNSTATS:

- After loading a table space, and before binding application plans that will access the table space.
- After creating an index with the DDL CREATE INDEX statement. This ensures that the catalog statistics related to the new index are updated.
- After reorganizing a table space or an index. If performance is still a concern, you should subsequently rebind plans.
- After heavy insert, update, and delete activity.
- Periodically, to ensure current index and table space information. To identify potential performance problems at an early stage, you can compare a current output of RUNSTATS with an earlier version.
- Against the DB2 catalog. Invoke the RUNSTATS utility against your DB2 catalog to provide the SQL optimizer with more accurate information on access-path selection of catalog queries.

2. RUNSTATS helps you determine performance trends.

It shows the distribution of data within the allocated space. This lets you check the clustering and determine if there is a need to reorganize.

To identify performance trends it is recommended to use RUNSTATS regularly. Gathering data about table spaces and indexes over a period of time keeps track of the system performance. This data can then help you decide if tuning and reorganization of your databases is necessary.

3. RUNSTATS helps you assess which impact your changes have on the performance.

After you have determined the characteristics of the space utilization of the database which you consider appropriate for your site, you can develop a profile against which to compare the effects of your changes. For example, your objective may be to reduce the number of I/Os required to perform a particular operation. The RUNSTATS utility can help you determine whether you have met this objective.

Using the STOSPACE utility

The STOSPACE utility collects data about the actual space allocated for storage groups, table spaces, and indexes. It uses this data to update columns in the DB2 catalog. Used periodically, the STOSPACE utility can help you determine if the defined DASD space should be increased or decreased.

Table/Column	Description
--------------	-------------

SYSTABLESPACE/SPACE	Number of kilobytes of storage allocated to the table space
SYSINDEXES/SPACE	Number of kilobytes of storage allocated to the index
SYSSTOGROUP/SPACE	Number of kilobytes of storage allocated to the storage group

If storage groups are used in the creation of table spaces and indexes, DB2 defines the data sets for them. The STOSPACE utility lets you monitor the DASD space currently used within the storage group. If a table space or index space is partitioned, and different storage groups have been specified, the SPACE column (of SYSTABLESPACE or SYSINDEXES) contains the number of kilobytes of storage allocated to a partition. The partition is determined by the last execution of the STOSPACE utility.

You can run STOSPACE for all storage groups or for any subset of them. STOSPACE does not accumulate statistics for more than one storage group. If a partitioned table space or index space has partitions in more than one storage group, the information in the catalog about that space comes from only one of those groups, namely the last one for which STOSPACE was run.

If you run STOSPACE for several storage groups in one job, it examines groups in the order in which you list them, but nevertheless does not accumulate information across groups.

STOSPACE should be used periodically to determine if the allocated DASD space needs to be increased. It is recommended that you also use AMS LISTCAT to find table spaces and index spaces that use secondary extents. They are candidates for an increase of the primary space allocation. Make sure you run the REORG utility afterwards.

Using the DB2 DISPLAY command

The DB2 DISPLAY command gives you information about the status of threads, databases, tracing, allied subsystems, and applications. Several forms of the DISPLAY command are particularly helpful for monitoring DB2 performance:

DISPLAY THREAD: Displays active or INDOUBT threads. The display includes:

- The location and logical unit of work identifier (LUWID) of the thread
- Status of conversations connected to each thread

You can use the constraints LOCATION or LUWID with DISPLAY THREAD to limit the display to threads that have a distributed relationship with a specific location or LUWID, respectively.

DISPLAY DATABASE: Displays:

- Status of a database (for example, active or restricted).
- Names of table spaces or index spaces within a database.
- Connection names of applications holding or waiting for locks on a database.
- Connection names of applications currently using a database.
- Information about databases, table spaces, or index spaces whose use is restricted.

You can use the keywords USE or LOCKS with DISPLAY DATABASE to find more specific information. DISPLAY DATABASE LOCKS displays the LUWID of each remote thread that is holding or waiting for locks.

DISPLAY TRACE: Provides information about active traces.

DB2 definitions and system table information

The following sections display general aspects of DB2 definitions and system table information.

Organization of the table space

Information from the SYSTABLEPART catalog table can tell you how well DASD space is being used.

An unexpected high value for FARINDREF indicates that I/O activity on the table space is high. If you find that this number increases over a period of time, it is recommended to reorganize the table space to improve the performance.

When selecting data from SYSIBM.SYSINDEXPART, a high value for FAROFFPOS indicates that clustering is degenerating. Reorganizing the table space improves performance. However, REORG will not change the positioning of records in a table to reflect a clustering index defined on that table if the table space contains multiple tables.

If a table space contains a single table, or if it is segmented, reorganization arranges the data in the order of the clustering index, if available. If the table space contains more than one table, reorganization will not relocate records to correspond to any clustering index. For segmented table spaces, the explicit cluster index will be used to unload data from all tables in the table space that have a cluster index defined. For non-clustering indexes, the statistical information recorded by RUNSTATS in SYSINDEXES and SYSINDEXPART may appear even worse after the clustering index is used to reorganize the data. Remember that it is recommended to always run the RUNSTATS after using the REORG utility.

Index organization

The index statistics produced by the RUNSTATS utility provide information about the level of indexes in your database and the number of leaf pages in the index. When DB2 first builds your index, it creates an index tree which resides in a 4 KB index page. This index tree points directly to the data in your tables giving the key and the row ID. Index pages that point directly to the data in your tables are called leaf pages. If you have only one index page, the index tree is also known as the leaf page.

If your index grows beyond the 4 KB index page, a page split occurs and a second-level index page is created. The tree will then contain the page number and highest key of each page in the second-level index. The tree is no longer called a leaf page; the third-level pages pointing directly to the data are now known as leaf pages.

The number of pages in the third-level index depends on the number of index entries you have and the length of the key. Each leaf page holds approximately 4096 bytes of data, and, if one page is full, an insertion in the index would cause a leaf page split. If there is no room on any intermediate level of the index tree to accommodate an insertion of indexes, another level of index would be added.

Remember that each time the index tree is split, another level of index is created. You have only one tree per index or partition (if the index is partitioned).

After you have run RUNSTATS, the value of LEAFDIST in SYSINDEXPART determines the average distance between successive leaf pages during sequential access of an index.

If the distance increases over time, this probably indicates that the index should be reorganized. The number of levels in an index is a function of the number of table rows and the size of the index key. As you insert or change keys, you may create splits, which take one full index page and create two pages that are half full. With enough inserts, extra index levels could result under these circumstances. Reorganizing the index may reduce the number of index levels.

OPEN and CLOSE of INDEXSPACES and TABLESPACES

Opening and closing of table spaces and index spaces is a common cause of performance problems. This activity can be decreased by specifying CLOSE NO when you create or alter table spaces and index spaces.

For frequently used table spaces and indexes, specify CLOSE NO in the CREATE TABLESPACE and CREATE INDEX statements. This will cause the data set to be left open when not in use, avoiding the need to repeatedly open and close it. As a result, fewer I/O operations will be performed.

Space reservation parameters

Specify proper space reservation parameters: The PCTFREE and FREEPAGE parameters of the CREATE and ALTER TABLESPACE and CREATE, ALTER, and RECOVER INDEX commands can help to reduce access time for needed table spaces.

When data is loaded, PCTFREE reserves a percentage of each page as free space, which is used later when inserting or updating data. If no free space is available to hold the additional data, it must be stored on another page.

When several records are physically located out of sequence, performance suffers. Therefore, for tables requiring frequent inserts and updates, assign PCTFREE a value greater than the default of 5 (that is, 5 percent of the page is blank). However, for tables with few inserts or updates, which lengthen the row, consider assigning PCTFREE a value of 0 to save storage space. For indexes, the default is 10. The maximum value you can specify is 99.

FREEPAGE specifies how often DB2 is to leave a full page of free space when data is loaded. Free pages are available for inserts and updates in the same way that free space on a page is available. In most other cases increase PCTFREE and increase FREEPAGE correspondingly.

You can change the values of PCTFREE and FREEPAGE any time, but they are effective only after a LOAD, CREATE INDEX, RECOVER INDEX, or REORG utility has been executed. To determine the amount of free space currently on a page, run the RUNSTATS utility and examine the PERCACTIVE column of SYSTABLEPART.

Buffer pools

Increase buffer pool sizes. Large buffer pool sizes enable you to keep frequently used data in virtual storage, reducing the amount of I/O necessary. However, to minimize paging I/O, you should choose pool sizes backed by real or expanded storage.

Using a single 4 KB buffer pool (BP0) will give better overall performance than using multiple buffer pools, especially if buffer pool size is small. The buffer pool should be as large as possible, considering the real storage and expanded storage you have available. Larger buffer pool size results in fewer I/O operations and therefore better response time. A large buffer pool may also prevent I/O contention for the most frequently used DASD devices, particularly the catalog tables and frequently referenced user tables and indexes.

Monitor buffer pool usage with DB2PM to ensure that your buffer pools are large enough to take advantage of the performance features of DB2. For example, if the percentage of available buffers drops below 10 percent, sequential prefetch will be disabled. Another important threshold to monitor is buffer critical, which occurs when less than 5 percent of the buffer pages are available. When no buffer pages are available, buffer pool expansion will occur. This is a very expensive operation that should be avoided. To avoid buffer pool expansion, consider setting the maximum number of buffers in the buffer pool equal to the minimum number.

DB2 parameter LOCALE LC_TYPE

When processing a search for keywords, the input provided by the user is translated to uppercase. To find strings containing national characters, the DB2 parameter LOCALE LC_CTYPE must have a valid value corresponding to the language and cultural conventions of your system environment. This value is used by the UPPER scalar function in the DB2 statement, which is used to determine the result of the query.

DB2 parameters for resource definition

The following section contains recommendations for selected parameters used for the creation of DB2 objects.

CREATE TABLE

NOT NULL

All the used columns in the ASF tables use this clause.

PRIMARY KEY

All tables are defined with a primary key which is also used as a UNIQUE CLUSTERING index.

FOREIGN KEY

Where applicable referential constraints are used. The ON DELETE CASCADE rule is used for all dependent tables.

IN The used table space is always explicitly defined with the clause IN <database>.<tablespace>

CREATE TABLESPACE

IN The used database is always explicitly defined.

USING

STOGROUP, PRIQTY, and SECQTY are defined. The values for PRIQTY and SECQTY have to be changed according to the user-specific usage of the individual tables.

ERASE

For security reasons ERASE YES is specified.

NUMPARTS

The sample installation jobs do not use partitioned table spaces. Partitioning is recommended for CLL tables in environments with many concurrent users and when using the continuous formatting facility.

SEGSIZE

For all segmented table spaces a segsize of 32 is used. This can be changed according to the user's needs.

BUFFERPOOL

The sample jobs always explicitly specify the used buffer pool. It can be tailored on an environment base.

LOCKSIZE

ANY is used, this should usually result in a PAGE lock.

CLOSE

As a performance option this can be changed to NO.

DSETPASS

Only used for non-SMS managed storage.

COMPRESS

YES used for tables containing large text portions.

CREATE INDEX

USING

Different STOGROUP entries might increase performance if DASD I/O is the bottleneck.

CLUSTER

It is recommended to use the primary index for clustering.

SUBPAGES

4 is recommended for most tables. LOCKs can be degraded on index pages if SUBPAGES 1 is specified. This was used for the CLL and DOC tables.

BUFFERPOOL

Explicit specification of a bufferpool, the samples allow one separate buffer pool for all indexes in an environment.

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Glossary of terms and abbreviations

This glossary defines terms and abbreviations used in this publication. If you do not find the term you are looking for, refer to the *IBM Dictionary of Computing*, New York: McGraw-Hill, 1994.

A

ACB. Application Control Block.

access code. A number from 0 to 2048 assigned to public ASF records for controlling who has access to that record.

ACR. Application Control Record.

administrator. A user responsible for the maintenance functions. Administrators create and maintain the ASF resources.

advanced function printer (AFP™). A printer that can address all points, and is capable of high-quality text and graphics.

AFP. Advanced Function Printer.

AOR. Application-owning region.

API. Application Programming Interface.

application-owning region (AOR). A CICS environment that contains programs. Contrast with *terminal-owning region (TOR)*.

Application Programming Interface (API). An interface into ASF that allows other programs to use ASF functions.

application-type description (ATD). A record containing the name of an application program to be called. It can also contain the names and attributes of parameters to be passed to the called program and, optionally, the name of an application program that retrieves the data for the defined parameters.

ATD. Application-type description.

ATD parameter. Application-type description parameter. A parameter contained in an ATD.

author. The name of the person who created a document.

B

base document. An existing document that users can use as a model when creating a new document.

basic sequential access method (BSAM). An access method for storing or retrieving data blocks in a continuous sequence, using either a sequential access or a direct access device.

batch message processing (BMP). In IMS, a batch processing program that has access to online databases and message queues.

batch processing. The asynchronous processing of data accumulated over a period of time.

BLRR. Batch document request record.

BMP. Batch message processing.

BSAM. Basic sequential access method.

bulk printing. The process of printing large stacks of documents created by document composition on batch printers.

C

CFL. Continuous formatting output library.

CICS. Customer Information Control System. Represents CICS/ESA®.

CLL. Completed document library.

command. An instruction that a user types on a panel for ASF to perform a task. See also *fast-path command*.

command column. The column marked "Act" that appears on the left side of a list panel; users can type commands in the command column next to items they want to work with. See also *list panel*.

completed document library (CLL). A data set used to store completed documents created during document composition for later disposal; for example, for printing them in bulk. The documents are stored in the form of document-request records.

D

data collection program (DCP). A user-written program for collecting data from parameters used in documents created with during document composition. The data is used to update user databases.

DCF. Document Composition Facility.

DCF profile. A record containing DCF control words, symbols, and text. The DCF profile is embedded at the

beginning of each document created during document composition before formatting the document online.

DCP. Data collection program.

default. An alternative value or option that is assumed when nothing has been specified. See also *system defaults* and *user defaults*.

DJL. Document job library.

DLF. Document Library Facility.

document. In ASF, a general term for all types of letters, memos, and notes.

Document Composition Facility (DCF). An IBM text-processing licensed program that formats text for printing on terminals and printers. The component for text processing in DCF is SCRIPT/VS.

document composition. (1) The functions of ASF that enable the user to produce documents mainly from predefined text parts. It uses DCF for formatting the documents. (2) The process of creating and producing documents.

document disposition. Indicates the processing stage of documents being printed.

Document Library Facility (DLF). An IBM licensed program that supports the storage of documents and other types of data. Together with DCF, it enables the SCRIPT/VS formatter to run as a batch job.

document-request record (LRR). A description of a completed document, containing references to parameters, standard paragraphs, and individual text.

document-type description (LTD). A record that describes a set of predefined text parts used during document composition.

DSA. Dynamic Storage Area.

dynamic storage area (DSA). The area where data is stored in a manner that permits the data to move or vary.

F

fast-path command. A command that lets users skip directly to the panel they want, bypassing intermediate panels.

FLL. Formatted-document record.

FLR. Formatting document library.

FMID. Function modification identifier.

folding. The substitution of a character set for another character set, usually to convert lowercase characters (typed on a keyboard) into uppercase characters.

formatted document library (FLL). A library used to hold the documents that are formatted with DCF for deferred online printing.

G

general information library (GIL). A library with records that contain the information and data required to use ASF, for example, document-type description items or menu items.

generalized sequential access method (GSAM). In IMS, a database access method that provides accessing support for simple physical sequential data sets, such as tape files, SYSIN, SYSOUT, and other files that are not hierarchical in nature.

Generalized Markup Language (GML). The language used to code macros and tags in SCRIPT/VS.

GIL. General information library.

GML. Generalized Markup Language.

graphic character global identifier (GCID). An identifier of how graphic data is encoded; used when translating a document into the appropriate character set for the output device when a user makes a request to print or view a document.

GXL. GIL index library. It contains alternate index records to establish lists of GIL items for viewing by users.

H

help record. An information or menu record that contains information to be displayed online.

I

IMS. Information Management System. Represents IMS/ESA[®].

individual paragraph. In ASF (1) text in a document that is not previously defined in a standard paragraph but is added by the person composing the document, (2) a standard paragraph that was modified with individual text.

individual text. Text the user writes that can be used to change, extend, or replace SPs.

information item. An item that contains text to be displayed on information panels.

installation-wide exits. General-purpose programming interfaces that allow system programmers to attach other applications to ASF.

interactive system productivity facility (ISPF). An IBM licensed program that serves as a full-screen editor and dialog manager. Used for writing application programs, it provides a means of generating standard screen panels and interactive dialogs between the application programmer and terminal user.

internal system library. A library containing specific control information, in particular, specifying whether ASF is connected with other programs. In addition, it contains documents being processed during document composition.

intersystem communication facility (ISC). Communication between separate systems by means of SNA networking facilities or by means of the application-to-application facilities of an SNA access method.

IPCE. Individual-paragraph control entry.

ISA. Initial Storage Area.

ISL. Internal system library.

ISPF. Interactive system productivity facility.

ISR. ASF status record.

L

LCE. Letter control entry.

library maintenance functions. Functions that provide maintenance of GIL records.

list panel. A panel that lists a number of items a user can choose to work with.

local printer. A printer that is controlled by ASF through CICS or IMS.

LRR. Document-request record.

LTD. Document-type description.

M

main menu. The panel that lists the major tasks users can perform with ASF.

menu. A panel that shows the options users can choose from to perform a task in ASF.

message area. The area on a panel where ASF shows messages to users.

message processing program (MPP). In IMS, an application program that is driven by transactions and has access to online IMS databases and message queues. See also *batch message processing (BMP)*.

MLP. Multilingual code page table.

MMDDYY. Format used to indicate the date in the form month/day/year.

MPCE. Modified standard-paragraph control entry.

MPP. Message processing program.

MRO. Multiregion operation.

multiregion operation (MRO). Communication between CICS systems in the same processor without the use of SNA network facilities.

N

NEP. Node error program.

NLS. National language support.

node error program (NEP). Any program that handles workstation node errors on your system.

O

online printing. The printing of single documents created with ASF on a local printer, as opposed to printing them in bulk on a remote, high-speed host printer.

P

paging commands. Commands that allow users to move to a particular line, column, or page in a document.

panel. The format in which ASF displays information on the screen.

panel flow. The path users take through a task from one panel to the next by issuing commands or choosing options.

parameter. Variable data that is contained in the standard paragraphs of a document, or that can be passed to a program called by ASF.

parameter description record (PDR). A record that describes the attributes of a parameter.

parameter determination program (PDP). A user-written program to get values for parameters.

parameter verification program (PVP). A user-written program to check the values of parameters.

password. A secret "word," up to 8 characters long, which a user must type to sign on to ASF.

pattern document. A document consisting only of preselected standard paragraphs.

PCB. Program control block.

PCT. Program control table.

PDP. Parameter determination program.

PDR. Parameter description record.

PEP. Program error program.

personal defaults. See *default* and *user defaults*.

personal profile. Customized use of the system by entering personal data and setting defaults to a selected format.

PPT. Processing program table.

private. Any item that only one user has access to.

private item. An item to which only the owner has access.

Program Control table (PCT). A CICS table defining all transactions that may be processed by the CICS system.

project item. An item to which only the members of the project owning the record have access.

PSB. Program specification block.

public item. An item to which users have access whose access code, as defined in their user profile, matches the access code specified for the item. Members of the project owning the item can also gain access.

PSW. Program status word.

PVP. Parameter verification program.

R

required field. A field where users must type something after the prompt; the prompt for a required field is highlighted.

resources. Records in the GIL.

RSL. Resource security level.

S

saved document library (SLL). A library for incomplete documents produced with the document composition that are to be completed at a later time.

scratchpad area (SPA). In IMS conversational processing, a work area in main storage or on direct access storage used to retain information from the application program for executions of the application program from the same terminal.

SCRIPT/VS. Another name for the formatter component of the DCF.

scrolling command. A command that tells ASF to move across a panel or document either vertically or horizontally so that a user can see additional information.

SIB. Standard interface block.

SLL. Saved document library.

SNA. Systems Network Architecture.

software. Programs, procedures, rules, and any associated information pertaining to the operation of a computer system.

SP. Standard paragraph.

SPA. Scratchpad area.

SPG. Standard-paragraph group.

standard interface block (SIB). A string of variable-length data used for communications between ASF and application programs.

standard paragraph (SP). A predefined part of a document. It can contain text, SCRIPT/VS control words, and SCRIPT/VS symbols.

standard-paragraph group (SPG). An item in document composition that describes a set of related standard paragraphs that can be selected to create a document, normally with other standard paragraphs belonging to the same document type.

standard-paragraph parameter. A parameter whose value is specified in the various standard paragraphs, and which is valid for that standard paragraph only.

structured text. Documents that consist of predefined text parts.

system defaults. The system-supplied values that can be changed to customize ASF after it is installed.

system parameter. A parameter whose value is specified in a parameter description record and that is valid for the whole ASF system, for example, the company's letterhead.

systems network architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences used for transmitting information through networks and for controlling the configuration and operation of networks.

T

terminal node error. Any failure in a network that occurs in the host computer, in session links, or in a

workstation that causes CICS to call the node error program (NEP). See *node error program (NEP)*.

terminal-owning region (TOR). A CICS environment that contains workstation definitions. Contrast with *application-owning region (AOR)*.

TOR. Terminal-owning region.

transaction ID. A group of up to 4 characters that identifies a particular CICS transaction.

TS. Temporary storage.

TSO. Time Sharing Option.

TSQ. Temporary-storage queue (CICS).

U

UPL. User profile library.

UPR. User profile record.

user defaults. The user-specified values that can be changed for individual users' sessions.

user ID. The name by which a user is known to ASF. It consists of up to 8 characters and identifies a user to ASF during signon.

user name. A user's true name defined in the user profile and used in the author field. See *author*.

user parameter. A parameter whose value is specified in the user profile record, and which is valid for that particular user, for example, name and address.

user program. A user-written application program, for example, a parameter determination program to obtain parameter values or a data collection program to update related data.

user profile record (UPR). A record that contains user-specific information, for example, about the functions the user is authorized to select.

user session library (USL). This library contains the user session record for the host-server session for each user.

USL. User session library.

V

VTAM®. Virtual Telecommunications Access Method.

W

Web client. The browser interface provided with the feature Document Connect for ASF.

terminal-owning region (TOR). A CICS environment that contains workstation definitions. Contrast with *application-owning region (AOR)*.

WSL. An internal system library.

X

XCTL. Transfer control command.

Z

ZSL. An internal system library.

Related publications

This section lists each book in the ASF library. There is also a list of publications for other IBM products that you might use with ASF.

The ASF library

Administration Guide, SH12-6734, gives an overview of ASF from the administrator's point of view, tells you about user administration, security considerations, setting up ASF to suit your company's needs, and working as an administrator.

Application Programming Interfaces, SH12-6735, explains how to use the ASF application programming interfaces to add applications to the ASF environment.

Diagnosis Guide, SH12-6739, tells the system administrator what to do if ASF is not functioning correctly. It describes how to isolate, diagnose, and report problems.

Licensed Program Specifications, GH12-6738, describes the requirements, capabilities, and functions of the IBM licensed program ASF as warranted by IBM.

Program Directory, GI19-0020, describes the requirements and installation of ASF.

The unlicensed ASF books with prefix SH are also available on the following collection kit:

- IBM Transaction Process and Data Collection Kit
SK2T-0730 CD-ROM

Other IBM publications

These books contain information related to ASF or its related products.

CICS Transaction Server for OS/390 Version 1.3 Application Programming Reference, SC33-1688.

CICS Transaction Server for OS/390 Version 1.3 Application Programming Guide, SC33-1687.

CICS Transaction Server for OS/390 Version 1.3 Messages and Codes, GC33-1694.

CICS Transaction Server for OS/390 Version 1.3 Problem Determination Guide, GC33-1693.

CICS Transaction Server for OS/390 Version 1.3 Resource Definition Guide, SC33-1684.

CICS Transaction Server for z/OS Version 2.1 Release Guide, GC34-5983.

CICS Transaction Server for z/OS Version 2.1 Migration Guide, GC34-5984.

CICS Transaction Server for z/OS Version 2.1 Installation Guide, GC34-5985.

CICS Transaction Gateway: z/OS Administration V5.0, SC34-6191.

CICS Transaction Gateway V5.0: Messages, SC34-6193.

CICS Transaction Gateway V5.0: The WebSphere Connector for CICS (Redbook), SG24-6133.

For further information on CICS and on CICS Transaction Server for z/OS, refer to the library of publications at:
<http://www.ibm.com/software/cics>.

DCF General Information, GH20-9158.

DCF Generalized Markup Language Starter Set User's Guide, SH2-9186.

DCF Release 4.0 and DLF Release 3.0 Messages, SH35-0048.

DCF Release 4.0 Script/VS Language Reference, SH35-0070.

DCF Release 4.0 Script/VS User's Guide, SH35-3191.

DCF Release 4.0 Text Programmer's Guide, SH35-0069.

DCF Bar Code User's Guide Release 3.2, S544-3115.

DFSMS/MVS® Access Method Services for ICF, SC26-4906.

DFSMS/MVS Access Method Services for VSAM, SC26-4905.

DFSMS/MVS Version 1.4 Macro Instructions for Data Sets SC26-4913.

IBM PL/I for MVS™ & VM: Programming Guide, SC26-3113.

IBM PL/I for MVS & VM: Language Reference, SC26-1460.

IBM PL/I for MVS & VM: Compile-Time Messages and Codes, SC26-3229.

Enterprise PL/I for z/OS and OS/390: Programming Guide, SC27-1457.

Enterprise PL/I for z/OS and OS/390: Language Reference, SC27-1460.

Enterprise PL/I for z/OS and OS/390: Messages and Codes, SC27-1461.

IBM DB2 Universal Database™ for OS/390 Version 6 Administration Guide, SC26-9003.

IBM DB2 Universal Database for OS/390 Version 6 Application Programming and SQL Guide, SC26-9004.

IBM DB2 Universal Database for OS/390 Version 6 Application Programming Guide and Reference for Java, SC26-9018.

IBM DB2 Universal Database for OS/390 Version 6 Command Reference, SC26-9006.

IBM DB2 Universal Database for OS/390 Version 6 Messages and Codes, GC26-9011.

IBM DB2 Universal Database for OS/390 Version 6 SQL Reference, SC26-9014.

IBM Language Environment for MVS & VM Installation and Customization on MVS, SC26-4817.

IMS Connect Guide and Reference Version 1.2, SC27-0946.

IMS Connector for Java, V1R2, User's Guide and Reference, SC27-1559.

IMS Version 7 Application Programming: Design Guide, SC26-9423.

IMS Version 7 Diagnosis Guide and Reference, LY37-3738.

IMS Version 7 Messages and Codes, GC26-9433.

For more information on IMS, refer to the library of publications at: <http://www-3.ibm.com/software/data/ims>.

MQSeries® for OS/390 Version 5 Release 2 Concepts and Planning Guide, GC34-5650.

MQSeries for OS/390 Version 5 Release 2 Messages and Codes, GC34-5891.

MQSeries for OS/390 Version 5 Release 2 Problem Determination Guide, GC34-5892.

MQSeries for OS/390 Version 5 Release 2 System Administration Guide, SC34-5652.

MQSeries for OS/390 Version 5 Release 2 System Setup Guide, SC34-5651.

For more information on MQSeries, refer to the library of publications at: <http://www.ibm.com/software/mqseries>.

OS/390 MVS System Codes, GC28-1780.

OS/390 MVS System Management Facilities (SMF), GC28-1783.

z/OS V1R1.0 UNIX® System Services Command Reference, SA22-7802.

z/OS V1R1.0 UNIX System Services Messages and Codes, SA22-7807.

z/OS V1R1.0 UNIX System Services User's Guide, SA22-7801.

z/OS V1R1.0 MVS JCL Reference, SA22-7597.

z/OS V1R1.0 JES2 Commands, SA22-7526.

z/OS V1R1.0 JES3 Commands, SA22-7540.

WebSphere Application Server for OS/390 Version 3.5 Planning, Installing, and Using, GC34-4835.

For more information on WebSphere Application Server, refer to the library of publications at: <http://www-3.ibm.com/software/webservers/appserv>

Index

A

- access authorizations
 - HTTP Server 5
 - WebSphere Application Server 5
- AFP Viewer, installing 16
- ASF server
 - configuring 6
 - configuring for Web client 6
 - defining to WebSphere Application Server 2
- authorizations 5

B

- browser, configuring the Web 15

C

- CICS
 - connection considerations 18
 - lost term exit, DFHXTENF 18, 20
 - MRO considerations 20
 - node error program 18
 - program error program 18
 - SIT parameter SPOOL 18
 - TCTUAKEY 19
 - terminal definition parameters
 - SIGNOFF 18, 20
 - TCTUA 18
 - UCTRAN 18
 - configuring
 - Internet Explorer 15
 - MQSeries 14
 - network connections 6, 9
 - system setup 1
 - the ASF server 6
 - the HTTP server 2
 - the Web browser 15
 - WebSphere Application Server 4
 - connection considerations
 - CICS 18
 - IMS 21
 - continuous formatting
 - performance considerations 26
 - customizing
 - the Listener 17
- ## D
- DB2
 - buffer pools 31
 - CLL, SLL
 - space requirements 26
 - DISPLAY command 28
 - how to start with 23
 - index organization 29
 - INDEXSPACES 30
 - LOCALE LC_TYPE 31
 - migrating databases to 25

- DB2 (*continued*)
 - performance considerations
 - CLL 26
 - continuous formatting 26
 - running batch utilities 25
 - RUNSTATS utility 27
 - setting up environments 23
 - space reservation parameters 30
 - STOSPACE utility 28
 - SYSTABLEPART catalog
 - FARINDREF 29
 - FAROFFPOS 29
 - table space organization 29
 - TABLESPACES 30
 - using PL/I with IMS and DB2 26
- DB2 resource definition
 - recommendations for
 - CREATE INDEX 32
 - CREATE TABLE 31
 - CREATE TABLESPACE 32
- DCF
 - CICS
 - program DSMATS40 22
 - program DSMMVS40 22
 - debugging 16
 - DFHPEP, program error program 19
 - DFHXTENF, lost term exit 20
 - DFHZNEP, node error program 19
 - DSMATS40 22
 - DSMMVS40 22

E

- editor settings 15

H

- HTTP server
 - configuring the 2
- HWSJ029E in CCF 22

I

- ICO0005E in J2C 22
- IMS
 - connection considerations 21
 - IMS Connect 22
 - MFS formats 21
 - preloaded programs 21
- IMS Connect
 - Java application does not respond 22
 - Java servlet does not respond 22
 - TimeOut parameter 22
- IMS procedures 21
- installing
 - AFP Viewer 16
 - Listener 17
- Internet Explorer 15

L

- Listener
 - customizing 17
 - installing the 17
- LOCALE LC_TYPE, DB2 parameter 31

M

- MQSeries, configuring 14
- MRO
 - lost term exit, DFHXTENF 20
- multihost support 1
- multiserver and multihost support
 - Web client 1
- multiserver support 1

N

- network connections, configuring for Web client 6, 9
- node error program 19
- Notices 33

P

- parameters
 - TimeOut - IMS Connect 22
- performance
 - preloaded programs in IMS 21
- PLIDUMP
 - CICS considerations 20
 - program error program 19

R

- remote printing
 - SIT parameter SPOOL 20

S

- server
 - configuring the ASF server 6
 - configuring the HTTP 2
 - configuring WebSphere Application Server 4
 - defining the ASF server to WebSphere Application Server 2
 - setup and configuration, system 1
- SIGNOFF, terminal definition
 - parameter 20
- SPOOL 20
- system setup and configuration 1

T

- TCTUA
 - use by ASF 19

- timeout
 - SIGNOFF, terminal definition parameter 20
- Timeout
 - IMS Connect 22
- TYPETERM definition
 - SIGNOFF parameter 20
 - UCTRAN parameter 19

U

- UCTRAN, CICS system parameter 19

W

- Web browser
 - configuring the 15
- Web client
 - configure 15
 - configuring the ASF server 6
 - configuring the network connections 6, 9
 - Internet Explorer 15
 - multiserver and multihost support 1
 - settings for debugging 16
 - settings for the editor 15
- WebSphere Application Server
 - configuring 4
 - defining the ASF server 2

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