

TIBCO Substation ES™ Installation

*Software Release 2.10
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TIBCO Documentation and Support Services

Documentation for this and other TIBCO products is available on the TIBCO Documentation site. This site is updated more frequently than any documentation that might be included with the product. To ensure that you are accessing the latest available help topics, please visit:

<https://docs.tibco.com>

Product-Specific Documentation

Documentation for TIBCO products is bundled with the software. It is also available on the TIBCO Documentation site at <https://docs.tibco.com/products/tibco-substation-es>. To directly access documentation for this product, double-click the following file:

`TIB_substation_version_docinfo.html`

where this file is shipped with the software package .zip file.

The following documents for this product can be found on the TIBCO Documentation site or after extracting the documentation .zip file:

- *TIBCO Substation ES Concepts*
- *TIBCO Substation ES Installation*
- *TIBCO Substation ES Operations and Administration*
- *TIBCO Substation ES Configuration and Resources*
- *TIBCO Substation ES Messages and Codes*
- *TIBCO Substation ES Release Notes*

The following documents provide additional information and can be found on the TIBCO Documentation site:

- *TIBCO Rendezvous for z/OS Installation and Configuration*
- *TIBCO Rendezvous for z/OS COBOL Reference and TIBCO Rendezvous C Reference*
- *TIBCO Enterprise Message Service User's Guide*
- *TIBCO Enterprise Message Service C & COBOL API Reference*
- *TIBCO Mainframe RED User's Guide*
- *TIBCO Mainframe RED Installation*

How to Contact TIBCO Support

For comments or problems with this manual or the software it addresses, contact TIBCO Support:

- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

<http://www.tibco.com/services/support>

- If you already have a valid maintenance or support contract, visit this site:

<https://support.tibco.com>

Entry to this site requires a user name and password. If you do not have a user name, you can request one.

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<https://community.tibco.com>

Installation Requirements

To install and use TIBCO Substation ES™, you must have TIBCO Rendezvous® for z/OS or TIBCO Enterprise Message Service™ (EMS) activated within your network. You must also load and configure the appropriate z/OS software before activating Substation ES.

For details, see the following requirements:

- [Storage Requirements](#)
- [System Software Requirements](#)
- [Protocol Requirements](#)
- [User Profile Requirements](#)
- [Language Environment Requirement](#)
- [General Substation ES and Operating System Requirements](#)
- [Secure Keys](#)

Storage Requirements

TIBCO Substation ES requires approximately 350 cylinders of Direct-Access Storage Device (DASD) space.

For file information and requirements, see [Installed Data Sets](#).

System Software Requirements

Before installing TIBCO Substation ES on a z/OS environment, install and properly configure the following TIBCO messaging software components. Substation ES supports either the TIBCO Rendezvous or TIBCO Enterprise Message Service messaging protocol.

TIBCO Rendezvous

If TIBCO Rendezvous is your choice for the Substation ES messaging protocol, Substation ES now provides a basic Rendezvous application set of daemon, publisher, and listener programs for activating Substation ES and communicating with other applications. Depending on the network configuration, a TIBCO Rendezvous daemon (RVD and RVRD) should be running on z/OS to enable communications with other messaging applications.

To use TIBCO Rendezvous outside the TIBCO Substation ES requirements, you must purchase the TIBCO Rendezvous for z/OS product. For the TIBCO Rendezvous version required for your installation, you can confirm with your account representative or TIBCO Support.

TIBCO Enterprise Message Service

Before activating Substation ES, if TIBCO Enterprise Message Service is your messaging protocol, you must install TIBCO Enterprise Message Service server within your network.

For information about TIBCO Enterprise Message Service, see *TIBCO Enterprise Message Service User's Guide*.

Protocol Requirements

A TIBCO messaging client for z/OS must be installed and operated within a previously existing, fully functional, and integrated network.

At a minimum, this requirement includes the following conditions:

- The Transmission Control Protocol (TCP) and Internet Protocol (IP) stack, called the TCP/IP stack, within z/OS Communications Server.

- A Domain Name System (DNS) server that provides the host name and host address of the z/OS client, and the TIBCO EMS server.
- Unrestricted network connectivity among the DNS server, TIBCO EMS Client for z/OS (MVS), and the TIBCO EMS server.

Be sure to run a properly configured and customized z/OS RESOLVER address space. Also, ensure that your **TCPCONFIG** parameters meet the following installation requirements:

- To run the TIBCO messaging client non-APF authorized, use the **RESTRICTLOWPORTS** parameter.
- To control TCP buffering, limit storage usage, or support large bandwidth devices, you might have to use the **TCPSENDBFRSIZE**, **TCPRCVBUFRSIZE**, and **TCPMAXRCVBUFRSIZE** parameters. TIBCO typically recommends that you override the IBM default value of 16 KB by setting the **TCPRCVBUFRSIZE** and **TCPSENDBFRSIZE** parameters to a minimum value of 48 KB.

User Profile Requirements

Any user ID for running a TIBCO messaging for z/OS application must have a valid RACF OMVS segment defined.

Verifications of OMVS segments vary depending on how you start a TIBCO messaging for z/OS application:

- If you are starting such an application as a batch job, verify that the user ID of the submitter has a valid OMVS segment defined.
- If you are starting such an application as a started task, verify that the *userid* assigned by the RACF STARTED class or ICHRIN03 started procedures table contains a valid OMVS segment. You can perform this verification with the **RACF LISTUSER** command, as follows:

```
TSO LISTUSER TIBCO01 OMVS NORACF

USER=TIBCO01

OMVS INFORMATION
UID= 0000012345
HOME= /tibco/tibco01
PROGRAM= /bin/sh
CPUTIMEMAX= NONE
ASSIZEMAX= NONE
FILEPROCMAx= NONE
PROCUSERMAX= NONE
THREADSMAX= NONE
MMAPAREAMAX= NONE
***
```

TIBCO recommends running TIBCO messaging applications with a user ID without resource limits being specified in the OMVS segment. An example is *userid* TIBCO01, which enables TIBCO messaging applications to run within the limits defined to the overall system in BPXPRMxx. No special requirements are specified for UID, HOME, or PROGRAM to run TIBCO messaging applications.

If an existing user ID does not contain an OMVS segment, you can define one with the **RACF ALTUSER** command. For more information about the **RACF** commands and the setup of an OMVS segment, see the *Security Server RACF Command Language Reference* manual or other equivalent documentation published by IBM.

If you use the FACILITY class profile BPX.DEFAULT.USER instead of defining an OMVS segment for each user ID during the installation, examine *userid* in the FACILITY class profile BPX.DEFAULT.USER to ensure that it does not have resource limits defined for TIBCO messaging jobs. For more information on how to manage the FACILITY class profile BPX.DEFAULT.USER, see the *Security Server RACF Security Administrator's Guide* published by IBM.

Language Environment Requirement

IBM Language Environment (LE), used by TIBCO Substation ES components in the Multiple Virtual Storage (MVS), Customer Information Control System (CICS), and Information Management System (IMS) regions, must be available for program execution. Additionally, the LE libraries must be provided for compiling Installation Verification Programs (IVPs) and for developing applications.

General Substation ES and Operating System Requirements

You have to install TIBCO Substation ES on the z/OS MVS environment.

The following lists are the prerequisites for operating Substation ES:

- Verify that the TIBCO Substation ES software is the correct package for your operating system because multiple versions are available. For details, see [Obtaining the Software](#). It is advisable to obtain the latest version for your environment to gain the benefits of the newest features.
- Authorize the the Substation ES load library *USERHLQ.AUTH* to enable the Substation ES initialization programs to run in supervisor state for part of its execution.

Before a module can run in supervisor state, you must link-edit it as an authorized module into a partitioned data set (PDS), which you must define as being APF-authorized to the operating system. For the modules supplied with TIBCO Substation ES, the link-editing has been done for you. The modules are link-edited with the authorized attribute (using SETCODE AC(1)) and installed in the *USERHLQ.AUTH* library.

- To use Substation ES guaranteed messaging with EMS, activate the MVS Resource Recovery Services (RRS) component and set the appropriate parameters for activation in CICS and IMS.

Secure Keys

TIBCO Substation ES 2.5 or higher does not require a secure key for runtime execution.

Installing and Verifying the Software

After preparing your system, you can install Substation ES and then verify your installation.

Before installation, you have to read the requirements and identify the files necessary for your installation. For details, see [Obtaining the Software](#).

By using the file-tailoring CLISTs supplied as part of the installation, you have to make only minimal edits to the JCL and parameters. Substation ES installation provides default values for system and data configuration parameters. For the first installation, adopting these default settings ensures easier startup, connectivity, and testing of the message flow.

An installation includes the following steps:

1. [Obtaining the Software](#)
2. [Uploading the Software](#)
3. [Installing the MVS Components](#)
4. [Customizing System SSL](#)
5. [Verifying the Installation](#)
6. [Optional Tasks for Substation ES](#)

Obtaining the Software

You can obtain a copy of Substation ES by either downloading it from the TIBCO site or by requesting a DVD with the software and loading it on to your system. Substation ES is distributed in IBM XMIT format.

Complete Replacement Package

By default, TIBCO Substation ES is delivered as a non-SMP/E, stand-alone, and base function package.

Subsequent modifications and updates are in the form of modules for independent installation, as necessary.



The installation packages for OS/390 version 2.10 through z/OS version 1.7 are no longer available or supported. For other earlier releases, contact TIBCO Support and request the desired media for your environment.

Component Codes

Substation ES modules are divided into different components. Each component is identified by a three-character code that has been registered with the IBM product codes division.

The following table lists the component codes used for the installation:

Code	Component
SXS	Substation ES
SXC	Substation ES CICS Interface
SXI	Substation ES IMS Interface
SXG	Substation ES general entities
SXL	Substation ES Logging and Tracing

Code	Component
SXU	Substation ES utilities
SXR	Substation ES Rendezvous entities
SXJ	Substation ES EMS entities
SXX	Substation ES RED Interface

Downloading from the TIBCO Website

You can download packages of TIBCO Substation ES from the TIBCO website.

Procedure

1. Contact TIBCO Software for a password, directory information, and so forth.
2. Log in to the TIBCO website with the required information.
3. Download the appropriate files that are in the standard IBM XMIT format.

For details, see [Installation Files](#).

Installation Files

The installation files that you have to download are in the standard IBM XMIT format.

Some TIBCO Substation ES installation file names, including the software package name, include the current three-digit software release version number. Throughout the documentation, this version number is referenced as *version*. For example, the distribution file name is referred to as:

`TIB_substation_version_zos.sxs.xmit.sses.zip`

where *version* is the TIBCO Substation ES software release version. For example, the distribution file name for software release 2.10.0 is:

`TIB_substation_2.10.0_zos.sxs.xmit.sses.zip`

The following table lists the installation files required for the software package:

Product	Installation Files for z/OS Version 1.8 and Later
Substation ES	<p>Download the ZIP file:</p> <p><code>TIB_substation_version_zos.sxs.xmit.sses.zip</code>, which contains these two files:</p> <ul style="list-style-type: none"> • <code>TIB_substation_version_zos.sxs.xmit.inst</code> • <code>TIB_substation_version_zos.sxs.xmit.sses</code>
Substation ES CICS Interface	<p>Download the ZIP file:</p> <p><code>TIB_substation_version_zos.sxs.xmit.cics.zip</code>, which contains the</p> <p><code>TIB_substation_version_zos.sxs.xmit.cics</code> file.</p>

Product	Installation Files for z/OS Version 1.8 and Later
Substation ES RED Interface	Download the ZIP file: <code>TIB_substation_version_zos.sxs.xmit.red.zip</code> , which contains the <code>TIB_substation_version_zos.sxs.xmit.red</code> file.
Substation ES IMS Interface	Download the ZIP file: <code>TIB_substation_version_zos.sxs.xmit.ims.zip</code> , which contains the <code>TIB_substation_version_zos.sxs.xmit.ims</code> file.
Substation ES for non-DFSMSdss	Download the ZIP file: <code>TIB_substation_version_zos.sxs.xmit.nondfs.zip</code> , which contains all non-DFSMSdss installation files.

Requesting a DVD

As an alternative to downloading the software from the TIBCO website, you can obtain a DVD that contains the software and load it on to your system.

The minimum time for delivery is five working days. Contact TIBCO Support at <https://support.tibco.com> with your request.

Uploading the Software

After obtaining the software packages, you must upload the software packages to the z/OS MVS host with the FTP file-transfer utility of IBM.

To upload the software, you have to perform the following tasks:

1. [Transferring the Initial Installation File](#)
2. [Receiving the Initial Installation File](#)

Transferring the Initial Installation File

To transfer the Substation ES initial installation file from a LAN server or PC to the z/OS MVS host, you can use JCL that contains the statements required for the file transfer.

The following sample JCL uses FTP to copy the Substation ES initial installation file from a LAN server or PC to the z/OS MVS host.

```

//#JOBNAME JOB (&SYSUID), 'SUBSTATION ES FTP', CLASS=A
//*
// SET FTPADDR=10.10.2.99 < IP Address or Host Name
//*
//FTP EXEC PGM=FTP, REGION=0M, PARM='&FTPADDR (TIMEOUT 20'
//SYSPRINT DD SYSOUT=*
//OUTPUT DD SYSOUT=*
//SYSTCPD DD DISP=SHR, DSN=TCPIP.PROFILE(FTPDATA) < Host Member
//INPUT DD *
lan-userid
lan-password
cd /lan-file-dir
binary
LOCSITE RECFM=FB LRECL=80 BLKSIZE=27920 CYL PRI=2 SEC=1
get srvhlq.sxs.xmit.inst 'USERHLQ.XMIT.INST'+
(REPLACE
quit

```

```
/*
//
```

Receiving the Initial Installation File

After the Substation ES initial installation file is transferred to the z/OS MVS host, you must receive the initial installation file on the z/OS MVS host.

The `USERHLQ.XMIT.INST` file contains the JCL required for receiving other files and for creating the appropriate libraries for TIBCO Substation ES. To complete this process, you have to substitute the appropriate site-specific user values with the TIBCO-supplied variables.

Procedure

1. In the ISPF Command Shell panel, type the following command to receive a file that contains the JCL required to begin a first-time installation:

```
receive inda('USERHLQ.XMIT.INST')
```

The following message is displayed in TSO:

```
INMR906A Enter restore parameters or 'DELETE' or 'END' +
```

2. Type the following command to customize the installation JCL:

```
DA('USERHLQ.INSTALL')
```

After the installation JCL is received, the following message is displayed:

```
INMR001I Restore successful to dataset 'USERHLQ.INSTALL'
```

where `USERHLQ.INSTALL` is populated with the members that are required for continuing the installation.

Installing the MVS Components

After uploading the software to the z/OS MVS host, you can install the MVS components for Substation ES using the members located in the `USERHLQ.INSTALL` data set.

Edit the selected members in the following steps. Substitute the variables, follow the instructions in the member, and then submit the JCL for execution.

Procedure

1. **Make the CLIST temporary file.**

Change the `#JOBNAME`, `#USERHLQ`, `#USERVOL` statement variables according to the requirements of your site, and then submit the JCL to create the CLIST temporary file.

Member: `SXS$1MKT`

2. **Execute the file-tailoring CLIST for the installation JCL.**

If you make an error during input, press the attention key (PA1) and execute the file again, starting at [Step 1](#).

Member: `SXS$2EX1` (EX member)

The following table lists the file-tailoring variables for installation JCL:

Variable	Default and structure	Your Value
<code>USERHLQ</code>	<code>TIBCO.SXS.VxRxMx</code>	

Variable	Default and structure	Your Value
<i>VOLSER</i> Volume Serial	TIB999	
<i>JOBNAME</i>	SXSES The first six characters are used.	
<i>JOBCLASS</i>	A	
<i>MSGCLASS</i>	X	
<i>ACCOUNT INFO</i>	TIBCO	
<i>TRANSPORT</i>	EMS	

3. **Upload the installation files to the z/OS MVS.**

Member:

- For DFSMSdss sites, use `SXS$3FT`.
- For non-DFSMSdss sites, use:
 - `SXS$3FT@` for Substation ES
 - `SXC$3FT@` for CICS Interface
 - `RED$3FT@` for RED Interface
 - `SXI$3FT@` for IMS Interface

4. **Define and allocate the Substation ES product libraries.**



Perform this step only during the initial installation.

Member: `SXS$4ALL`

5. **Convert Substation ES installation files to the appropriate data sets.**



You can restart the installation multiple times at this step, if required.

Member:

- `SXS$5RC` for DFSMSdss sites
 - `SXS$5RC@` for non-DFSMSdss sites
6. Optional: **Convert the CICS Interface installation files to the appropriate data sets. If you make an error during input, press the attention key (PA1) and execute CLIST again.**

Member:

- `SXC$5RC` for DFSMSdss sites
 - `SXC$5RC@` for non-DFSMSdss sites
7. Optional: **Convert the RED Interface installation files to the appropriate data sets.**

Member:

- `RED$5RC` for DFSMSdss sites

- RED\$5RC@ for non-DFSMSdss sites
8. Optional: **Convert the IMS Interface installation files to the appropriate data sets.**

Member:

- SXI\$5RC for DFSMSdss sites
- SXI\$5RC@ for non-DFSMSdss site

The following table defines the user substitution variables for Substation ES within the JCL and the parameter members that are required during the next file-tailoring process. Ensure that you have all the necessary information before executing [Step 9](#)

Substation ES File-tailoring Variables

Variable	Default and Structure	Your Value
IBM Assembler Libraries HLQ	ASM * .SASMMAC2	
COBOL for MVS Libraries HLQ	IGY * .SIGYCOMP	
Enterprise Message Service Host Name	hostname:7222 You must change this name to reflect the server location.	
Rendezvous Libraries HLQ	TIBCO.RVB.VxRxMx You must change this HLQ to reflect the installed product location.	

9. **Execute the File Tailoring CLIST to update the Substation ES supplied variables.**

If you make an error during input, press the attention key (PA1) and execute the CLIST again.

Member: SXS\$6EX2 (EX member)

The following table defines the user substitution variables for CICS Interfaces within the JCL and the parameter members that are required during the next file-tailoring process. Ensure that you have all the necessary information before executing [Step 10](#).

CICS Interface File-Tailoring Variables

Variable	Default and Structure	Your Value
IBM Assembler Libraries HLQ	ASM * .SASMMAC2	
COBOL for MVS Libraries HLQ	IGY * .SIGYCOMP	
CICSHLQ CICS Transaction Server Libraries HLQ	CICSTS41.CICS * .SDFHLOAD	

Variable	Default and Structure	Your Value
CCSDHLQ	CICSTS41.REGION	
CICS Region CSD Dataset HLQ	*.DFHCSD	
CICS Region Generic Applid	DBDCCICS	

10. Optional: **Execute the File Tailoring CLIST to update the CICS Interface supplied variables.**

If you make an error during input, press the attention key (PA1) and execute the CLIST again.

Member: SXC\$6EX2 (EX member)

The following table defines the user substitution variables for RED Interfaces within the JCL and the parameter members that are required during the next file-tailoring process. Ensure that you have all the necessary information before executing [Step 11](#).

RED Interface File-Tailoring Variables

Variable	Default and Structure	Your Value
IBM Assembler Libraries HLQ	ASM *.SASMMAC2	
COBOL for MVS Libraries HLQ	IGY *.SIGYCOMP	
CICSHLQ CICS Transaction Server Libraries HLQ	CICSTS41.CICS *.SDFHLOAD	
CCSDHLQ CICS Region CSD Dataset HLQ	CICSTS41.REGION *.DFHCSD	
CICS Region Generic Applid	DBDCCICS	

11. Optional: **Execute the File Tailoring CLIST to update the RED interface supplied variables.**

If you make an error during input, press the attention key (PA1) and execute the CLIST again.

Member: RED\$6EX2 (EX member)

The following table defines the user substitution variables for IMS Interfaces within the JCL and the parameter members that are required during the next file-tailoring process. Ensure that you have all the necessary information before executing [Step 12](#).

IMS Interface File-Tailoring Variables

Variable	Default and Structure	Your Value
IBM Assembler Libraries HLQ	ASM *.SASMMAC2	

Variable	Default and Structure	Your Value
COBOL for MVS Libraries HLQ	IGY * .SIGYCOMP	
IMSHLQ IMS System Libraries HLQ	IMS1210 .IMS0 * .SDFSRESL , * .SDFS MAC , * .PROCLIB	
IMS Application Identifier	IMSAPPL	
IMS Control Region	IMS1	

12. Optional: Execute the File Tailoring CLIST to update the IMS interface supplied variables.

If you make an error during input, press the attention key (PA1) and execute the CLIST again.

Member: SXI\$6EX2 (EX member)

13. Populate the Substation ES data sets with all the updated and downloaded members.

Proceed with this step only after you have finished executing all the appropriate CLISTs at [Step 9](#) through [Step 12](#).

Member: SXS\$7UPD



You have now completed the activities in the *USERHLQ*.INSTALL dataset. All further steps reference the data set that is specified in the step.

14. Define the Substation ES IVP configuration file.

This member defines and populates the Substation ES configuration VSAM file with IVP and sample definitions.

Data Set: *USERHLQ*.JCL

Member:

- SXCCFDEF for CICS Interface
- SXXCFDEF for RED Interface
- SXICFDEF for IMS Interface

What to do next

At this point, you must perform the required steps for each Substation ES interface that you selected during the download process. For details, see the following topics:

- [Installing CICS Interface](#)
- [Installing RED Interface](#)
- [Installing IMS Interface](#)

Customizing System SSL

To use a secured environment for EMS ESB in Substation ES, you must be familiar with the IBM System SSL environment. To ensure that the System SSL environment meets your local security requirements, you have to customize the existing System SSL environment.

The following three sections includes a broad outline of steps to take or items to check when reviewing the System SSL environment. However, every system has unique requirements that cannot be fully addressed in this outline.



This outline does not replace the documentation and guidance supplied by IBM.

Additionally, this outline is limited to IBM Security Server (RACF). If you want to use an equivalent security product from another vendor, you can see the related product documentation for guidance.

Customization

To ensure a secure system SSL environment, you have to check and if necessary configure IBM Integrated Cryptographic Support Facility (ICSF).

To check ICSF, note the following conditions:

- Ensure that the started task is running (CSFSTART or equivalent).
- Verify that any coprocessor hardware is configured and the keys are loaded.
- If FIPS mode is required, verify that parmlib options include `FIPSMODE(YES,FAIL(YES))`.

RACF FACILITY Class

If you are assigned the tasks of administering certificates and key rings, you must have the necessary authority levels granted in the FACILITY class profiles.

The FACILITY class profiles are as follows:

- `IRR.DIGTCERT.CONNECT`
- `IRR.DIGTCERT.EXPORT`
- `IRR.DIGTCERT.EXPORTKEY`
- `IRR.DIGTCERT.KEYRING`
- `IRR.DIGTCERT.LIST`
- `IRR.DIGTCERT.LISTRING`
- `IRR.PASSWORD.RESET`
- `IRR.PROGRAM.SIGNATURE.VERIFICATION`

In many of these profiles, administrators require higher authority levels than end users; some profiles do not require end users to have any authorization. To ensure that the proper authorization levels are assigned in accordance with the intended usage, follow the guidelines outlined in IBM's Security Server (RACF) documentation for the **RACDCERT** command.



In many cases, during the installation and verification of the EMS client, it is useful for the installation team to be able to verify that the certificates and rings have been installed as intended, either for internal verification or at the direction of TIBCO Support. If this capability is desired and the installation team members can log in with the user ID used to run the EMS client, they must have the READ authority to `IRR.DIGTCERT.LIST` and `IRR.DIGTCERT.LISTRING`. Otherwise, they have to use the UPDATE authority to list the certificates and the rings.

RACF Key Rings

RACF key rings must meet the following requirements:

- The EMS client (batch job or started task) has a key ring.
- The user assigned to the job or started task can read the key ring.
- The EMS client has a certificate on the key ring.
- The key ring includes the certificate authority (CA or certauth) certificate that was used to sign the client certificate.

- The key ring name is specified in the **ssl_ring** parameter in the startup JCL.

RACF Certificates

RACF certificates must meet the following requirements:

- The EMS client has a certificate uniquely identifying itself and its user.
- The EMS client certificate is exported and installed on the EMS server.
- The certificate is signed by the same certauth certificate that was placed on the client key ring.
- The certificate label as given in the **WITHLABEL** parameter is specified in the **ssl_label** parameter in the startup JCL.

Sample JCL

An example JCL is provided as follows:

Data Set: <USERHLQ>.JCL

Member: SSLGCERT

This sample assumes that the user wants to generate the certificate using the RACF GENCERT function. This is one of several methods that can generate certificates usable by IBM System SSL.

Note the following conditions:

- **SIZE** must be determined by usage. IBM places restrictions on size depending on where the certificate is stored and how it is used. **SIZE** is also used to determine the strength of the key. For example, a size of 1024 results in a medium-strength key.
- **NOTAFTER** must be a date that does not exceed the ending date of the signing CA or certauth certificate. For example, if the end date of the CA is 2013-01-01, **NOTAFTER** must be 2013-01-01 or earlier. The GENCERT function fails otherwise.

Signature Verification

Signature verification, also known as module verification, is only required to support FIPS mode and can optionally be ignored for non-FIPS mode operations.

The process to achieve signature verification is best described by the IBM document, *z/OS Cryptographic Services System Secure Sockets Layer Programming*, in the chapter covering module verification. However, an overview is provided here.

Your system might already meet some or all of these requirements for signature verification:

- IBM's Security Level 3 FMID must be installed.
- The RACF **PROGRAM** class must be active.
- The IBM root CA must be marked trusted.
- The FACILITY class profile **IRR.PROGRAM.SIGNATURE.VERIFICATION** must be activated.
- A key ring for the code signing CA must be present or created.
- **PROGRAM** class profiles must be defined for those System SSL modules that must be indicated as signed.
- The user ID associated with the running EMS client must be authorized to read the **PROGRAM** secured modules.

Sample JCL

A sample setup JCL, based on IBM documentation, is provided as follows:

Data Set: <USERHLQ>.JCL

Member: SSLRACFA

Before implementing the sample, ensure that it is appropriate for your requirements and intentions.

You must change the user ID RACFADM to the user ID required to perform RACF security administration. Next, you have to find the user ID associated with the EMS client batch job or started task and authorize it to use the programs just secured that will be used by the EMS client.

Data Set: <USERHLQ>.JCL

Member: SSLCODES



The preceding members must be executed in the following order:

1. SSLRACFA
2. SSLCODES
3. SSLGCERT

Verifying the Installation

After installing the MVS components and customizing the system SSL environment, you can start and test TIBCO Substation ES to determine if the basic components have been correctly installed and configured.

To verify the installation, complete the following tasks:

1. [Changing Substation ES Parameters](#)
2. [Customizing a Console Interface](#)
3. [Customizing Messaging Connectivity](#)
4. [Starting Substation ES](#)

Changing Substation ES Parameters

Before starting the Substation ES region, you might have to change certain installed default parameters to help identify the target environments and personalize settings to suit operational requirements or site standards.

Mandatory Interface Selection

No host-side system interfaces have been activated for the System Initialization Parameters (SIP) of Substation ES. Proceed to your selected SIP member (whose default is SXSSIP\$1) and activate the interfaces by uncommenting the appropriate keyword *INTF-MEMBER*.

Generally Useful Interface Changes

Avoid changing Substation ES parameters before installation. However, changes of certain parameters are useful and can help identify the target environments and personalize settings to suit operational requirements or site standards.

The following table lists the useful interface parameters.

Parameter	Location
DESCR	The SIP member of each interface.
CONSOLE-MSG	Console output selection.

Customizing a Console Interface

Substation ES enables administration and operational staff to communicate with an active system through the console of an MVS operator.

You can select a site-standard facility by specifying an appropriate value for the `CONSOLE-MSG SIP` keyword in the Substation ES master member. The value of the `CONSOLE-MSG SIP` keyword is either `C` (C=Console) or `L` (L=Log, default value). For details, see the *TIBCO Substation ES Operations and Administration* manual.

Customizing Messaging Connectivity

To ensure the communication between TIBCO Substation ES and TIBCO Rendezvous or TIBCO EMS, you have to customize the messaging connectivity depending on which TIBCO messaging protocol you use.

Customizing TIBCO Rendezvous Connectivity

If the default ESB endpoint settings for TIBCO Rendezvous in Substation ES are not appropriate for your environment, you can modify the settings in the **Transformer DCUI** panels for defining ESB endpoint entities.

For details, see the *TIBCO Substation ES Configuration and Resources* manual.

The default values supplied by Substation ES are `'-service 7555 -network 127.0.0.1'`. They imply that you are running a daemon (RVD or RVRD) on the same subnet with the default Rendezvous port 7500.

Customizing TIBCO EMS Connectivity

You must change the supplied default ESB endpoint settings in Substation ES for TIBCO EMS to match your environment. You can modify these settings in the **Transformer DCUI** panels for defining ESB endpoint entities.

For details, see the *TIBCO Substation ES Configuration and Resources* manual.

The default configuration supports a fault-tolerant EMS server pair, which runs in environments in which the EMS server is supported.

Substation ES uses the TIBCO EMS connection factory for all EMS connections. For information on how to implement Auto Reconnect, see "Using Connection Factory" in the *TIBCO Substation ES Configuration and Resources* manual.

Starting Substation ES

After specifying all the required settings for establishing communications between Substation ES and a TIBCO messaging product, you can now start TIBCO Substation ES.

You can run the IVP tests or samples (or both) that relate to your environment to ensure that the connectivity, data transformation, message flow, and system operations are correctly installed and functional.

Prerequisites

Ensure that the following conditions are met:

- The `USERHLQ.AUTH` library is APF-authorized.
- The Rendezvous daemon is running if you use TIBCO Rendezvous.
- The EMS server is running if you use TIBCO EMS and you can ping the EMS server from your host.

Procedure

1. Activate Substation ES Interfaces.

You must specify the Substation ES interfaces that are selected at startup. The default is that no Interfaces, which are commented out, are selected during a default startup.

Data Set: *USERHLQ.INTF*

Member: *SXSSIP\$1*

- a) Edit the *SXSSIP\$1* member to select the interfaces that are appropriate for your site.

The interfaces section of this member includes the following *INTF-MEMBER* lines:

- EMS ESB
- Rendezvous ESB
- CICS Interface
- RED Interface
- IMS Interface

- b) Uncomment the desired *INTF-MEMBER* lines.

2. Execute the Substation ES startup JCL.

This member starts the Substation ES MVS region. Do not submit this member until the following conditions are met:

- All the installation steps for the required interfaces are completed.
- The system startup parameters are validated.
- The SIP is validated.

Data Set: *USERHLQ.JCL*

Member: *TIBSSES*

If the interfaces are activated and Substation ES is started successfully, the job output similar to the following one is displayed:

```
$HASP373 SXS2XX STARTED - INIT 6 - CLASS A - SYS LION
SXS1000I Starting ~ TIBCO Substation (ES) for z/OS
SXS1009I Substation (ES) - Version 2.10
SXG2800I Starting ~ Substation ES - Transformer
SXG2800I Starting ~ Substation ES - CICS Interface
SXG2801I Initialized ~ Substation ES - Transformer
SXG2801I Initialized ~ Substation ES - CICS Interface
SXC3000I CICSTS2G - Connect IICICS to CICS Region Starting
SXC3001I CICSTS2G - Connect IICICS to CICS Region Complete
SXG2800I Starting ~ Substation ES - IMS Interface
SXG2801I Initialized ~ Substation ES - IMS Interface
SXI4000I A01IMSG - Connect IIIMS to IMS Region Starting
SXI4001I A01IMSG - Connect IIIMS to IMS Region Complete
SXG2806I Activated ~ Substation ES - Transformer
SXG2806I Activated ~ Substation ES - CICS Interface IICICS
SXG2806I Activated ~ Substation ES - IMS Interface IIIMS
SXG2806I Activated ~ Substation ES for IVP's
SXG1801I Parameter Log closed
```

3. Execute the Substation ES IVP: TIBCO Rendezvous listener.

Replace the Substation ES variables with the appropriate values. This member initiates a Rendezvous listener, which receives messages from the Substation ES region. The messages originate from a Rendezvous publisher that are executed by one of the Interface-submitted IVPs.

Data Set: *USERHLQ.JCL*

Member: *SXRGILS*

4. Execute Substation ES: Generic Error Listener.

Replace the Substation ES variables with the appropriate values. This member (choose the Rendezvous or EMS member as appropriate) initiates a generic listener, which receives error messages from the Substation ES ESB.

Data Set: *USERHLQ.JCL*

Member:

- *SXRRIELS* (for Rendezvous)
- *SXJRIELS* (for EMS)

Optional Tasks for Substation ES

Although executable modules have been supplied as part of the installation, you might want to change the source code. JCL and procedures have also been supplied to compile and execute sample programs. Normally, you might have to modify the JCL and procedures for use within your environment.

Changes to the source of the sample Substation ES IVPs require additional tasks as follows:

- [Compiling C Programs](#)
- [Executing Data Forwarding IVPs](#)
- [Setting up an Environment for Disk Logging and Tracing](#)

Compiling C Programs

The section is about the compilation JCL for messaging C sample programs.

Procedure

1. Customize the Substation ES C language options file.

This member is the options file for MVS C compilations, which must also include members from the C libraries and members from Rendezvous or EMS libraries. You must specify the correct values for the search path.

Data Set: *USERHLQ.CNTL*

Member:

- *OPTFSXR* (for Rendezvous)
- *OPTFSXJ* (for EMS)

2. Customize the Substation ES C language compilation JCL.

The following JCL uses a procedure that you can edit so that the JCL conforms to the requirements of your site.

Data Set: *USERHLQ.JCL*

Member:

- *SXR3NCPL* (for Rendezvous)
- *SXJ3NCPL* (for EMS)

Executing Data Forwarding IVPs

You can use Data Transform Only IVPs on Substation ES to transform data from or to different mainframe sources.

For a description of the procedures that use these IVPs, see Section "Examples" in the *TIBCO Substation ES Configuration and Resources* manual.

Procedure

1. Execute the Data Transform Receiving IVP.

This member receives each message from the Substation ES region and writes the record into a file. The input data for this IVP is received from the output of the Data Transform Forward IVP.

Data Set: *USERHLQ.JCL*

Member: *SXRIGDR*

2. Execute the Data Transform Forwarding IVP.

This member reads the data record from a file and then publishes each record as a message to the Substation ES region, proceeding through the messages to the end of the file. The messages are consumed and reported by the Substation ES IVP listener.

Data Set: *USERHLQ.JCL*

Member: *SXRIGDF*

Setting up an Environment for Disk Logging and Tracing

If you want to use the Substation ES Disk Logging and Tracing feature, you have to define, initialize, and modify your operational settings.

Edit the data sets and selected members in the following steps. Follow the instructions in the member and submit it for execution.

Prerequisites

A Substation ES LTA Disk file is set up. For details, see the steps in the section about "Substation ES LTA Disk File Setup" in the *Substation ES Operations and Administration* manual.

Procedure

1. Define the LTA Disk file definitions and allocation.

Data Set: *USERHLQ.JCL*

Member: *SXGLDEF*

2. Initialize the LTA disk files.

For the procedure on how to change the default settings, see the *TIBCO Substation ES Operations and Administration* manual.

Data Set: *USERHLQ.JCL*

Member: *SXGLINIT*

3. Customize the LTA Services Utility.

For the procedure on how to change the default settings, see the *TIBCO Substation ES Operations and Administration* manual.

Data Set: *USERHLQ.JCL*

Member: *SXGLUTIL*

4. **Update the System Startup Parameters (SSP) member.**

Edit your SSP member and reflect the changes on the required keywords.

Data Set: *USERHLQ*.INTF

Member: SXSSP\$1

Installing CICS Interface

After installing Substation ES and CICS Interface, you have to customize the CICS Interface that you selected as the BES.

Perform the following tasks to customize CICS Interface:

Procedure


1. [Prerequisites](#)
2. [Customizing CICS Interface](#)
3. [Executing CICS Interface IVPs](#)
4. [Optional CICS Interface Items](#)

Prerequisites

CICS Transaction Server for z/OS is necessary for interfacing with Substation ES.

The external communications interface (EXCI) primarily communicates with programs and other resources in the CICS region. The following requirements must be met:

- Substation ES requires that the *CICSHLQ.SDFHEXCI* data set or a copy of the data set should be APF-authorized.

 This data set must be included in the STEPLIB library of the Substation ES startup procedure.
- The *USERHLQ.LOAD.CICS#X* library that is installed as part of Substation ES must be concatenated in the DFHRPL DD name of your CICS startup procedures.
- You must ensure that the CICS region is LE-enabled and that the CICS region startup JCL or procedure also includes the LE runtime libraries.
- The CICS Resource definitions required by Substation ES are included with the product and must be added to the CICS CSD during installation.
- To write a message to a guaranteed data queue, the IBM RRS server must be active and you must set the **RRMS SIP** parameter in CICS to YES. This setting aims to guarantee delivery messages to EMS or use an HVT facility.


CICS System Initialization Parameters

You must set the following CICS SIP for Substation ES to connect to a CICS region.

```
IRCSTRT=YES
ISC=YES
PLTPI=XI
PLTSD=XD
```

For guaranteed messaging, set the value of the **RRMS** parameter as YES.

- If you use only reliable HVTs, the requirement for RRS is optional.

 For guaranteed or ordered trigger delivery, you must install the z/OS RRS server and have it running.
- If you set the **RRMS** parameter as YES, the CICS address space and the Substation ES address space must execute in the same LPAR.

For the environment in which the **RRMS** parameter is set to NO, the CICS address space and the Substation ES address space do not have to be in the same LPAR.

CICS with ACF2 Security

Specify the following parameters in the ACF2/CICS parameter file for the region:

```
MRO SYSID=EXCG, TRANSMIT=NO, RECEIVE=NO, FORMAT=CICS
MRO SYSID= SXCA, TRANSMIT=NO, RECEIVE=NO, FORMAT=CICS
MRO SYSID= SXCD, TRANSMIT=NO, RECEIVE=NO, FORMAT=CICS
MRO SYSID= SXCT, TRANSMIT=NO, RECEIVE=NO, FORMAT=CICS
```

ACF2 expects the FMH data to be in ACF2/CICS format. The **FORMAT=CICS** parameter tells ACF2 to expect standard FMH headers and records, not ACF2/CICS-embedded information, over this connection. Go to <http://www.ca.com/> for information on how to set the ACF2 parameter.

Customizing CICS Interface

To install the CICS components for Substation ES, you have to customize the CICS interface by editing the data sets and selected members listed in the following steps. Also, you must select the correct version of the CICS load library that was included with your Substation ES installation.

Procedure

1. Update CICS with the CICS Interface resource definitions.

This member updates the CICS System Definition (CSD) file with the resource definitions necessary for Substation ES to operate. This JCL includes:

- Definitions for Substation ES CICS components.
- Definitions for the 3270 Bridge facility.



If you are updating definitions for the 3270 Bridge facility, you must first update DSNAME(TIBCO.DFHBRNSF) in *USERHLQ.CNTL(CSD3270A)* and *USERHLQ.CNTL(CSD3270U)* to match your site.

Data Set: *USERHLQ.JCL*

Member: *SXCCSDUP*

2. Optional: Update the CICS Interface SIP member.

The file-tailoring process has updated the Substation ES interface SIP member for CICS. If you are not sure whether the correct CICS generic *APPLID* value has been supplied, edit and correct the member accordingly.

Data Set: *USERHLQ.INTF*

Member: *SXCINTF*

3. Activate CICS interface.

Activate the interface by uncommenting the appropriate *INTF-MEMBER* keyword in the SIP member.

Data Set: *USERHLQ.INTF*

Member: *SXSSIP\$1*

4. Optional: Suppress all or some CICS (signon/signoff) messages.

The DFHSN1100, DFHSN1200, DFHSN1400, and DFHSN1500 messages can be suppressed:

- DFHSN1100 date time applid Signon at {netname | console | terminal }portname by user userid in group groupid is complete.
- DFHSN1200 date time applid Signoff at {netname | console | terminal }portname by user userid is complete. tt transactions entered with nn errors.
- DFHSN1400 date time applid Session signon for session session by user userid is complete.

- DFHSN1500 date time applid Session signoff for session session is complete. tt transactions entered with nn errors.

In a Substation ES environment using EXCI, a lot of these messages are displayed. To suppress them, see [Suppressing CICS Signon or Signoff Messages](#).

If the exit XMEOUT is installed, the DFHSN1100, DFHSN1200, DFHSN1400, and DFHSN1500 messages are not produced.

Before executing the JCL, update the LOAD library suffix to the correct version in LOADSFX:

- LOAD.CICS3X for CICS V3.x
- LOAD.CICS4X for CICS V4.x
- LOAD.CICS5X for CICS V5.x

Data Set: *USERHLQ.ASM*

Member: SXCAXMEO and DFHPLTXI

Data set: *USERHLQ.JCL*

Member: SXCASMEO

5. Assemble and link the Substation ES CICS PLT entries.

Substation ES uses the XD and XI suffixes for its program list table (PLT) entries. If your CICS region already uses these suffixes, change the suffixes in the DFHPLTXD and DFHPLTXI members in the *USERHLQ.ASM* data set before executing the assembly.

To view the current suffixes in the CICS region, type either of these two commands:

- CEMT I PROG CLASS(XD)
- CEMT I PROG CLASS(XI)

Before executing the JCL, update the LOAD library suffix to the correct version in LOADSFX:

- LOAD.CICS3X for CICS V3.x
- LOAD.CICS4X for CICS V4.x
- LOAD.CICS5X for CICS V5.x

Data Set: *USERHLQ.JCL*

Member: SXCASMLK

6. Optional: Assemble and link the CICS DFHXCOPT module.

To turn off surrogate user checking for Substation ES, a sample DFHXCOPT source module is provided, which you can tailor to your requirements. The source is located in the *USERHLQ.ASM* library.

Before executing the JCL, update the LOAD library suffix to the correct version in LOADSFX:

- LOAD.CICS3X for CICS V3.x
- LOAD.CICS4X for CICS V4.x
- LOAD.CICS5X for CICS V5.x



The load module is in the Substation ES *USERHLQ.AUTH* library because this module must be in the concatenated STEPLIB library for the Substation ES startup procedure.

Data Set: *USERHLQ.JCL*

Member: SXCASMLK

7. Update the Substation ES startup.

- a) Add the *CICSHLQ.SDFHEXCI* library to the Substation ES STEPLIB concatenation.
- b) Remove the comment for the *CICSHLQ SET* statement. Ensure that the *CICSHLQ.SDFHEXCI* library is also APF-authorized because it is part of the STEPLIB concatenation.

Data Set: *USERHLQ.JCL*

Member: TIBSSES

8. Set the SYSIN values.

Ensure that the CICS GRPLIST definition includes the TIBCO defined list TIBLIST. TIBLIST is the default name and for ease of maintenance it is recommended that this value not be changed.

For example, GRPLIST=(DFHLIST, TIBLIST) ,

9. Optional: Set up requirements for the 3270 Bridge facility.

To use Substation ES to communicate with the 3270 Bridge facility, ensure that the CICS GRPLIST definition includes either:

- All three groups: DFHBR, DFHTERM, DFHTYPE.
- The group DFHLIST.

For example, GRPLIST=(DFHLIST, TIBLIST) or GRPLIST=(DFHBR, DFHTERM, DFHTYPE, TIBLIST)



It is assumed that you have a working installation of the IBM 3270 Bridge facility. If not, ensure that the following IBM CICS groups are installed in all CICS regions using the 3270 Bridge facility:

- DFHTYPE
- DFHTERM
- DFHBR

Substation ES provides a definition of the DFHBRNSF file. For details, see [Step 1](#).

If your installation wants another configuration, you have to review the following IBM CICS groups, which outline other ways of implementing the DFHBRNSF file:

- DFHBRCF
- DFHBRUT
- DFHBRVR
- DFHBRVSL
- DFHBRVSR



If the CICS 3270 Bridge facility is not installed and set up, the Substation ES Console Command feature does not work correctly. For example, if the setup is correct, when you submit the *SHOW, CICS, "SXTH"* command through the Substation admin interface, the Substation CICS information is sent back.

10. Optional: Update AOR CICS with the CICS Interface resource definitions.

This member updates the CSD file with the resource definitions necessary for Substation ES to operate in an AOR region.

Data Set: *USERHLQ.CNTL*

Member: CSDAORDA and CSDAORDU

Suppressing CICS Signon or Signoff Messages

In a Substation ES environment using EXCI, a lot of CICS Signon or Signoff messages are produced. To improve system performance, you can suppress all of these messages.

Procedure

1. Verify that the `USERHLQ.ASM(SXCAXMEO)` data set is what you want.
If the data set is correct, all messages for DFHSN1100, DFHSN1200, DFHSN1400, and DFHSN1500 will be suppressed.
2. If you are using the startup program supplied by TIBCO, add the `SXC3XMEN` program to the PLT startup program.
This can be done by uncommenting the following line in the `USERHLQ.ASM(DFHPLTXI)` member:

```
DFHPLT TYPE=ENTRY, PROGRAM=SXC3XMEN
```
3. Reassemble the `DFHPLTXI` member by running the `USERHLQ.JCL(SXCASMLK)` data set.
After the CICS region starts, the following confirmation message is displayed:

```
SXC3XMEN - EXIT("XMEOUT") SXCAXMEO Installed
```

Executing CICS Interface IVPs

After installing and activating CICS Interface, you should execute the CICS interface IVPs to verify your installation. By performing the sample IVP installation steps and tests, you can verify the bidirectional communication from and to your IBM CICS system with Substation ES.

Depending on which messaging protocol you use, you can execute an IVP to test the corresponding ESB endpoint. For more details, see the *TIBCO Substation ES Configuration and Resources* manual.

Rendezvous IVP

If you execute the IVP to test the Rendezvous ESB endpoint, the `SXCRIRSL` member initiates a Rendezvous sender listener, which sends messages to the Substation ES region and waits for replies from Substation ES. Once the CICS application has executed and sent a reply, the messages are consumed and reported by this Substation ES IVP Rendezvous sender listener. Errors are also reported.

Data Set: `USERHLQ.JCL`

Member: `SXCRIRSL`

EMS IVP

If you execute the IVP to test the EMS ESB endpoint, the `SXCRIJSL` member initiates an EMS sender listener, which sends messages to the Substation ES region and waits for replies from Substation ES. Once the CICS application has executed and sent a reply, the messages are consumed and reported by this Substation ES IVP EMS sender listener. Errors are also reported.

Data Set: `USERHLQ.JCL`

Member: `SXCRIJSL`

Optional CICS Interface Items

Changes to the source of the sample Substation ES CICS IVPs require additional steps. Although executable modules have been supplied as part of the installation, you can change the source code. JCL and procedures are available for compiling and executing the sample programs.



Changing the original source code is not recommended since samples are replaced when they are updated by TIBCO.

Edit the data sets and selected members in the following steps. Follow the instructions in the member and submit it for execution.

1. [Compiling of C Programs](#)
2. [Compiling of COBOL Programs](#)

Compiling of C Programs

To compile C programs, you have to customize the Substation ES C compilation JCL.

The following JCL uses a procedure that you can edit and modify so that the JCL conforms to the requirements of your site and executes correctly.

Data Set: *USERHLQ.JCL*

Member: *SXC3JCPL*

Compiling of COBOL Programs

To compile COBOL programs, you have to customize the Substation ES COBOL compilation JCL.

The following JCL uses a procedure that you can edit or modify so that the JCL conforms to the requirements of your site and executes correctly. This member compiles CICS COBOL-supplied IVPs.

Data Set: *USERHLQ.JCL*

Member: *SXCCJCPL*

Installing RED Interface

After installing Substation ES, you have to customize RED Interface that you selected during the downloading process.

Perform the following tasks to customize the RED Interface:

Procedure

1. [Prerequisites](#)
2. [Customizing RED Interface](#)
3. [Executing RED Interface IVPs](#)
4. [Optional RED Interface Items](#)

Prerequisites

TIBCO Mainframe RED version 2.3 or later is necessary for interfacing with Substation ES.

RED Initialization Parameters for CICS

You must set the following CICS System Initialization Parameters for Substation ES to connect to a CICS Region:

```
PLTPI=RI
PLTSD=RD
```

Review *USERHLQ.ASM(SXXACFGC)*, which contains the parameters that can be used to configure the RED interface. You might not have to make changes to it. Note that if you change the default name of your RED Hub, you must change this source file to use the same name. They can be found in the *USERHLQ.ASM* data set.

Customizing RED Interface

To install the RED components in CICS for Substation ES, you have to customize the RED interface by editing the data sets and selected members listed in the following steps. Also, you must select to use the correct version of the CICS load library that was included with your Substation ES installation.

Procedure

1. **Update CICS with the RED Interface resource definitions.**

This member updates the CICS System Definition (CSD) file with the resource definitions necessary for Substation ES to operate. This JCL includes definitions for Substation ES CICS RED components.

Data Set: *USERHLQ.JCL*

Member: *SXXCSDUP*

2. **Optional: Update the RED Interface SIP member.**

The file-tailoring process has updated the Substation ES Interface SIP member for RED. If you are not sure whether the correct CICS generic *APPLID* has been supplied, edit and correct the member accordingly.

Data Set: *USERHLQ.INTF*

Member: *SXCIRED*

3. **Update the RED interface directives in the SIP member.**

- a) Modify the RED Group member name and HUB name that Substation ES is going to communicate with.

- b) Update the admin member name that will be used by RED Interface to process administration activities in the CICS region.

Data Set: *USERHLQ*.INTF

Member: SXCIRE

4. **Activate RED Interface.**

Activate the interface by uncommenting the INTF-MEMBER keyword in the SIP member.

Data Set: *USERHLQ*.INTF

Member: SXSSIP\$1

5. **Assemble and link the Substation ES CICS RED PLT entries.**

Substation ES uses the suffixes RD and RI for its program list table (PLT) entries. If your CICS region already uses these suffixes, change the suffixes in the DFHPLTRD and DFHPLTRI members in the *USERHLQ*.ASM data set before executing the assembly.

To view the current suffixes in the CICS region, type either of these two commands:

- CEMT I PROG CLASS(RD)
- CEMT I PROG CLASS(RI)

Before executing the assembly, comment out the appropriate statements for CICS PLT if it is not in use:

Data Set: *USERHLQ*.JCL

Member: SXXASMLK

6. **Update the Substation ES startup.**

- Add the *CICSHLQ*.SDFHEXCI and *REDHLQ*.AUTH libraries to the Substation ES STEPLIB concatenation.
- Remove the comment for the *CICSHLQ* SET statement. Ensure that the *CICSHLQ*.SDFHEXCI library is also APF-authorized because it is part of the STEPLIB concatenation.
- Remove the comment for the *REDHLQ* SET statement. Ensure that the RED installed product *REDHLQ*.AUTH library is also APF-authorized because it is part of the STEPLIB concatenation.

Data Set: *USERHLQ*.JCL

Member: TIBSSES

Executing RED Interface IVPs

After installing and activating the RED interface, you have to execute the RED interface IVPs to verify your installation. By performing the sample IVP installation steps and tests, you can verify the bidirectional communication from and to your IBM CICS system with Substation ES.

Rendezvous IVP

1. **Execute the IVP Listener to test the Rendezvous ESB Endpoint.**

Replace the Substation ES variables with the appropriate values. This member initiates a Rendezvous listener, which receives messages from the Substation ES region. The messages originate from a Rendezvous publisher that are executed by one of the interface-submitted IVPs.

Data Set: *USERHLQ*.JCL

Member: SXRGILS

2. **Execute the RED Trigger transaction from CICS.**

From the 3270 screen, type the XT32 or XTC2 command to run a RED trigger transaction:

- `XT32,R,1,2000,RED-TRG-NO-RULES`
- `XTC2,R,1,2000,RED-TRG-NO-RULES`

Review the output from the `SXRGILS` job run by [Step 1](#).

EMS IVP

This member initiates an EMS sender listener, which sends messages to the Substation ES region and waits for replies from Substation ES. Once the CICS application has executed and sent a reply, the messages are consumed and reported by this Substation ES IVP EMS sender listener. Errors are also reported.

- Data Set: `USERHLQ.JCL`
- Member: `SXCRIJSL`

Optional RED Interface Items

Changes to the source of the sample Substation ES CICS IVPs require additional steps. Although executable modules have been supplied as part of the installation, you can change the source code. JCL and procedures are available for compiling and executing the sample programs.

Changing the original source code is not recommended since samples are replaced when they are updated by TIBCO.

Edit the data sets and selected members in the following steps. Follow the instructions in the member and submit it for execution.

1. [Compiling of C Programs](#)
2. [Compiling of COBOL Programs](#)

Compiling of C Programs

To compile C programs, you have to customize the Substation ES C compilation JCL.

The following JCL uses a procedure that you can edit and modify so that the JCL conforms to the requirements of your site and executes correctly.

Data Set: `USERHLQ.JCL`

Member: `SXX3JCL`

Compiling of COBOL Programs

To compile COBOL programs, you have to customize the Substation ES COBOL compilation JCL.

The following JCL uses a procedure that you can edit or modify so that the JCL conforms to the requirements of your site and executes correctly. This member compiles CICS COBOL-supplied IVPs.

Data Set: `USERHLQ.JCL`

Member: `SXCCJCPL`

Installing IMS Interface

After installing Substation ES, you have to customize IMS Interface that you selected during the downloading process.

Perform the following tasks to customize IMS Interface:

Procedure

1. [Prerequisites](#)
2. [Recommended Steps](#)
3. [Customizing IMS Interface](#)
4. [Installing the OTMA Message Routing](#)
5. [Installing IVP System Definitions](#)
6. [Executing IMS Interface IVPs](#)
7. [Optional IMS Interface Items](#)

Prerequisites

IMS version 10 or later is necessary for interfacing with Substation ES.

Open Transaction Manager Access (OTMA) communicates with programs and other resources in IMS regions.

The following table lists the requirements that must be met for IMS regions:

Item	Description
IMS V10	APAR PK71135: IMS SYNCHRONOUS CALLOUT FUNCTION ACTIVATION
IMS V11	<p>APAR PK81543: OTMA SYNCHRONOUS CALLOUT FUNCTION ACTIVATION</p> <p>APAR/PTF PM09695/UK56450 enhances the synchronous call-out function in the following ways:</p> <ul style="list-style-type: none"> • OTMA issues a new NAK message with the X'2B' sense code when a late or invalid acknowledgment message is received. • OTMA cleans the unused tpipes for ICAL after 2 IMS checkpoints. • The output of the /DISPLAY TMEMBER TPIPE SYNC command is changed to display the current number of ICAL messages that OTMA received for a particular tpipe. The NO_RSP label is changed to NO_COT.
Parameter Definitions	<p>For Substation ES to connect and execute successfully in an IMS environment, you must correctly define the following parameters for the IMS procedure of the DB/DC online control program:</p> <pre> GRNAME=XCF group name OTMA=Y OTMAMD=Y OTMANM - (When specified in IMS, you must set the Substation ES Applid keyword value accordingly.) OTMASE=N OTMASP=Y </pre>

Item	Description
Permissions	Substation ES must be able to run the <code>/STOP</code> and <code>/START TMEM x TPIPE y</code> commands. Check IMS and/or SAF security settings to ensure that Substation is authorized to run these commands.

Recommended Steps

You can use the recommended steps to install the Substation ES IMS interface.

- An IMS systems programmer performs the installation and makes the necessary changes to the IMS exit routines.
- If messages are to be rerouted from IMS to Substation ES IMS Interface through OTMA, perform the steps in [Installing OTMA Message Routing](#).
- Include the load module of an installed or changed exit routine in an authorized library in the JOBLIB, STEPLIB, or LINKLIST library concatenated in front of IMS.SDFSRESL.
- If you change or install the IMS exit routines, recycle the IMS control region.

Customizing IMS Interface

To install the IMS components for Substation ES, you have to customize IMS Interface by editing the data sets and selected members listed in the following steps. You must follow the instructions in the members and submit them for execution.

Procedure

1. Update the Substation ES IMS Interface SIP member.

Before starting Substation ES, specify the correct values of the SIP of Substation ES IMS Interface. Before starting the default Substation ES procedure, validate the values of the following keywords.

Keywords:

```
APPLID      =IMSAPPL
XCF-IMSGRP =SXIXCFGR
```

For a description of the keywords, see [IMS Interface Parameters](#).

Data Set: `USERHLQ.INTF`

Member: `SXIINTF`

2. Activate IMS Interface.

Activate the interface by uncommenting the appropriate `INTF-MEMBER` keyword in the SIP member.

Data Set: `USERHLQ.INTF`

Member: `SXSSIP$1`

Installing OTMA Message Routing

If you want to have messages routed through OTMA to Substation ES IMS Interface, you have to first set up the OTMA messaging routing. IMS transactions that did not originate through OTMA can route messages through OTMA to Substation ES.

In Substation ES, messages originating from host-side applications are known as trigger messages or triggers. The destination to which the IMS applications routes messages is called the trigger destination name. The default trigger destination name for the IMS Interface installation is `SXITRG`.

Procedure

1. Update the IMS Interface SIP member.

To change the trigger destination name, specify the changed name in the SIP of IMS Interface.

Keywords:

- TRIG-RDQ-NAME
- TRIG-GDQ-NAME

Data Set: *USERHLQ*.INTF

Member: SXIINTF

2. Specify OTMA Descriptors.

Perform this step if you require IMS outbound data to be functional.

You can define OTMA destinations in two methods:

- Using the D entry: the destinations consist of a name (used as an alternate PCB name, or the target of an ISRT or ICAL command), an XCF member name, and optionally a TPIPE name. The default TPIPE name is the destination name. This method is preferred starting with Release 2.7.
- Using the M entry: if you have installed the OTMA Destination exit routine, you must include OTMA destination M entries to ensure that the correct OTMA Destination exit routine is called.

The OTMA descriptors are built during IMS initialization. The descriptors must be included in the DFSYDTx members (x is the IMS nucleus suffix) of the *IMS*.PROCLIB data set. For more information, see the chapter on how to tailor your IMS system in *IMS System Definition*.

IMS Interface provides a sample descriptors table entry. If you are using the default installation names, you can copy the IMS installation member into your *IMS*.PROCLIB member and make the appropriate edits to the method you are using.

Data Set: *USERHLQ*.PROC

Member: DFSYDT0

3. Optional: Install TM/MSD Message Routing and Control Exit to support variable-length IMS transaction names.

Substation ES supports the use of variable-length transaction names, which happens when the default length of 8 characters is not used. Transactions names are specified and not necessarily padded with spaces. For example,

```
"VTRANThis is a message0123456789"
```

where VTRAN is the transaction name. Substation ES provides this support through the IMS DFSMSCE0 exit and a new variable-length specification in the recipe.

If you already have a DFSMSCE0 exit active, you must merge the OTMA terminal-routing logic in the Substation-ES-provided exit into your existing DFSMSCE0 exit.

Data Set: *USERHLQ*.ASM

Member: DFSMSCE0

A sample JCL is available for assembling and binding the exit routine.

Data Set: *USERHLQ*.JCL

Member: SXIASMLK

4. Update the IMS Procedure for the DB/DC Control region.

If you have placed IMS exit routines in the Substation ES-authorized library, concatenate the load library to the STEPLIB DD name of the IMS startup procedure.

Data Set: *USERHLQ.AUTH*

Installing IVP System Definitions

Before you perform the sample IVP installation steps and tests to verify the IMS Interface installation, first you have to set up the IVP system definitions.

Procedure

1. Add IMS Interface system definitions to IMS.

A member with a list of IMS Interface definitions has been supplied, which you must add to your IMS system definitions. Updating these definitions does not force a complete system definition and an IMS restart, with possible interruption for online users. For information on how to perform the updates, see *IMS System Definition*.

The following member contains the IMS Interface system definitions:

Data Set: *USERHLQ.CNTL*

Member: *SXISYSDF*



The default message class for transactions, used by IMS Interface, is 13. If this value conflicts, is not unique, or does not adhere to your site standards, modify the definitions in the member.

2. Update the IMS MPP procedure.

To execute IMS Interface online programs from the Substation ES load library, concatenate the load library to the STEPLIB DD Name of the IMS MPP startup procedure.

Data Set: *USERHLQ.LOAD*

Executing IMS Interface IVPs

After installing and activating IMS Interface, you should execute the IMS Interface IVPs to verify your installation. By performing the sample IVP installation steps and tests, you can verify the bidirectional communication from and to your IMS system through Substation ES.

Procedure

1. Execute the Messaging Request or Reply IVPs.

Before executing the Messaging Request or Reply IVPs, ensure that the following requirements are met:

- The IMS Interface is installed.
- The IVP IMS System Definitions are added or updated.
- The IMS Region is recycled, if required.
- Substation ES IVP listener is running and connected.
- An MPP region is started and can run the IVP transaction.
- Substation ES and the target IMS system are connected.

The Messaging Request or Reply IVPs are submitted by using the JCL supplied by the installation.

Data Set: *USERHLQ.JCL*

Member:

- *SXIRIRSL* (for Rendezvous)

- SXIRIJSJL (for EMS)

For a description of the IVP sender and listener utilities, see the *TIBCO Substation ES Configuration and Resources* manual.

2. Execute the Trigger Message IVP.

The Trigger Message IVP starts a BMP, which inserts a message into the IMS queue destined for Substation ES. Before executing the IVP, ensure that the following requirements are met:

- The OTMA message routing is installed. For details, see [Installing OTMA Message Routing](#).
- All the requirements for [Step 1](#) have been met.
- The Trigger Message IVP is submitted by the JCL supplied by the installation. Tailor the following JCL member with the variables required for executing the IVP.

Data Set: *USERHLQ.JCL*

Member: *SXIIVPBT*

For a description of IVP procedures, see the *TIBCO Substation ES Configuration and Resources* manual.

Optional IMS Interface Items

Although executable modules are available as part of the installation, you can change the source code of the sample IMS Interface IVPs, which requires additional tasks.

Normally, you must modify the supplied JCL and procedures for compiling and executing the sample programs for use within your environment. Edit the data sets and selected members in the following steps. Substitute the variables, follow the instructions in the member, and submit it for execution.

Procedure

1. Customize the IMS COBOL IVP Compile JCL.

The following JCL uses a procedure that you can edit and modify so that the JCL conforms to the requirements of your site and executes correctly. This member compiles IMS COBOL-supplied IVPs.

Data Set: *USERHLQ.JCL*

Member: *SXICJCPL*

2. Optional: Install the OTMA Destination Resolution exit routine.

Beginning with release 2.7, this exit is optional. The preferred way to specify destinations is using definitions in the *DFSYDTx* member.

The OTMA Destination Resolution exit routine enables you to determine and change the final destination of IMS Open Transaction. The load module of this routine must be included in an authorized library in the *JOBLIB*, *STEPLIB*, or *LINKLIST* library concatenated in front of *IMS.SDFSRESL*. For more information, see the section on IMS Exit Routines in *IMS Exit Routines*.

An example is provided by the IMS Interface installation.

Data Set: *USERHLQ.ASM*

Member: *DFSYDRUS*

A sample JCL is available for assembling and link-editing the exit routine.

Data Set: *USERHLQ.JCL*

Member: *SXIASMLK*

Uninstalling Substation ES

You can uninstall the TIBCO Substation ES product by running the main member named SXX\$9DEL from your *USERHLQ*.JCL data set.

Libraries that are used in the active jobs or tasks such as CICS, Substation or TSO sessions are not deleted.

Substation ES Parameters

Substation ES provides facilities and standard MVS methods for installation, administration, and operational staff to configure and administer Substation ES.

Substation ES contains PDS members with a default set of parameters, which are normally sufficient to activate the Substation ES and ESB interfaces. However, during installation, you must modify the parameters that declare their back-end systems (usually CICS and IMS) and that define the connections to the back-end systems.

For the suggested parameters to be changed during installation, see [Changing Substation ES Parameters](#).

For detailed parameters, see the following topics:

- [Syntax and Rules](#)
- [System Startup Parameters](#)
- [Common Initialization Parameters](#)
- [Administration Interface Parameters](#)
- [System Initialization Parameters](#)
- [CICS Interface Parameters](#)
- [RED Interface Parameters](#)
- [IMS Interface Parameters](#)
- [ESB Interface Parameters](#)
- [TIBCO Messaging-Specific Parameters](#)
- [EMS-Specific Parameters](#)
- [Rendezvous-Specific Parameters](#)

Syntax and Rules

This section is mainly about the rules that are applied to the Substation ES System Startup Parameters (SSP) and System Initialization Parameters (SIP).

Each parameter consists of a keyword that specifies how a particular function is to be implemented and its associated value. Keywords, which are alphanumeric, contain no spaces or blanks (low-values) and must start in column 1 of the input record. For PDS member input parameters, keyword values must be separated by an equal sign (=).

Keyword Values

You must specify keyword values in the valid format. Keywords can be uppercase, lowercase, or mixed case and are usually in one of the following formats:

- A value, which can have a predefined range if the requirement is numeric.
- A Yes or No indicator (Y or N).
- A constant value, for example, a program or interface name.
- A string or sentence with embedded spaces.

Enclose the entire string or sentence within double quotation marks, for example, "TIBCO Software Inc. Substation ES". The string is truncated if it exceeds the maximum length.

Comments

You can insert comments or comment lines between parameters or after keyword values. An asterisk (*) or forward slash (/) denotes that comments follow from that point on until the end of the line or input

card. The special characters including an equal sign (=), the forward slash, and the asterisk are reserved and are valid only in comments.

System Startup Parameters (SSPs)

You can specify the SSPs in the **PARM** parameter associated with the EXEC statement, which is in the Substation ES startup JCL or procedure. By default, the SSPs are specified in the PDS member named SXSSSP\$1, which is located in the library referenced by the DD name TIBPARM.

If no **SSPMEM** parameter is specified in the PARM statement and no member SXSSSP\$1 exists, Substation ES supplies default values for all required parameters. Optionally, you can specify certain keywords and values that pertain to the SSP in the **PARM** parameter for starting Substation ES.

All keyword values in the **PARM** parameter of the JCL must be prefixed by an en dash or minus sign (-). Keyword values are separated from keywords by one or more spaces. The following example shows the **PARM** parameter of an EXEC statement:

```
PARM='-SSPMEM SXSSSP$1 -logfmt 2 -trcfmt 3'
```

In this example, the parameter members for Substation ES are in the *USERHLQ*.INTF library.




Only certain SSP values in the **PARM** parameter of the EXEC statement override the values in the SSP member.


The following table lists the SSPs. In the syntax of the following parameters, the default values, if any, are listed to the left of the vertical separator bar (|).

System Startup Parameters

Parameter	Description
SSPMEM {SXSSSP\$1 <i>SSP member name</i> }	Optional. The SSPMEM parameter specifies the name of the SSP member. This member contains the keywords and values for the Log, Tracing, and Auditing agents; specific values for Substation ES; and reference to the main SIP member of Substation ES. If you do not specify a value, the default value applies.
SIPMEM {SXSSIP\$1 <i>SIP member name</i> }	Optional. The SIPMEM parameter specifies the name of the main SIP member. This member contains the values for the main task initialization, the common values for Substation ES, and the reference to the interfaces that can be started by the initialization routines. If you do not specify a keyword and value for this SSP, the default value applies.
LOG2-REMOTE {N Yes, No}	Optional. The LOG2-REMOTE parameter specifies whether Substation ES messages are to be written to a remote application of the z/OS system.

Parameter	Description
LOG2-SYSLOG {20 0, 4, 8, 20}	<p>Optional.</p> <p>The LOG2-SYSLOG parameter specifies the severity of Substation ES log messages printed to the z/OS SYSLOG. This parameter provides automation tools that pick up and react to Substation ES messages. The valid values are as follows:</p> <ul style="list-style-type: none"> • 0: print all log entries. • 4: print all messages that are warnings or a greater severity. • 8: print all messages of that severity and higher or those that are suffixed with E, C, or F and written to the Substation ES log. • 20: print nothing in addition to the z/OS SYSLOG.
LOGDDN {TIBLOGPR DDName}	<p>Optional.</p> <p>The LOGDDN parameter specifies the DD name of the data set to which formatted log information is written.</p> <p>If you do not specify a value, the default value applies.</p>
LOGDEST {Print Print, Disk}	<p>Optional.</p> <p>The LOGDEST parameter specifies the location to which the output for log entries is routed.</p> <p>The valid values are as follows:</p> <ul style="list-style-type: none"> • P: formatted Print format. This is a formatted print file, similar to SYSPRINT. • D: disk file. This is a VSAM RRDS disk file formatted for Substation ES. <p>If you do not specify a value, the default value applies.</p> <p>The DD name selected for routing to a Print file is specified by the value of the LOGDDN keyword.</p> <p>The DD name selected for routing to a Disk file is specified by the value of the LOGDSK-DDN keyword.</p>
LOGFMT {2 1,2,3}	<p>Optional.</p> <p>The LOGFMT parameter specifies the log format. The valid values are as follows:</p> <ul style="list-style-type: none"> • 1: short format output. • 2: short format output with information on the Substation ES location. • 3: detailed format output. <p>If you do not specify a value, the default value applies.</p> <p>If log information for Substation ES is routed to a Print file, this value determines the edit format that displays the routed information. For details about logging, see the <i>TIBCO Substation ES Operations and Administration</i> manual.</p>

Parameter	Description
LOGDBLVL {0 0-5}	<p>Optional.</p> <p>The LOGDBLVL parameter specifies the level of debug information that is generated for the log. The valid values range from 0 through 5. If you do not specify a value, the default value applies.</p> <p>The LTA agents of Substation ES have their own internal debugging facility. This value must always be the default or specified as 0 unless TIBCO Support requires the output.</p> <p>If you specify a non-zero value, the DD Name TIBLOGDB is required in the startup procedure. The output is directed to SYSOUT.</p> <div>  <p>A certain amount of overhead and many lines of output are produced if this value is greater than 1.</p> </div>
LOGDSK-DDN { <i>DDName</i> }	<p>Optional.</p> <p>The LOGDSK-DDN parameter specifies the DD name of a data set for logging Substation ES messages, errors, and general information to disk.</p> <p>You can specify up to five LOGDSK-DDN entries for each SSP member.</p>
LOGDSK-START {Warm Warm, Cold}	<p>Optional.</p> <p>The LOGDSK-START parameter specifies whether the information written to the log data set is kept across Substation ES instances. An instance ends when Substation ES is shut down or terminated.</p>
LOGDSK-WRAP {N Yes, No}	<p>Optional.</p> <p>The LOGDSK-WRAP parameter specifies whether the information written to the log data set is overwritten if the data set is deemed full. The valid values are as follows:</p> <ul style="list-style-type: none"> • Yes: if all the data sets defined and used as log data sets are full, the latest information is overwritten. • No: no information is overwritten. If all the data sets are full, the disk facility is disabled and information recorded to SYSOUT. That means that the LOGDEST value is automatically switched to P at run time.
TRCDDN { TIBTRCPR <i>DDName</i> }	<p>Optional.</p> <p>The TRCDDN parameter specifies the DD name of a data set to which trace and debug information is written. If you do not specify a value, the default value applies.</p>


Parameter	Description
TRCFMT {3 1, 2, 3}	<p>Optional.</p> <p>The TRCFMT parameter specifies the format for the logged trace information. The valid values are as follows:</p> <ul style="list-style-type: none"> • 1: short format output. • 2: short format with information on the Substation ES location. • 3: detailed format output. <p>If you do not specify a value, the default value applies.</p> <p>If Substation ES trace information is routed to a Print file, this value determines the edit format that displays the routed information. For more information about tracing, see the <i>TIBCO Substation ES Operations and Administration</i> manual.</p>
TRCDEST {Print Print, Disk}	<p>Optional.</p> <p>The TRCDEST parameter specifies the location to which the output for trace entries is routed. The valid values are as follows:</p> <ul style="list-style-type: none"> • P: Formatted Print format. This is a formatted print file, similar to SYSPRINT. • D: Substation disk file. This is a VSAM RRDS disk file formatted for Substation ES. <p>If you do not specify a value, the default value applies.</p> <p>The DD name selected for routing to a Print file is specified by the value of the TRCDDN keyword.</p> <p>The DD name selected for routing to a Disk file is specified by the value of the TRCDSK-DDN keyword.</p>
TRCDBLVL {0 0-5}	<p>Optional.</p> <p>The TRCDBLVL parameter specifies the trace debug level. The valid range is 0 through 5.</p> <p>The Substation LTA agents have their own internal debugging facility. This value must always be the default or specified as 0 unless TIBCO Support requires the output. If you do not specify a value, the default value applies.</p> <p>If you specify a non-zero value, the DD Name TIBTRCDB is required in the startup procedure of Substation ES. The output is directed to SYSOUT.</p> <div>  <p>A certain amount of overhead and many lines of output are produced if this value is greater than 1.</p> </div>

Parameter	Description
TRCDSK-DDN {DDName}	<p>Optional.</p> <p>The TRCDSK-DDN parameter specifies the DD name of a data set for trace information. Substation ES traces, dumps, messages, errors, and general information are written to disk.</p> <p>You can specify up to five TRCDSK-DDN entries for each SSP member.</p>
TRCDSK-START {Warm Warm, Cold}	<p>Optional.</p> <p>The TRCDSK-START parameter specifies whether the information written to the Trace data set is kept across instances of Substation ES. An instance ends when Substation ES is shut down or terminated.</p>
TRCDSK-WRAP {N Yes, No}	<p>Optional.</p> <p>The TRCDSK-WRAP parameter specifies whether the information written to the Trace data set is overwritten if the data set is deemed full. The valid values are as follows:</p> <ul style="list-style-type: none"> • Yes: if all the data sets defined and used as Trace data sets are full, the latest information is overwritten. • No: no information is overwritten. If all the data sets are full, the disk facility is disabled and information is recorded to SYSOUT. That means that the TRCDEST value is automatically switched to P at run time.

Common Initialization Parameters

Common initialization parameters are those that can be declared in all Substation ES SIP members.

Common Initialization Parameters

Parameter	Description
INTF-TYPE = { <i>number</i> }	<p>The INTF-TYPE parameter identifies the type of interface that is being defined within this member. This must be the first keyword defined for each SIP interface. Typically, you must have one member for the transaction processing interface (CICS/IMS) and another that specifies the details for the Substation ES ESB (XFR), as described in ESB Interface Parameters.</p> <p>The valid values are as follows:</p> <ul style="list-style-type: none"> • 2=MAIN: this is the SIP member of the main task for Substation ES. • 7=ADMIN: this is the Substation ES administration and operational interface. • 8=CICS: this selection is for configuring the CICS functions. • 12=IMS: this selection is for configuring the IMS functions. • 16=XFR: this selection is for the Substation ES ESB. • 28=RED: this selection is for configuring the RED functions. • 32=TCP: this selection is for configuring Substation ES TCP. • 40=Test: this selection is reserved for the Substation ES test interfaces.
INTF-ID = { <i>name</i> }	<p>The INTF-ID parameter specifies a one- to eight-character identifier that is assigned to the Substation ES task or interface.</p> <div>  <p>Be very careful when changing this value. Substation ES also uses the values in the configuration items (recipes and triggers) to transfer data between Substation ES interfaces, for example, ESB Interface and CICS Interface.</p> <p>After changing this value, be sure to also change its associated references in the configuration items.</p> </div>
DESCR = { <i>description</i> }	<p>The DESCR parameter specifies a one- to 40-character description of the interface or task. This description is important because it identifies the actions performed by a task in the log and trace files.</p>
START-YN = {Yes, No}	<p>The START-YN parameter specifies whether to load the interface referenced by this member at Substation ES startup. The valid values are as follows:</p> <ul style="list-style-type: none"> • Yes: the member should be automatically loaded at system startup. • No: the member should not be automatically loaded at system startup.

Administration Interface Parameters

The following table lists the administration interface parameters supported by Substation ES.

Administration Interface Parameters

Parameter	Description
DESCR = { <i>description</i> }	See DESCR = { <i>description</i> }.
ESB-INTF-ID = { <i>identifier</i> }	The ESB-INTF-ID parameter specifies the identifier of the Substation ES ESB Interface. This interface publishes the heartbeat trigger message initiated from Substation ES. The installation default value is ESB01.
HEARTBEAT-COMMAND = { <i>COMMAND</i> }	The HEARTBEAT-COMMAND parameter specifies the CONSOLE command that the heartbeat trigger message publishes. In one admin interface, you can include this parameter a maximum of 5 times. The default command is SHOW, INTF .
HEARTBEAT-INTERVAL = { <i>number</i> }	The HEARTBEAT-INTERVAL parameter specifies the heartbeat trigger message publication rate. If the interval is greater than zero, the heartbeat starts. The valid range is from 2 to 300 seconds. The value of 0 stops the heartbeat trigger service.
HEARTBEAT-SERVICE = { <i>name</i> }	The HEARTBEAT-SERVICE parameter specifies the trigger service name to be used for the heartbeat message. This must match a corresponding Trigger service definition defined in the configuration file. The installation default value is HEARTBEAT.
INTF-ID = { <i>name</i> }	See INTF-ID = { <i>name</i> }.
INTF-TYPE = { <i>number</i> }	See INTF-TYPE = { <i>number</i> }.
LOG-REMOTE = {N Yes, No}	The LOG-REMOTE parameter specifies whether to log remote operational commands to the Substation log file. The default value is N, indicating that remote operational commands are not logged.
MODULE-NAME = {TIBSSADM <i>name</i> }	The MODULE-NAME parameter specifies the name of the Administration interface load module. If no name is specified, the default load module name TIBSSADM is used.
START-YN = {N Yes, No}	See START-YN = {Yes, No}.
TRCLVL-OPS = {0 0-5}	(Optional) The TRCLVL-OPS parameter specifies the trace level of the messages produced for a Substation ES operational command. This parameter is mainly for debugging, with most of the information written to the trace file.

Parameter	Description
WORKERS = {3 <i>number</i> }	The WORKERS parameter specifies the number of concurrent internal threads that service Substation ES administration performance. The valid values range from 1 through 30. The default value is 3.

TCP Interface Parameters

The TCP Interface member specifies the TCP Interface parameters so that Substation ES can communicate with Mainframe WebUI through this interface. The TCP Interface member template is stored in the `SXSITCP` file.

If you make a copy of this member, you can point to it by specifying the member name on the `INTFMEMBER` keyword in the main SIP definition member.

The following table lists the TCP Interface parameters supported by Substation ES.

TCP Interface Parameters

Parameter	Description
CHUNK-BUFFERS = {0 <i>number</i> }	The CHUNK-BUFFERS parameter sets the number of buffers each “chunk of buffers” comprised by the TCP interface’s buffer pool. The valid values range from 1 to 100. The default value is 0.
CHUNK-MAX-SIZE = {64000 <i>number</i> }	The CHUNK-MAX-SIZE parameter sets the maximum number of bytes in each “chunk of buffers” comprised by the TCP interface’s buffer pool. The valid values range from 1024 to 4096000. The default value is 64000.
CONNECTIONS = {5 <i>number</i> }	The CONNECTIONS parameter sets the maximum number of open client connections. The valid values range from 1 to 500. The default value is 5.
DESCR = { <i>description</i> }	See DESCR = { <i>description</i> }.
DISPATCHERS = {2 <i>number</i> }	The DISPATCHERS parameter is used to set the number of dispatcher worker for the TCP interface. The valid values range from 1 through 40. The default value is 2.
GSK-FILE = { <i>name</i> }	The name of the USS file to which GSK should write its trace; when GSK-FILE and TRCLVL-GSK are specified, the GSK library’s trace functions are enabled.
INTF-ID = { <i>name</i> }	See INTF-ID = { <i>name</i> }.
INTF-TYPE = { <i>number</i> }	See INTF-TYPE = { <i>number</i> }.
KEEP-ALIVE = {1 <i>number</i> }	The KEEP-ALIVE parameter indicates whether or not the keep-alive technique should be used to maintain idle connections. The valid values is 1 (True) and 0 (False). The default value is 1.

Parameter	Description
LAZY-RETRY = {60 <i>number</i> }	The LAZY-RETRY parameter sets the number of seconds between attempts to reconnect to a disconnected member of a multi-host connection. The valid values range from 1 to 600. The default value is 60.
LOGFILE-DDN = {S7RPRINT <i>DDName</i> }	The LOGFILE-DDN parameter specifies the DD name of the data set to which formatted TCP interface log information is written. The number of characters from 1 to 8. If you do not specify a value, the default value applies.
SELECT-TO = {10 <i>number</i> }	The SELECT-TO parameter sets the timeout in seconds for the main TCP interface-related event loop. The valid values range from 0 to 50. The default value is 10.
STACK-NAME = { <i>name</i> }	The IBM stack name to be used with this TCP connection, and a blank value signifies the system default stack.
START-YN = {N Yes, No}	See START-YN = {Yes, No}.
URL = { <i>URL:PORT</i> }	The URL parameter specifies the host name or the IP address and the TCP port that Substation ES exposes for WebUI clients to connect. The default value is a blank space.
WEBUI-BUFFER-SIZE = {8192 <i>number</i> }	The WEBUI-BUFFER-SIZE parameter sets the maximum buffer size for messages returned by TCP Interface to WebUI. The valid values range from 8192 to 128000. The default value is 8192 bytes.
WORKERS = {2 <i>number</i> }	The WORKERS parameter specifies the number of concurrent worker subtasks that are started to service Substation ES TCP requests. The valid values range from 1 through 40. The default value is 2.
TLS-CIPHER = { <i>name</i> }	(Optional) The IBM cipher codes for encryption (for example: 35363738392F303132); if specified, overrides the default cipher specification list.
TLS-RING-FILE = { <i>name</i> }	The Resource Access Control Facility (RACF) key ring name; mandatory if using TLS .
TLS-RING-LABEL = { <i>name</i> }	(Optional) The RACF identity name; if not specified, the default certificate is used to make connections.

Parameter	Description
TRCLVL = {0 0-5}	<p>The TRCLVL parameter specifies the TCP Interface trace level when tracing payloads that pass through the interface; does not duplicate what is set on the system TRCLVL setting but only shows entries in TCP Interface.</p> <p>The valid values are listed as follows:</p> <ul style="list-style-type: none"> Levels 1 to 3 show information mostly useful to users and TIBCO field staff. Levels 4 and 5 show information only useful to engineering staff. The information is detailed and usually specific to internal stacks and control blocks.
TRCLVL-GSK = {0 0-63}	<p>The TRCLVL-GSK parameter specifies the trace level of the messages produced by TLS APIs; when TRCLVL-GSK and GSK-FILE are specified, the GSK library's trace functions are enabled. The valid values range from 0 to 63. The default value is 0.</p>

System Initialization Parameters (SIPs)

Before initial execution of Substation ES, you must review, edit, and change the SIP to ensure that the parameters and definitions are suitable for your environment and that they adhere to the standards of your site.

During an initial installation, a sample set of SIP members is supplied with all the necessary parameters. See [Changing Substation ES Parameters](#) on how to ensure that you have addressed all the site-specific parameters.

SIP members are divided into two groups:

- Main SIP member parameters, whose values are specified by the **SIPMEM** keyword or by the default value.
- SIP for interfaces, to which parameters of each interface are directed by the **INTF-MEMBER** keyword in the main SIP member.


By default, the term *member* in the SIP context refers to a PDS member that contains keywords and keyword values used by Substation ES initialization routines.

The default main member is **SXSSIP\$1**, which you can access by performing a standard TSO edit. If you want to make a copy of this member, you can point to it by specifying the **SIPMEM** keyword either in the SSP definitions or in the **PARM** parameter in the Substation ES startup procedure or JCL member.

The following table lists the system initialization parameters supported by Substation ES.

System Initialization Parameters

Parameter	Description
CONSOLE-MSG = {L Console, Log}	<p>The CONSOLE-MSG parameter specifies whether operator commands and optional system status messages are echoed to the console and to the log file or only to the log file.</p> <p>If you do not specify a keyword and value, the default value applies.</p>

Parameter	Description
DESCR = { <i>description</i> }	See DESCR = { <i>description</i> }.
INTF-ID = { <i>name</i> }	See INTF-ID = { <i>name</i> }.
INTF-MEMBER = { <i>member name</i> }	The INTF-MEMBER parameter specifies that an interface member is to be included as part of Substation ES initialization. See the supported interface parameters for the keywords and values.
LOGLVL = {2 <i>number</i> } TRCLVL = {1 <i>number</i> }	<p>The LOGLVL and TRCLVL parameters specify the level of informational messages recorded to the appropriate file. The valid values are as follows:</p> <ul style="list-style-type: none"> • 0: none. Record only the main system startup and shutdown messages. • 1: critical. Record only the startup, connection, and shutdown information messages. • 2: also record the major message level information. • 3: also record the minor message level information. • 4: also record the detailed-level messages. • 5: record all the messages within Substation ES.
MAXUOW = {200 <i>number</i> }	<p>The MAXUOW parameter represents the maximum number of concurrent messages that can be processed by Substation ES. The valid values are in the range 200 through 3800.</p> <p>Increasing this value does not necessarily mean faster throughput because memory usage and the list lengths for most Substation ES resources also increase correspondingly.</p> <div>  <p>Do not change this value except with guidance from an authorized TIBCO representative.</p> </div>
SNAPSHOT-NUM = { <i>number</i> }	<p>The SNAPSHOT-NUM parameter specifies the number of entries of a snapshot. The valid values range from 100 through 10000 for each snapshot, where the value is the duration of the measured event in minutes. This parameter has no default value.</p> <p>You can measure the length of the following events:</p> <ul style="list-style-type: none"> • UOW • The transaction call in CICS or IMS within a UOW • The EMS call for a UOW • The allocation of a UOW when a request was received <p>You can initiate a snapshot through a console command. The number of entries is configurable; the output is directed to SYSPRINT. You can run multiple snapshots during a single Substation ES execution.</p>

Parameter	Description
SNAPSHOT-YN = {N Yes, No}	<p>The SNAPSHOT-YN parameter specifies whether this Substation ES instance allows a snapshot to obtain statistics on key interactions. The default value is N.</p>
STACK-NAME = {TCPIP <i>Name</i> }	<p>The STACK-NAME parameter specifies the default TCP/IP stack name.</p> <p>If the stack name setting on the configuration panel is different from the STACK-NAME value set in the ESB definition, then Substation supports communication through both configured stacks.</p> <p>When this parameter is present and a different TCP/IP stack name is defined for the ESB through the configuration panel, then Substation supports communication through multiple different TCP/IP stacks.</p> <p>This parameter must be specified for the ESB stack name to work. This stack name keyword is used by default if the ESB stack name is empty.</p>
STGFREE = {N Yes, No}	<p>The STGFREE parameter specifies whether internal Unit of Work (UOW) communication storage is released if the UOW Stress Restart Level value has been exceeded.</p> <p>By default, Substation ES releases unused UOW communication storage if more UOWs are concurrently in use than the UOW Stress Restart Level value. Changing this value is only beneficial if the stress levels within Substation ES are consistently being exceeded.</p>
STGPROT = {N Yes, No}	<p>The STGPROT parameter specifies whether storage address validation occurs when various interfaces and agents within Substation ES communicate with each other.</p> <p>It is good practice to keep this value set to Y until the application is in production.</p> <p>Performance is faster with the value set to N.</p>

Parameter	Description
STGSIZE-MAX = {50000 <i>number</i> }	<p>The STGSIZE-MAX parameter specifies the maximum storage size that Substation ES maintains. Substation ES frees the storage when it either reaches 32K or the STGSIZE-MAX limit.</p> <p>Even when the STGFREE keyword value is set to N, Substation releases the payload storage of a user when the storage size is greater than 32K. The value of the STGSIZE-MAX parameter controls the release of this storage when the system is heavily used.</p> <p>When the concurrent UoWs in the system is greater than about 5%, the storage is not freed immediately but can be reused. When the system runs slowly again the user payload storage that is greater than the size indicated on the keyword is released.</p> <p>This helps greatly reduce the CPU usage in peak traffic as these storage areas are reused until the system workload is minimal. The Substation region size might increase a little but at the benefit of reducing the CPU usage.</p> <p>The valid range is 4000 to 200000. The default is 50000.</p>
SUBSTATION-ID = {SUBSTATION-IVP <i>Name</i> }	<p>The SUBSTATION-ID parameter specifies the name that is attached to this Substation ES instance.</p> <p>Multiple Substation ES instances must have different names because the name is used for the following purposes:</p> <ul style="list-style-type: none"> • Error notification reporting • CICS BES Substation ES connection and status indicator • Part of the EMS ESB connection client ID
TRACKER-SSID { <i>name</i> }	<p>The TRACKER-SSID parameter specifies the subsystem identifiers with which to connect to TIBCO Mainframe Service Tracker. You can specify up to five Tracker subsystem identifiers to ensure that Substation ES picks up a Tracker subsystem at startup.</p> <p>This parameter has no default value.</p>
UFLDS-PREFIX = {tibss- <i>Name</i> }	<p>The UFLDS-PREFIX parameter specifies the prefix name for the Substation ES user fields that are sent to TIBCO messaging applications that require the issuance of status and error information during their conversations with Substation ES.</p> <p>Do not change this value without an understanding of the user fields and the consequences of such a change. See the section "Communication of Application Messages" in the <i>TIBCO Substation ES Configuration and Resources</i> manual for details.</p>

Parameter	Description
WORKERS = {10 <i>number</i> }	<p>The WORKERS parameter specifies the number of concurrent worker threads that are started to service Substation ES requests. The valid values range from 10 through 40.</p> <p>It is recommended that you do not simply allocate 40. Such an allocation might slow down your system if you do not have enough processors to satisfy all the requests; you might also increase the path length to search on workers.</p> <p>You can specify the following minimum values for each type of Substation ES interface:</p> <ul style="list-style-type: none"> • 2: CICS • 2: IMS and Administration • 10: Substation ES (SIT) and Enterprise Service Bus (ESB)
WORKERS-EOT = {10 <i>number</i> }	<p>The WORKERS-EOT parameter specifies the number of End of Task (EOT) concurrent worker threads that are started to service Substation ES UoW termination requests. The valid values range from 5 through 40.</p> <p>Contact your TIBCO knowledgeable product specialist before changing the default WORKERS-EOT setting; a large value might have an adverse effect on your performance, in particular if insufficient processors are available to satisfy all requests.</p> <p>To review current thread usage, run the SHOW , SYS , DEBUG command.</p>

CICS Interface Parameters

The CICS Interface member specifies the parameters for the CICS transaction processing system. The interface member template is stored in the `SXCINTF` file.

If you make a copy of this member, you can point to it by specifying the member name on the `INTF-MEMBER` keyword in the main SIP definition member.

The following table lists the CICS Interface parameters:

CICS Interface Parameters

Parameter	Description
APPLID = {DBDCCICS <i>identifier</i> }	<p>CICS has a specific identifier and a generic application identifier. If it requires a generic application identifier, Substation ES uses EXCI for connectivity. EXCI uses a special form of IRC that uses the generic application identifier specification.</p> <p>See the description of the APPLID parameter in the <i>CICS System Definition Guide</i>. Be sure to specify the correct value.</p>

Parameter	Description
D-NODENAME = {SXCSSDPL <i>name</i> }	The D-NODENAME parameter defines the node name on the CICS Connection resource for the Substation ES DPL services. By default, the resource definitions are supplied on the product installation media. The default name is SXCSSDPL.
DESCR = { <i>description</i> }	See DESCR = { <i>description</i> }.
DPL-CONNECT = {SPECIFIC SPECIFIC, GENERIC}	<p>The DPL-CONNECT parameter specifies SPECIFIC or GENERIC DPL connections. The default installation implementation is SPECIFIC, which is easier to install and manage.</p> <p>Set the value to GENERIC only if you want more than 99 sessions on a connection or if you must share connections with other applications.</p>
INTF-ID = { <i>name</i> }	The INTF-ID parameter specifies the interface identifier, which is the internal interface name for Substation ES.
INTF-PARTNER = { <i>identifier</i> }	The INTF-PARTNER parameter specifies the Substation ES ESB receiver or interface that performs translations. Currently, this value is set to ESB01.
INTF-TYPE = { <i>number</i> }	See INTF-TYPE = { <i>number</i> }.
MODULE-NAME = {TIBSSCIC <i>name</i> }	The MODULE-NAME parameter specifies the name of the CICS Interface load module.
RR-ACTIVE = {N Yes, No}	<p>The RR-ACTIVE parameter specifies whether the CICS initiated Request or Reply facility resources must be activated by Substation ES. If you set this parameter to Yes, Substation ES initiates the subtasks, allocates and initializes CICS storage, and activates the functions required to handle the processes for the facility.</p> <p>If the CICS Initiated Request or Reply facility is not used, it is recommended that you set this parameter to No. For more information about this facility, see the <i>TIBCO Substation ES Configuration and Resources</i> manual.</p>
RR-MAXSIZE = {8000 <i>number</i> }	<p>The RR-MAXSIZE parameter specifies the maximum allowable size for outbound data requested by Substation ES from the messages that are written to the trigger TDQ.</p> <p>If a message with a larger size of data is written to the trigger TDQ, the message is truncated to the size the same as the specified value.</p> <p>This value, which must correspond to—and must not exceed—the value for the IOAREALEN parameter in Substation ES, provides the resource definition for trigger sessions (SXCOST01). If you do not specify a keyword and value, the default value of 16000 applies.</p>
START-YN = {N Yes, No}	See START-YN = {Yes, No}.

Parameter	Description
TRIG-GDQ = {N Yes, No}	The TRIG-GDQ parameter specifies whether trigger events are activated for guaranteed outbound messages. Y means that they are activated; N, not activated.
TRIG-ORD = {N Yes, No}	The TRIG-ORD parameter specifies whether Ordered Delivery trigger events are activated for outbound messages. Y means that they are activated; N, not activated.
TRIG-RDQ = {N Yes, No}	The TRIG-RDQ parameter specifies whether trigger events are activated for reliable outbound messages. Y means that they are activated; N, not activated.
USERID = { <i>name</i> }	<p>The USERID parameter specifies the default user identifier with which CICS Interface establishes connection and initializes Substation ES components in the CICS region.</p> <p>This user ID is only used on administrative and trigger calls into the specific CICS region. For Service Recipe calls, the USERID parameter is never set by default and must be present either on the payload or in the messages properties for it to be passed through on the CICS invocation.</p>

CICS-Specific Parameters

The CICS-specific Parameters table lists the specific and advanced parameters for Substation ES CICS. Change these parameters only if you are knowledgeable about the system or if you are assisted by a Substation ES representative.




If you change the values of these parameters, you must also make corresponding changes in the CICS Resource definitions supplied by the installation.

CICS-Specific Parameters

Parameter	Description
MIRROR-TRAN = {SXEX <i>name</i> }	<p>The MIRROR-TRAN parameter specifies the Mirror Transaction name in the CICS online region.</p> <p>The default name is SXEX.</p>
A-NODENAME = {SXCSSADM <i>name</i> }	The A-NODENAME parameter defines the node name on the CICS Connection resource for the administrative services of Substation ES. The resource definitions are supplied on the product installation media by default. The default name is SXCSSADM.
T-NODENAME = {SXCSSTRG <i>name</i> }	The T-NODENAME parameter defines the node name on the CICS Connection resource for the trigger event services of Substation ES. The resource definitions are supplied on the product installation media by default. The default name is SXCSSTRG.
QNAME-TGDQ = {SXQG <i>name</i> }	The QNAME-TGDQ parameter defines the name of CICS TDQ to which records are written for guaranteed outbound triggered messages. The default name is SXQG.

Parameter	Description
QNAME-TRDQ = {SXQT <i>name</i> }	The QNAME-TRDQ parameter defines the name of CICS TDQ to which records are written for reliable outbound triggered messages. The default name is SXQT.
WORKERS = {5 <i>number</i> }	The WORKERS parameter specifies the number of concurrent DPL CICS sessions that are started to service Substation ES requests. The valid values range from 1 through 40.
HVS-BATCH-YN = {N Yes, No}	<p>The HVS-BATCH-YN parameter specifies whether the CICS HV TSQ Reliable trigger process will batch the TSQ extracts from a CICS region when the RRMS is enabled for this CICS region.</p> <p>The HVS-BATCH-YN parameter should only be set to YES when the TSQ volumes are very high. Otherwise, it adds unnecessary overhead.</p>
HVS-BATCH-SIZE = {50 <i>number</i> }	The HVS-BATCH-SIZE parameter specifies the number of CICS HV TSQ reliable trigger process records that will be in the batch when a commit is issued. The valid values range from 5 to 2048. The default value is 50.
HVS-WORKERS = {0 <i>number</i> }	<p>The HVS-WORKERS parameter specifies the number of concurrent HV TSQ reliable trigger sessions that will be created and available for offload processing. The valid values are from 0 to 6.</p> <p>If you do not specify a keyword and value, the default value of 0 applies and no HV TSQ reliable sessions are started.</p>
HVT-G-WORKERS = {2 <i>number</i> }	<p>The HVT-G-WORKERS parameter specifies the number of concurrent HVT guaranteed trigger sessions that will be created and available for offload processing. The valid values are 0 and 2 through 10.</p> <p>If you do not specify a keyword and value, the default value of 0 applies and no HVT guaranteed sessions will be started.</p>
HVT-R-WORKERS = {0 <i>number</i> }	<p>The HVT-R-WORKERS parameter specifies the number of concurrent HVT reliable trigger sessions that will be created and available for offload processing. The valid values are 0 and 2 through 6.</p> <p>If you do not specify a keyword and value, the default value of 0 applies and no HVT reliable sessions will be started.</p>
TRIG-MIRROR = {N Yes, No}	<p>The TRIG-MIRROR parameter specifies whether the records read from the trigger queue are mirrored to another queue. This parameter is used if other processes or systems want to process the same information that Substation ES has read and published to TIBCO messaging applications.</p> <p>If the transaction fails when Substation ES reads a record from the trigger queue, no records are written to the mirror queue.</p> <p>N means that trigger queue items are not mirrored; Y, otherwise. You must define and enable the TDQ named SXQM.</p>

Parameter	Description
LOOPBACK = {N Yes, No}	<p>The LOOPBACK parameter is mostly used in a QA and testing environment by TIBCO Support to determine whether the messages received by Substation ES are passed through to the CICS region. The keyword value is Y or N.</p> <p> Do not change this value unless requested by TIBCO Support.</p>
TRCLVL-HVS = {1 0-3}	The TRCLVL-HVS parameter specifies the trace level of CICS Interface when tracing reliable TSQ trigger entries that pass through the interface. The valid values range from 0 to 3. The default value is 1.
TRCLVL-TRIG = {0 0-3}	<p>The TRCLVL-TRIG parameter specifies the trace level of CICS Interface when tracing trigger entries that pass through the interface. The valid values are as follows:</p> <ul style="list-style-type: none"> • Level 1 only traces an entry in the log file. • Level 2 dumps the buffer content in the trace file into the log file. • Level 3 includes all details from trigger processes in the trace file. <p>This parameter does not duplicate what is set on the trigger definition in the configuration file. The value on the trigger definition traces the trigger entry only when the ESB receives and processes it. The TRCLVL-TRIG parameter traces the entry as soon as the entry arrives in the Substation CICS Interface.</p>
TRCLVL-ONL = {0 0-5}	The TRCLVL-ONL parameter specifies the trace level of the messages produced by CICS resident programs that act on or on behalf of Substations ES. Messages are written to the CEEOUT and CEEMSG CICS output data sets.

RED Interface Parameters

The interface member that specifies the parameters for RED runs on the CICS transaction processing system. The interface member template is stored in the SXCIRED file.

If you make a copy of this member, you can point to it by specifying the member name on the INTF-MEMBER keyword in the main SIP definition member.

The following table lists the RED interface parameters:

Parameter	Description
APPLID = {DBDCCICS <i>identifier</i> }	<p>CICS has a specific identifier and a generic application identifier. RED Interface uses the APPLID parameter to create the RED send member name.</p> <p>See the description of the APPLID parameter in the <i>CICS System Definition Guide</i>. Be sure to specify the correct value.</p>
DESCR = { <i>description</i> }	See DESCR = { <i>description</i> }.


Parameter	Description
INTF-ID = { <i>name</i> }	The INTF-ID parameter specifies the interface identifier, which is the internal interface name for Substation ES.
INTF-PARTNER = { <i>identifier</i> }	The INTF-PARTNER parameter specifies the Substation ES ESB receiver or interface that performs translations. Currently, this value is set to ESB01.
INTF-TYPE = { <i>number</i> }	See INTF-TYPE = { <i>number</i> }.
START-YN = {N Yes, No}	See START-YN = {Yes, No}.

RED-Specific Parameters

The RED-specific Parameters table lists the specific and advanced parameters for the Substation ES interface for RED. You can change the values of these parameters only if you are knowledgeable about the system or if you are assisted by a Substation ES representative.

RED-Specific Parameters

Parameter	Description
ADM-NAME = {REDADM <i>name</i> }	The ADM-NAME parameter defines the RED target member in a CICS region for the RED Interface administrator activity use. The maximum length is 12 characters. The default name is REDADM.
AMSG-BUFFER-64 = {Y Yes, No}	The AMSG-BUFFER-64 parameter determines whether or not the async message buffer pool location uses 64-bit mode.
AMSG-MAXLEN = {40000 <i>number</i> }	The AMSG-MAXLEN parameter sets the maximum async message length to be used in RED Interface. The valid values range from 1024 to 1000000. The default value is 40000 bytes.
AMSG-ORDERED-YN = {Y Yes, No}	The AMSG-ORDERED-YN parameter sets the message delivery order type used in the buffer pool. The valid values are as follows: <ul style="list-style-type: none"> Y: indicates that the order is preserved in the buffer pool. The default value is Y. N: indicates that the order is not preserved.
CICS-LSN-NAME = { <i>name</i> }	The CICS-LSN-NAME parameter specifies the name of RED CICS recipe services listener. The name specified here is the target member of the RED URL. The maximum length is 15 characters.
CICS-MAIN-MAX = {21 <i>number</i> }	The CICS-MAIN-MAX parameter specifies the maximum number of Mainframe RED CICS recipe service receive transactions that can be run concurrently. The valid range is from 5 to 100. The default value is 21.

Parameter	Description
CICS-MAIN-TXID = {#RED <i>name</i> }	<p>The CICS-MAIN-TXID parameter specifies the identifier of a Mainframe RED CICS receive recipe service transaction. The maximum length is 4 characters.</p> <p> Do not change this setting except under direction by TIBCO Substation ES support personnel.</p>
CICS-USER-MAX = {50 <i>number</i> }	The CICS-USER-MAX parameter specifies the maximum number of Mainframe RED CICS user recipe services that can be handled concurrently. The valid range is from 20 to 400. The default value is 50.
CMSG-BUFFERS = {100 <i>number</i> }	The CMSG-BUFFERS parameter specifies the number of message buffers used to process receive messages. The valid values range from 5 to 5000. The default value is 100.
CMSG-BUFFER-64 = {N Yes, No}	The CMSG-BUFFER-64 parameter indicates the buffer pool location of RED CICS Receive services uses 64-bit mode. The default value is N.
CMSG-BUFFER-SZ = {4096 <i>number</i> }	The CMSG-BUFFER-SZ parameter specifies the length of the buffer message used to handle receive messages. The valid values range from 1024 to 500000. The default value is 4096.
CMSG-BUFF-OFLOW = {80 <i>number</i> }	<p>The CMSG-BUFF-OFLOW parameter instructs the CICS message listener to set an overflow percentage value for the number of buffers.</p> <p>For more information, see the RED overflow percent handling documentation.</p> <p>The valid values range from 50 to 95. The default value is 80.</p>
CMSG-BUFF-THROT = {70 <i>number</i> }	<p>The CMSG-BUFF-THROT parameter instructs the CICS message listener receiving messages to set a throttle percent for the number of buffers in use.</p> <p>For more information, see the RED throttle handling documentation.</p> <p>The valid values range from 40 to 95. The default value is 70.</p>
CMSG-CHECK-STG = 100	<p>The CMSG-CHECK-STG parameter is used to determine how often SXCO#RED checks the amount of storage that has been used. The number of transactions executed between each storage check. During a storage check, if the storage grows by more than 100000 bytes, SXC#RED recycles itself so that CICS can clean up memory.</p> <p>The minimum value is 0, the maximum value is 10000, and the default value is 100.</p>

Parameter	Description
CMSG-CICS-WAIT ={10 <i>number</i> }	<p>The CMSG-CICS-WAIT parameter specifies the timeout value in seconds for the CICS RED server program SXCO#RED to react when it is waiting for a Commit or ROLLBACK command from Substation ES. If Substation ES does not respond back to SXCO#RED within this allotted wait time, an EXEC CICS SYNCPOINT ROLLBACK message is issued.</p> <p>The parameter value implementation applies only to "Guaranteed" Recipes. The valid range is from 5 to 60. The default value is 10.</p>
CMSG-MAXLEN = {16382 <i>number</i> }	<p>The CMSG-MAXLEN parameter sets the maximum length of recipe messages that can be handled in RED Interface. The valid values range from 1024 to 1000000. The default value is 16382.</p>
CMSG-ORDERED-YN = {Y Yes, No}	<p>The CMSG-ORDERED-YN parameter sets the receive services message delivery order type used in the buffer pool. Y indicates that the order is preserved in the buffer pool; N indicates the order is not preserved. The default value is Y.</p>
CMSG-PACING = {0 <i>number</i> }	<p>The CMSG-PACING parameter instructs the receive service to wait for the specified number of micro seconds after receiving a message before returning to the CICS application.</p> <p>The valid range is from 0 to 5000000. The default value is 0, which indicates no wait time.</p>
CMSG-WAIT = {20 <i>number</i> }	<p>The CMSG-WAIT parameter determines the length of time (in seconds) that the receive messages thread sets in the RIB for a reply message to return to the sender.</p> <p>This option takes effect only when a reply is required. The valid values range from 0 to 60 seconds. The default value is 20.</p>
CMSG-WORKERS = {10 <i>number</i> }	<p>The CMSG-WORKERS parameter specifies the number of Substation ES worker threads within the CICS region. The valid values range from 0 to 50. The default value is 10.</p>
CMSG-SEND-CONFIRM = {N Yes, No}	<p>The CMSG-SEND-CONFIRM parameter indicates whether the receiver is a guaranteed process. The default value is N.</p>
CMSG-START-DYN = {10 <i>number</i> }	<p>This CMSG-START-DYN parameter controls Dynamic Listeners in the CICS (#RED) tasks. The range is from 2 to 2000. The default value is 10.</p>
GMSG-BES-COMP-TO = {1 <i>number</i> }	<p>The GMSG-BES-COMP-TO parameter specifies the XCF time to complete the send operation inside the XCF environment. The valid values range from 1 to 30 seconds. The default value is 1 second.</p>

Parameter	Description
GMSG-BES-REPLY-TO = {3000 <i>number</i> }	<p>The value of the GMSG-BES-REPLY-TO parameter is sent to SXXOSRVA and tells RED Interface how long it should wait for a reply from Substation ES when a request with a reply confirmation is sent by the CICS side.</p> <p>The valid values range from 1 to 30000 milliseconds. The default value is 3000 milliseconds.</p>
GROUP-MONITOR = {TIBMON <i>name</i> }	The GROUP-MONITOR parameter specifies the Mainframe RED monitor group member name in which Substation ES RED Interface participates. The maximum length is 8 characters.
GROUP-NAME = {TIBSS <i>name</i> }	The GROUP-NAME parameter specifies the Mainframe RED group member name in which Substation ES RED Interface participates. The maximum length is 8 characters.
HUB-NAME = {RMF1 }	The HUB-NAME parameter specifies the Mainframe RED HUB that Substation ES RED Interface uses to send messages between Substation ES and the CICS region. The maximum length is 4 characters.
P#-AMSG-BUFFERS = {1000 <i>number</i> }	The P#-AMSG-BUFFERS parameter specifies the number of message buffers for processing the async messages in buffer pool #, where # can be 1, 2, or 3. The valid buffer count is from 5 to 50000. The default value is 1000.
P#-AMSG-BUFFER-SZ = {8192 <i>number</i> }	The P#-AMSG-BUFFER-SZ parameter specifies the length of the buffer message used to handle the async messages in buffer pool #, where # can be 1, 2, or 3. The valid buffer length is from 256 to 500000. The default value is 8192.
P#-AMSG-NAME = {P#AMSG <i>number</i> }	The P#-AMSG-NAME parameter specifies the RED target member name in which Substation ES RED Interface publishes async messages. The maximum length is 12 characters.
P#-AMSG-PACING = {0 <i>number</i> }	The P#-AMSG-PACING parameter instructs the sending request to wait for the specified number of micro seconds after an async message is sent from the async message pool # before returning to the CICS application. The valid values range from 0 to 5000000. The default value is 0, which indicates no wait time.
P#-AMSG-TRCLVL = {0 0-5}	The P#-AMSG-TRCLVL parameter specifies the trace level for messages produced by RED Interface when tracing the processing of an async message through the interface.
P#-AMSG-WORKERS = {0 <i>number</i> }	The P#-AMSG-WORKERS parameter specifies the number of concurrent async message worker threads that are started to service async messages in the pool. The valid values range from 0 to 40.
SMSG-BUFFERS = {100 <i>number</i> }	The SMSG-BUFFERS parameter specifies the number of message buffers for processing synchronous messages. The valid buffer count is from 5 to 50000. The default value is 0.

Parameter	Description
SMSG-BUFFER-SZ = {1024 <i>number</i> }	The SMSG-BUFFER-SZ parameter specifies the length of the buffer message used to handle synchronous messages. The valid buffer length is from 1024 to 500000 bytes. The default value is 0 bytes.
SMSG-MAXLEN = {16382 <i>number</i> }	The SMSG-MAXLEN parameter sets the maximum length of serialized messages that can be handled in RED Interface. The valid values are from 1024 to 4000000. The default value is 4096 bytes.
SMSG-NAME = {SYNMSG#1 <i>name</i> }	The SMSG-NAME parameter specifies the RED target member name to which Substation ES RED Interface publishes synchronous messages. The maximum length is 12 characters.
SMSG-WAIT = {10 <i>number</i> }	The SMSG-WAIT parameter determines the length of time (in seconds) that the synchronous messages thread sets in the RIB for a reply message to return to the sender. This option takes effect only when a reply is required. The valid values range from 0 to 60 seconds. The default value is 10 seconds.
SMSG-WORKERS = {3 <i>number</i> }	The SMSG-WORKERS parameter specifies the number of concurrent serialized message worker threads that are started to service synchronous messages. The valid values range from 0 to 10. The default value is 3.
TRCLVL = {0 0-5}	<p>The TRCLVL parameter specifies the trace level specific to RED Interface when tracing payloads that pass through the interface.</p> <p>This parameter does not duplicate what is set on the system TRCLVL setting but only shows entries in RED Interface.</p> <p>The valid values are as follows:</p> <ul style="list-style-type: none"> • Levels 1 to 3 show information mostly useful to users and TIBCO field staff. • Levels 4 and 5 show information only useful to engineering staff. The information is detailed and usually specific to internal stacks and control blocks.
TRCLVL-ONL = {0 0-5}	The TRCLVL-ONL parameter specifies the trace level of the messages produced by CICS resident programs that act on or on behalf of Substations ES. Messages are written to the CEEOUT and CEEMSG CICS output data sets.

IMS Interface Parameters

The IMS Interface member contains parameters required for connecting to an IMS region.

The parameters include the following:

- OTMA-required values
- IMS Interface processing options
- Initialization settings specific to your environment

The default IMS Interface template is stored in the SXIINTF member.

You can tailor the IMS Interface member in the Substation ES *USERHLQ.INTF* data set to suit the requirements of your site. A copy of the original member is always in the sample control data set (*USERHLQ.CNTLSAMP*). To activate an interface member, you can specify the name of your interface member in the *INTF-MEMBER* keyword in the SIP of Substation ES.


The following table lists the SIP members for IMS Interface:

Parameter	Description
APPLID = { <i>identifier</i> }	The APPLID parameter is the identifier with which to connect to a specific IMS control region. This identifier must match the APPLID or OTMANM value in either the IMS system definition on the COMM macro or on the startup parameter override.
DESCR = { <i>description</i> }	See DESCR = { <i>description</i> }
INTF-ID = { <i>name</i> }	The INTF-ID parameter specifies the interface identifier, which is the internal interface name for Substation ES.
INTF-PARTNER = { <i>identifier</i> }	The INTF-PARTNER parameter specifies the Substation ES ESB Interface identifier. This interface transforms and publishes trigger requests that initiate from IMS. The installation default value is IIXFR .
INTF-TYPE = { <i>number</i> }	See INTF-TYPE = { <i>number</i> }.
LOOPBACK = {N Yes, No}	The LOOPBACK parameter is mostly used in a QA and testing environment by TIBCO Support to determine whether the messages received by Substation ES are passed through to the IMS region. The value is Y or N.
MODULE-NAME = {TIBSSIMS <i>name</i> }	The MODULE-NAME parameter specifies the name of the IMS Interface load module.
START-YN = {N Yes, No}	See START-YN = {Yes, No}
TRIGGERS = {N Yes, No}	The TRIGGERS parameter specifies whether trigger-processing resources are activated for outbound messages. The valid values are: <ul style="list-style-type: none"> Y: means that trigger resources are required for outbound messages. N: means that trigger resources are not required for outbound messages.
WORKERS = {10 <i>number</i> }	The WORKERS parameter specifies the number of concurrent OTMA client subtasks that are started to service Substation ES IMS requests. The valid values range from 2 through 40.

IMS-Specific Parameters

The following table lists the specific and advanced parameters for the Substation ES IMS interface. You can change the values of these parameters only if you are knowledgeable about the system or if you are assisted by a Substation ES representative.

IMS Interface Parameters

Parameter	Description
BUFF-GROUP = {8 <i>number</i> }	The BUFF-GROUP parameter specifies the number of buffers for communicating with the XCF group. The valid range is 8 through 64; the default value is 8.
BUFF-SRB = {64 <i>number</i> }	The BUFF-SRB parameter specifies the number of buffers used by the OTMA interface service request blocks (SRBs) to communicate with IMS and the OTMA server. This value must be about three times that of the BUFF-TRANS parameter. The valid range is 32 through 1024; the default value is 64.
BUFF-TRANS = {20 <i>number</i> }	The BUFF-TRANS parameter specifies the number of buffers that send transaction or command information to IMS. This value must be greater than or equal to that of the IMS Interface WORKERS parameter. The default value is 20.
BUFFLEN-GROUP = {2048 <i>number</i> }	The BUFFLEN-GROUP parameter specifies the length of buffers used in the communication with the XCF and XCF group and members. The default value must be sufficient unless the XCF group is very large. The valid size (in bytes) is 512 through 65536 (64 KB); the default value is 2048 bytes.
BUFFLEN-SRB = {4096 <i>number</i> }	<p>The BUFFLEN-SRB parameter specifies the buffer length used in the SRB routines. For better results set the value to be greater than or equal to the most frequently used IOPCB size of your IMS transactions, or the size of your data area for ICAL operations.</p> <p>The valid size (in bytes) is 4096 through 65536 (64 KB); the default value is 4096 (4 KB).</p> <div>  <p>IMS does not support segments larger than 32K. As a result, a value between 32K and 64K is not currently suggested.</p> </div>
BUFFLEN-TRANS = {4096 <i>number</i> }	<p>The BUFF-TRANS parameter specifies the length of data buffers for gathering and receiving IMS data. The value must be equal to the largest data area being transferred to and from IMS.</p> <p>Normally, the value of the BUFFLEN-SRB parameter must be equal to the value specified here.</p> <p>For trigger processing (IMS outbound), this value also determines the maximum size for which Substation ES provisions when transmitting data to the ESB. The valid size (in bytes) is 4096 through 4096000 (4 MB); the default value is 4096 (4 KB).</p>

Parameter	Description
COMMIT-MODE = {1 <i>number</i> }	<p>The COMMIT-MODE parameter defines whether the IMS transactions processed by Substation ES are coded as <code>commit 0</code> or <code>commit 1</code>. This value is passed on in each of the transactions.</p> <p>The commit-then-send (<code>commit mode 0</code>) processing option commits the transaction output as part of sync-point processing and then delivers the output to the OTMA client.</p> <p>The send-then-commit (<code>commit mode 1</code>) processing option first delivers the transaction output, receives an acknowledgment from the OTMA client, and then completes the sync-point processing.</p> <p>The default value is 1.</p>
OTMA-SMEM = <i>smem</i>	<p>The OTMA-SMEM parameter specifies that this IMS Interface instance accesses OTMA super member <i>smem</i>. This value must match the SMEM= on the destination definition in the DFSYDTn IMS PROCLIB member.</p> <p>This parameter has no default value; you must specify the value if super members are to be used.</p>
TIMEOUT-SYNC = {10 <i>number</i> }	<p>The TIMEOUT-SYNC parameter specifies the timeout value (in seconds) that the Substation ES synchronous callout process waits before sending a clear SRB request to the OTMA interface. The valid range is 1 to 120 seconds.</p> <p>The default value is 10 seconds.</p>
TPIPE-DEFAULT = {SXITPIPE <i>name</i> }	<p>The TPIPE-DEFAULT parameter specifies a one- to eight-character OTMA transaction pipe (TPIPE) name, which is analogous to LTERM. It is a logical structure that represents an anchor point for Substation ES transactions and output. The TPIPE name is unique within IMS Interface.</p> <p>This parameter has no default value; you must specify the value.</p>
TPIPE-PREFIX = {SXITP <i>name</i> }	<p>The TPIPE-PREFIX parameter specifies a one- to five-character OTMA named transaction pipe (TPIPE) name, which is analogous to LTERM. It is a logical structure that represents an anchor point for Substation ES transactions and output.</p> <p>The TPIPE prefix constructs a named TPIPE for conversational and transactional methods of invocation to the IMS back-end system. Substation ES suffixes the specified name with a unique three-digit number. The named TPIPE is reused as soon as the conversation or transaction is complete.</p> <p>This parameter has no default value; you must specify the value.</p>

Parameter	Description
TRCLVL-OTMA = {2 <i>number</i> }	<p>The TRCLVL-OTMA parameter specifies the tracing level for components of the OTMA interface that are located in IMS Interface. This value can also be dynamically changed by submitting the Substation ES operational commands.</p> <p>This parameter does not alter the other trace settings that were set in Substation ES and only targets modules that are active when communicating with XCF and OTMA. Trace information is immediately written to the Substation ES tracing facility.</p> <p>A value of 0 produces minimal messages; a value of 5 includes snaps of control blocks and data. The recommended value is 2.</p>
TRCLVL-TRIG = {0 0-3}	<p>The TRCLVL-TRIG parameter specifies the trace level of IMS Interface when tracing trigger entries that pass through the interface.</p> <p>The valid values are as follows:</p> <ul style="list-style-type: none"> • Level 1 only traces an entry in the log file. • Level 2 dumps the buffer content in the trace file into the log file. • Level 3 includes all details from trigger processes in the trace file. • A value of 0 disables tracing of trigger entries on IMS Interface. <p>This parameter does not duplicate what is set on the trigger definition in the configuration file. The value on the trigger definition traces the trigger entry only when the ESB receives and processes it. The TRCLVL-TRIG parameter traces the entry as soon as the entry arrives at Substation IMS Interface. The default value is 0.</p>
TRIG-NUM = {2 <i>number</i> }	<p>The TRIG-NUM parameter specifies the number of concurrent OTMA trigger sessions that will be started to service Substation ES requests. Valid values range from 1 through 32.</p> <p>Refrain from increasing this value greater than 5 without consulting your Substation ES representative. Otherwise, performance degradation and other effects might result.</p> <p>If you do not specify a keyword or value, the default value of 2 applies.</p>
TRIG-RDQ-NAME = {SXITRG\$R <i>name</i> }	<p>The TRIG-RDQ-NAME value specifies a one- to eight-character Substation ES IMS Interface reliable trigger destination name. This value is used by IMS applications to reroute messages to Substation ES IMS Interface by using OTMA.</p> <p>If applications reroute or insert messages that are intended for Substation ES to an alternate program communications block (PCB), specify this name to be LTERM.</p> <p>This parameter has no default value; you must specify the value.</p>

Parameter	Description
TRIG-GDQ-NAME = {SXITRG\$G <i>name</i> }	<p>The TRIG-GDQ-NAME parameter specifies a one- to eight-character Substation ES IMS Interface guaranteed trigger destination name. This value is used by IMS to reroute messages through OTMA to Substation ES IMS Interface.</p> <p>When applications reroute or insert messages that are intended for Substation ES to an alternate PCB, specify this name to be LTERM.</p> <p>This parameter has no default value; you must specify the value.</p>
TRIG-SYNC = {SXITSYNC <i>name</i> }	<p>The TRIG-SYNC parameter specifies a one- to eight-character Substation ES IMS Interface synchronous call-out destination name. This value is used by IMS to route synchronous call-out transactions through OTMA to EMS or Rendezvous. This value must match a destination-type entry in IMS parameter member DFSYDTx.</p> <p>TIBCO supplies a sample DFSYDT0 member in the USERHLQ.PROC data set.</p>
WAIT-INIT = {200 <i>time</i> }	<p>The WAIT-INIT parameter specifies a value (in hundredths of a second) that can be in the range of 100 through 3000. This value denotes the maximum time that Substation ES IMS Interface waits during XCF initialization and for the OTMA server to be contacted before issuing an error.</p> <p>The default value is 200.</p>
WAIT-MESSAGE = {10 <i>time</i> }	<p>The WAIT-MESSAGE parameter specifies a value (in seconds) in the range of 1 through 600. This value denotes the maximum time that Substation ES IMS Interface waits for a response from the IMS server for transactions or commands before issuing a timeout.</p> <p>The default value is 10 seconds.</p>
WAIT-OTMA = {100 <i>time</i> }	<p>The WAIT-OTMA parameter specifies a value (in hundredths of a second) in the range of 10 to 500. This value denotes the maximum time that Substation ES IMS Interface waits for a NACK response from the IMS server on a RESUME TPIPE command issued during interface initialization.</p> <p>If a NACK response is not received during this time frame, IMS Interface assumes that the RESUME TPIPE command is run successfully, as IMS (by design) does not issue an ACK to this request.</p> <p>The default value is 100 (1 second).</p>
WAIT-TRANS-TO = {300 <i>time</i> }	<p>The WAIT-TRANS-TO parameter specifies a value (in hundredths of a second) in the range of 1 through 3000. This is the time Substation ES waits after the message wait time has expired before flushing the transaction buffer.</p> <p>The default value is 300.</p>

Parameter	Description
XCF-IMSGRP = {SXIXCFGR <i>name</i> }	The XCF-IMSGRP parameter specifies a one- to eight-character name of the XCF group for IMS OTMA. This value must correspond to that of the GRNAME startup parameter for the IMS control region. This parameter has no default value; you must specify the value.
XCF-IMSMBR = {SXI#XCFMBR <i>name</i> }	The XCF-IMSMBR parameter specifies a one- to 16-character name of the XCF member to be used during a connection to the XCF group. This value must be unique for all the interfaces or members that connect to the XCF group. This parameter has no default value; you must specify the value.

ESB Interface Parameters

You must configure the member that specifies the parameters for the ESB interface or Substation ES ESB. These templates are stored in the SXSIEMS1 or SXSIRV1 files.

If you make a copy of this member, you can point to it by specifying the member name on the **INTF-MEMBER** keyword in the main SIP definition member.

The following table lists the ESB member parameters:

ESB Member Parameters

Parameter	Description
DESCR = {description}	See DESCR = { <i>description</i> }.
INTF-ID = {name}	See INTF-ID = { <i>name</i> }.
INTF-TYPE = {number}	See INTF-TYPE = { <i>number</i> }.
MODULE-NAME = {TIBSSXFR/E <i>name</i> }	The MODULE-NAME parameter specifies the name of the ESB interface load module. R stands for Rendezvous; E, for EMS.
RECIPE-GROUP = {group <i>name</i> }	Optional. The RECIPE-GROUP parameter specifies a name that must be defined in the Substation ES data configuration file as a group. This parameter is useful for the following scenarios: <ul style="list-style-type: none"> You share the configuration file among many implementations of Substation ES and must group the recipe and trigger services that belong to a certain Substation ES implementation. Only recipe and trigger services that belong to the specified group are activated during Substation ES startup. You have a mixture of recipe and trigger services in the file for QA and development or you must group recipe and trigger services for different projects within an environment. Group parameters enable different projects to share the same file and its definitions, but the projects do not affect each other if they use separate instances of Substation ES.

Parameter	Description
SERVICE-SUSPEND = {Y Yes, No}	<p>The SERVICE-SUSPEND parameter, which is a keyword for the EMS ESB endpoint, determines whether this ESB interface turns on the suspended function or not.</p> <p>When SERVICE-SUSPEND is enabled and the BES is not available, the ESB interface automatically suspends all recipe services connected to the BES interface. When the BES becomes available, all suspended recipe services are resumed automatically.</p> <p>The default value is Y.</p>
START-YN = {N Yes, No}	See START-YN = {Yes, No}.
WORKERS = {5 number}	The WORKERS parameter specifies the number of concurrent worker subtasks that are started to service Substation ES requests. The valid values range from 5 through 40.
WORKERS-EOT = {30 number}	<p>The WORKERS-EOT parameter specifies the number of End of Task (EOT) concurrent worker threads that are created for ESB to allow faster output for DPL worker connections. The valid values range from 5 through 40.</p> <p>Contact your TIBCO knowledgeable product specialist before changing the default WORKERS-EOT setting. A large value might have an adverse effect on performance, in particular if insufficient processors are available to satisfy all requests.</p> <p>To review current thread usage, run the SHOW ,SYS ,DEBUG command.</p>
XFRCFG-DDN = {TIBCFG name}	<p>The XFRCFG-DDN parameter specifies the DD name of the file for storing the ESB configuration definitions of Substation ES. A set of sample definitions is loaded at installation and used by the Substation ES IVPs.</p> <p>The definitions are normally specified through the ESB Definition panels, which tell the Substation ES ESB how to transform data between the TIBCO applications and other Substation ES interfaces, such as online transaction processing systems on z/OS. Outbound data from z/OS can also be transformed into TIBCO application information.</p> <p>The default name is TIBCFG.</p>

TIBCO Messaging-Specific Parameters

The following table lists the TIBCO messaging-specific parameters. For details and the default settings, see the TIBCO messaging administration manuals.

Parameter	Description
CODEPAGE-HOST = {IBM-1047} (Optional)	The CODEPAGE-HOST parameter specifies a different host code-page set value that causes string conversions to be treated differently.


Parameter	Description
CODEPAGE-NETW = {ISO8859-1} (Optional)	The CODEPAGE-NETW parameter specifies that the host from which the data originated has the same code-page set value as the one you specify here. If you change this value, be sure that all sending and receiving programs or processes use the same code-page settings.

EMS-Specific Parameters

The following table lists the EMS-specific parameters. For details and the default settings, see the EMS administration manuals.

EMS-Specific Parameters

Parameter	Description
EMS-SESSION = {N Yes, No}	The EMS-SESSION parameter, which is a keyword for the EMS ESB endpoint, determines whether ESB Interface will use one EMS session for each task to produce messages.
EMS-USE-PROP = {N Yes, No}	<p>The EMS-USE-PROP parameter, which is a keyword for the ESB endpoint, determines whether ESB Interface will use properties for its own described fields, such as the tibss-fields.</p> <p>Because properties can be passed into Substation ES with Text and Bytes messages, this parameter is useful if XML and COBOL copybook layouts are passed.</p> <p>The output fields, such as tibss-status and tibss-envelope, can also be used for non-EMS mapped messages for CICS Request Reply.</p> <p>The default value is N.</p>
EMS-DMQ-NAME = {tibss.Dead.Msg.Queue}	<p>The EMS-DMQ-NAME parameter, which is a keyword for the EMS ESB endpoint, specifies the TIBCO EMS queue name for messages that cannot be delivered to their destination, known as EMS dead messages.</p> <p>An external service, such as TIBCO BusinessWorks, can specify the reply to the destination name. However, if that session terminates and Substation ES can no longer reply to the queue, then this keyword identifies the queue to which Substation ES will write such messages.</p>
ERROR-MSG-TYPE = {M Map, Bytes, Text} (Optional)	<p>The EMS-DMQ-NAME value is a letter that identifies the EMS message type of the Substation ES error message to be delivered. The message type is specified for each ESB Interface and is Map, Bytes, or Text.</p> <p>The valid values are M, B, and T; the default value is M.</p>

Parameter	Description
UFLDS-FORMAT = {1 <i>number</i> }	<p>Optional.</p> <p>The UFLDS-FORMAT value is the format in which Substation ES writes error descriptions in the Substation ES runtime error message. The format pertains only to the message descriptions.</p> <p>With format 3, the field names or error descriptions are fixed and in the range ERROR1 through ERROR9. TIBCO BusinessWorks and other applications that process the error message now have a fixed format schema to read the errors.</p> <p>The valid values are 1 and 3; the default value is 1. This parameter applies to EMS ESB Interface only.</p> <div>  <p>It is good practice to use format 3 for all new implementations; format 1 will be deprecated in version 3.0.</p> </div>

Rendezvous-Specific Parameters


The following table lists the Rendezvous-specific parameters. For details and the default settings, see the Rendezvous administration manuals.

Rendezvous-Specific Parameters

Parameter	Description
DISPATCHER = {Y Yes, No}	The DISPATCHER parameter is used to set dispatcher on or off for the ESB Interface.
MSGFREE-LIST-SIZE = {3000 <i>number</i> }	The MSGFREE-LIST-SIZE parameter is used to dynamically set the messages free list size. The valid range is from 0 to 300000. The default value is 0.
MSGSEND = {Y Yes, No}	The MSGSEND parameter indicates whether messages are to be sent for this ESB Interface when it serves a RED Interface.

Parameter	Description
RV-EQ-MAX-EVENTS = {20000 <i>number</i> }	<p>The RV-EQ-MAX-EVENTS parameter determines the maximum number of events that are held in the dispatcher queue for Substation ES to process.</p> <p>The valid range is from 0 to 300000. The default value is 20000.</p> <p>Note the following conditions about the values:</p> <ul style="list-style-type: none"> • RV-EQ-MAX-EVENTSZero (0) is a special value that allows an unlimited number of events. When the RV-EQ-MAX-EVENTS value is set to 0, the RV-EQ-POLICY policy must be set to TIBRVQUEUE_DISCARD_NONE. • If the RV-EQ-POLICY policy is not set to TIBRVQUEUE_DISCARD_NONE or TIBRVQUEUE_DISCARD_NEW, Substation ES discards up to 50% of the events in the queue when the RV-EQ-MAX-EVENTS limit is reached. A minimum of one event is always discarded. • If the RV-EQ-POLICY policy is set to TIBRVQUEUE_DISCARD_NEW, Substation ES always discards one of the events in the queue when the RV-EQ-MAX-EVENTS limit is reached. • For more information about the tibrvQueue_SetLimitPolicy() parameter, see the <i>TIBCO Rendezvous C Reference</i> documentation.
RV-EQ-POLICY = {2 <i>number</i> }	<p>The RV-EQ-POLICY parameter sets the policy for dispatcher queue.</p> <p>A specified value determines how Rendezvous discards events from the queue when the number of events exceeds the value of the RV-EQ-MAX-EVENTS parameter. The valid values are:</p> <ul style="list-style-type: none"> • 0: TIBRVQUEUE_DISCARD_NONE • 1: TIBRVQUEUE_DISCARD_NEW • 2: TIBRVQUEUE_DISCARD_FIRST • 3: TIBRVQUEUE_DISCARD_LAST <p>The default value is 2.</p> <p>For more information about the tibrvQueue_SetLimitPolicy() parameter, see the <i>TIBCO Rendezvous C Reference</i> documentation.</p>
RVDQ-IDENTITY = { <i>name</i> } (Optional)	<p>The value in this parameter is concatenated to the end of the Rendezvous distributed queue name, ensuring that the Rendezvous distributed queue name is unique on the network.</p> <p>The name given here must follow the Rendezvous distributed queue naming conventions.</p>

Parameter	Description
RVDQ-MEM-LIMIT ={100 <i>number</i> } (Optional)	<p>The RVDQ-MEM-LIMIT parameter sets the maximum amount of memory that the ESB can use, in KB.</p> <p>When the specified limit is reached, the ESB rejects incoming messages until the memory in use falls below the limit.</p> <p>The valid values range from 0 to 3000. The default value is 100.</p>
RVDQ-MSG-LIMIT ={100 <i>number</i> } (Optional)	<p>The RVDQ-MSG-LIMIT parameter sets the maximum number of messages that can be in the queue.</p> <p>When the specified limit is reached, the ESB rejects incoming messages until the number of messages in the queue falls below the limit.</p> <p>The valid values range from 0 to 100000. The default value is 100.</p>
RVDQ-SCHEDULER ={0 5 <i>number</i> } (Optional)	<p>The RVDQ-SCHEDULER parameter determines whether the ESB is a worker or scheduler in the distributed queue. The valid values are:</p> <ul style="list-style-type: none"> • 0: designates the ESB as a worker. The ESB will never be the scheduler. • 5: indicates that the ESB is always the scheduler. • All other numbers allow the ESB to act as the scheduler if required. The higher the number, the more likely this ESB will become the scheduler. <p>The default value is 0.</p>
RVDQ-WORKERS ={0 <i>number</i> }	<p>The RVDQ-WORKERS parameter determines the number of worker tasks for each listener. Valid values are from 0 to 50. 0 is a special value that indicates no worker is assigned.</p> <p>The default value is 0.</p>

Parameter	Description
RVDQ-YN = {N Yes, No}	<p>If you set the value to Y, the Rendezvous distributed queue processing is enabled on an ESB interface. Normally, you have two or more ESB interfaces with this value set. Those interfaces are usually in their own Substation ES regions, in which messages coming into Substation ES are processed only once and are distributed among each interface that is enabled with distributed queue processing.</p> <p> Do not set this value to Y if only one interface participates in a distributed queue.</p> <p>Each interface must share the same set of subjects when participating in a distributed queue environment. You can define multiple Rendezvous interfaces in a single Substation ES instance, with one performing normal Rendezvous tasks and another performing distributed-queue tasks.</p> <p>This parameter offers several advantages. Distributing the workload across Substation ES instances and fault tolerance are the most common uses. For details about distributed queue operations, see the Rendezvous documentation.</p>

Installed Data Sets

The following table lists the downloaded data sets that are associated with Substation ES.

Data Set	Space (First and Second)	DSORG	RECF M	LRE CL	Block Size
USERHLQ.INTFSAMP	CYL (10/2)	PO	FB	320	27840
USERHLQ.ASM	CYL (2/1)	PO	FB	80	27920
USERHLQ.AUTH	CYL (40/5)	PO	U	0	27920
USERHLQ.C	CYL (5/1)	PO	VB	100	27998
USERHLQ.CFGDATA.CICS.EMS	CYL (5/1)	PS	VB	3475	27998
USERHLQ.CFGDATA.CICS.RV	CYL (5/1)	PS	VB	3475	27998
USERHLQ.CFGDATA.IMS.EMS	CYL (5/1)	PS	VB	3475	27998
USERHLQ.CFGDATA.IMS.RV	CYL (5/1)	PS	VB	3475	27998
USERHLQ.CFGDATA.RED.EMS	CYL (5/1)	PS	VB	3475	27998
USERHLQ.CFGDATA.RED.RV	CYL (5/1)	PS	VB	3475	27998
USERHLQ.CLIST	CYL (1/1)	PO	FB	80	27920
USERHLQ.CNTL	CYL (5/1)	PO	FB	80	27920
USERHLQ.CNTLSAMP	CYL (5/1)	PO	FB	80	27920
USERHLQ.COB	CYL (3/1)	PO	FB	80	27920
USERHLQ.COPY	CYL (2/1)	PO	FB	80	27920
USERHLQ.DATA	CYL (5/2)	PO	FB	1024	27648
USERHLQ.H	CYL (2/1)	PO	VB	100	27998
USERHLQ.INSTALL	CYL (16/4)	PO	FB	80	27920
USERHLQ.INTF	CYL (10/2)	PO	FB	320	27840
USERHLQ.INTFSAMP	CYL (10/2)	PO	FB	80	27840
USERHLQ.JCL	CYL (5/1)	PO	FB	80	27920
USERHLQ.JCLSAMP	CYL (3/1)	PO	FB	80	27920
USERHLQ.LIBRARY	CYL (10/5)	PO	FB	80	3120

Data Set	Space (First and Second)	DSORG	RECF M	LRE CL	Block Size
USERHLQ.LOAD	CYL (35/5)	PO	U	0	27920
USERHLQ.LOAD.CICS3X	CYL(20/5)	PO	U	0	27920
USERHLQ.LOAD.CICS4X	CYL(25/5)	PO	U	0	27920
USERHLQ.LOAD.CICS5X	CYL(25/5)	PO	U	0	27920
USERHLQ.MAC	CYL (3/1)	PO	FB	80	27920
USERHLQ.MSGS	CYL (2/1)	PO	FB	80	27920
USERHLQ.OBJ	CYL (10/0)	PO	FB	80	27920
USERHLQ.PANL	CYL (3/1)	PO	FB	80	27920
USERHLQ.PLI	CYL (2/1)	PO	FB	80	27920
USERHLQ.PROC	CYL (3/1)	PO	FB	80	27920
USERHLQ.PROCSAMP	CYL (1/1)	PO	FB	80	27920
USERHLQ.RVB.H	CYL (2/1)	PO	VB	140	27998
USERHLQ.RVB.LIBRARY	CYL (10/5)	PO	FB	80	3120
USERHLQ.SKEL	CYL (1/0)	PO	FB	80	27920
USERHLQ.SXJ.H	CYL (2/1)	PO	VB	140	27998
USERHLQ.SXJ.LIBRARY	CYL (20/5)	PO	FB	80	3120