



TIBCO Substation ES™ Mainframe Logger User's Guide

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TIBCO Documentation and Support Services

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the TIBCO Product Documentation website, mainly in HTML and PDF formats.

The TIBCO Product Documentation website is updated frequently and is more current than any other documentation included with the product. To access the latest documentation, visit <https://docs.tibco.com>.

Product-Specific Documentation

Documentation for TIBCO Substation ES™ is available on the [TIBCO Substation ES](#) Product Documentation page.

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 Mainframe Logger User's Guide*
- *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 IBM z/OS Installation and Configuration*
- *TIBCO Rendezvous for IBM 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

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- For an overview of TIBCO Support, visit <http://www.tibco.com/services/support>.
- For accessing the Support Knowledge Base and getting personalized content about products you are interested in, visit the TIBCO Support portal at <https://support.tibco.com>.

- For creating a Support case, you must have a valid maintenance or support contract with TIBCO. You also need a user name and password to log in to <https://support.tibco.com>. If you do not have a user name, you can request one by clicking Register on the website.

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<https://community.tibco.com>

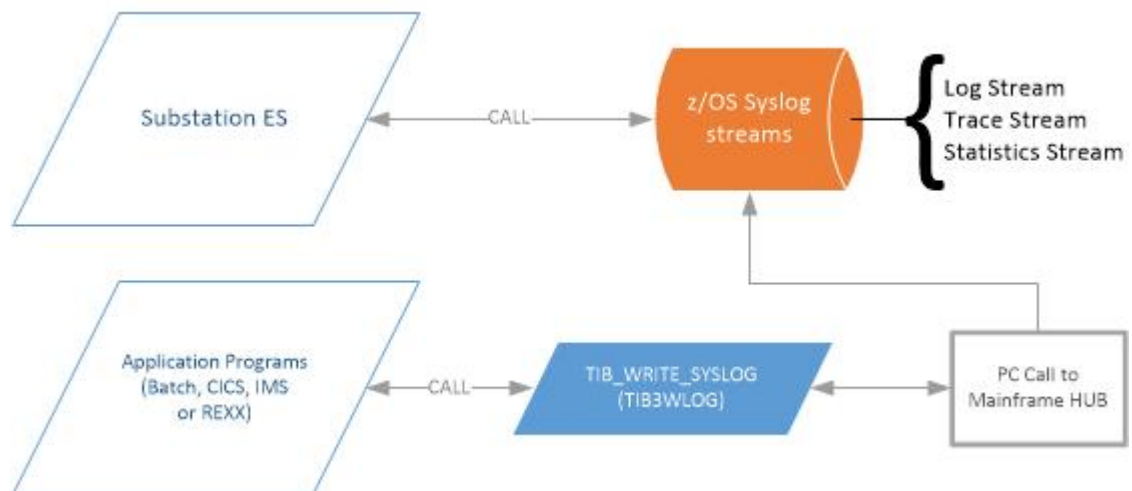
TIBCO Mainframe Logger - Overview

For mainframe logging in TIBCO products such as TIBCO Substation ES, TIBCO Interface for CICS/IMS/RED, TIBCO Mainframe RED, and other products such as messaging, TIBCO provides the TIBCO Mainframe Logger component. The TIBCO Mainframe Logger is generically referred to as the "Mainframe Logger" in this guide and it covers all aspects of logging for TIBCO's products and user applications. This component provides a logging facility for applications running either in a single-system or in a multisystem IBM Sysplex.

TIBCO Mainframe Logger forwards events and messages to IBM z/OS System Logger. The IBM z/OS System Logger files are streams of data, and TIBCO Mainframe Logger efficiently writes data to these files. TIBCO Mainframe Logger can write thousands of messages every second to the IBM z/OS System Logger. The IBM z/OS System Logger is a Multiple Virtual Storage (MVS) component and is referred to as the "System Logger" throughout this guide.

TIBCO Mainframe Logger provides two components:

1. A browser to view current log records in the log structures.
2. An extract component where,
 - Data extracted from the mainframe logger, such as logged events, statistical information and more, can be routed to off-host storage media.
 - Statistical information can be sent to analytics systems for monitoring and analysis of near real-time transactions, and events of the IBM z/OS system.



Advantages

A few of the advantages of using the TIBCO Mainframe Logger are listed below:

1. It can write many thousands of messages every second to the IBM z/OS System Logger. Data can be written from TIBCO Substation ES, CICS, TSO, REXX, IMS, or from a job, or task transaction from an LPAR to a single mainframe logger stream. This when configured correctly, has no point of failure.
2. It removes the responsibility for saving the log data (with the requested persistence), retrieving the data (potentially from any system in the sysplex), archiving the data, and expiring the data from the creator of the log records.

3. It provides the ability to have a single, or merged log that contains log data from multiple instances of an application within the sysplex.

Mainframe Logger Data Streams

When using mainframe logger, three different streams ("LOG", "TRACE" and "STATISTICS") should be defined.

1. **LOG:** It is used to write formatted, documented and structured application messages. Log stream corresponds to the Substation ES JES default file - TIBLOGPR. User applications can write to this data stream.
2. **TRACE:** It is used to write trace messages when tracing levels are higher than zero (0). Substation ES and other TIBCO applications can write unformatted, undocumented, and unstructured tracing information to this stream. TRACE stream is used to contain memory areas and useful debugging information that is mainly understood by TIBCO personnel.

Trace stream corresponds to the Substation ES JES default file - TIBTRCPR.

3. **STATISTICS:** It is used to write statistical events and messages. User applications can write to this data stream.

Mainframe Logger Definition

Define a set of IBM z/OS System Logger Streams for use by the mainframe logger to write messages, events and statistical information to the IBM z/OS System Logger Streams.

It is recommended that 2 sets of logging streams be defined, one for production environments and the other set for all other environments. Events within each stream are granular based on Jobname, JobId, Unit of Work (UoW) or CorrelationId, all within a specific date and time range. A real-time viewing facility, the log stream viewer is supplied as part of the HUB and logging components.

TIBCO ships the sample JCL with the product. Edit the data set and selected member as follows:

Data Set: USERHLQ.JCL

Member: SXGLSYSA



Before you submit the member for execution, work with your IBM z/OS system programmer to provision your environment settings.

IBM z/OS Syslog - System Setup

Initiate the following system-wide actions to use loggers for the Mainframe Logger on IBM z/OS systems:

1. Set up XCF logger policy, structures and log streams;

For those who have set up IBM's operations log (OPERLOG), LOGREC and Resource Recovery Services (RRS) functions logging under XCF earlier, the process to set up Mainframe Logger is quite similar.

Mainframe Logger is set up based on the assumption that customers have set up logger logstream datasets. Datasets are allocated, used to capture data from the XCF structures, rolled-off, and deleted in accordance with installation and retention policies and requirements.

2. Set up DFSMS processing of logstream datasets for dataset allocation, roll-off and deletion;

TIBCO documentation is done with the assumption that the dataset management product used to manage logstream datasets will be DFSMS. TIBCO recognizes that the user may use other vendor products to accomplish this. Set up DFSMS (or similar product) policies to allocate, retain, roll-off and delete logstream datasets.

Specify the following classes in the logstream definition for IBM system logger:

- A dataset class, specified in LS_DATACLAS;
- A storage class, specified in LS_STORCLAS;
- A management class, specified in LS_MGMTCLAS.



You may use previously defined classes for Mainframe Logger.



If you are running z/OS v2.2 or later, it's highly recommended that you specify the following parameter when defining the log stream, LS_ALLOCAHEAD(1).

3. Set up RACF (or similar security product) definitions to support dataset allocation, user access, and system deletion.

Set up RACF (or similar product) profiles. This allows system tasks to allocate and manage datasets. Create or modify profiles, as required, to provide users the option to print or browse logstream datasets.

Alternatively, create RACF profiles to allow users to run their own Job Control Language (JCL). This helps to create custom logstream datasets. Accordingly, set up profiles in the RACF LOGSTRM

class. For example, to set up a logstream called SXLLOGS.PERM, under dataset high level qualifier (TIBCO), create a generic RACF profile SXLLOGS.* in the LOGSTRM class with ALTER authority. This allows users to create the logstream without granting authority for other-purpose logstreams.

Assign **ALTER** authority to DATASET class profile - **TIBCO.SXLLOGS.***, to the userid that is assigned to the initiated task. Please note that this function is not performed by the user.

Activating Mainframe Logger

The member "TIBSLOG", located in the *USERHLQ.PARM* PDS, specifies the names of the streams and other parameters for the mainframe logger.

Use the TIBSLOG member and change its content according to the changes in your environment. If you change the member name, change the Substation ES and HUB parameters pointing to TIBSLOG member. It's a common member that can be used by multiple systems. TIBCO recommends the following approach:

For Substation ES:

- **System Startup Parameters** (SXSSSP\$1) member has a keyword SYSLOG-MEM that points to the logging parameters

For Mainframe HUB:

- **Startup Parameters** (SXXHUB or SXXHUBSA) member has a keyword SYSLOG-MEM that points to the logging parameters

The mainframe logger functions are turned off, if the keyword SYSLOG-MEM is not specified.



If you chose to write records to the logger streams, then it's mandatory that you start a Mainframe HUB in the same LPAR where the application is executing, specifying the logger streams for any applications running in CICS, IMS, batch or to use the log stream viewer.

Mainframe Logger Parameters

The following table lists all the mainframe logger parameters supported within the TIBSLOG member:

Parameter	Description
LOGSTREAM-ID { <i>name</i> }	Optional The LOGSTREAM-ID parameter specifies the stream name that contains the log messages, errors, and general information of Substation ES, Mainframe RED, or user application. The records can be displayed by the mainframe logger stream viewer. It can contain up to 26 alphanumeric characters.
STATISTICS {N Y, N}	Optional The STATISTICS parameter specifies if the Substation ES or user application statistics recording indicator is Y (for yes) or N (for no). The default value is N, denoting no statistics will be captured. There are operational commands to alter this for Substation ES at runtime.
STSSTREAM-ID { <i>name</i> }	Optional The STSSTREAM-ID parameter specifies the stream name that contains the Substation ES or user application statistics information. The records can be displayed by the stream data viewer. It can contain up to 26 alphanumeric characters.

Parameter	Description
TRCSTREAM-ID { <i>name</i> }	<p>Optional</p> <p>The TRCSTREAM-ID parameter specifies the stream name, which will contain the Substation ES, Mainframe RED or User application trace messages, errors, and general information. The records can be displayed by the viewer.</p> <p>It can contain up to 26 alphanumeric characters.</p>

Mainframe HUB

The Mainframe HUB is an essential part of the Mainframe Logger. When the Mainframe Logger is activated, users get a consolidated view of all operations and executions across all the respective TIBCO systems, executing the core mainframe product stack. When this Mainframe Logger is not activated, data is written to the current output media.

There are many advantages of using the Mainframe Logger with TIBCO Substation ES, TIBCO Mainframe RED or user batch programs. You can collect, view, and extract the TIBCO product executions, service executions and the run-time events.

The Mainframe HUB is identified by all applications by its name. A set of three logger streams, such as logs, traces and statistics, are associated with a HUB. This is the key when deciding which HUBs will be used for your environment and your applications.



The Mainframe HUB should run continuously so that all the applications can use its facilities. If the Mainframe HUB is stopped due to some reason, either stop all the applications, including Substation ES regions, CICS and IMS regions using it, or recycle the applications after the HUB restarts.

Mainframe Logger Configuration for Mainframe HUB

Basic information for locating and accessing the Mainframe HUB for all environments is listed as follows:

All Environments

- The Mainframe HUB must be configured to use the Mainframe Logger and run in the same LPAR as the Substation ES, Batch, CICS or IMS region.
- The 4 character HUB name "YODA" is determined from a DDName as follows:
`//HUBYODA DD DUMMY`
- If the HUB name is not specified, the LPAR name is used as the HUB name.
- TIBCO recommends to use a specific name for the HUB that is different from the name of any running LPAR, especially when different versions of the TIBCO software stack execute in the same LPAR.

CICS and IMS Environments

For CICS

- The TIB3WLOG DLL module must be in a library and defined in the DFHRPL path of the CICS Region.
- The PCT (program resource definition) must be installed. It is supplied by default with the installation.

For IMS

- The TIB3WLOG DLL module must be in a library and defined in the STEPLIB path of IMS application regions, where user programs issue a Mainframe Logger call.

Mainframe RED and Batch Application Environments

- The TIB3WLOG DLL module must be in a library and defined in the JOBLIB/STEPLIB path of the TASK or JOB.

Substation ES

Substation ES Log and Trace Agents can write recorded information directly to the IBM z/OS System Logger Stream.

To start logging information to the IBM z/OS System Logger Stream, execute the following additional tasks before starting Substation ES.

To see the detailed steps of the JCL, see [Mainframe Logger Definition](#) section.

Recipe Statistics Stream Messages

Record Message	Record Example
Entered Substation ES	SXT5469I IId:IESBR91 U-Trc(E) UoW:1411911514 Recipe:ABCD BES:REDI01, Dest:TIB.CICS.C.Request CorrId:yodas-correl-id
Entered ESB input Received message	SXT5468I IId:IESBR91 U-Trc(R) UoW:1411911514 Recipe:ABCD
Exited ESB input mapping work	SXT5465I IId:IESBR91 U-Trc(I) UoW:1411911514 BES:REDI01
Entered CICS interface worker	SXG1885I IId:REDI01 U-Trc(I) UoW:1411911514
Exited CICS	SXG1887I IId:REDI01 U-Trc(O) UoW:1411911514
Sent response	SXT5303I IId:IESBR91 U-Trc(O) UoW:1411911514 Dest:TIB.CICS.C.Reply

Trigger Statistics Stream Messages

Record Message	Record Example
Sent response	SXT5303I IId:IESBR91 U-Trc(T) UoW:1411911514 Dest:TIB.CICS.C.Reply

CICS

Execute the latest CICS or CICS RED CSD resource definitions update, which has the definitions for program "TIB3WLOG". Calling "TIB3WLOG" is a synchronous process that can be executed by a CICS program running either on the QR TCB or on the OPENAPI (OTE) environment.

When the Mainframe Logger is active, then in conjunction with Substation ES, it allows a complete view of a business transaction in one log. This is not possible in an environment where the Mainframe Logger is not operational. Further, it allows capturing and recording statistics for the entire transaction thread in the statistics logger stream. To enable the writing of Logger messages within CICS, the Statistics indicator in the TIBSLOG member must be "Y".

Substation ES CICS Request/Reply Process

CICS Request/Reply process provides three messages:

1. At the beginning of the process SXS7501I.
 - a. SXS7501I REQR Start Tsk:<task number> Occ:<index number> Wait:<wait time> Reply
Opt:<indicator>"

- SXS7501I is created just before the message is sent to Substation ES
- 2. At the end of the process SXS7502I.
 - a. SXS7502I REQR End Tsk:<task number> Occ:<index number> RC:<return code>
 - This message is issued when the process ends
 - <return code> less than 4 means all is ok and response is being returned
 - <return code> equal to 170 is a time-out
- 3. When the response message arrives (even if it is after the time-out value).
 - a. SXS7503I SXCREPLY Tsk:<task number> Occ:<index number>
 - This message is issued when SXCREPLY gets a response message
- 4. SXCREQR - calls to this program will generate a message to the statistics stream
 - a. SXCREPLY

Substation ES RED CICS Request/Reply process

SXXREQR - calls to this program will generate a message to the statistics stream

Sending out Request Message

SXX7521I REQR **Start PGM:**<program> **Tsk:**<task> **Occ:**<index> **Wait:**<wait time> **Reply Opt:**<indicator>

SXS7501I is created just before the message is sent to Substation ES

SXX7551I CICS TRED Msg sent - SXXREQR

SXXREQR uses SXXOTRED to send the message to Substation ES. It issues message SXX7551 when the send is executed

SXT5303I **IId:**IESBR91 U-Trc(T) **UoW:**1047580086 **Trigger:**CICS-RR-REQUEST
Dest:tibss.CICS.RR.trigger.Request

SXT5303I is produced by Substation ES when it receives the message and determines which trigger definition it will use. The destination is displayed.

Receiving Answer

SXT5469I **IId:**IESBR91 U-Trc(E) **UoW:**1047588118 **Recipe:**SXC-RR-ANSWER
BES:REDI01,C411JD1G-78-0415131348132

SXT5469I is a Substation ES message when a reply message is received.

SXT5468I **IId:**IESBR91 U-Trc(R) **UoW:**1047588118 **Recipe:**SXC-RR-ANSWER

SXT5468I indicates Substation ES is starting the transformation process.

SXT5465I **IId:**IESBR91 U-Trc(I) **UoW:**1047588118 **BES:**REDI01,

SXT5465I indicates Substation ES is passing the data to Substation ES Back-End processor.

SXG1885I **IId:**REDI01 U-Trc(I) **UoW:**1047588118

SXG1885I indicates Substation ES back end is sending the data to CICS.

SXX7501I #RED Start

SXX7501I indicates data has been received by CICS

SXX7515I CICS LINK SXXREPLY

SXX7515I indicates program SXXREPLY is being linked to.

SXX7523I REPLY Start

SXX7523I indicates program SXXREPLY which handles giving the data to the right CICS transaction is processing that data

SXX7522I REQR Ended Tsk:78 Occ:0 RC:1

SXX7522I indicates SXXREQR has the response data and will return it to the calling program.

SXX7502I #RED Ended

SXX7502I end of SXXREPLY process.

User Applications

Prerequisites

- Determine which HUB you should use.
- Ensure the HUB has IBM z/OS Logger streams defined and they are operational.

CICS

1. The call to "TIB_WRITE_SYSLOG" cannot be Functioned Shipped (via MRO) - each call is executed in the CICS Address Space issuing the "TIB_WRITE_SYSLOG" call.
2. The call to "TIB_WRITE_SYSLOG" is synchronous, but due to the minimal overhead can also be issued from programs running on the QR TCB.
3. The field HUB in the TIB_Write_SysLog control block is ignored when specified.
 - a. If the CICS region Mainframe RED is enabled, the HUB name set for that region is used.

Batch

1. The call to "TIB_WRITE_SYSLOG" is synchronous.
2. The field HUB in the TIB_Write_SysLog control block will be used if present.
 - a. If HUB is all blanks or nulls, the Batch default is used.
3. After the first call to "TIB_WRITE_SYSLOG", the HUB being used is locked (you cannot change the HUB name between calls).

Refer to the section [Mainframe Logger - Samples](#) of this user's guide.

Mainframe Logger - API

Overview

Writing to the log stream has been implemented as a single function call, resident within a DLL. User programs should bind with the TIBCO supplied STUB object located in the <userhlq>.library that loads and calls the DLL module during run-time. The DLL shields applications from changes that may be made to the called function and the STUB makes compiling and binding programs much easier.

The write function needs a well-defined memory area so that users can optionally supply variables to identify messages and statistical events in a more granular way than just using the defaults. The data area and the length of the user's message should always be supplied.

WRITE-TO SYSLOG

The following information can be supplied by the user applications. Appropriate values for these fields are documented in the copybook or header file for each language:

Required Fields

Parameter	Description
DATA	Address of message area
DATA-LENGTH	Length of message area

Optional Fields

Parameter	Description
WRITE-TO	A number field that identifies which stream(s) the function will send the message to. It defaults to the Log stream only.
MSG-ID	An 8 character message number field, that is set to USR1234I, by default.
CORR-ID	A 64 character field for matching business execution events i.e. PROCESS-1.
IDENTITY	A number field that identifies the JOBID, process Id, the task number or thread Id or something similar.
ENVIRONMENT	A numerical field identifying the environment of the application that issues the write.
NODE-NAME	A 10 character grouping field. The nodename is typically an Interface Id, a CICS or IMS transaction or a batch stepname; anything resource name that enables the program to execute.
RESOURCE	A 40 character grouping field. A Service Id, program or queue name, a container or channel name, an IMS PSB or some resource name to identify what the event is using.

Parameter	Description
TRACE	{0 - 5} A field that indicates whether logger should put out trace messages to JES output for debugging.
REGION	An 8 character Applid or similiar name field that identifies the region the message originated from.
MARKER	A single character field that identifies the START, BODY or the END of a statistical execution sequence.

FUNCTION: TIB_WRITE_SYSLOG

Mainframe Logger allows an application to write messages and statistics (stats) to the IBM z/OS System Logger Streams. An application can either write to the Log, Trace, Stats, Log and Stats, or, Trace and Stats streams.

This section describes the concepts and details of the IBM z/OS Log DLL function call. To code this DLL call in Assembler, C, COBOL on LE, follow the rules of the individual language for making calls to the DLL function.

COBOL Call

Compilation:

COBOL Options - PGMNAME (LONGMIXED)

Binder Options - CASE (MIXED)

Copybook - TIBCWLOG

Procedure:

Below is an example of the COBOL format of data structure and the call.

```
COPY TIBCWLOG.
....
CALL 'TIB_WRITE_SYSLOG'
    USING WS-WRITE-LOG,
        WS-REASON
    RETURNING WS-RETURN-CODE
END-CALL.

IF WS-RETURN-CODE NOT 0 THEN
    ..... do error processing .....
END-IF.
```

C Declaration

Compilation:

C options - LONGNAME

Binder Options - CASE (MIXED)

Header File - tibhwlog.h

Procedure:

Below is an example of the C format of data structure and the call.

```
#include "tibhwlog.h"
....
```

```

tib_return_code = TIB_WRITE_SYSLOG(&LA, &reason);
If (tib_return_code != 0)
{
    ..... do error analysis
}

```

Assembler

Compilation:

Assembler Options - GOFF(ON)

Binder Options - CASE(MIXED)

Source:

```

..... populate fields
TLW_MSGID (optional)
TLW_IDENTITY (optional)
TLW_UOW (optional)
TLW_CORID (optional)
TLW_DATA
TLW_DATA_LENGTH
TLW_WRITE2

CEEPCALL TIB_WRITE_SYSLOG, (LA, REASON), MF=(E, PARMLIST)
.....
TIBDWLOG PREFIX=TLW_

```

Mainframe Logger - Samples

Substation ES and Mainframe RED are shipped with the samples that demonstrate how the TIBCO Mainframe Logger writes information to IBM z/OS System Logger Streams. You can write information from any COBOL, C, or LE assembler programs. The programs can vary from environments such as the normal IBM z/OS batch, CICS, or IMS.

Samples Overview

All programs are bound with a STUB module SXL3WLOG located in the `USERHLQ.LIBRARY` which at run-time will call the DLL TIB3WLOG located in the `USERHLQ.LOAD`. Ensure this module is available with the program during run-time.

Your application program should supply:

- the message data area address
- the length of the data
- a message Id

After calling the TIB_WRITE_SYSLOG function, your program should check the return code and the reason when supplied.

Return Code	Meaning
0	Normal. All messages written to log
8	HUB is inactive
12	HUB returned error in writing log record stream
16	Reason = 1, TIBDWLOG parameter object address not present (NULL pointer) Reason = 2, data pointer in TIBDWLOG is zero (NULL) Reason = 3, data length in TIBDWLOG is zero
20	Invalid request - check Write2 value

The following actions are carried out by TIB3WLOG DLL:

- Determine which Mainframe HUB to use. If a HUB name is not supplied in the program, the HUBxxx DD name is used for the environment your are executing in. If that is not available, it will use the SMF Id of the LPAR that you are running on.
- Call a PC routine to enable writing to the appropriate IBM z/OS stream.

TIBCNLOG - COBOL Batch

The TIBCO Log COBOL batch message writer program uses the API 'TIB_WRITE_SYSLOG' to write the messages to the IBM z/OS System Logger Stream file. You need to include the copybook TIBCWLOG. The JCL to compile and run is located in:

Data Set: USERHLQ.JCL

Member: RUNWLOG

Compile JCL: SXLCNCB

COBOL Call

```
CALL 'TIB_WRITE_SYSLOG'
  USING WS-WRITE-LOG,
        WS-REASON
  RETURNING WS-RETURN-CODE
END-CALL.
```

TIB3NLOG - C Batch

The TIBCO Log C batch message writer program uses the API 'TIB_WRITE_SYSLOG' to write the messages. The program requires you to include the header file "tibhwlog.h". The JCL to compile and run is located in:

Data Set: USERHLQ .JCL

Member: RUNWLOG

Compile JCL: SXL3NCB

C Declaration

```
tib_return_code = TIB_WRITE_SYSLOG(&LA, &reason);
```

TIBANLOG - Assembler Batch

The TIBCO Log Assembler batch message writer program uses the API 'TIB_WRITE_SYSLOG' to write the messages to the IBM z/OS System Logger Stream file.

The program requires the parameter layout DSECT.

TIBDWLOG PREFIX=TLW_ where PREFIX is 4 chars field prefix.

The JCL to assemble and run is located in:

Data Set: USERHLQ .JCL

Member: RUNWLOG

Compile JCL: SXLANAB

Assembler

```
CEEPCALL TIB_WRITE_SYSLOG, (LA, REASON), MF=(E, PARMLIST)
```

Log Stream Viewer

Log and trace data can optionally be written to the IBM z/OS System Logger.

To view these logs, go to the CLIST library, execute the SXGSSPNL CLIST, and select option 3, labeled **System Logger Search and Display Facility**. The following TIBCO Log Stream Viewer panel appears.

Alternatively, go to the CLIST library, execute the SXLVIEW clist, to display the following TIBCO Log Stream Viewer panel.

```

Select option ==>
    1 Configuration
    2 LTA Search and Display Facility
    3 System Logger Search and Display Facility

ENTER = PROCEED    END PFKey = RETURN
  
```

```

----- TIBCO Log Stream Viewer -----
Command ==>

STREAM _____ HUBNAME ____

JOBNAME _____

JOBID _____

UOW. . _____

CORRID _____

          YYYY MM DD  HH MM SS
START DATE/TIME . 2019 12 06 23 47 45
END   DATE/TIME . 2019 12 07 23 59 59

Press PF3 to terminate or ENTER to continue
  
```

In the **TIBCO Log Stream Viewer** panel, fill in the **STREAM** name used in your HUB setup for the log, trace or statistical file.

Alternatively, fill in the following fields to reduce the amount of output displayed.

Fields	Description
HUBNAME	By default, the TIBCO Log Stream Viewer will use the system default HUB. The default value is the SMF ID of the LPAR. If you want to use a different HUB, specify the HUB name in this field.
JOBNAME	Full or partial jobname, for example, MYJOBNM or MYJOB* to select output from a single or multiple jobs.
JOBID	Full JOBID in the format STCnnnnn, JOBnnnnn, or TSUnnnnn.

Fields	Description
UOW	Full or partial Unit of work ID , for example,1234 to show all UOWs containing the string 1234.
CORRID	Full or partial correlation ID , for example, 1234 to show all correlation IDs containing the string 1234.
START DATE/TIME	Start date & time of events. It defaults to 24 hours ago.
END DATE/TIME	End date & time of events. It defaults to the end of the current day.

Press Enter to display the selected data in a normal browse interface, where all the usual browse commands work. Press F1 to display the **Commands available under Tibco Log Stream Viewer** panel. This panel lists all the supported logger specific commands.



When you are working with very large logger streams, setting START DATE/TIME and END DATE/TIME relatively accurately are helpful in reducing search time and resources consumed.

Logger specific commands and their detailed information are provided below:

Commands	Description
#C	Displays the jobname , Unit Of Work , and Correlation ID for the current line, or the line where the cursor is located, if inside the data. This allows you to pick a specific job, Unit Of Work , or Correlation ID . Click PF7 to move to previous line and PF8 to move to next line. Click PF3 to go to the Selection menu and refine the amount of data to be displayed.
#I	Displays a popup window containing the selection criteria from the previous menu.
#R	Refreshes the log stream browse display by reading any events that were added to the log stream since browse was invoked and adding these events to the current display.
#S	Displays a popup menu of the Correlation ID , Unit of Work and various Statistics from the record pointed to by the cursor. Click PF7 to move to previous line and PF8 to move to next line.

Procedure to use the command to display detailed information about a message.

1. In command line, type the command you want to use.
2. Point the cursor to the message that is to be queried, then press **Enter**.
A pop-up panel displays the related detail information.
3. Use the **PF7** or **PF8** keys to navigate to previous or next line respectively.



If the cursor is on the command line and you press **Enter**, details of the first message on the screen are displayed.

For each command, fields and their detailed information are provided below:

Fields	Description
JOBNAME	The corresponding job name for the message.
JOB-ID	The corresponding job ID for the message.
UOW	The corresponding UOW number for the message.
CORRID	The corresponding correlation ID for the message.
ENVIRON	The corresponding environment of the application that issues the message. The list of environment are BATCH, EMS Interface, RV Interface, KAFKA, EXCI Interface, CICS RED, IMS, RED, and Unknown.
REGION	The corresponding region that produces the message.
NODENAME	The corresponding node-name for the message. The nodename is typically an Interface Id, a CICS, or IMS transaction or a batch stepname; any resource name that enabled the program to execute.
RESOURCE	The corresponding resource related to the message. It is a program or queue name, a container or channel name, an IMS PSB or some resource name to identify what the event is using.
MARKER	<p>The corresponding execution cycle marker for the message. This field is shown on the log viewer in #S mode. The valid values are as follows:</p> <ul style="list-style-type: none"> 0 - Not set 1 - Start 5 - Body 9 - End <p>The default value is 5.</p>

Mainframe Logger - Extracting Events

Mainframe Logger has an extraction program, SXS3STX1 that reads the IBM z/OS log stream and publishes the same events to an EMS Queue or Topic. Regardless of the NO-SEND parameter, it writes the extracted events to the IBM z/OS file when the file parameter is specified.

A checkpoint file *USERHLQ.CHCKPT* must always be defined, with DCB information as:

```
Organization . . . : PS
Record format . . . : F
Record length . . . : 80
Block size . . . . : 80
```

Sample JCL

```
//RUNEX1 EXEC PGM=SXS3STX1
//STEPLIB DD DISP=SHR,DSN=USERHLQ.LOAD
:
//CHCKPT DD UNIT=VIO,DCB=(RECFM=F,LRECL=80,BLKSIZE=80)
//TIBLDATA DD DISP=(NEW,CATLG,DELETE),DSN=USERHLQ.TIBLDATA,
// SPACE=(CYL,(5,5)),
// DCB=(RECFM=VB,LRECL=8000,BLKSIZE=0)
//SYSIN DD *
//CEEOPST DD *
        POSIX(ON)
```

CHCKPT is a file that can be either virtual Input/Output (VIO) or on Direct Access Storage Device (DASD). If it is on DASD, the LOG offset will checkpoint to this file as needed and subsequent re-starts of SXS3STX1 will position the log at the checkpointed offset. If VIO is selected, then SXS3STX1 will position the log at the oldest item.

SYSIN parameters

Parameters	Description
STREAM-NAME	Required. The name of log stream file to be extracted.
URL-SERVER	Only required if NO-SEND parameter is not specified. Specify the URL of the EMS server.
DESTINATION	Name of EMS Destination. The default destination is tibss.syslog.extract.
TYPE	{Queue Topic} The output destination type (default is Queue).
SELECT-COUNT	{0 - Number} Number of events to read from the log, starting from the beginning. These events will be sent to the destination specified unless the NO-SEND keyword is specified. (default is zero, which reads all events)
BATCH-COUNT	{1 - 10000} Frequency of Checkpointing (default is 1000). Also used to determine the EMS transaction count.
SELECT-RETRY	{0 - Number} Time in seconds to poll (default is zero). When specified with a number larger than zero, the extraction program runs indefinitely, until the SELECT-COUNT value has been reached or a stop for the job is issued by the operator.

Parameters	Description
DELETE	{YES NO} deletes the log events at BATCH-COUNT point (default is NO).
OUTPUT	<p>{JSON JSON-ALL JSON-STAT{,MSGINFO} RAW} Output selection types of the log stream data to be sent or written to a file. (default is JSON).</p> <p>JSON - Sends all fields where the values are non-zero or not equal to NULL.</p> <p>JSON-ALL - Sends all fields available in the selected log stream.</p> <p>JSON-STAT - Sends only statistical important fields {MSGINFO}. In addition, this optional value also sends the data length of the incoming and outgoing user packets, the Substation or application message Id and the message text that was provided to the log stream.</p>
NO-SEND	Does not send events. It reads, discards and when directed deletes the events selected.
COMPRESSION	{YES NO} If compression is set to yes, the logger will apply compression when possible and display a confirmation message (default is YES).
FILE	{YES NO} When specified and in addition to all the other options, the extracted events can also be directed to a local file assigned to DDName TIBLDATA.
HELP	Print input options and end.
DEBUG	{0 - 5} Set the level of debug output in addition to the normal messages (default is 0). If you set the value to one (1), you can see a list of the fields and their values shown in the DDName SYSPRINT.

For example:

Extract all the events and publish them to an EMS Queue.

LOGGER	SXLLOGS.LOGR.LOG
DESTINATION	my.stats.json.data
URL-SERVER	ems.server.com:7222
SELECT-COUNT	1000000
BATCH-COUNT	5000
DELETE	YES
OUTPUT	JSON

The program reads up to 1,000,000 events or until end of file, whichever comes first. It also checkpoints every 5000 events and deletes them from the IBM z/OS log stream.