



# **BEA eLink Adapter for Mainframe**

## **SNACRM Administration Guide**

SNACRM Administration Guide  
Document Edition 1.0  
April 2000

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### **BEA eLink Adapter for Mainframe, SNACRM Administration Guide**

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# About This Document

This document explains how the BEA eLink Adapter for Mainframe System Network Architecture Communications Resource Manager (SNACRM) provides the emulation allowing Customer Information Control System (CICS), Distributed Program Link (DPL), and Information Management System (IMS) protocols to flow into and out of the Java environment. This document also describes how to administer application domains with the SNACRM.

This document covers the following topics:

- [“Understanding the SNACRM”](#) describes the SNACRM and provides information about remote host domain configurations and sample Virtual Telecommunications Access Method (VTAM) configurations.
- “Administering the SNA Components” describes how to use the SNACRM for administering communications resources.
- [“Command Reference Pages”](#) lists and describes SNACRM system commands.
- “Error Messages” describes SNACRM error messages.
- [Glossary](#)

## What You Need to Know

This document is intended mainly for system administrators and operators who will use the SNACRM to monitor and link communications resources between mainframe and UNIX or Windows NT applications.

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# How to Use The Documentation

The Documentation CDROM included in the package with your product software CDROM contains an HTML Web User Interface (WUI). The WUI links to HTML versions and PDF versions of BEA eLink Java Adapter for Mainframe WLS Edition (JAM) documentation, along with this guide. The WUI should be viewed on an online browser. The PDF versions should be used for printing. (Information on how to view the online documentation is available in the release notes accompanying your product software.)

**Note:** The WUI requires a Web browser that supports HTML 3.0, along with Netscape Navigator 4.0 or later, or Microsoft Internet Explorer 4.0 or later.

You must have the Adobe Acrobat Reader to print the PDF file. If you do not have this reader, you can obtain it free of charge from the Adobe Systems Incorporated home site at [www.adobe.com](http://www.adobe.com). (The WUI contains a hot link to this site.)

## e-docs Web Site

BEA product documentation is available on the BEA corporate Web site. From the BEA Home page, click on Product Documentation or go directly to the “e-docs” Product Documentation page at <http://e-docs.beasys.com>.

## Related Information

The following documents contain information that is relevant to using the SNACRM.

- *BEA eLink Java Adapter for Mainframe WLS Edition Installation Guide*
- *BEA eLink Java Adapter for Mainframe WLS Edition User Guide*
- *BEA eLink Java Adapter for Mainframe WLS Edition Release Notes*

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# Documentation Conventions

The following documentation conventions are used throughout this document.

| Convention                     | Item  |
|--------------------------------|---|
| <b>boldface text</b>           | Indicates terms defined in the glossary.  |
| <a href="#">blue text</a>      | Indicates hypertext links in PDF documents.   |
| Ctrl+Tab                       | Indicates that you must press two or more keys simultaneously.  |
| <i>italics</i>                 | Indicates emphasis or book titles.  |
| monospace text                 | <p>Indicates code samples, commands and their options, data structures and their members, data types, directories, and file names and their extensions. Monospace text also indicates text that you must enter from the keyboard.</p> <p><i>Examples:</i></p> <pre>#include &lt;iostream.h&gt; void main ( ) the pointer psz chmod u+w * \tux\data\ap .doc tux.doc BITMAP float</pre> |
| <b>monospace boldface text</b> | <p>Identifies significant words in code.</p> <p><i>Example:</i></p> <pre>void <b>commit</b> ( )</pre>   |
| <i>monospace italic text</i>   | <p>Identifies variables in code.</p> <p><i>Example:</i></p> <pre>String <i>expr</i></pre>   |

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| Convention        | Item  |
|-------------------|---|
| UPPERCASE<br>TEXT | Indicates device names, environment variables, and logical operators.<br><i>Examples:</i><br>LPT1<br>SIGNON<br>OR   |
| { }               | Indicates a set of choices in a syntax line. The braces themselves should never be typed.   |
| [ ]               | Indicates optional items in a syntax line. The brackets themselves should never be typed.<br><i>Example:</i><br>buildobjclient [-v] [-o name ] [-f file-list]...<br>[-l file-list]...   |
|                   | Separates mutually exclusive choices in a syntax line. The symbol itself should never be typed.   |
| ...               | Indicates one of the following in a command line: <ul style="list-style-type: none"><li>■ That an argument can be repeated several times in a command line</li><li>■ That the statement omits additional optional arguments</li><li>■ That you can enter additional parameters, values, or other information</li></ul> The ellipsis itself should never be typed.<br><i>Example:</i><br>buildobjclient [-v] [-o name ] [-f file-list]...<br>[-l file-list]... |
| .<br>.<br>.       | Indicates the omission of items from a code example or from a syntax line. The vertical ellipsis itself should never be typed.  |

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# Contact Us!

Your feedback on the BEA eLink Adapter for Mainframe, SNACRM Administration Guide is important to us. Send us e-mail at **docsupport@beasys.com** if you have questions or comments. Your comments will be reviewed directly by the BEA professionals who create and update the SNACRM documentation.

In your e-mail message, please indicate that you are using the documentation for the BEA eLink Adapter for Mainframe, SNACRM, Document Edition 1.0.

If you have any questions about this version of the eLink Adapter for Mainframe, or if you have problems installing and running the SNACRM, contact BEA Customer Support through BEA WebSupport at **www.beasys.com**. You can also contact Customer Support by using the contact information provided on the Customer Support Card, which is included in the product package.

When contacting Customer Support, be prepared to provide the following information:

- Your name, e-mail address, phone number, and fax number
- Your company name and company address
- Your machine type and authorization codes
- The name and version of the product you are using
- A description of the problem and the content of pertinent error messages



# 1 Understanding the SNACRM

This chapter discusses the following topics:

- “About the SNACRM”
- “Remote Host Domain Configuration”
- “Sample VTAM Configurations”

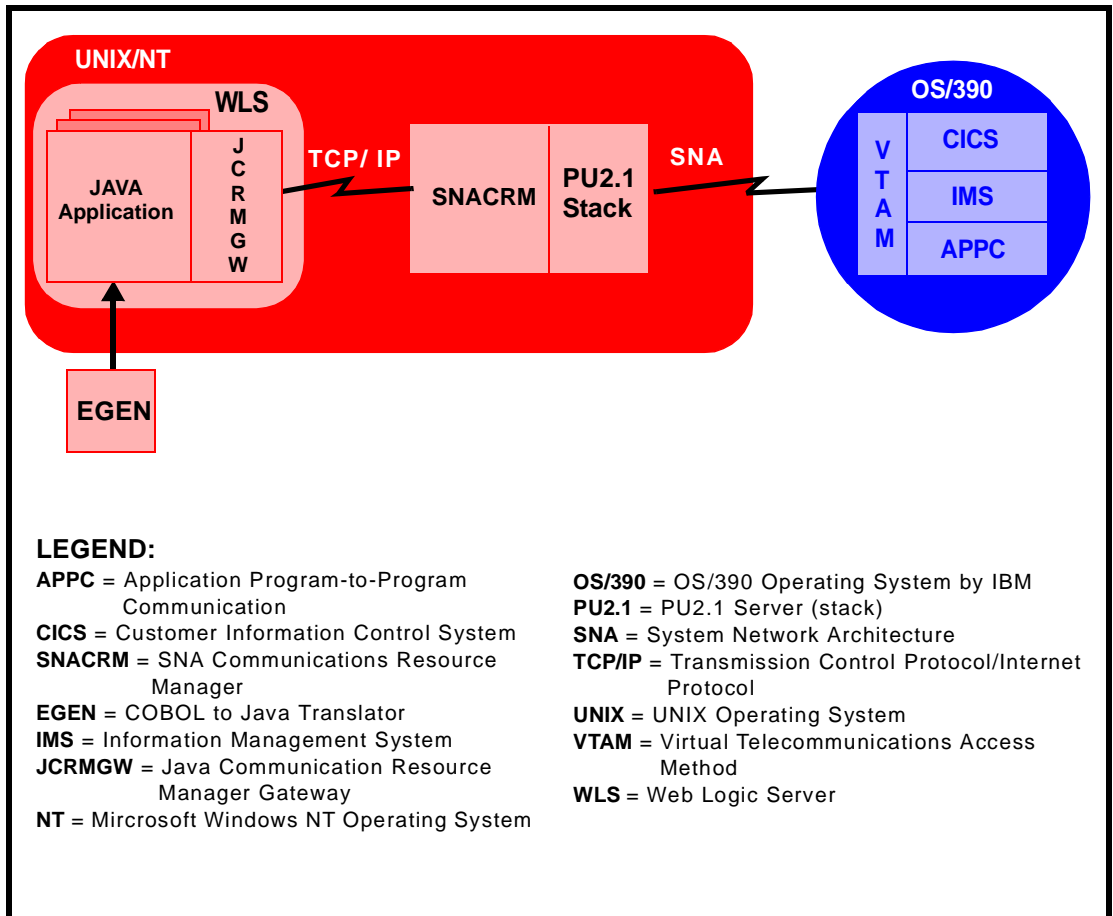
## About the SNACRM

The System Network Architecture Communications Resource Manager (SNACRM) runs as a separate native process that provides the emulation allowing Customer Information Control System (CICS), Distributed Program Link (DPL), and Information Management System (IMS) protocols to flow into and out of the Java environment.

## The SNACRM System Platform

The SNACRM must run on the same platform as the SNA stack, but it may run on a different platform from the application and Java Communications Resource Manager Gateway (JCRMGW). The JCRMGW provides the configuration for the SNACRM. If the JCRMGW is running on a platform other than the one the SNACRM is on, then the SNACRM should already be started and monitoring the address specified in the JCRMGW configuration. Figure 1-1 is a diagram of a system configuration with the SNACRM located on the same platform as the application and gateway.

**Figure 1-1 SNACRM System Diagram**



## Support for IMS Implicit Programs

The SNACRM supports non-transactional Information Management System (IMS) programs using implicit Application Program-to-Program (APPC) support for IMS. Implicit APPC is similar to the Customer Information Control System/Enterprise System Architecture (CICS/ESA) DPL. Any IMS program that sends and receives messages to and from the IMS message queue can be used as either a client or a server without change.

To use the implicit APPC capabilities of IMS, you must modify the APPCM file in the SYS1.PARMLIB Partitioned Data Set (PDS) under OS/390. The configuration parameters in this file associate the Logical Unit (LU) with the IMS scheduler. You must identify the LU representing the application name used by BEA eLink Java Adapter for Mainframe WLS Edition (JAM) to access the IMS region and the IMS system ID that provides scheduling for inbound requests. Consult with your mainframe support personnel before making changes to the APPCM file.

## Remote Host Domain Configuration

A basic understanding of the mainframe configuration requirements provides a context for understanding the SNACRM functions and configuration requirements.

**Note:** Always consult with your local mainframe system administrator for specific information about your system. Any samples provided illustrate a starting point for configuring your system and do not represent all possibilities. The samples represent one way a mainframe can be configured to work in an Advanced Peer-to-Peer Networking (APPN) Local Area Network (LAN) environment.

You must ensure the CICS/ESA remote domain is prepared to conduct operations with the BEA local domain. This includes:

- “Establishing the VTAM Configuration”
- “Configuring the CICS/ESA LU”
  - “Creating Connections at the Remote Host”
  - “Defining the Session at the Remote Host”
- “Completing Cross-Platform Definitions”
- “Setting Stack Traces”

## Establishing the VTAM Configuration

In the Java environment, SNACRM communicates with a Java application called the BEA eLink Java Adapter for Mainframe WLS Edition (JAM). This application is referred to as JAM throughout this document.

If your JAM system is used in a Virtual Telecommunications Access Method (VTAM) environment, you must ensure the host configuration supports it. Refer to [“Sample VTAM Configurations,”](#) for some examples based on the requirements for JAM to be used in a VTAM environment with an Ethernet LAN and an APPN mainframe system.

## Configuring the CICS/ESA LU

Before you can connect to the remote stack, the LU (Logical Unit) configuration must be established. This entails creating connection definitions, creating session definitions, and installing resource definitions.

### Creating Connections at the Remote Host

If it is not already in place, you must work with the mainframe support personnel to create a remote connection definition file. When placed on the remote host, the definition provides a connection with the local domain. The following is an example of a connection definition file:

```
DEFINE CONNECTION(BEA)          GROUP(BEACONN)
DE(JAM EXAMPLE RDO CONNECTION)
ACCESSMETHOD(VTAM)              PROTOCOL(APPC)
NETNAME(**VTAM NETWORK NAME OF REMOTE SYSTEM**)
ATTACHSEC(LOCAL)                AUTOCONNECT(NO)
```

To install the sample connection definition, put it on the host in a separate group that does not contain an existing connection. Use the `CEDA INSTALL` command.

For example:

```
CEDA INSTALL I GROUP(BEACONN)
```

## Defining the Session at the Remote Host

If a session definition is not already in place, you must work with the mainframe support personnel to create one. When placed on the remote host, the session definition defines the logical links by which the local domain communicates with the remote host. The following is an example of a session definition:

```
DEFINE SESSION(BEATEST)          GROUP(BEACONN)
CONNECTION(BEA)
DE(JAM EXAMPLE RDO SESSION)
PROTOCOL(APPC)                   AUTOCONNECT(YES)
MODENAME(**MODE**)               MAXIMUM(**SESSNBR**, **WINNER**)
```

`AUTOCONNECT` indicates how the activation of the session is to be negotiated. `YES` enables the CICS/ESA host to negotiate its own winner sessions when a conversation is allocated.

The `MODENAME` can be either a CICS/ESA-supplied mode name, such as `SMSNA100`, or your own defined mode name. If another set of session definitions exist for the BEA connection, this mode name must be unique among all sets defined to the connection. The mode name corresponds to the VTAM `LOGMODE` name.

The `MAXIMUM` option defines the total number of sessions in the set and the total number of winner sessions. The total number of winner sessions must include those for the host and the remote stack. The `WINNER` number plus the remote `WINNER` number should equal the `SESSNBR`.

## View Connection and Session Status

After you have installed group definitions, you can view the status of connections and sessions using the following CICS/ESA system commands:

```
CEMT I CONN(BEA)           **view the status of the connection
CEMT I NET(**Netname**)    **View the status of the sessions
CEMT I MODENAME(**MODE**)  **View the status of the mode
```

## Completing Cross-Platform Definitions

Consult with your CICS/ESA remote domain administrator to obtain key parameters in the VTAM definition that must be included in the SNA stack configuration, as well as in other configuration files in the JAM local domain.

## Summary of Cross-Platform Definitions

Before installing JAM software, please examine Table 1-1 for a summary of cross-platform definitions. Consult with the VTAM system administrator to obtain the value indicated in the Name column and make the corresponding entries shown in the Needed In column.

**Table 1-1   Summary of Cross-Platform Definitions**

| Item | Name  | Originates In         | Needed In  |
|------|---|-----------------------|--|
| 1.   | SNA Network ID<br>(e.g. <b>SNANET1</b> )    | VTAM<br>configuration | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>CP    NQ_CP_NAME= <b>SNANET1</b> .SPARC1<br>DLC   RMTNQ_CP_NAME= <b>SNANET1</b> . <b>VTAMHOST</b><br>LU    NQ_LU_NAME= <b>SNANET1</b> .LOP0024A<br>PTNR_LU    NQ_LU_NAME= <b>SNANET1</b> .CICSSYN |
|      | and VTAM Host ID<br>(e.g. <b>VTAMHOST</b> ) |                       | <b>SNaplus2 or IBM CS/AIX Stack Configuration:</b><br>Example:<br>fqcp_name= <b>SNANET1</b> .SPARC1<br>adj_cp_name= <b>SNANET1</b> . <b>VTAMHOST</b><br>fqplu_name= <b>SNANET1</b> .CICSSYN  |

Table 1-1 Summary of Cross-Platform Definitions

| Item | Name  | Originates In              | Needed In   |
|------|---|----------------------------|---|
| 2.   | Mode Name<br>(e.g. <b>SNA62</b> )                     | VTAM-MODEENT<br>definition | <b>CICS Sessions Definition:</b><br>Example:<br>MODENAME ( <b>SNA62</b> )<br><br><b>SunLink SNA Stack Configuration:</b><br>Example:<br>MODE    NAME= <b>SNA62</b><br><br><b>SNAplus2 Stack Configuration:</b><br>Example:<br>mode_name= <b>SNA62</b><br><br><b>JCRMGW Configuration:</b><br>Example:<br>*JC_SNA_LINKS<br>MODENAME= " <b>SNA62</b> "  |
| 3.   | Control Point Name<br>CPNAME<br>(e.g. <b>SPARC1</b> ) | VTAM-PU<br>definition      | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>CP    NAME= <b>SPARC1</b><br>CP    NQ_CP_NAME=SNANET1 . <b>SPARC1</b><br><br><b>SNAplus2 Stack Configuration:</b><br>Example:<br>fqcp_name=SNANET1 . SPARC<br>cd_alias= <b>SPARC1</b>  |
| 4.   | Local LU Name<br>(e.g. <b>L0F0024A</b> )              | VTAM-LU<br>definition      | <b>CICS CONNECTION definition:</b><br>Example:<br>NETNAME ( <b>L0F0024A</b> )<br><b>SunLink SNA Stack Configuration:</b><br>Example:<br>LU    NAME= <b>L0F0024A</b><br>LU    NQ_LU_NAME=SNANET1 . <b>L0F0024A</b><br>PTNR_LU    LOC_LU_NAME= <b>L0F0024A</b><br>TP    LOC_LU_NAME= <b>L0F0024A</b><br><br><b>SNAplus2 Stack Configuration:</b><br>Example:<br>lu_name= <b>L0F0024A</b><br>lu_alias= <b>L0F0024A</b><br><br><b>JCRMGW Configuration:</b><br>Example:<br>*JC_SNA_STACKS<br>LOCALLU= " <b>L0F0024A</b> " |

# 1 Understanding the SNACRM

**Table 1-1 Summary of Cross-Platform Definitions**

| Item | Name  | Originates In                          | Needed In   |
|------|---|--|---|
| 5.   | CICS LU Name<br>(e.g. <b>CICSSYN</b> )            | VTAM-LU<br>definition                  | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>PTNR_LU NAME= <b>CICSSYN</b><br>PTNR_LU NQ_LU_NAME=SNANET1. <b>CICSSYN</b><br>MODE PTNR_LU_NAME= <b>CICSSYN</b><br><b>SNaplus2 Stack Configuration:</b><br>Example:<br>fqplu_name=SNANET1. <b>CICSSYN</b><br>plu_alias= <b>CICSSYN</b><br><b>JCRMGW Configuration:</b><br>Example:<br>*JC_SNA_LINKS<br>RLUNAME= " <b>CICSSYN</b> " |
| 6.   | Terminal Identifier<br>(e.g. <b>05DF0024</b> )    | VTAM<br>(IDNUM+IDBLK)                  | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>DLC TERM << ALIGN=CHAR<br><b>SNaplus2 Stack Configuration:</b><br>Example:<br>node_id=< <b>05000002</b> >  |
| 7.   | Local Network<br>Device<br>(e.g. <b>/dev/tr</b> ) | UNIX Configuration                     | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>TRLINE DEVICE= ' <b>/dev/tr</b> '<br>or<br>SDLCLINE DEVICE= ' <b>/dev/dcp1</b> '   |
| 8.   | Local MAC Address<br>(token ring only)            | Token ring address<br>of Host          | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>TRLINE Source_Address=X'080020117d7a'  |
| 9.   | Remote MAC<br>Address (token ring<br>only)        | Token ring address<br>of local machine | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>DLC RMTMACADDR=X'40000101000'<br><b>SNaplus2 Stack Configuration:</b><br>Example:<br>mac_address=<400031720001>  |
| 10.  | LAN Speed<br>(e.g. <b>4MBs</b> )                  | Speed of token ring<br>network         | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>TRLINE LAN_rate=RING_ <b>4MBS</b>  |

Table 1-1 Summary of Cross-Platform Definitions

| Item | Name   | Originates In           | Needed In  |
|------|--|-------------------------|--|
| 11.  | SDLC parameters<br>(line protocol)   | VTAM-line<br>definition | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>SDLC LINE    DUPLEX=half<br>LINE=switched<br>NRZI=no<br>PAUSE=1<br>SPEED=4800   |
| 12.  | Partner Definition<br>(e.g. <b>TUXPART1</b> )  | CICS/ESA                | <b>Mainframe Client Application:</b><br>(for example, COBOL with embedded CPI-C to route<br>CICS to appropriate LU for BEA Connect SNA)<br>COBOL Example:<br>MOVE ' <b>TUXPART1</b> ' TO SYM-DEST-NAME<br>CALL 'CMINIT' USING CONVERSATION-ID<br>SYM-DEST-NAME, CM_RETCODE<br>END-CALL                                     |
| 13.  | Set LU definition so<br>maximum sync-level<br>allowed corresponds<br>to JCRMGW.CFG<br>entry:<br>*DM_SNA_LINKS<br>MAXSYNCLVL  | Stacks                  | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>SYNC_LVL=SYNCPPT<br><b>SNAPLUS2 Stack Configuration:</b><br>Example:<br>[define local_lu]<br>Syncpt.Support=YES   |
| 14.  | Map all incoming<br>conversations to<br>BEA Connect SNA<br>gateway (make sure<br>TPs have all<br>privileges available,<br>e.g. CNOS,<br>syncpoint if licensed,<br>service<br>conversations, etc.). | Stacks                  | <b>SunLink SNA Stack Configuration:</b><br>Example:<br>TP_HEXNAME=x'2a'<br><b>SNAPLUS2 Stack Configuration:</b><br>Example:<br>Sna_tps<br><404040...hex representation of 64<br>EBCDIC spaces...404040><br>TYPE=QUEUED<br>TIMEOUT=-1<br>USERID=authorized_user_here<br>GROUP=authroized_group_here<br>LUALIAS=lu_name_here |

**Table 1-1 Summary of Cross-Platform Definitions**

| Item | Name                             | Originates In | Needed In   |
|------|----------------------------------|---------------|---|
| 15.  | CICS Transaction IDs (e.g. TOUP) | CICS/ESA      | <b>JCRMGW Configuration:</b><br>Example:<br>*JC_REMOTE_SERVICES |

## Microsoft SNA Cross-Platform Definitions

It is important to communicate with the administrator of the CICS/ESA remote domain to obtain key parameters in the VTAM definition that must be included in the Microsoft SNA Server configuration, as well as in other configuration files in the JAM local domain.

Before installing JAM software, please examine the following general procedure for configuring the Microsoft SNA Server. Use the Microsoft SNA Server Manager GUI. Sample values are shown in parenthesis. Consult with the VTAM system administrator to obtain the proper values.

1. Start Microsoft SNA Server Manager from the Start button on the Task Bar.
2. A server is automatically created (MVSNT1). Note the configuration values displayed in the Server Properties window:
  - Server: MVSNT1
  - Subdomain: MVSNT1
  - Server Role: Primary
  - Network Transports: TCP/IP

3. Under Link Services, define a link service (SNADLC1):

In the Link Service Properties, define DLC 802.2 Link Service Configuration:

Title: DLC 802.2 Link Service #1

Adapter: <your ethernet adapter>

Local Service Access Point (SAP): 0x4

Use Fixed SAP

4. Under SNA Service, Connections, define an 802.2 connection (MVSNT1):

In the MVSNT1 Properties, define:

General

Name: MVSNT1

Link Service: SnaDlc1

Remote End: Peer System

Allowed Directions: Both Directions

Activation: On Server Startup

Supports Dynamic Remote APPC LU Definition

Address

Remote Network Address: <host MAC address>

Remote SAP Address: <host SAP address>

System Identification

Local Node Name

Network Name: <mynetwork>

Control Point Name: MVSNT1

Local Node ID: <xxx nnnn>XID Type: Format 3

Remote Node Name

Network Name: <hostnetwork>

Control Point Name: <vtamcpname>

Remote Node ID: Peer DLC Role: Negotiable

Compression Type: None

802.2 DLC

Take Defaults

5. Under Local APPC LUs (SNA Service: Connections: Insert: APPC: Local LU), define a local LU (LUNT1A) in the LUNT1A Properties:

General

LU Alias: LUNT1A  
Network Name: <mynetwork>  
LU Name: LUNT1A

Advanced

Take Defaults

6. Under Remote APPC LUs, define a remote LU (CICS1) in the CICS1 Properties:

General

Connection: MVSNT1  
LU Alias: CICS1  
Network Name: <hostnetwork>  
LU Name: CICS1  
Uninterpreted Name: CICS1

Options

Take Defaults

7. Under APPC Modes, define a mode (SMSNA100) in the SMSNA100 Properties:

General

Mode Name: SMSNA100

Limits

Parallel Session Limit: <max sessions>  
Minimum Winner Contention Limit: <min winners>  
Partner Min Winner Contention Limit: <max sessions - min winners>  
Automatic Activation Limit: 0

Characteristics

Take Defaults

Partners

Add partnership for Server Name: MVSNT1 between Local LU: LUNT1A and Partner LU: CICS1

Compression

Take Defaults

## Setting Stack Traces

Consult the vendor publications for instructions on how to set up stack tracing.

# Sample VTAM Configurations

The following sections provide sample environments showing how BEA eLink software can be configured for use with an Ethernet LAN and an APPN system 390. Considerations for token ring and subarea-style configurations are included. It is assumed that hardware and operating system installations have been completed.

An environment properly configured for the BEA eLink system involves two general components, a local environment and a remote environment.

## Local Environment

A local environment is a UNIX-based or Windows NT-based machine running JAM software. JAM is a fully bidirectional program, supporting the local system as either a client or server. This environment consists of the following components:

- Hardware: any workstation and network interface supported by the required software
- Platform operating systems with protocol stacks (PU 2.1 servers)

## Remote Environment

A remote environment is an IBM mainframe that may or may not be on the same local network. As in the local environment, JAM is a fully bidirectional program, supporting the remote system as either a client or server. This environment consists of the following components:

- Hardware: any workstation and network interface supported by the required software
- Software: any supported host software

## Sample Environments

Samples of each environment are provided to illustrate a starting point when first configuring your system. These samples are not intended to be used without modifications. Any similarity between them and any actual system is coincidental.

### Machine Attributes (LAN Descriptions)

The attributes of the sample environment machines are listed in the following tables for reference. The subsequent sample configurations refer to these attributes as required. Sample configurations are presented for example only and may contain components that are not supported for your system

**Table 1-2 SPARCstation 5**

| Name | Attribute             |
|------|-----------------------|
| OS   | Solaris 2.5.1 or 2.6) |
| SNA  | Brixton/CNT 4.1       |
| APP  | Tuxedo 6.5            |
| MAC  | 08:00:20:7C:47:50     |
| IP   | 206.189.43.14         |
| NAME | beasun2               |

**Table 1-3 SPARCstation 5**

| <b>Name</b> | <b>Attribute</b>                   |
|-------------|------------------------------------|
| OS          | Solaris 2.5.1 or 2.6 (SunOS 5.5.1) |
| SNA         | SunLink 9.1                        |
| APP         | Tuxedo 6.5                         |
| MAC         | 08:00:20:87:47:2d                  |
| IP          | 206.189.43.54                      |
| NAME        | dalsun4                            |

**Table 1-4 HP 9000/847**

| <b>Name</b> | <b>Attribute</b>  |
|-------------|---|
| OS          | HP-UX B.10.20 or 11.00<br>(patches:PHNE_9663,9761,9889) |
| SNA         | HPSNAPlus2 5.1 or 6.0                                   |
| APP         | Tuxedo 6.5  |
| MAC         | 08:00:09:30:24:77                                       |
| IP          | 206.189.43.13   |
| NAME        | dalhp10   |

**Table 1-5 P390 Server 500**

| <b>Name</b> | <b>Attribute</b>      |
|-------------|-----------------------|
| OS          | MVS 5.22 9510         |
| SNA         | VTAM 4.3              |
| APP         | CICS 4.1 / IMS DC 5.1 |
| MAC         | 10:00:5a:d4:3e:8e     |
| IP          | 206.189.43.98         |
| NAME        | beavs                 |

**Table 1-6 P390 Server 500**

| <b>Name</b> | <b>Attribute</b>  |
|-------------|-------------------|
| OS          | OS/390 1.2        |
| SNA         | VTAM 4.3          |
| APP         | CICS 4.1          |
| MAC         | 10:00:5a:d4:c1:e0 |
| IP          | 206.189.43.96     |
| NAME        | dalvs2            |

**Table 1-7 Windows NT Server**

| Name | Attribute                  |
|------|----------------------------|
| OS   | Windows NT Server 4.0, SP2 |
| SNA  | MS SNA Server 4.0, SP3     |
| APP  | CICS 4.1                   |
| MAC  | 10:00:5a:d4:c1:e0          |
| IP   | 206.189.43.99              |
| NAME | dalnt                      |

## Local Environment Configuration

HPSNAPLus2 configurations are usually setup using the HP xSnapAdmin utility, resulting in the configuration text file `/etc/opt/sna/sna_node.cfg`. This file can be manually created and/or maintained using a text editor; however, using the HP xSnapAdmin utility is recommended. The following example is the `sna_node.cfg` file for the sample environment.

### Listing 1-1 HPSNAPLus2 Configuration

---

```
[define_node_config_file]
major_version = 5
minor_version = 1
update_release = 1
revision_level = 116

[define_node]
node_name = dalhpl0
description = snacrm development
node_type = END_NODE
fqcp_name = BEALAN.DALHP10
cp_alias = dalhpl0
mode_to_cos_map_supp = NO
mds_supported = YES
node_id = <05ffffff>
max_locates = 100
dir_cache_size = 255
```

```
max_dir_entries = 0
locate_timeout = 60
reg_with_nn = YES
reg_with_cds = YES
mds_send_alert_q_size = 100
cos_cache_size = 24
tree_cache_size = 40
tree_cache_use_limit = 40
max_tdm_nodes = 0
max_tdm_tgs = 0
max_isr_sessions = 1000
isr_sessions_upper_threshold = 900
isr_sessions_lower_threshold = 800
isr_max_ru_size = 16384
isr_rcv_pac_window = 8
store_endpt_rscvs = NO
store_isr_rscvs = NO
store_dlur_rscvs = NO
dlur_support = YES
pu_conc_support = NO
nn_rar = 128
ptf_flags = NONE
```

## **[define\_ethernet\_dlc]**

```
dlc_name = ETHER0
description = ""
neg_ls_supp = YES
initially_active = NO
adapter_number = 0
```

## **[define\_ethernet\_port]**

```
port_name = ethl0
description = 1st ethernet adapter
dlc_name = ETHER0
port_type = PORT_SATF
port_number = 1
max_rcv_btu_size = 1033
tot_link_act_lim = 64
inb_link_act_lim = 0
out_link_act_lim = 0
ls_role = LS_NEG
act_xid_exchange_limit = 9
nonact_xid_exchange_limit = 5
ls_xmit_rcv_cap = LS_TWS
max_ifrm_rcvd = 7
target_pacing_count = 7
max_send_btu_size = 1033
mac_address = <000000000000>
lsap_address = 0x08
```

```
implicit_cp_cp_sess_support = NO
implicit_limited_resource = NO
implicit_deact_timer = 0
effect_cap = 3993600
connect_cost = 0
byte_cost = 0
security = SEC_NONSECURE
prop_delay = PROP_DELAY_LAN
user_def_parm_1 = 0
user_def_parm_2 = 0
user_def_parm_3 = 0
initially_active = YES
test_timeout = 5
test_retry_limit = 2
xid_timeout = 5
xid_retry_limit = 2
tl_timeout = 5
tl_retry_limit = 5
```

```
[define_ethernet_ls]
ls_name = P390HP10
description = P390 - beavs
port_name = eth10
adj_cp_name = P390.USS3270
adj_cp_type = LEARN_NODE
mac_address = <0020af543176>
lsap_address = 0x08
auto_act_supp = NO
tg_number = 0
limited_resource = NO
solicit_sscp_sessions = NO
pu_name = <0000000000000000>
disable_remote_act = NO
default_nn_server = NO
dspu_services = NONE
dspu_name = <0000000000000000>
dlus_name = <00000000000000000000000000000000>
bkup_dlus_name = <00000000000000000000000000000000>
link_deact_timer = 0
use_default_tg_chars = YES
ls_attributes = SNA
adj_node_id = <00000000>
local_node_id = <00000000>
cp_cp_sess_support = YES
effect_cap = 3993600
connect_cost = 0
byte_cost = 0
security = SEC_NONSECURE
prop_delay = PROP_DELAY_LAN
```

# 1 *Understanding the SNACRM*

---

```
user_def_parm_1 = 0
user_def_parm_2 = 0
user_def_parm_3 = 0
target_pacing_count = 7
max_send_btu_size = 1033
ls_role = USE_PORT_DEFAULTS
initially_active = NO
react_timer = 30
react_timer_retry = 65535
test_timeout = 5
test_retry_limit = 2
xid_timeout = 5
xid_retry_limit = 2
tl_timeout = 5
tl_retry_limit = 5

[define_local_lu]
lu_name = LUHP10A
description = Test LU #1
lu_alias = LUHP10A
nau_address = 0
syncpt_support = YES
lu_session_limit = 0
default_pool = NO
pu_name = <00000000000000000>
sys_name = ""
timeout = -1
back_level = NO

[define_local_lu]
lu_name = LUHP10B
description = Test LU #2
lu_alias = LUHP10B
nau_address = 0
syncpt_support = YES
lu_session_limit = 0
default_pool = NO
pu_name = <00000000000000000>
sys_name = ""
timeout = -1
back_level = NO

[define_local_lu]
lu_name = LUHP10C
description = Test LU #3
lu_alias = LUHP10C
nau_address = 0
syncpt_support = YES
lu_session_limit = 0
```

```
default_pool = NO
pu_name = <0000000000000000>
sys_name = ""
timeout = -1
back_level = NO

[define_partner_lu]
description = APPC MVS LU for IMS
fqplu_name = P390.MVSLU01
plu_alias = MVSLU01
plu_un_name = MVSLU01
max_mc_ll_send_size = 32767
conv_security_ver = NO
parallel_sess_supp = YES

[define_partner_lu]
description = backend cics #1
fqplu_name = P390.C410XB01
plu_alias = C410XB01
plu_un_name = C410XB01
max_mc_ll_send_size = 32767
conv_security_ver = NO
parallel_sess_supp = YES

[define_partner_lu]
description = Second backend cics
fqplu_name = P390.C410XB02
plu_alias = CICS2
plu_un_name = C410XB02
max_mc_ll_send_size = 32767
conv_security_ver = NO
parallel_sess_supp = YES

[define_mode]
mode_name = SMSNA100
description = Sessions: 10 -- 5,5
max_ru_size_upp = 1024
receive_pacing_win = 4
default_ru_size = YES
max_neg_sess_lim = 256
plu_mode_session_limit = 10
min_conwin_src = 5
cos_name = #eLink
cryptography = NONE
auto_act = 0
```

---

## Remote Environment Configurations

You must involve your mainframe system support personnel early in the process of setting up your configuration. In a large shop there will most likely be different individuals responsible for Multiple Virtual Storage (MVS), VTAM, CICS, and IMS. Make sure everyone is involved. Most of the configuration for your mainframe may have already been done.

These samples are provided for illustration. Mainframe technical support is not trivial, and this information is not intended to explain all of the possible configurations. These samples represent one way a P390 can be configured to work in an APPN LAN environment.

### ATCSTRxx VTAM Start List

The following example is the VTAM start list for the BEAVS P390 machine. It supports both the subarea and APPN environments.

#### Listing 1-2 VTAM Start List for BEAVS P390

---

```
* ----- *
* VTAM START LIST FOR SYS1 *
* ----- *
BN=YES,
BNDYN=FULL,
XNETALS=YES,
SSCPID=06,NOPROMPT,
CONFIG=00,MAXSUBA=31,SUPP=NOSUP,
SSCPNAME=USS3270,
NETID=P390,
NODETYPE=NN,
HOSTSA=6,
CRPLBUF=(208,,15,,1,16),
IOBUF=(100,512,19,,1,20),
LFBUF=(104,,0,,1,1),
LPBUF=(64,,0,,1,1),
SFBUF=(163,,0,,1,1)
```

---

## XCA Major Node Defines the LAN Adapter for SYS1

This definition is set up for use with a 3172 (emulated) for connecting an APPN network node to another APPN node. Note that it is for an Ethernet LAN, and the SAPADDR specified must be the same as the LSap specified for the local link station.

### Listing 1-3 XCA Major Node

---

```

XETH2LP1 VBUILD TYPE=XCA ** EXTERNAL COMMUNICATION ADAPT**
PORTE2   PORT  ADAPNO=1,      ** 3172 RELATIVE ADAPTER NUMBER**
          CUADDR=E22,        ** CHANNEL UNIT ADDRESS          **
          MEDIUM=CSMACD,    ** LAN TYPE=ETHERNET          **
          SAPADDR=8,         ** SERVICE ACCESS POINT ADDRESS**
          TIMER=120          ** CHANNEL ACTIVATE RESP TIME    **

*
G1ETH2   GROUP DIAL=YES,      ** YES required for putype 2  **
          DYNPU=YES,
          CALL=INOUT,
          ANSWER=ON,
          ISTATUS=ACTIVE

LETH20   LINE
PETH20   PU
LETHE3   LINE
PETHE3   PU
LETHF3   LINE
PETHF3   PU

```

---

## Switched Network (SWNET) Definitions

The three switched network definition examples in this section specify the VTAM PU (Physical Unit), representing the local link stations that expect to connect with the host machine. The IDBLK and IDNUM definitions are provided to support 3270 traffic and must be unique, as well as match the values specified in the local link definition.

### Listing 1-4 SWNET Major Node (DALHP10)

---

```

SWNETHHP VBUILD TYPE=SWNET, MAXNO=3, MAXGRP=3
P390HP10 PU  ADDR=02,
          IDBLK=05F,
          IDNUM=FFFFFF,
          PUTYPE=2,

```

---

# 1 *Understanding the SNACRM*

---

```
NETID=BEALAN,
CPNAME=DALHP10,
MAXPATH=3,
DWACT=YES,
CONNTYPE=APPN,
CPCP=YES,
DYNLU=YES
* -----
* SNA SAP & HP10 MAC ADDRESS BIT REVERSED FOR TRFMT
* -----
PATHHP      PATH DIALNO=00041000900C24EE,
              GRPNM=G1ETH2
LUHP10A LU   LOCADDR=0
LUHP10B LU   LOCADDR=0
LUHP10C LU   LOCADDR=0
```

---

**Listing 1-5 SSWNET Major Node (SUN2)**

---

```
SWNETH2      VBUILD  TYPE=SSWNET,MAXNO=3,MAXGRP=3
P390ETH2     PU   ADDR=04,
              IDBLK=019,
              IDNUM=10092,
              PUTYPE=2,
              NETID=BEALAN,
              CPNAME=SUN2,
              MAXPATH=3,
              DWACT=YES,
              CONNTYPE=APPN,
              CPCP=YES,
              DYNLU=YES

* -----
* SNA SAP & SUN2 MAC ADDRESS BIT REVERSED FOR TRFMT
* -----
PATH01       PATH DIALNO=00081000043EE20A,
              GRPNM=G1ETH2
LUSUN2A LU   LOCADDR=0
LUSUN2B LU   LOCADDR=0
LUSUN2C LU   LOCADDR=0
```

---

## Listing 1-6 SWNET Major Node (SUN4)

---

```
SWNESUN4    VBUILD  TYPE=SWNET,MAXNO=3,MAXGRP=3
P390ETH4    PU    ADDR=03,
              IDBLK=018,
              IDNUM=10092,
              PUTYPE=2,
              NETID=BEALAN,
              CPNAME=SUN4,
              MAXPATH=3,
              DWACT=YES,
              CONNTYPE=APPN,
              CPCP=YES,
              DYNLU=YES

* -----
* SNA SAP & SUN4 MAC ADDRESS BIT REVERSED FOR TRFMT
* -----
PATHSL4      PATH DIALNO=0008100002E1E2B4,
              GRPNM=G1ETH2
LUSUN4A    LU    LOCADDR=0
LUSUN4B    LU    LOCADDR=0
LUSUN4C    LU    LOCADDR=0
```

---

## VTAM Application Major Nodes for CICS Regions

These examples represent the partner LU definitions to be accessed from the local environment. The APPL names must match those specified in the partner LU definitions on the local machine.

## Listing 1-7 Partner LU Definitions

---

```
BEACICS VBUILD TYPE=APPL                      APPLICATION MAJOR NODE
* APPL DEFINITION STATEMENTS FOR CICS
* CICS 4.10 BACKEND REGION #1 SYSID=B41A
C410XB01 APPL EAS=64,                          ESTIMATED CONCURRENT SESSIONS
              MODETAB=ISTINCLM,                MAKE SURE DEFAULT MODETAB
              PARSESS=YES,
              AUTH=(ACQ,BLOCK,PASS) CICS CAN ACQUIRE & PASS TMLS
                                      CICS CAN REQUEST BLOCKED INPUT

C410XB02 APPL EAS=64,                          ESTIMATED CONCURRENT SESSIONS
              MODETAB=ISTINCLM,                MAKE SURE DEFAULT MODETAB
              PARSESS=YES,
```

```

                                AUTH=(ACQ,BLOCK,PASS) CICS CAN ACQUIRE & PASS TMLS
                                CICS CAN REQUEST BLOCKED INPUT
C410XB03 APPL EAS=64,          ESTIMATED CONCURRENT SESSIONS
                                MODETAB=ISTINCLM,      MAKE SURE DEFAULT MODETAB
                                PARSESS=YES,
                                AUTH=(ACQ,BLOCK,PASS) CICS CAN ACQUIRE & PASS TMLS
                                                CICS CAN REQUEST BLOCKED INPUT

* #####
* END OF BEACICS APPL DEF
* #####

```

---

### CICS Resource Definition Entries (RDO)

CICS connection and session definitions map the VTAM path definitions for the CICS application. Each connection represents one local LU definition in the local SNA configuration. Therefore, the names must match.

CICS session definitions associate a VTAM mode with the LU specified in the connection. The mode names and session count characteristics must match those specified in the mode definitions for the local SNA configuration. Note that these definitions set `AUTOCONNECT` to `YES`, allowing automatic session acquisition for a CICS client application.

#### Listing 1-8 CICS Resource Definition Entries

---

```

LIST GROUP(BEAHP10) OBJECTS
GROUP NAME: BEAHP10
-----
CONNECTIONS:          FHPA          FHPB          FHPC
SESSION              FHPA          FHPB          FHPC

CONNECTION(FHPA)          GROUP(BEAHP10)
DESCRIPTION(1ST HP SNAP2+ CONNECTION)
CONNECTION-IDENTIFIERS
  NETNAME(LUHP10A)          INDSYS( )
REMOTE-ATTRIBUTES
  REMOTESYSTEM( ) REMOTENAME( ) REMOTESYSNET( )
CONNECTION-PROPERTIES
  ACCESSMETHOD(VTAM)          PROTOCOL(APPC) CONNNTYPE( )
  SINGLESESS(NO)              DATASTREAM(USER) RECORDFORMAT(U)
  QUEUELIMIT(NO)              MAXQTIME(NO)
OPERATIONAL-PROPERTIES
  AUTOCONNECT(NO)              INSERVICE(YES)

```

# 1 Understanding the SNACRM

---

```
SECURITY
  SECURITYNAME ( )          ATTACHSEC (LOCAL)  BINDSECURITY (NO)
  USEDFLTUSER (NO)
RECOVERY
  PSRECOVERY (SYSDEFAULT)

CONNECTION (FHPB)          GROUP (BEAHP10)
DESCRIPTION (2ND HP SNA+ 2 CONNECTION)
CONNECTION-IDENTIFIERS
  NETNAME (LUHP10B)          INDSYS ( )
REMOTE-ATTRIBUTES
  REMOTESYSTEM ( )          REMOTENAME ( )    REMOTESYSNET ( )
CONNECTION-PROPERTIES
  ACCESSMETHOD (VTAM)        PROTOCOL (APPC)    CONNTYPE ( )
  SINGLESESS (NO)            DATASTREAM (USER) RECORDFORMAT (U)
  QUEUELIMIT (NO)           MAXQTIME (NO)
OPERATIONAL-PROPERTIES
  AUTOCONNECT (NO)          INSERVICE (YES)
SECURITY
  SECURITYNAME ( )          ATTACHSEC (LOCAL)  BINDSECURITY (NO)
  USEDFLTUSER (NO)
RECOVERY
  PSRECOVERY (SYSDEFAULT)

CONNECTION (FHPC)          GROUP (BEAHP10)
DESCRIPTION (3RD HP SNA+ 2 CONNECTION)
CONNECTION-IDENTIFIERS
  NETNAME (LUHP10C)          INDSYS ( )
REMOTE-ATTRIBUTES
  REMOTESYSTEM ( )          REMOTENAME ( )    REMOTESYSNET ( )
CONNECTION-PROPERTIES
  ACCESSMETHOD (VTAM)        PROTOCOL (APPC)    CONNTYPE ( )
  SINGLESESS (NO)            DATASTREAM (USER) RECORDFORMAT (U)
  QUEUELIMIT (NO)           MAXQTIME (NO)
OPERATIONAL-PROPERTIES
  AUTOCONNECT (NO)          INSERVICE (YES)
SECURITY
  SECURITYNAME ( )          ATTACHSEC (LOCAL)  BINDSECURITY (NO)
  USEDFLTUSER (NO)
RECOVERY
  PSRECOVERY (SYSDEFAULT)

SESSIONS (FHPA)          GROUP (BEAHP10)
DESCRIPTION (1ST HP SNAP2+ SESSION)
SESSION-IDENTIFIERS
  CONNECTION (FHPA)          SESSNAME ( )      NETNAMEQ ( )
  MODENAME (SMSNA100)
SESSION-PROPERTIES
  PROTOCOL (APPC)            MAXIMUM (32,16)   RECEIVEPFX ( )
```

|                            |                      |                    |
|----------------------------|----------------------|--------------------|
| RECEIVECOUNT ( )           | SENDFPX ( )          | SEND COUNT ( )     |
| SENDSIZE ( 4096 )          | RECEIVESIZE ( 4096 ) | SESSPRIORITY ( 0 ) |
| PRESET-SECURITY            |                      |                    |
| USERID ( )                 |                      |                    |
| OPERATIONAL-PROPERTIES     |                      |                    |
| AUTOCONNECT ( YES )        | BUILDCHAIN ( YES )   | USERAREALEN ( 0 )  |
| IOAREALEN ( 0 , 0 )        | RELREQ ( NO )        | DISCREQ ( NO )     |
| NEPCCLASS ( 0 )            |                      |                    |
| RECOVERY                   |                      |                    |
| RECOVOPTION ( SYSDEFAULT ) |                      |                    |

## SESSIONS ( FHPB )

## GROUP ( BEAHP10 )

### DESCRIPTION ( 2ND HP SNAP2+ SESSION )

|                            |                      |                    |
|----------------------------|----------------------|--------------------|
| SESSION-IDENTIFIERS        |                      |                    |
| CONNECTION ( FHPB )        | SESSNAME ( )         | NETNAMEQ ( )       |
| MODENAME ( SMSNA100 )      |                      |                    |
| SESSION-PROPERTIES         |                      |                    |
| PROTOCOL ( APPC )          | MAXIMUM ( 32 , 16 )  | RECEIVEPFX ( )     |
| RECEIVECOUNT ( )           | SENDFPX ( )          | SEND COUNT ( )     |
| SENDSIZE ( 4096 )          | RECEIVESIZE ( 4096 ) | SESSPRIORITY ( 0 ) |
| PRESET-SECURITY            |                      |                    |
| USERID ( )                 |                      |                    |
| OPERATIONAL-PROPERTIES     |                      |                    |
| AUTOCONNECT ( YES )        | BUILDCHAIN ( YES )   | USERAREALEN ( 0 )  |
| IOAREALEN ( 0 , 0 )        | RELREQ ( NO )        | DISCREQ ( NO )     |
| NEPCCLASS ( 0 )            |                      |                    |
| RECOVERY                   |                      |                    |
| RECOVOPTION ( SYSDEFAULT ) |                      |                    |

## SESSIONS ( FHPC )

## GROUP ( BEAHP10 )

### DESCRIPTION ( 3RD HPSNAP2+ SESSION )

|                            |                      |                    |
|----------------------------|----------------------|--------------------|
| SESSION-IDENTIFIERS        |                      |                    |
| CONNECTION ( FHPC )        | SESSNAME ( )         | NETNAMEQ ( )       |
| MODENAME ( SMSNA100 )      |                      |                    |
| SESSION-PROPERTIES         |                      |                    |
| PROTOCOL ( APPC )          | MAXIMUM ( 10 , 5 )   | RECEIVEPFX ( )     |
| RECEIVECOUNT ( )           | SENDFPX ( )          | SEND COUNT ( )     |
| SENDSIZE ( 4096 )          | RECEIVESIZE ( 4096 ) | SESSPRIORITY ( 0 ) |
| PRESET-SECURITY            |                      |                    |
| USERID ( )                 |                      |                    |
| OPERATIONAL-PROPERTIES     |                      |                    |
| AUTOCONNECT ( YES )        | BUILDCHAIN ( YES )   | USERAREALEN ( 0 )  |
| IOAREALEN ( 0 , 0 )        | RELREQ ( NO )        | DISCREQ ( NO )     |
| NEPCCLASS ( 0 )            |                      |                    |
| RECOVERY                   |                      |                    |
| RECOVOPTION ( SYSDEFAULT ) |                      |                    |



# 2 Administering the SNA Components

This chapter discusses the following topics:

- “Administration Facilities”
- “The SNACRM and PU 2.1 Servers”
- “The SNACRM Monitor”
- “Activating and De-Activating Links”

## Administration Facilities

The topics in this section cover activities an administrator performs with the System Network Architecture Communications Resource Manager (SNACRM) to maintain BEA eLink Java Adapter for Mainframe WLS Edition (JAM) applications.

The interface to the stack administration and configuration is dependent on the stack provider and thus cannot be covered in this guide. Refer to vendor publications for the stack(s) used in your environment.

# The SNACRM and PU 2.1 Servers

The SNACRM is a server that communicates directly with the PU 2.1 server to provide SNA connectivity. These servers can be started manually. The PU 2.1 server must always be started before the SNACRM. Both servers must be started before starting the associated SNA domain gateway.

## Starting the PU2.1 Server

Refer to the operational documentation provided by your SNA stack vendor for information about starting the PU2.1 server. The SNA stack must be running and active before you start the SNACRM.

## Starting the SNACRM

When you start the SNACRM from the UNIX command line, the SNACRM Command Line Console puts its prompt in a window, and if exited, shuts down all of the active links. On Windows NT, the SNACRM can be started in its own window, however, no prompt is displayed and no console commands are available. Please refer to [SNACRM](#) in “Command Reference Pages” for more detailed information.

# The SNACRM Monitor

You can use the SNACRM monitor to set trace levels for a selected SNACRM and the associated APPC stacks. You also can observe link activity and display trace status, link status, and link statistics.

**Note:** The SNACRM monitor does not show trace data. This data is captured in a file under the `APPDIR` directory (where `APPDIR` is the variable name associated with the application directory). Please contact BEA Customer Support for help in locating the trace file(s) and interpreting them.

The JAM software includes two utilities that launch and execute the SNACRM monitor. The `xsnacrm` utility is designed for UNIX platforms and requires Motif libraries. The `jsnacrm` utility is designed for Windows NT platforms and supplies both a Java-based application and an applet.

The following discussion relates to the Windows NT-based SNACRM monitor only. Refer to [xsnacrm](#) in “Command Reference Pages” for detailed information about the UNIX-based SNACRM monitor.

The BEA eLink Java Adapter for Mainframe WLS Edition software CDROM contains the following files associated with the `jsnacrm` utility:

- `bealogo.gif`
- `jsnacrm.html`
- `jsnacrm.jar`
- `moncrm.jar`
- `moncrm.x509`

## **Prerequisite for Running the JSNACRM Utility on an NT Platform**

The `jsnacrm` utility is written in Java as both an application and an applet. The application launches and executes like any other Java application and can be set up so it is accessible from the Windows desktop. The applet launches and executes from a network browser.

## **Running the Java Applet Version**

The following sections describe how to set up and run the Java applet version of the JSNACRM utility.

### Prerequisites for Running the Java Applet Version

You must have either Netscape Communicator 4.x or Internet Explorer 4.x or 5.x installed on your NT Windows system. You also must have the Java plug-in installed on your system. You can download this plug-in from the following internet location:

`http://java.sun.com/products/plugin`

**Note:** If the Java plug-in is not already installed on your system, when you attempt to open the `jsnacrm.html` file, the program prompts you for an automatic download of the plug-in by the browser.

Next, you must set up your system to accept code signed by the identity `moncrm`. To do this, perform the following steps:

1. Create the identity `moncrm` in your JDK 1.1 identity database. By entering the parameter `true`, you establish `moncrm` to be a trusted identity.
2. Import the `moncrm` certificate into your identity database. To associate the certificate with the identity, use the nickname `moncrm` as the first argument to the `jvakey` command.

```
jvakey -c moncrm true
```

```
jvakey -ic moncrm %TUXDIR%\bin\moncrm.x509
```

### Starting the Java Applet

To start the Java applet in an existing browser, open the file:

```
<tuxedo-path>\bin\jsnacrm.html
```

To build a shortcut to start the Java applet using a separate instance of your network browser, enter the following command:

```
<browser-pathname> %TUXDIR%\bin\jsnacrm.html
```

### Running the Java Applet Version

Set up your applet version to monitor either a local or remote SNACRM. To do this, you make selections on the Java Plug-in Properties control panel. This control panel is automatically downloaded with the plug-in and is initiated from the Windows Start Programs pop-up menu. Refer to online documentation about the control panel at the following Internet location:

`http://java.sun.com/products/plugin/1.1.1/docs`

When the Monitor screen displays (Figure 2-1), enter the address of the SNACRM that you want to monitor in the field at the top of the screen.

To monitor a local SNACRM, select Applet Host from the Network Access drop-down menu. Type the following in the Enter SNACRM Address panel:

`//localhost:port`

where:

`localhost`

Explicitly specifies the local host.

`port`

Specifies the port number of the SNACRM on the local host.

To monitor a remote SNACRM, select Unrestricted from the Network Access drop down menu. Type the following in the Enter SNACRM Address panel:

`//remotehostname:address`

where:

`remotehostname`

Specifies the remote host.

`address`

Specifies the network address of the SNACRM on the remote host.

The GUI contains two screen areas that require user entry and four screen areas that display information about the SNACRM being monitored. Status messages are displayed at the bottom of the screen. The GUI screen functions are listed in Table 2-1 and shown in Figure 2-1.

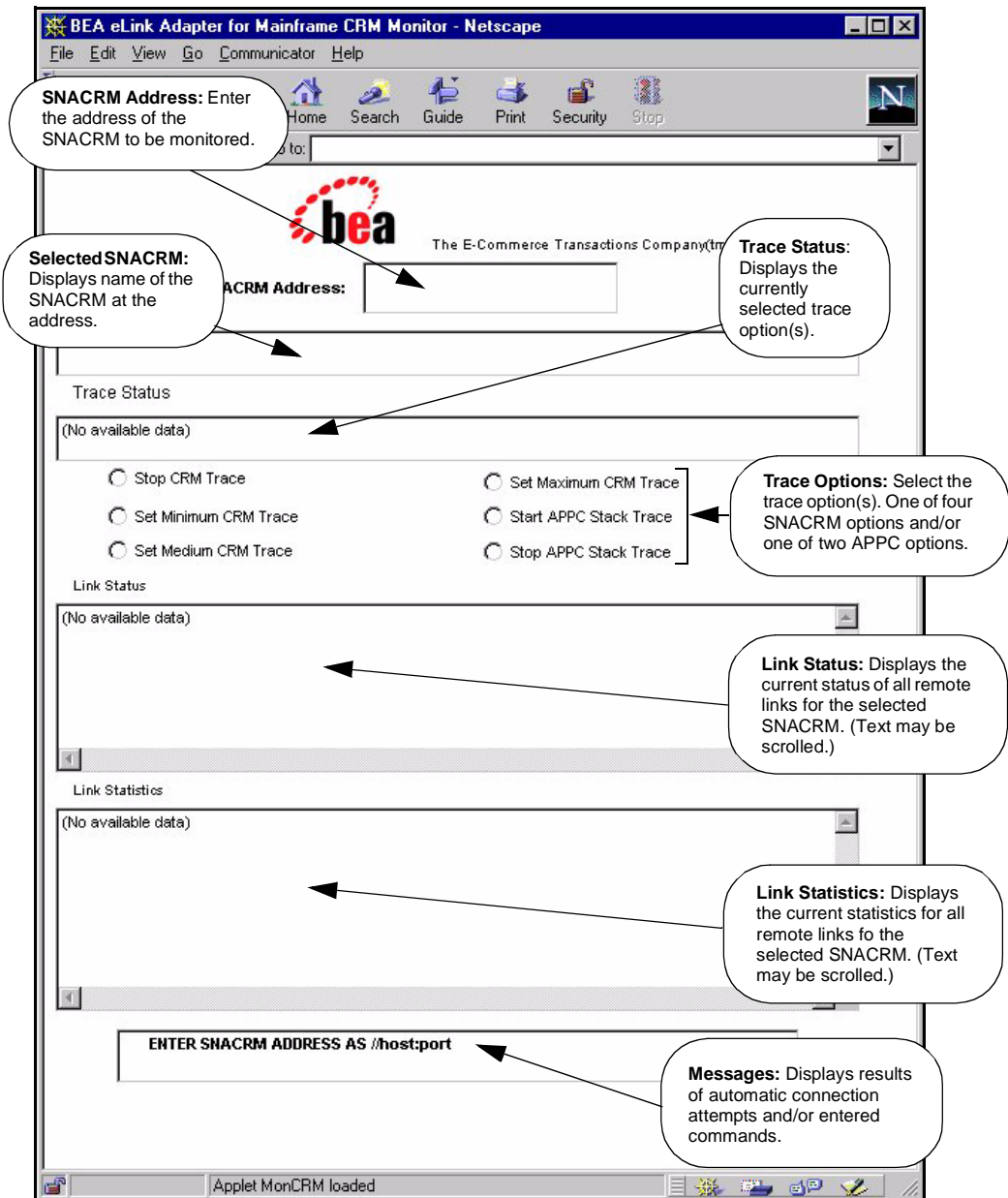
**Table 2-1 SNACRM Monitor Screen Functions**

| Display Section | Function   |
|-----------------|--|
| SNACRM Address  | This is where you enter the address of the SNACRM to be monitored.           |
| Selected SNACRM | Displays the name of the SNACRM at the address entered in the address field. |
| Trace Status    | Displays the currently selected trace options.                               |

**Table 2-1 SNACRM Monitor Screen Functions**

| Display Section | Function  |
|-----------------|---|
| Trace Options   | <ul style="list-style-type: none"><li>■ <b>Stop CRM Trace</b> disables SNACRM tracing and closes the trace file, if it exists.</li><li>■ <b>Set Minimum CRM Trace</b> establishes tracing of only major events. This level is sufficient only to determine the sequence of application conversations.</li><li>■ <b>Set Medium CRM Trace</b> establishes minimum tracing plus tracing of all I/O buffers.</li><li>■ <b>Set Maximum CRM Trace</b> establishes medium tracing plus tracing of all APPC verbs.</li><li>■ <b>Start APPC Stack Trace</b> establishes tracing of the APPC stack. Generally shows the parameters and results of all API calls. Depending on the stack being used, other options such as vendor-specified environment variables also may have to be activated. May be selected along with any of the previous Trace Options.</li><li>■ <b>Stop APPC Stack Trace</b> disables APPC stack trace, if established.</li></ul> |
| Link Status     | Displays the current status of all remote links for the selected SNACRM. (Text may be scrolled.)  |
| Link Statistics | Displays the current statistics for all remote links for the selected SNACRM. (Text may be scrolled.)   |
| Message Line    | Displays messages showing either the results of automatic connection attempts or commands issued to change the trace options.   |

Figure 2-1 The SNACRM Monitor Running as an Applet on a Network Browser



# Running the Java Application Version

The Java application version displays and operates identically to the applet version. Refer to screen definitions and functions discussed under “Running the Java Applet Version.”

To build a shortcut for starting the Java application version, perform the following steps:

1. Enter the command:

```
jrew -classpath %ClassPath%;jsnacrm.jar jsnacrm
```

2. Start the application in the directory %TUXDIR%\bin so it can find its files.

To run from a command window, perform the following steps:

1. Change directory to %TUXDIR%\bin.

2. Enter the command:

```
jrew -classpath %ClassPath%;jsnacrm.jar jsnacrm
```

# Activating and De-Activating Links

The JAM gateway software provides a command line tool you can use to activate and de-activate links that have been defined in the `JM_SNALINKS` section of the `jcrmgw.cfg` file. This tool consists of two commands and their associated parameters: `crmlkon` and `crmlkoff`.

**Note:** If a link to a remote host is de-activated and re-activated by the host, the JAM software normally re-establishes the link automatically. If this does not occur, you can use the `crmlkon` command to re-establish the link.

## Using the `crmlkon` Command

You can start one or more SNA links with this command. Use the following syntax:

```
crmlkon -n<hostname:port> [-v -i -h] <linkname> ...
```

where:

`-n`

indicates that the parameters immediately following are the `hostname` and `port` of the machine running the SNACRM where the `linkname` is located.

`hostname:port`

specifies the IP host name and port of the machine running the SNACRM where the `linkname` is located.

`-v`

specifies that this command displays verbose output.

`-i`

causes the command to ignore errors and attempt to start all links specified on the command line.

`h`

invokes a help screen that shows the syntax usage for this command.

`linkname`

specifies the link name(s) to start.

**Note:** There is no notification that the link(s) started with the `crmlkon` command are activated. Use the SNACRM monitor to verify a link is active. Refer to [“The SNACRM Monitor”](#) for more information.

# Using the `crmlkoff` Command

You can stop one or more SNA links with this command. Use the following syntax:

```
crmlkoff -n<hostname:port> [-v -i -h] <linkname> ...
```

where:

`-n`

indicates that the parameters immediately following are the `hostname` and port of the machine running the SNACRM where the `linkname` is located. This is required.

`hostname:port`

specifies the IP host name and port of the machine running the SNACRM where the `linkname` is located.

`-v`

specifies that this command displays verbose output.

`-i`

causes the command to ignore errors and attempt to stop all links specified on the command line.

`h`

invokes a help screen that shows the syntax usage for this command.

`linkname`

specifies the link name(s) to start.

**Note:** There is no notification that the link(s) stopped with the `crmlkoff` command are de-activated. Use the SNACRM monitor to verify a link is not active. Refer to [“The SNACRM Monitor”](#) for more information.

# A Command Reference Pages

This appendix discusses the following commands:

- [CRMLOGS](#)
- [crmlkoff](#)
- [crmlkon](#)
- [SNACRM](#)
- [xsnacrm](#)

# CRMLOGS

Displays the content and state of the SNA Communications Resource Manager (SNACRM) log files in the current directory.

**Synopsis** CRMLOGS <group> [<crm name>]

**Description** You can use the CRMLOGS command to display the contents and state of the two SNACRM log files. RSTRTLOG is the transaction state log used during the recovery process and the BLOBLOG log stores session and link information. Deleting the log files require a cold start for each link involved.

CRMLOGS requires the following parameters:

**group**  
SNA domain group name (required)

**crm name**  
SNACRM name (default SNACRM)

**Diagnostics** CRMLOGS exits with a return code of 0 upon successful completion.

**Examples** To display the RSTRTLOG log file for group2, type:

```
CRMLOGS GROUP2 SNACRM.GROUP2.RSTRTLOG
```

To display the BLOBLOG log file for group1, type:

```
CRMLOGS GROUP1 SNACRM.GROUP1.BLOBLOG
```

**See Also** [SNACRM](#) and [xsnacrm](#)

# crmlkoff

Stop one or more named SNACRM links.

|             |   |
|-------------|---|
| Synopsis    | <code>crmlkoff -n&lt;hostname:port&gt; [-v -i -h] &lt;linkname&gt; ...</code>   |
| Description | <p><code>crmlkoff</code> stops all of the SNACRM links named on the command line. This is useful if one or more individual links need to be stopped after the SNACRM server is booted. It can be used from any machine located on the same TCP/IP network as the machine running the SNACRM server. It can be used in a script and returns zero if the command is sent to the target SNACRM. It returns one if the command is not successfully sent to the target SNACRM.</p> <p><code>-n</code><br/>names the machine and port running the SNACRM server.</p> <p><code>-v</code><br/>specifies verbose. Normally, the command will not produce any messages facilitating use in a script.</p> <p><code>-i</code><br/>ignores errors. When specifying multiple links, any error encountered when issuing SNACRM commands causes <code>crmlkoff</code> to stop processing links and return. Errors can be ignored for individual links, and processing continued with the next named link.</p> <p><code>&lt;linkname&gt;</code><br/>names the link to be stopped. This is the <code>*DM_SNALINKS</code> entry in the <code>DMCONFIG</code> that defines this link. Multiple link names can be specified.</p> |
| Portability | <code>crmlkoff</code> is an administrative tool available on all platforms supporting a JAM SNACRM.   |
| Example     | <p>To stop links <code>link1</code> and <code>cicstest</code> owned by the SNACRM running on <code>mach</code> at port 5000:</p> <pre>crmlkoff -n mach:5000 link1 cicstest</pre>  |
| Diagnostics | <code>crmlkoff</code> only checks the syntax of the command. Separate facilities, either <code>xsnacrm</code> or mainframe-based facilities must be used to determine if the link actually became inactive. If the command is not successfully sent to the SNACRM and mode is set to verbose, <code>crmlkoff</code> prints an error message and exits with error code one. Upon successful completion, <code>crmlkoff</code> exits with exit code zero.   |

See Also [crmlkon\(1\)](#), [xsnacrm\(1\)](#)

# crmlkon

Start one or more named SNACRM links.

**Synopsis** `crmlkon -n<hostname:port> [-v -i -h] <linkname> ...`

**Description** `crmlkon` starts all of the SNACRM links named on the command line. This is useful if one or more individual links failed to start when the SNACRM server booted. It can be used from any machine located on the same TCP/IP network as the machine running the SNACRM server. It can be used in a script and returns zero if the command is sent to the target SNACRM. It returns one if the command is not successfully sent to the target SNACRM.

**-n**  
names the machine and port running the SNACRM server.

**-v**  
specifies verbose. Normally the command will not produce any messages, facilitating use in a script.

**-i**  
ignores errors. When specifying multiple links, any error encountered when issuing SNACRM commands causes `crmlkon` to stop processing links and return. Errors can be ignored for individual links, and processing continued with the next named link.

**<linkname>**  
names the link to be started. This is the `*DM_SNALINKS` entry in the `DMCONFIG` that defines this link. Multiple link names can be specified.

**Portability** `crmlkon` is an administrative tool available on all platforms supporting a JAM SNACRM.

**Example** To start links `link2` and `cicstest` owned by the SNACRM running on `mach1` at port 5000:

```
crmlkon -n mach1:5000 link2 cicstest
```

**Diagnostics** `crmlkon` only checks the syntax of the command. Separate facilities, either `xsnacrm` or mainframe based facilities must be used to determine if the link actually became active. If the command could not be successfully sent to the SNACRM, `crmlkon` prints an error message, if in verbose mode, and exits with error code 1. Upon successful completion, `crmlkon` exits with exit code 0.

**See Also** `crmlkon(1)`, `xsnacrm(1)`

# SNACRM

Launches the SNA Communications Resource Manager.

**Synopsis** `SNACRM [ -t 0|1|2|3 ] [-s] <addr> <group>`

**Description** `SNACRM` provides all of the Sync-Level 2 logic for a JAM gateway and directly communicates with the PU2.1 server.

When you start `SNACRM` from the command line, the SNACRM Command Line Console puts its prompt in the window and, if exited, shuts down all of the active links.

**Note:** A JCRMGW boot can automatically start a `SNACRM` for the gateway WLS startup. The `SNACRM` command line is dynamically created based on GWBOOT options. Refer to the *BEA eLink Java Adapter for Mainframe WLS Edition User Guide* for more information on the GWBOOT command.

You must configure one `SNACRM` for each JAM gateway, as well as configure one stack for each `SNACRM` definition. Each stack can manage one or more SNA links.

`SNACRM` has two types of log files stored in `$APPPDIR`, `RSTRTLOG`, and `BLOBLOG`. `RSTRTLOG` is the transaction state log used during the recovery process, while the `BLOBLOG` log stores session and link information. Deleting the log files requires a cold start for each link involved. You can use the `CRMLLOGS` command to display the contents and state of the `SNACRM` log files.

**Trace Options** When initiating the SNACRM from the UNIX command line, you can specify any of the following trace levels:

- No tracing. Setting this level effectively disables *SNACRM* tracing and closes the trace file, if there is one. If tracing is subsequently restarted, a new file is created with an incremented numerical suffix.
- Minimum tracing. At this level, *SNACRM* traces only major events and is sufficient only to determine the sequence of application conversations.
- Medium tracing. At this level, *SNACRM* also traces all I/O buffers.
- Maximum tracing. At this level, *SNACRM* also traces all APPC verbs.

The APPC Protocol Stack API trace is either enabled or disabled. If enabled, it generally shows the parameters and results of all API calls. Depending on the stack being used, other options (such as vendor-specified environment variables) may have to be activated for *SNACRM* to enable the trace.

**General Options** The following parameters apply to this command:

-s

APPC Stack API trace (default none)

addr

Socket listening address (required)

//host:port *group*

JAM Gateway Group Name (required)

**Note:** Do not use the -o and -a parameters for the *SNACRM* command.

**Environment Variables** You must set the following environment variables before starting the *SNACRM* from the UNIX command line:

- `FIEDLTBLS32` must contain `fmb.def`.
- `FLDTBLDIR32` must contain the path to the BEA eLink Java Adapter for Mainframe WLS Edition (JAM) libraries directory (for example, `eAM40JAM/lib`).
- `APPDIR` must be set to the application directory.

**Portability** Refer to the following table for a list of operating systems and stacks that can communicate with the *SNACRM*.

**Table A-1Supported Host Platforms**

| Vendor | Classification | Product                               | Version               | Comments      |
|--------|----------------|---------------------------------------|-----------------------|---------------|
| IBM    | MF/OS          | OS390                                 | 1.2, 2.4, 2.5,<br>2.6 | Y2K Certified |
| IBM    | MF/OS          | VM                                    | 2.3                   | Y2K Certified |
| IBM    | MF/OS          | VSE/ESA                               | 2.3                   | Y2K Certified |
| IBM    | MF/OLTP        | CICS/ESA                              | 4.1                   | for MVS       |
| IBM    | MF/OLTP        | CICS Transaction Server<br>for OS/390 | 1.2<br>1.3            | for MVS       |
| IBM    | MF/OLTP        | CICS                                  | 2.3                   | for VSE       |
| IBM    | MF/OLTP        | IMS/ESA Transaction<br>Manager        | 5.1<br>6.1            | for MVS       |
| IBM    | MF/TCOM        | ACF/VTAM                              | 3.4+                  | for MVS       |
| IBM    | MF/TCOM        | ACF/NCP                               | 4.3+                  | for MVS       |
| IBM    | MF/TCOM        | ACF/VTAM                              |                       | for VSE       |
| IBM    | MF/TCOM        | ACF/NCP                               |                       | for VSE       |
| IBM    | MF/OS          | OS390                                 | 1.2                   | Y2K Certified |

**Interoperability** SNACRM is interactive with the following:

- CICS 4.1 through TS 1.3
- IMS 4.1 or higher (IMS 6.1 required for sync level 2 support)
- MVS 5.22 9510 or higher
- OS/390 1.2 or higher
- VTAM for MVS/ESA, version 4.3 or higher

**Diagnostics** SNACRM exits with a return code of 0 upon successful completion.

**Examples**    Following is an example of the SNACRM command:

```
SNACRM -t 0 //myhost:5587 GROUP2 /dev/null>std.out 2>std.err &
```

When you start SNACRM from the UNIX command line, the following SNACRM Command Line Console appears:

```
$ SNACRM -t 0 //myhost:5587 GROUP2
    BEA JAM Resource Manager started Thu Dec 11
    18:40:49.098 1997
    [SNACRM]
```

```
    Console active. Enter commands
    ?>
    da => Display active tasks
    dl => Display remote links
    ds => Display link statistics
    dt => Display trace status
    st => Start all links
    sh => Stop all links and terminate
    si => Terminate immediately (no quiesce)
```

To launch SNACRM with the console running in the background:

```
$ SNACRM -t0 //myhost:5587 GROUP2 <dev/null>std.out 2>std.err &
```

To launch SNACRM with detailed tracing and APPC Stack API tracing turned on from the command line using the host/port address, type:

```
SNACRM -t2 -s //myhost:5587
```

**See Also**    `xsnacrm`

## xsnacrm

`xsnacrm`: X/Motif real-time monitor for running the SNACRM (not available on Microsoft NT platforms)

**Synopsis**    `xsnacrm [ X overrides ] address [ address . . . ]`

(See syntax examples.)

|                      |   |
|----------------------|---|
| Description          | <p>The <code>xsnacrm</code> utility provides real-time monitoring of running SNACRMs and displays information describing the activity occurring in each SNACRM. The <code>xsnacrm</code> utility is intended to be used by administrators and system operators only. Therefore, usage may be restricted by the installation (by setting the execute permissions). <code>xsnacrm</code> requires Motif libraries.</p>  |
| Command Line Options | <p><code>xsnacrm</code> supports the standard X Toolkit command line arguments (see X(1)). The following additional arguments are supported as well.</p> <p><b>address</b></p> <p>Specifies the host name and port number of a SNACRM to monitor. This value must match the corresponding parameter on the command line used to start the SNACRM you wish to monitor.</p> <p>There must be at least one address specified. Any number of SNACRMs may be monitored by specifying all their associated addresses.</p> <p>The format of an address consists of two forward slashes (//) followed by a host name or address, a colon (:), and a service name or decimal port number (containing no spaces).</p> <p>If a host name is used, it should be an entry in the file <code>/etc/hosts</code>. If a host address is used, it should be specified in the format <code>nnn.nnn.nnn.nnn</code> where each group of <code>nnn</code> represents a decimal number between one and 255. This host should identify the computer where the SNACRM you wish to monitor is running, <b><i>not</i></b> the host where <code>xsnacrm</code> is to run.</p> <p>If a service name is used, it should be an entry in the file <code>/etc/services</code>. If a decimal port number is used, it should be a decimal number in the range 4000 - 32767. This number must match the corresponding port number on the command line used to start the SNACRM you want to monitor. (If the SNACRM was started automatically, the address is specified in the JCRMGW configuration file).</p> |
| Trace Options        | <p>You can enter one of the following <code>xsnacrm</code> trace levels:</p> <ul style="list-style-type: none"> <li>■ No tracing. Setting this level effectively disables SNACRM tracing and closes the trace file, if there is one. If tracing is subsequently restarted, a new file is created with an incremented numerical suffix.</li> <li>■ Minimum tracing. At this level, the SNACRM traces only major events and is sufficient only to determine the sequence of application conversations.</li> </ul>   |

- Medium tracing. At this level, `SNACRM` also traces all I/O buffers.
- Maximum tracing. At this level, `SNACRM` also traces all APPC verbs.

The APPC Protocol Stack API trace is either enabled or disabled. If enabled, it generally shows the parameters and results of all API calls. Depending on the Stack being used, other options (such as vendor-specified environment variables) may have to be activated for `SNACRM` to enable the trace.

`xsnacrm`  
Window      `xsnacrm` displays a single window consisting of the following sections from top to bottom:

- Title Frame

Displays the application title “*BEA eLink Adapter for Mainframe CRM Monitor*”

- Menu Bar

Displays the menu items “File” and “Trace.” The File menu consists of a single Exit button that terminates `xsnacrm`. The `xsnacrm` window may also be terminated by selecting “Close” on the X/Motif system menu for the window.

The Trace menu contains two sections that send commands to the currently selected `SNACRM` to change its own tracing function and the tracing function of the APPC Protocol Stack the `SNACRM` is using, respectively. To change either current tracing option, select the corresponding menu button.

- BEA Logo

Displays the BEA Logo.

- `SNACRM` Select Pane

Displays the list of `SNACRM`s specified on the command line. The list consists of a set of radio buttons. The selected button determines which `SNACRM` data is displayed in the other panes below.

The phrase “**not active or invalid address**” means that `xsnacrm` is unable to connect to the INET address specified, because the:

- Address is incorrect
- `SNACRM` is not monitoring the address (probably because it is not running)
- Path to `SNACRM` is not available (perhaps due to a network problem)

- Trace Status Pane

Displays the current trace options for the selected SNACRM.

- Link Status Pane

Displays the current status of all remote links for the selected SNACRM. The text may be scrolled if it is not entirely visible. Possible status values are:

Ins = The link is In Service

Acq = The link connection has been acquired

Xok = The link connection has been acquired and is OK

- Link Statistics Pane

Displays the current statistics for all remote links for the selected SNACRM. The text may be scrolled, if it is not entirely visible.

- Message Line

Displays messages showing the results of either automatic attempts by `xsnacrm` to connect to the specified SNACRM or commands issued to change the trace options.

The space in the window allocated to each of the four panes can be adjusted by dragging the sashes (little rectangles) located on the dividers between them.

**Examples** The default geometry for `xsnacrm` is 630x480+150+150. This places an appropriately sized window for the default font in approximately the center of a 1024x768 Xterm. The following command places this window in the lower-right corner at start-up:

```
xsnacrm -geometry 630x480-0-0 //somehost:4999 //otherhost:6666
```

The following command starts `xsnacrm` as an icon:

```
xsnacrm -iconic //252.148.37.16:5555
```

The following command changes the name of the trace menu to *Commands* and uses the service name *snacrm* for the port number:

```
xsnacrm -xrm "*tracemenu.labelString: Commands" //myhost:snacrm
```

**Customizing X Resources** The default X resources for `xsnacrm` correspond to the distributed contents of the associated file `xsnacrm`. To customize the application, copy the `xsnacrm` file to your home directory and edit it.

**Widgets** The widget structure of the xsnacrm window is given in the text of the xsnacrm file as follows:

```
! English US resource file for xsnacrm program
!
!   "@(#)ISC Devel  SNACRM Xsnacrm 1.1 97/08/12 17:49:57";
!
! The values shown below are the fallback resource values
!
! The widget hierarchy is:
!
!   Xsnacrm           App Shell
!   mainWindow        Main Window
!   logo              Frame
!   logobitmap        Label
!   menubar           Row/Column
!   filemenu          Pull-down Menu
!   quit              Push Button
!   tracemenu         Pull-down Menu
!   tracebutton0       Push Button
!   tracebutton1       Push Button
!   tracebutton2       Push Button
!   tracebutton3       Push Button
!   traceSep          Separator
!   tracebuttonY       Push Button
!   tracebuttonN       Push Button
!   mainpane          Paned Window
!   selectFrame        Frame
!   selectFrameLabel   Label
!   selectRadioBox     Row/Column
!   selectButton<n>    Toggle Button
!   traceFrame         Frame
!   traceFrameLabel    Label
!   traceData          Label
!   statusFrame        Frame
!   statusFrameLabel   Label
!   stusScroll         Scrolled Window
!   stusScrollData     Label
!   statisticsFrame    Frame
!   statFrameLabel     Label
!   statScroll         Scrolled Window
!   statScrollData     Label
!   mainmessage        Label
!   quitDialog         Message Dialog
!
!
! *title:              BEA eLink Adapter for Mainframe CRM Monitor
! *geometry:            630x480+150+150
! *foreground:          white
```

```
*background:           purple
*fontList:             *courier-medium-r-normal--12*
*filemenu.labelString:  File
*quitDialog.okLabelString: Exit
*quitDialog.messageString: Exit SNA CRM Status Display now?
*quit.labelString:      Exit
*tracemenu.labelString:  Trace
*traceButton0.labelString: Stop CRM Trace
*traceButton1.labelString: Set Minimum CRM Trace
*traceButton2.labelString: Set Medium CRM Trace
*traceButton3.labelString: Set Maximum CRM Trace
*traceButtonY.labelString: Start APPC Stack Trace
*traceButtonN.labelString: Stop APPC Stack Trace
```

See Also [xsnacrm](#) and [SNACRM](#)



# B Error Messages

The following SNA Communications Resource Manager (SNACRM) messages can be displayed in the Weblogic Server (WLS) startup window.

|            |   |  |
|------------|---|--|
| 9001:ERROR | <taskname> timed out with failCode <failcode> |  |
|            | DESCRIPTION                                   | <p>A conversation has timed out in the SNACRM with the stack return code of &lt;failcode&gt;. A timer event set to watch a conversation has expired.</p> <p>&lt;taskname&gt; may appear as:</p> <p>OB-Conversation #nn (&lt;linkref&gt;) tx #m<br/>&lt;tranname&gt;, or</p> <p>IB-Conversation #nn (&lt;linkref&gt;) tx #m<br/>&lt;tranname&gt;</p> <p>where:</p> <p>nn is an internal APPC conversation number.</p> <p>m is the transaction context where -1 signifies non-transactional.</p> |
|            | ACTION  | Examine stderr and the ULOG for additional information concerning the failure.   |
| 9002:ERROR | Server (<stackref>) Creation Failed           |  |
|            | DESCRIPTION                                   | SNACRM was unable to instantiate the stack object due to an error.   |
|            | ACTION  | Check for additional messages in stderr. The shared library for the stack or the stack interface might not have been loaded due to an incorrect library path.  |

## B Error Messages

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|              |   |  |
|--------------|---|--|
| 9003:ERROR   | Server Failed (<stackref>), Code = <returncode>                                     |  |
|              | DESCRIPTION   | SNACRM received a bad return code from the stack start-up.   |
|              | ACTION  | <p>The &lt;returncode&gt; is the value returned by the SNA Stack software. Check the status of the stack, the configuration of the stack, and the JCRMGW.CFG.</p> <p><b>Note:</b> Unless you started the SNACRM as a Tuxedo server, you must manually kill the SNACRM process.</p> |
| 9004:ERROR   | Configuration change on link <linkref> requires cold start                          |  |
|              | DESCRIPTION   | Attempting to do a warm start after changing the domain configuration.   |
|              | ACTION  | Change start type to "COLD" and restart.   |
| 9005:WARNING | Unrecovered transaction, ID=<tcetxt>, blob dropped. Transaction presumed forgotten. |  |
|              | DESCRIPTION   | An attempt was made by Tuxedo to recover the specified transaction that was unknown by the SNACRM. It is presumed that it was already committed or aborted prior to the recovery attempt.  |
|              | ACTION  | None. This message is for information only.  |
| 9006:ERROR   | Unable to start the recovery task for link <linkref>                                |  |
|              | DESCRIPTION   | An error occurred during the warm start of Tuxedo.   |
|              | ACTION  | Cold start the Tuxedo application.   |
| 9008:WARNING | Unknown tranid dropped, id=<tcetxt>   |  |
|              | DESCRIPTION   | Recovery was requested by Tuxedo on a transaction that was already forgotten by the SNACRM.  |
|              | ACTION  | None. This message is for information only.  |

---

|            |   |  |
|------------|---|--|
| 9009:ERROR | No blob with recovery request. Transaction dropped, id=<tcctxt> |  |
|            | DESCRIPTION   | Attempting to warm start after the SNACRM's BLOBLOG has been modified.   |
|            | ACTION  | Change start type to "COLD" and restart.   |
| 9010:ERROR | <taskname> failed with failCode <failcode>                      |  |
|            | DESCRIPTION   | <p>A conversation has failed with the stack return code of &lt;failcode&gt;.</p> <p>&lt;taskname&gt; may appear as:</p> <p>OB-Conversation #nn (&lt;linkref&gt;) tx #m<br/>&lt;tranname&gt;, or</p> <p>IB-Conversation #nn (&lt;linkref&gt;) tx #m<br/>&lt;tranname&gt;</p> <p>where:</p> <p>nn is an internal APPC conversation number.</p> <p>m is the transaction context where -1 signifies non-transactional.</p> <p>Possible values for the &lt;failcode&gt; are:</p> <ol style="list-style-type: none"> <li>1. Communications - unable to create the APPCserver object.</li> <li>2. MemoryAllocation - internal error allocating memory.</li> <li>3. InvalidObject - a SNACRM object could not be created or has been made invalid by some previous error.</li> <li>4. InputOutput - error occurred during file I/O or an unexpected APPC return code was received.</li> <li>5. Registration - internal task cannot be registered.</li> </ol> |
|            | ACTION  | Examine stderr and the ULOG for additional information concerning the failure. For failcode Input/Output, verify that the user starting the SNACRM process has the proper file permissions for the BLOBLOG and RSTRTLOG. If no apparent error is found, contact BEA Customer Support.  |

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## B Error Messages

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|            |  |  |
|------------|--|--|
| 9011:ERROR | Attempt to connect as second master refused!                           |  |
|            | DESCRIPTION  | A second GWSNAX is attempting to connect to the SNACRM as a master gateway. Only one master gateway is allowed.  |
|            | ACTION   | Ensure that multiple Tuxedo configurations do not use the same SNACRM address.                                   |
| 9012:ERROR | Attempt to connect as master in autonomous mode refused!               |  |
|            | DESCRIPTION  | An attempt to connect to the SNACRM as a master gateway was made when the SNACRM was running in autonomous mode. |
|            | ACTION   | Ensure that multiple Tuxedo configurations do not use the same SNACRM address.                                   |
| 9013:ERROR | Attempt to connect with incorrect group name (<groupname>) refused!    |  |
|            | DESCRIPTION  | The group name in the JCRMGW.CFG file does not match the group name specified in the SNACRM command line.        |
|            | ACTION   | Correct the group name that is in error and restart.   |
| 9014:ERROR | INTERNAL ERROR: memory allocation failed [for new context/data buffer] |  |
|            | DESCRIPTION  | Internal error allocating memory. No more memory.  |
|            | ACTION   | Contact BEA Customer Support.  |
| 9015:ERROR | INTERNAL ERROR: server registration failed                             |  |
|            | DESCRIPTION  | Internal error registering the APPC server. APPC libraries not found. The stack failed.                          |
|            | ACTION   | Contact BEA Customer Support.  |

|            |  |  |
|------------|--|--|
| 9016:ERROR | Link refers to undefined APPC stack (<stackref>)!          |  |
|            | DESCRIPTION  | The stackref in the link configuration is incorrect.   |
|            | ACTION   | Correct the stackref that is in error, run dmloadcf, and restart.  |
| 9017:ERROR | INTERNAL ERROR: link registration failed                   |  |
|            | DESCRIPTION  | Internal error registering the link. The stack failed.   |
|            | ACTION   | Contact BEA Customer Support.  |
| 9018:ERROR | Invalid Transition <additional information>                |  |
|            | DESCRIPTION  | <p>An internal state table failure has occurred. The &lt;additional information&gt; will be one of the following:</p> <ol style="list-style-type: none"> <li>1. From &lt;oldstate&gt; to &lt;newstate&gt; for &lt;dir&gt;-bound transaction #&lt;tid&gt;</li> <li>2. To &lt;newstate&gt; for inbound transaction #&lt;tid&gt;</li> <li>3. To &lt;newstate&gt; for outbound transaction #&lt;tid&gt;</li> </ol> |
|            | ACTION   | Contact BEA Customer Support.  |
| 9019:ERROR | Unknown Service Correlator = <correlator>, message dropped |  |
|            | DESCRIPTION  | Internal error assigning service correlator values. Message context lost.  |
|            | ACTION   | Contact BEA Customer Support.  |
| 9020:ERROR | Duplicate Service Correlator = <correlator>                |  |
|            | DESCRIPTION  | Internal error assigning service correlator values.  |
|            | ACTION   | Contact BEA Customer Support.  |

## B Error Messages

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|            |   |   |
|------------|---|---|
| 9021:ERROR | Invalid Remote Link Name <linkref>                            |   |
|            | DESCRIPTION   | The remote link name in a request does not match any defined link name.   |
|            | ACTION  | Correct the JCRMGW.CFG and restart.   |
| 9022:ERROR | Invalid transaction context = <txtxt>                         |   |
|            | DESCRIPTION   | Internal error assigning transaction context values. Bad transaction.   |
|            | ACTION  | Contact BEA Customer Support.   |
| 9023:ERROR | Unknown Service Correlator = <correlator>, message dropped    |   |
|            | DESCRIPTION   | Internal error assigning service correlator values. Message context lost.   |
|            | ACTION  | Contact BEA Customer Support.   |
| 9024:ERROR | Invalid initial syncpoint received from subordinate, tx#<tid> |   |
|            | DESCRIPTION   | Syncpoint processing protocol violation. Subordinate member of conversation attempted to initiate a syncpoint. XA does not support syncpoints from subordinate members. |
|            | ACTION  | Contact BEA Customer Support.   |
| 9025:ERROR | Invalid Input Message Discarded                               |   |
|            | DESCRIPTION   | Internal error, bad message sent between GWSNAX and SNACRM. Possibly incompatible GWSNAX and SNACRM.  |
|            | ACTION  | Contact BEA Customer Support.   |
| 9026:ERROR | CNOS Notification Received for unknown partner <partnerLU>    |   |
|            | DESCRIPTION   | Multiple instances of the SNACRM may be using the same local LU.  |
|            | ACTION  | Ensure that multiple Tuxedo configurations do not use the same local LU.  |

|              |   |   |
|--------------|---|---|
| 9027:WARNING | Remote Stop Received for <linkref>                              |   |
|              | DESCRIPTION   | The remote host has issued a stop for the specified link.                                     |
|              | ACTION  | None. This message for information only.  |
| 9028:WARNING | Remote Start Received for <linkref>                             |   |
|              | DESCRIPTION   | The remote host has issued a start for the specified link.                                    |
|              | ACTION  | None. This message for information only.  |
| 9029:ERROR   | Undefined Remote LU on link <linkref>                           |   |
|              | DESCRIPTION   | The remote LU does not exist as defined.  |
|              | ACTION  | Check the JCRMGW.CFG file and the stack configuration and correct the mis-match.              |
| 9030:ERROR   | Unable to start session on link <linkref>. Reason=<reason>      |   |
|              | DESCRIPTION   | Link activation failure due to SNA error.   |
|              | ACTION  | <reason> is the description of the stack return code. Determine the cause and correct.        |
| 9031:ERROR   | Unable to initialize link <linkref>. Reason=<reason>            |   |
|              | DESCRIPTION   | Link initialization failure due to SNA error.   |
|              | ACTION  | <reason> is the description of the stack return code. Determine the cause and correct.        |
| 9032:ERROR   | No Available Session on link <linkref> for context <correlator> |   |
|              | DESCRIPTION   | Max sessions has been exceeded.   |
|              | ACTION  | Check session limits in JCRMGW.CFG, stack configuration, CICS or VTAM. Increase if necessary. |

## B Error Messages

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|            |  |   |
|------------|--|---|
| 9033:ERROR | Requested Synclevel not supported by link <linkref> for context <correlator> (synclevel <level>) |   |
|            | DESCRIPTION  | Attempted to issue a request at sync level <level> on a link that does not support that level.  |
|            | ACTION   | Correct application or JCRMGW .CFG.   |
| 9034:ERROR | Service Request at SyncLevel=2 Rejected on PENDING link <linkref> for context <correlator>       |   |
|            | DESCRIPTION  | An attempt to start a new sync level 2 request has been received and the Link is currently processing recovery information.   |
|            | ACTION   | Wait until recovery is complete to request sync level 2 services.   |
| 9035:ERROR | Inbound Request Transform Failed (<status>) for context <correlator>                             |   |
|            | DESCRIPTION  | An error has occurred while processing the CICS transform for an inbound DPL request. This normally occurs when the API entry in the JCRMGW .CFG for the local service specifies CICS instead of ATMI.  |
|            | ACTION   | Check JCRMGW .CFG for incorrect specification of local service API entry.   |
| 9036:ERROR | Inbound Response Transform Failed (<status>) for context <correlator>                            |   |
|            | DESCRIPTION  | An error has occurred while processing the CICS transform for an inbound DPL response. This normally occurs when the API entry in the JCRMGW .CFG for the local service specifies CICS instead of ATMI. |
|            | ACTION   | Check JCRMGW .CFG for incorrect specification of local service API entry.   |

|            |  |   |
|------------|--|---|
| 9037:ERROR | Outbound Request Transform Failed (<status>) for context <correlator>  |   |
|            | DESCRIPTION  | An error has occurred while processing the CICS transform for an outbound DPL request. This normally occurs when the API entry in the JCRMGW .CFG for the remote service specifies CICS instead of ATMI.  |
|            | ACTION   | Check JCRMGW .CFG for incorrect specification of local service API entry.   |
| 9038:ERROR | Outbound Response Transform Failed (<status>) for context <correlator> |   |
|            | DESCRIPTION  | An error has occurred while processing the CICS transform for an outbound DPL response. This normally occurs when the API entry in the JCRMGW .CFG for the remote service specifies CICS instead of ATMI. |
|            | ACTION   | Check JCRMGW .CFG for incorrect specification of local service API entry.   |
| 9039:ERROR | Conversation terminated without confirm for context <correlator>       |   |
|            | DESCRIPTION  | Sync level 2 conversation was terminated with out confirm.  |
|            | ACTION   | Check application program and correct.  |
| 9040:ERROR | Inbound Confirm not supported  |   |
|            | DESCRIPTION  | Host application is requesting an inbound confirm. This is not supported.   |
|            | ACTION   | Check host application program and correct.   |
| 9041:ERROR | Inbound Confirm for multi-ISRT not supported                           |   |
|            | DESCRIPTION  | Host IMS application is requesting an inbound confirm and using multiple ISRT commands. This is not supported.  |
|            | ACTION   | Check host application program and correct.   |

## B Error Messages

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|            |  |  |
|------------|--|--|
| 9043:ERROR | Missing send last from host (ATMI request/response) for context <correlator> |  |
|            | DESCRIPTION  | Host application did not issue send last during an outbound request/response service. The host application may have abended.   |
|            | ACTION   | Check application program and correct.   |
| 9044:INFO  | DPL program abended with CICS code <abendcode>, program=<progname>           |  |
|            | DESCRIPTION  | The specified host DPL program has abended with the code specified.  |
|            | ACTION   | None. This message is for information only.  |
| 9045:INFO  | DPL program failed with CICS rcode <eibrcode>, program=<progname>            |  |
|            | DESCRIPTION  | The specified host DPL program has failed with the eibrcode specified.   |
|            | ACTION   | None. This message is for information only.  |
| 9046:ERROR | Invalid combination for Service Context <correlator>, <combination>          |  |
|            | DESCRIPTION  | The specified <combination> is invalid. It will be one of the following:<br><ol style="list-style-type: none"><li>1. Sync-Level, function, and API</li><li>2. Function and API</li></ol> |
|            | ACTION   | Examine the JCRMGW.CFG and make corrections.   |
| 9047:ERROR | Sequence number error for Service Context <correlator>, seqno <seqno>        |  |
|            | DESCRIPTION  | There has been a sequence number failure for the specified context. Context is out of sequence.  |
|            | ACTION   | Contact BEA Customer Support.  |

|              |   |  |
|--------------|---|--|
| 9048:ERROR   | Invalid conversation task for Service Context <correlator>, task=<task>       |  |
|              | DESCRIPTION   | The conversation has already been terminated.  |
|              | ACTION  | Contact BEA Customer Support.  |
| 9049:ERROR   | Invalid task switch for Service Context <correlator>, from <task1> to <task2> |  |
|              | DESCRIPTION   | An internal protocol violation has occurred.   |
|              | ACTION  | Contact BEA Customer Support.  |
| 9050:ERROR   | Transformer creation failed for inbound transaction <trancode>                |  |
|              | DESCRIPTION   | An internal error has occurred. Possibly out of memory.  |
|              | ACTION  | Contact BEA Customer Support.  |
| 9051:ERROR   | Transformer failed for inbound transaction <trancode>                         |  |
|              | DESCRIPTION   | An internal error has occurred. Resource name is not present. Mainframe compatibility problem. |
|              | ACTION  | Contact BEA Customer Support.  |
| 9052:WARNING | Inter-task Message dropped (<verbname>), parm=<parm> From: <task1> to <task2> |  |
|              | DESCRIPTION   | An internal message between two tasks has been dropped.  |
|              | ACTION  | None. This message is for information only.  |
| 9053:ERROR   | Attempt to send <nnnnn> bytes (> 32767)                                       |  |
|              | DESCRIPTION   | The length of a send request exceeded 32767 (including overhead).                              |
|              | ACTION  | Check application program and correct.   |

## B Error Messages

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|            |   |  |
|------------|---|--|
| 9054:ERROR | Allocation Failure for <trancode> on <remotesysid>: <error>                                 |  |
|            | DESCRIPTION   | An Allocation error occurred.  |
|            | ACTION  | The reason for the failure is described by <error>. Correct problem with configuration or application. |
| 9055:ERROR | Invalid Exchange Logs GDS variable received from <remotesysid>                              |  |
|            | DESCRIPTION   | The log files for the SNACRM have been incorrectly modified.   |
|            | ACTION  | Run CRMLOGS to examine the SNACRM log file. Cold start the Tuxedo application.                         |
| 9056:ERROR | Invalid cold start received from <remotesysid>. Unrecovered local transactions are pending. |  |
|            | DESCRIPTION   | Attempting to cold start host while warm starting Tuxedo.  |
|            | ACTION  | Run CRMLOGS to examine the SNACRM log file. Cold start the Tuxedo application.                         |
| 9057:ERROR | Invalid warm start received from <remotesysid>. Unknown log name.                           |  |
|            | DESCRIPTION   | The log files for the SNACRM have been incorrectly modified.   |
|            | ACTION  | Run CRMLOGS to examine the SNACRM log file. Cold start the Tuxedo application.                         |
| 9058:ERROR | Invalid Compare States GDS variable received from <remotesysid>                             |  |
|            | DESCRIPTION   | The log files for the SNACRM have been incorrectly modified.   |
|            | ACTION  | Run CRMLOGS to examine the SNACRM log file. Cold start the Tuxedo application.                         |

|              |  |  |
|--------------|--|--|
| 9059:ERROR   | Mixed Heuristic on link <linkref> for <unitofwork> Correlator [<correlator>] |  |
|              | DESCRIPTION  | One side has reported committed while the other side has reported aborted.   |
|              | ACTION   | Check the ULOG for any additional messages.  |
| 9060:WARNING | Inbound Exchange Logs Rejected for <remotesysid>                             |  |
|              | DESCRIPTION  | Link not configured for sync level 2.  |
|              | ACTION   | None. This message is for information only.  |
| 9061:WARNING | Link <linkref> not configured for synclevel 2                                |  |
|              | DESCRIPTION  | Link specified by <linkref> is not configured for sync level 2.  |
|              | ACTION   | None. This message is for information only.  |
| 9062:ERROR   | Exchange Logs Rejected for <remotesysid>, Restart Type or Log Name Mismatch  |  |
|              | DESCRIPTION  | The log files for the SNACRM have been incorrectly modified.   |
|              | ACTION   | Run CRMLOGS to examine the SNACRM log file. Cold start the Tuxedo application.   |
| 9063:ERROR   | Exchange Logs failed with <linkref>  |  |
|              | DESCRIPTION  | An error occurred during the exchange logs process.  |
|              | ACTION   | Run CRMLOGS to examine the SNACRM log file. Cold start the Tuxedo application.   |
| 9064:ERROR   | Invalid initial syncpoint received from subordinate, %s                      |  |
|              | DESCRIPTION  | An internal error has occurred during the commit process. XA does not support syncpoints originating from subordinate members. |
|              | ACTION   | Contact BEA Customer Support   |



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# Glossary

## A

### Access Control Lists (ACL)

A Tuxedo security feature that controls client access to services by means of lists that are automatically checked each time a service is requested.

### ACID Properties

The essential characteristic of transaction processing systems:

*Atomicity*: All changes that a transaction makes to a database are made permanent, or else are nullified.

*Consistency*: A successful transaction transforms a database from a previous valid state to a new valid state.

*Isolation*: Changes that a transaction makes to a database are not visible to other operations until the transaction completes its work.

*Durability*: Changes that a transaction makes to a database survive future system or media failures.

### Application

A BEA Tuxedo System/T *application* is bounded by the environment described in a single `TUXCONFIG` file. In /Domain, a BEA Tuxedo System/T application can communicate with another application via a domain gateway group.

### Application Domain

When used alone, the term *Domain* can mean a number of things. In order to avoid confusion, the term *application domain* is used to refer to a BEA Tuxedo application bounded by the configuration of a `tmconfig` file. This application domain can be restricted to a single platform or shared memory (SHM) environment, or it can be scaled across multiple machines in a multiple processor (MP) environment.

---

### **Application Programming Interface (API)**

1) The verbs and environment that exist at the application level to support a particular system software product. 2) A set of code that enables a developer to initiate and complete client/server requests within an application. 3) A set of calling conventions that define how to invoke a service. A set of well-defined programming interfaces (entry points, calling parameters, and return values) by which one software program utilizes the services of another

### **Application Program-to-Program Communication (APPC)**

An interface to LU6.2 services; provides a set of primitives to conduct conversations in LU6.2 sessions.

## **C**

### **Client**

A program designed to request information from a server.

### **CNOS**

*CNOS* are service programs implemented as part of an LU6.2. The *CNOS* programs negotiate session limits between the two communication LU.

### **Common Programming Interface for Communications (CPI-C)**

An interface to LU6.2 services. It is a simpler set of primitives than the APPC interface and is intended for use in program-to-program communications.

### **Customer Information Control System/Enterprise System Architecture (CICS/ESA)**

An operating environment devised by IBM that provides a foundation upon which to write customer applications programs. Several facilities useful for programming are supplied by the CICS environment, including basic mapping services (BMS), transient data queues (TD), temporary storage files (TS), memory services, etc. Customer applications are built as separate transaction programs, and are invoked as transactional tasks. CICS/ESA is a trademark of International Business Machines (IBM), Inc.

## **D**

### **Distributed Program Link (DPL)**

Function of CICS ISC that supports LINK requests between CICS regions, and is similar to a BEA Tuxedo request/response.

---

### **Distributed Transaction Processing (DTP)**

A CICS intercommunication in which processing is distributed among transactions that communicate synchronously over intersystem or inter-region links. It is roughly equivalent to BEA Tuxedo conversations.

### **E**

### **ESA**

(ESA) Enterprise Systems Architecture is the conceptual structure and functional behavior of the latest range of IBM mainframe computers. ESA/370 is the fourth step in an evolution of which the first three steps were System/360, System/370, and System/370 extended architecture (370-XA).

### **F**

### **Field Manipulation Language (FML)**

A set of C language functions for defining and manipulating storage structures called field buffers. Cooperating processes can send and receive data in fielded buffers.

### **FML Buffer**

A buffer of self-describing data items accessed through the Field Manipulation Language (FML) API.

### **G**

### **I**

### **Inbound**

A generic term referring to request message direction relative to the server or a response message direction relative to the client.

### **Information Management System (IMS)**

A database manager used by CICS/ESA to allow access to data. IMS provides for the arrangement of data in an hierarchical structure and a common access approach in application programs that manipulate IMS databases.

---

## **InterSystem Communications (ISC)**

Communication between separate systems by means of SNA networking facilities or by means of the application-to-application facilities. ISC links CICS systems to other systems and may be used for communication between user applications or to transparently execute CICS functions on a remote CICS system.

## **L**

### **Logical Unit (LU)**

In SNA, a port through which a user gains access to the services of a network. Also, see System Network Architecture (SNA).

### **LU6.2**

*LU6.2* is a particular SNA logical unit that identifies a specific set of services for program to program communication. Services include syncpoint, mapping of buffers into records, message confirmation, and security.

## **M**

### **MODENAME**

**MODENAME** is a configuration parameter that names a set of characteristics for a group of BEA eLink Java Adapter for Mainframe WLS Edition sessions. In the CICS region, the mode is defined in VTAM and referenced in CICS and the DMCONFIG file.

### **mirror task**

CICS/ESA task that services incoming requests that specify a *mirror transaction* (CSMI, CSM1, CSM2, CSM3, CSM5, CPMI, CVMI, or a user-defined mirror transaction identifier).

### **mirror transaction**

CICS/ESA transaction that recreates a request that is function shipped from one system to another, issues the request on the second system, and passes the acquired data back to the first system.

---

### **Mirror Transaction Identifier Support**

BEA eLink Java Adapter for Mainframe WLS Edition feature which enables BEA Tuxedo clients to invoke host CICS/ESA programs and, conversely, CICS/ESA client programs to invoke BEA Tuxedo services. Based on the IBM CICS/ESA mirror transaction.

### **Multiple Virtual Storage (MVS)**

An operating system for processing systems consisting of one or more mainframe processors.

### **O**

#### **Outbound**

A generic term referring to request message direction relative to the client or response message direction relative to the server.

### **R**

#### **Resource Definition Online (RDO)**

The recommended method of defining resources to CICS/ESA. Resource definitions are created interactively by a CEDA transaction, or by the DFHCSDUP utility. Both methods store definition in the CICS/ESA system definition data set (CSD). At CICS initialization, CSD definitions are selectively installed as CICS system tables controlled by a user-supplied list of definitions. CEDA-defined resource definitions can be installed while CICS is active and used immediately.

### **S**

#### **Server**

A computer or program that is dedicated to providing information in response to external requests.

#### **Session**

When two LU bind with each other, that is, when they have successfully negotiated how they will communicate, they are said to be in *session*. SNA has fixed limits on the number of sessions configured for an LU type.

#### **Stack**

Platform vendor-supplied software that provides connectivity to an SNA network.

---

### **Synchronization Level (sync level)**

The level of synchronization (0, 1, or 2) established for an APPC session between intercommunicating CICS/ESA transactions. Level 0 gives no synchronization support, level 1 allows the exchange of private synchronization requests, and level 2 gives full CICS/ESA synchronization support, with backout of all updates to recoverable resources if failure occurs.

### **SNA Communication Resource Manager (SNACRM)**

A process that provides all of the sync-level two logic for an SNA domain gateway and directly communicates with the PU2.1 server.

### **System Network Architecture (SNA)**

A seven-layer networking protocol. Each layer of the protocol has a set of associated data communication services. The services of the uppermost layer are embodied in a Logical Unit (LU). Each LU type defined in SNA has its own specific set of services available to an end user for communicating. The end user may be a terminal device, or an application program. The SNA structure enables the end user to operate independently, unaffected by the specific facilities used for information exchange.

## **T**

### **Transaction**

- 1) A complete unit of work that transforms a database from one consistent state to another. In DTP, a transaction can include multiple units of work performed on one or more systems.
- 2) A logical construct through which applications perform work on shared resources (e.g., databases). The work done on behalf of the transaction conforms to the four ACID properties: atomicity, consistency, isolation, and durability.

### **Transaction Processing (TP)**

A form of immediate data processing in which user requests are entered directly to the terminal and on-line programs satisfy the requests; for example, by updating database files and displaying output messages.

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## **V**

### **Virtual Telecommunications Access Method (VTAM)**

A set of programs that control communication across a network between terminals and application programs.



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