DISTRIBUTED INTERACTIVE SIMULATION INTERFACE LIBRARY (DIL) VERSION DESCRIPTION DOCUMENT FOR 2.3.0

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**Abstract:**
This document provides version descriptions for each component of the Distributed Interactive Simulation (DIS) Interface Library (DIL) and instructions for installing the DIL on a target system.
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1 Scope.

1.1 DIL Overview.

The Distributed Interactive Simulation (DIS) Interface Library (DIL) provides source code libraries for use in developing DIS simulation applications. These include:

a. Simulation Network Interface Package (SNIP). SNIP provides a simulation networking protocol independent and network media independent interface to a simulation network. It currently supports the basic four Protocol Data Units (PDUs) in both DIS 2.0.3 and SIMNET 6.6.1. Included with SNIP are several DIS applications:

1) Cell Adapter Unit (CAU). The CAU provides a bi-directional interface between a non-DIS simulation cell (SIMNET 6.6.1) and a DIS network. This allows interaction between the DIS and non-DIS entities during an exercise.

2) Selective Cell Adapter Unit (SCAU). The SCAU provides a bi-directional interface with PDU filtering between a non-DIS simulation cell (SIMNET 6.6.1) and a DIS network. This allows selective interaction between the DIS and non-DIS entities during an exercise.

3) Cell Interface Unit (CIU). The CIU provides a bi-directional interface with PDU filtering between a DIS simulation cell and a low bandwidth (low DIS) network.

b. Lib Packet Valve (libpktvalve). Libpktvalve provides another simulation network interface that supports DIS 2.0.3 and SIMNET 6.6.1. It provides a "lower" level interface than SNIP and supports more PDUs. It is the networking interface used by Modular Semi-Automated Forces (ModSAF).

c. Protocol Translator Cell Adapter Unit (XCAU). The XCAU provides a bi-directional interface between a non-DIS simulation cell (SIMNET 6.6.1) and a DIS network. This allows interaction between the DIS and non-DIS entities during an exercise. The XCAU is based upon the libpktvalve and currently supports 17 PDUs.

1.2 Document Overview.

This document provides version descriptions for each component of the DIL and instructions for installing the DIL on a target system.

2 Applicable Documents.

The documents referenced here are applicable to the program effort only to the extent defined, and are included for reference purposes. This document takes precedence in the event of conflict with any of the referenced documents.

a. Simulation Network Interface Package (SNIP) Programmers Manual (Version 1.3.1)
b. **ADST Cold Start Procedures (CSP) for the BDS-D Translator Cell Adapter Unit 3.1.0 (XCAU) Configuration in Support of MDT2** (TR-93-003214B)

c. **ADST Version Description Document for the BDS-D Translator Cell Adapter Unit 3.1.0 (XCAU) in Support of MDT2** (TR-93-003213B)

d. **ADST Interface Requirements Specification (IRS) for the Protocol Translator of ADST/CSRDF** (TR-93-003065)

e. **ADST Software Maintenance Manual (SMM) for the Protocol Translator of ADST/CSRDF** (TR-93-003064)

f. **ADST System/Segment Design Document (SSDD) for the Protocol Translator of ADST/CSRDF** (DI-CMAN-80534)

g. **ADST Software Requirements Specification (SRS) for the Protocol Translator of ADST/CSRDF** (draft, May 7 1993)

### 3 Version Description.

#### 3.1 DIL Version.

This version of the DIL is numbered Version 2.3.0. It is a minor modification to the 2.2.2 release, in that the 2.3.0 version does NOT include the executable (or the source code) for the Development Tools. To provide for comprehensive understanding, this VDD provides the same information as was covered in the 2.2.2 VDD.

This version of the DIL encompasses several enhancements to components included in previous versions prior to 2.2.2. It also includes several new components as part of the library. The component versions and descriptions of the enhancements and additions are included in the following paragraphs.

#### 3.2 Component Versions

The components included in this version of the DIL and their component versions are:

a. Simulation Network Interface Package (SNIP) library -- Version 2.2.2.
   1) Cell Adapter Unit (cau) -- Version 2.2.2.
   2) Selective Cell Adapter Unit (scau) -- Version 2.2.2.
   3) Cell Interface Unit (ciu) -- Version 2.2.2.
b. Lib Packet Valve (libpktvalve) -- Version 1.34.

3.3 Component Enhancements

The following components have been enhanced in this release.

a. Simulation Network Interface Package (SNIP) library:
   1) Fixed "mystery 1" bug.
   2) Fixed memory leaks.
   3) Fixed SIU timestamp error.

c. Selective Cell Adapter Unit (scau): SNIP Bug Fixes.

3.4 Component Additions.

The following components have been added in this release.


4.1 Hardware Resources.

The DIL components released with this version are supported on the following platforms:

a. Silicon Graphics workstation, running IRIX 5.2, with 64+ MB memory and 500+ MB disk.
b. Silicon Graphics workstation, running IRIX 4.0.5, with 64+ MB memory and 500+ MB disk.
c. SUN Microsystems workstation, running SunOS 4.1.X, with 64+ MB memory and 500+ MB disk.
4.2 Software Resources.

The source code libraries are developed in the C language and are available as both K&R and ANSI C. To re-compile the libraries and the applications based upon those libraries, a C language compiler is required.

4.3 Release Media.

The DIL is released as a "compressed tar" file. This tar file is available via a Sun format DC6150 QIC tape or via FTP. If the release was obtained via QIC tape, a QIC 24 tape drive will be required to retrieve the file from the tape. The QIC tape, if supplied, is labeled as shown in Figure 4.3-1:

![Figure 4.3-1. DIL 2.3.0 Release Tape Label](image-url)

5 Installation Instructions.

This section describes the installation procedure for the DIL version 2.3.0 software. The DIS Interface Library (DIL) distributions are shipped as compressed tar archives. The archives must be loaded on the target machine, decompressed, and unarchived (un-tared). The following procedure illustrates this procedure.

**NOTE:** A complete distribution may require up to 84 megabytes of storage.

a. First, determine where the software should be installed.
NOTE: For these examples, the software is installed in "/usr/local/ddt".

b. If needed, make a directory using the following command:

```bash
mkdir /usr/local/ddt
```

c. Change directories to the directory where the software should be installed using the following command:

```bash
cd /usr/local/ddt
```

d. If you received the release via tape, insert the tape into the QIC-150 drive and load the tape using the following command:

```bash
tar xvoef /dev/rmt/0 (Sun Solaris 2.3)
tar xvoef /dev/rst8 (Sun SunOS 4.1.x)
dd if=/dev/tape conv=swab | tar xvoef - (SGI)
```

e. If you will be retrieving the release via FTP, retrieve it to this location.

f. Following this, there should be a compressed tar file in the current directory. Uncompress the file using the following command:

```bash
uncompress *.Z
```

g. Unarchive the file, using the following command:

```bash
tar xvoef *.tar
```

h. There should now be a directory named rel_2.3.0. It contains the DIL version 2.3.0 release.

Under the rel_2.3.0 directory, there should be several subdirectories and files, including (at least) "bin", "libpktvalve", "snip", and "xcau". There are several README files present in various directories. These contain special notes and information. It is a good practice to examine these README files if you plan on using the applications in that directory tree.

6 Release Structure.

The DIL Version 2.3.0 release has been arranged such that each tool within the library is contained within its own tree with all of the binaries contained (via symbolic links) in a single directory.
6.1 Directory Structure.

This paragraph provides a short description of each directory within the first two levels. A complete listing for the directory tree is included as Appendix A.

a. bin
   onyx SGI executables specific to IRIX 5.X
   sgi SGI executables specific to IRIX 4.X
   sun SUN(SPARC) SunOS 4.1.X executables

c. libpktvalue
   Components packet value development tree
   Makefile packet valve component library listing
   RCS RCS Configuration Management
   Release Release directory contents and information
   libpktvalue.h packet valve source code
   libpktvalue.texinfo packet valve source code
   libpv_local.h packet valve source code
   pkttee.c packet valve source code
   pv_assoc.c packet valve source code
   pv_convert.c packet valve source code
   pv_event.c packet valve source code
   pv_init.c packet valve source code
   pv_io.c packet valve source code
   pv_null.c packet valve source code
   pv_preempt.c packet valve source code
   pv_router.c packet valve source code
   pv_shm.c packet valve source code
   pv_stats.c packet valve source code
   pv_udp.c packet valve source code
   rec_preempt_test.c packet valve source code
   route_rdr packet valve data file
   snd_preempt_test.c packet valve source code
   test.c packet valve source code
   testshm.c packet valve source code

d. snip
   design SNIP libraries and applications
doc design files and documentation for DIL
man SNIP documentation
onyx this is a link to doc/man3
sgi SNIP IRIX version 5 source tree
sun SNIP IRIX version 4 source tree

SNIP SunOS version 4.1.X source tree
e. xcau
   INSTALL Protocol Translator (XCAU) dvlpt. directory
   bin XCAU binaries
   config XCAU configuration files
   data XCAU data files
   doc XCAU documentation
   include XCAU include libraries and files
   info XCAU component documentation files
   lib XCAU libraries
   src XCAU development trees
   tools XCAU tools

   d. snip
      design SNIP libraries and applications
      doc design files and documentation for DIL
      man SNIP documentation
      onyx this is a link to doc/man3
      sgi SNIP IRIX version 5 source tree
      sun SNIP IRIX version 4 source tree
      snip SNIP SunOS version 4.1.X source tree

6.2 Executables.

6.2.1 SGI IRIX 5.X Software.

The software targeted for the SGI IRIX 5.X environment includes the following executables:

   a. cau
   b. ciu
   c. pkttap
   d. scau
   e. xcau
   f. xcau_stat

6.2.2 SGI IRIX 4.X Software.

The software targeted for the SGI IRIX 4.X environment includes the following executables:

   a. cau
   b. ciu
   c. pkttap
d. scau
e. xcau
f. xcau_stat

6.2.3 SUNOS 4.1.X Software.

The software targeted for the SUNOS 4.1.X environment includes the following executables:

a. cau
b. ciu
c. pkttap
d. scau
e. xcau
f. xcau_stat