Advanced Distributed Simulation Technology

DISTRIBUTED INTERACTIVE SIMULATION INTERFACE LIBRARY VERSION DESCRIPTION DOCUMENT

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Revision 2.0

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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 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 (long-haul) 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 ModSAF.

c. Protocol Translator Cell Adaptor 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.


f. Software Requirements Specification (SRS) (draft).
Version Description.

3.1 DIL Version.

This version of the DIL is numbered Version 2.2.2. It encompasses several enhancements to components included in previous versions. 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 Resource Requirements.

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:
5 Installation Instructions.

This section describes the installation procedure for the DIL version 2.2.2 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:

```
mkdir /usr/local/ddt
```
c. Change directories to the directory where the software should be installed using the following command:

```
    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:

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

```
    uncompress *.Z
```

g. Unarchive the file, using the following command:

```
    tar xzvf *.tar
```

h. There should now be a directory named rel_2.2.2. It contains the DIL version 2.2.2 release.

Under the rel_2.2.2 directory, there should be several subdirectories and files, including (at least) "bin", "libpukkit", "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 2.2.2 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

b. libpktvalue
   - Components
   - Makefile
   - RCS
   - Release
   - libpktvalue.h: packet valve source code
   - libpktvalve.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
router.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
          design files and documentation for
          DIL
   doc SNIP documentation
   man this is a link to doc/man3
   onyx SNIP IRIX version 5 source tree
   sgi SNIP IRIX version 4 source tree
   sun SNIP SunOS version 4.1.X source tree

e. xcau Protocol Translator (XCAU) dvlpt.
   INSTALL installation script for the XCAU tree
   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

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

6.3 Additional Documentation.
6.3.1 Protocol Translator Cell Adapter Unit.

The following documentation provides more complete information about the Protocol Translator Cell Adapter Unit (XCAU).


f. Software Requirements Specification (SRS) (draft).