

OASIS-CC VERSION V02.05.14(5) RELEASE NOTES
02/16/01
TABLE OF CONTENTS

- 1 Compatibility And Requirements Information
- 2 OASIS-CC Installation Procedure
 - 2.1 Solaris Version
 - 2.2 HP_UX version
- 3 Upgrading V02.05.14(1.x) or V02.05.14(2) Applications to V02.05.14(4)
- 4 Major New Features Or Code fixes
 - 4.1 UDP/IP protocol (crn 701)
 - 4.2 RS232 line parity control (crn 674 - patch 14(4.1))
 - 4.3 Y2K problem (crn 677 - patch 14(4.2) and 14(4.3))
 - 4.4 Solaris 2.6 problem (crn 686 - patch 14(4.3a))
 - 4.5 Fix to data_server problem, add user-controllable loop_delay (crn 672)-
patch 14(4.2)
 - 4.6 Increased memory allocation for load command message (crn 679 - patch
14(4.2))
 - 4.7 Retrieve of packetized data (crn 690 - patch 14(4.4))
 - 4.8 Reporting BAD states only (crn 696 - patch 14(4.4))
 - 4.9 Time stamping incorrect on last Sunday of April (crn 512 - patch 14(4.4))
 - 4.10 Solaris 2.x (x>=6) problems.
- 5 Change Requests Closed With This Release
- 6 Main Known Problems And Limitations
 - 6.1 Filename Length Limitation
 - 6.2 Limited thruput while using a generic communication protocol with a TDM
frame (crn 259)
 - 6.3 Badly formatted Internet address hangs OASIS-CC (crn 258)
 - 6.4 CEV may fail if CEV_TIMEOUT is greater than 86400.0 seconds (crn 358)
 - 6.5 Initialization problem with keyed binary bridge (crn 359)
 - 6.6 Apparent memory leak in graph presentation type (crn 337)
 - 6.7 Ask window problem (crn 486)
 - 6.8 Running awb remotely with the SOLARIS version (crn 378)
 - 6.9 OASIS-CC not compiling procedures (crn 409, tbd)
 - 6.10 Size limitation for command log and command window (crn 508)
 - 6.11 res2rfg TAE utility may crash on *_.res resource files (crn 525)
 - 6.12 Leak when displaying panel with DDOs (crn 529)
 - 6.13 Use caution when using remote displays
 - 6.14 OASIS-CC never told when crash occur on a remote X server (crn 529)
 - 6.15 Exiting a loop with repeat count via a "GOTO" statement (crn 516)
 - 6.16 Duplicate subfield reference in command request not reported (crn 528)
- 7 Anomaly Or Enhancement Request Reporting
- 8 Documentation Set Status
- 9 Upgrades To The Spectrometer Application
- 10 Goodies

OASIS-CC VERSION V02.05.14(5)RELEASE NOTES
02/16/01

These release notes describe version V02.05.14(5) of OASIS-CC. A copy of these notes can be found in \$ODIST/release_notes/oasis_v2.0514_5. A copy of the notes from previous releases, including patches, can also be found in the \$ODIST/release_notes directory.

1 Compatibility And Requirements Information

This release of OASIS-CC has been tested on UltraSparc 5 and UltrsSparc 1, under SOLARIS 2.5 to 2.8. The HP-UX version of this release is not available (contact Alain Jouchoux jouchouc@lasp.colorado.edu, if you need it).

This version requires:

X	X11R5	from SUN
MOTIF	1.2	from SUN (Motif Developer's Kit)
TAE+	5.3c	for SOLARIS (available from Century Computing for a non-NASA project, from GSFC for a NASA project)

Notes concerning the SOLARIS version: (1) It requires a C compiler (OASIS-CC was tested using the Sun C SparCompiler. The make_oasis_app.sh utility requires the Sun C SparCompiler. This utility needs to be updated for use with other compilers such as the GNU C compiler); (2) Release 14 for SOLARIS requires TAE+ 5.3c. It is not compatible with TAE+ 5.3l;

How much memory you need depends on the application. Our experience is that 32 Mbytes is a minimum.

Disk space requirements are about 40 Mbytes for the Solaris distribution and 50 Mbytes for the HP_UX distribution.

Notes on license requirements

TAE+

A TAE+ license is not required for every workstation that the executable image of OASIS-CC runs on. TAE+ needs only to be licensed for the workstation(s) used to develop TAE+ interfaces and to create the executable image. In other words, a TAE+ license is required for each workstation that is used to run the workbench and link the executable image.

OASIS-CC

A separate license is required for each workstation used to run OASIS-CC. Server licenses are also available.

2 OASIS-CC Installation Procedure

2.1 SOLARIS Version

----- Installing from the distribution tape -----

Refer to the Unix OASIS-CC V02.05.12 Installation Guide for instructions on how to install the OASIS-CC software from the tar tape. Sites that require the ability to maintain applications running under previous releases must install V02.05.14(2) in a new directory.

```
*****
* We recommend that you run OASIS-CC in the SOLARIS RT (realtime) scheduling *
* class rather than the SOLARIS TS (time-sharing) scheduling class.          *
*****
```

```
*****
* Note that the SOLARIS distribution expects /usr/ccs/bin to be placed before *
* /usr/ucb in $path. This is because OASIS-CC needs to be linked with the    *
* SOLARIS linker, not with the SunOs 4.1 compatibility linker                 *
*****
```

```
* *****
* The SOLARIS version of OASIS-CC now expects that the environment variable   *
* LD_LIBRARY_PATH to be defined with the path to the X and the Motif libraries.*
* For example on LASP uses the following definition:                          *
* setenv MOTIFHOME /opt/SUNWmotif                                             *
* setenv OPENWINHOME /usr/openwin                                            *
* setenv LD_LIBRARY_PATH $MOTIFHOME/lib:$OPENWINHOME/lib                    *
*****
```

```
* *****
* The SOLARIS version of OASIS-CC expects the X11 include files to be in     *
* /usr/include/X11. If this is not the case, create a symbolic link from the  *
* directory containing the X11 include files                                 *
* (usually /usr/openwin/include/X11) to /usr/include/X11.                  *
* *****
```

3 Upgrading Applications to V02.05.14(5) -----

Applications running under OASIS-CC V02.05.14(1.x) or OASIS-CC V02.05.14(2) are not compatible with V02.05.14(5) and need to be upgraded. Applications running under 14(3) are compatible with 14(5), except for a small parser update. Applications running under 14(4) are compatible with 14(5).

Upgrading from V02.05.14(1.1) or V02.05.14(1.2) or V02.05.14(1.3)

Because of crn 583 (support for "timed" command) a new parser needs to be installed and two stubbed routines need to be inserted in libOasisUser.a (see 4.3 in the V020514(2) release notes)

(1) copy the new parser files:

```
cp $ODIST/common_distrib/utilities/parser_int.dat $OASIS_PARSER/.
cp $ODIST/common_distrib/utilities/parser.dat $OASIS_PARSER/.
```

- (2) update \$OASIS_USER_CODE/libOasisUser.a as two new routines need to be provided

In addition, to support the Data Server concept (crn 596, see 4.4 in the V020514(2) release notes) a new field has been added to the LATEST_DATA table just after the field ROUTE_TO_BRIDGE. This new field is named ROUTE_TO_DATA_SERVER. It is a SYSTEM-controlled field that can take the value of NEVER (default), ALWAYS or ON_CHANGE.

This makes an application running 14(1.x) incompatible with this release. A script file is provided in \$ODIST/bin to update the LATEST_DATA table (file \$OASIS_DATABASE/latest_data.dat) to the new format. To upgrade from 14(1.x) to the release:

- (1) Log in the application account intended for application development. This account should be populated with the files of the application you want to upgrade from.
- (2) Set up all the environment variable and make sure that ODIST points to the new release distribution
- (3) Execute the upgrade script by typing

```
$ODIST/bin/14_1to14_2.csh
```

Upgrading from V02.05.14(2)

Because the code has been recompiled with a new version of the SunAda compiler (to create a version of OASIS-CC compatible with the UltraSparc architecture) the parser table needs to be reloaded. If you use the standard parser table (i.e., the one that comes with the distribution) you only need to copy parser_int.dat from the distribution:

```
cp $ODIST/common_distrib/utilities/parser_int.dat $OASIS_PARSER/.
```

Otherwise you need to reload your version of the parser table using the convert_table utility.

Upgrading from v020514(3)

The parser table has been modified (see crn 638). Therefore the new parser.dat and parser_int.dat files should be copied:

```
cp $ODIST/common_distrib/utilities/parser_int.dat $OASIS_PARSER/.
cp $ODIST/common_distrib/utilities/parser.dat $OASIS_PARSER/.
```

4 Major New Features Or Code Fixes

The following new features and major code fixes are included in this release. New features and code fixes have associated Change Request Numbers (CRNs) that provide a means of tracking changes to the OASIS-CC code. CRNs are generated by LASP and the general OASIS-CC user community. The pertinent CRNs are shown for each enhancement or correction included in this new version of OASIS-CC.

4.1 UDP/IP protocol (crn 701)

In addition to the TCP/IP protocol, OASIS-CC now supports the UPD/IP protocol.

OASIS IP or IP1 protocol

For a RETURN stream, the global variable <stream_name> mode takes the following values:

Value	IP Protocol	Client/Server	Note
0	TCP	Client	Oasis connects, then builds the tree
1	TCP	Server	Oasis connects, then builds the tree
2	TCP	Client	Oasis builds the tree, then connects
3	TCP	Server	Oasis builds the tree, the connects
4	UDP		
any	UPD		

If the global variable <stream_name> mode does not exists, OASIS assumes a value of 0.

If the protocol used is UDP, then the global variable <stream_name> socket_address contains the socket number to which data is broadcasted.

If the protocol used is UDP, <link_name> dataline is not currently used. That is to say that the receiver task accepts regardless of the IP address of the sender.

For a FORWARD stream, the global variable <stream_name> mode takes the following values:

Value	IP Protocol	Client/Server
0	TCP	Client
1	TCP	Server
4	UDP	
any	TCP	Client

If the global variable <stream_name> mode does not exists, OASIS assumes a value of 0.

If the protocol used is UDP, then the global variable <stream_name> socket_address contains the socket number to which data is broadcasted.

If the protocol used is UDP and if the <link_name> record is present, then the code assumes unicasting to the IP address defined by <link_name> dataline. Otherwise the code assumes broadcasting.

OASIS ASYNC_CHAR_IP protocol

The global variable <stream_name> mode takes the following values:

Value	IP Protocol	Client/Server
0	TCP	Client

```

1      TCP      Server
4      UDP
any    UDP

```

If the global variable <stream_name> mode does not exist, OASIS assumes a value of 0.

If the protocol used is UDP, then the global variable <stream_name> socket_address contains the socket number to which data is broadcasted.

If the protocol used is UDP, <link_name> dataline is not currently used. That is to say that the receiver task accepts regardless of the IP address of the sender.

4.2 RS232 line parity control (crn 674 - patch 14(4.1))

When using the protocols ASYNC_CHAR, ASYNC_CHAR_1, ASYNC_ROUTER and ASCII_CHAR_RS232 the application developer can now specify the line parity via a global variable:

```

External_Element = the stream name
Item_Name       = LINE_PARITY
Dn value        = 1 => ODD parity
                = 2 => EVEN parity
                all others (or record not present): no parity

```

4.3 Y2K problem (crn 677 - patch 14(4.2) and 14(4.3))

When a "clock time" constant is entered with two digits only for the year, if the year value is less than 90 2000 is added. If it's between 90 and 99, 1900 is added. In previous releases 1900 was added regardless of the two-digit year value.

If the year is not entered and only if the year is not entered, the year is interpreted as the current year. In previous release a year entered as 00 was also interpreted as the current year.

4.4 Solaris 2.6 problem (crn 686 - patch 14(4.3a))

The Solaris libXt.so.4 library destroys the contents to the register g4. This register is used by the Ada runtime of the SunAda compiler. This patch provides a workaround this problem.

4.5 Fix to data_server problem, add user-controllable loop_delay (crn 672) ---patch 14(4.2)-----

This patch fixes a problem where under "loaded" conditions when a client breaks a connection the data_server may slow down its processing of the data to be transferred.

Also the user can now override the timing of loop that reads a client process requests. The default value is one request per second. The EU field of the global variable EXTERNAL_ELEMENT = "data_server", ITEM_NAME = "loop_delay" controls this timing. This global variable is read by the data_server code when the data_server is "switched on".

4.6 Increased memory allocation for load command message (crn 679) ---patch 14(4.2)-----

Prior to this patch, when a load statement was executed, OASIS-CC would allocate a buffer sized to the max_length field of the command_messages table record specifying the message. As OASIS-CC used to fill the message before passing it to the user code, the user could not increase the message size. With this patch OASIS-CC allocates a buffer 2 times the size defined by the max_length field. It's the responsibility of the user code to make sure that any addition to message does not exceed the allocated buffer.

Also prior to this patch OASIS-CC would only copy the header pattern once, assuming that the user code was not going to modify it. With this patch OASIS-CC re-write the header pattern each time the message buffer is filled.

4.7 Retrieve of packetized data (crn 690 - patch 14(4.4))

In the current version of OASIS-CC, retrieving packetized data using the BEGINNING keyword can fail. This problem has been fixed.

4.8 Reporting BAD states only (crn 696 - patch 14(4.4))

In the current version of OASIS-CC, at the time state checking is enabled, the system not only reports the bad states, but also the good states. With this version of OASIS-CC, only bad states are reported.

4.9 Time stamping incorrect on last Sunday of April (crn 512 - patch 14(4.4))

If OASIS was started prior to the Saturday -> Sunday transition on the last weekend of April or on the last weekend of October the time stamping in the event messages log became incorrect at 2:00 am. Also "wait for absolute time" statement failed to execute at the correct time. This Ada runtime problem has been fixed.

4.10 Solaris 2.x (x>=6) problems

- (1) awb does not work. Instead use awb_26.
- (2) There a version of taeidraw that works under Solaris 2.x (x>= 6) in \$ODIST/bin
- (3) If you experience crashes while displaying tae panels, we recommend that you use the libXm.so.3 shareable library in \$ODIST/common_distrib/objects instead of the one distributed by Sun.

5 Change Requests Closed With This Release

crn #	Title	Comment
512	Time stamping incorrect on last Sunday of April and last Sunday of October	see 4.9
586a	bad exception handler when undefined unit conversions.	
661	"System error" when sub clp defined via local variable	
666	Test_4 transmitter bug fix	
667	compilation error in automatic clp leads to further pb.	
668	"wait for cev" corrupted when manual procedure has wait	
672	Fix data_server problem, add user-control loop delay	see 4.5
674	RS232 line parity control	see 4.2
676	Problem with Oasis_CGetStringTool implementation	
677	Y2K problem.	see 4.3
679	Increased memory allocation for load command message	see 4.6

682 problem with packetized data if length field is bogus
684 IEEE problem.
682 problem with
685 protection for latest_data field "subsystem" changed to
db_manager (from protected).
686 Solaris 2.6 problem see 4.4
690 Retrieve of packetized data from somewhere in the see 4.7
recorded file.
692 Problem displaying command subfield value when it is
outside the bounds of a 32-bit integer.
694 Same as 512
695 Data server not always transferring changing data
when route_to_data_server = on_change.
696 Add 0's in front of DOY, when DOY is less than three see 4.8
digits. Do not report good state when transitioning
from no state check to state check.
697 Snap problem with large EU values. Snap title not Y2K
compliant.
698 OASIS locks when packet length is 0.
701 Support for UDP/IP protocol see 4.1

6 Main Known Problems And Limitations

6.1 Filename Length Limitation

In OASIS-CC filenames can be up to 128 characters long. In the SOLARIS and the SunOS versions, the length of the pathname (not the length of the environment variable that translates into the pathname) is included in the filename length. In some case, the 128 character limit can be reached. A way around this limitation is to softlink the directories to directories with shorter names and define the environment variables relative to the new directories.

6.2 Limited thruput while using a generic communication protocol with a TDM

frame (crn 259)

The current implementation of the generic communication protocol provides the user with some flexibility in controlling the load put on the host machine by the data acquisition if the data comes as packets. Ideally, it would be nice to choose the time_out and frame_length parameters (in the streams table record describing the primary stream) such as frame_length/time_out >> bit rate. If the stream is packetized the only requirement on the frame_length is that it has to be greater than the largest of the packets. The larger the frame_length, the greater the time_out value can be and therefore the lower the load on the machine. Currently in the case of a TDM frame, the frame_length has to be equal to the length of the frame, which limits the possible values for the time_out parameter.

6.3 Badly formatted Internet address hangs OASIS-CC (crn 258)

Putting a badly formatted Internet address (such as "/128.32.33.34" instead of "128.32.33.34") in the data_line field of the links table for streams that use the IP protocol causes OASIS-CC to hang.

6.4 CEV may fail if CEV_TIMEOUT is greater than 86400.0 seconds (crn 358)

When CEV_TIMEOUT is set to a value greater than 86400.0 seconds, a command may immediately fail CEV, as if the CEV_TIMEOUT was set to 0.0. This is due to a SunAda compiler problem.

6.5 Initialization problem with keyed binary bridge (crn 359)

The problem occurs under the following conditions: (a) The bridge is a binary keyed bridge; (b) The "w" values in the TB[w] format don't follow the format rules (i.e., "w" defaults to 32 for eu_data and to 96 for time_data, "w" is rounded to the nearest 8 bits and "w" is limited to 128 * 8 for character strings; and (c) non-key items are not received before the triggering key item is received. Then OASIS-CC may report an error in the "write_line" routine and it is possible that some of the first records are not correctly formatted.

This problem can be avoided by using "w" values that follow the rules listed above.

6.6 Apparent memory leak in graph presentation type (crn 337)

The graph presentation type gives the appearance of a memory leak. This is because it was designed to update very rapidly without concerns for memory deallocation except at certain times. This may need to be reconsidered in the future. For now, it is necessary to know when memory is cleaned up in order to avoid the problem of memory continuing to be allocated.

If you have a continuously updating graph, it will only have memory cleaned up when:

- 1) The panel is deleted. (not hidden).
- 2) A non-visible point is plotted and the graph is set to "jump" to the new point ("dojump" resource is TRUE).
- 3) The graph item is redrawn due to some change in its appearance. This may be anything including a title change, font change, color change, or anything which would require the items to be rearranged in the graph.
- 4) The graph area is redrawn by a user scrolling with scrollbars.

Notice that continuously updating graphs which take long period of time before a non-visible point is plotted (the end of the graph is reached) will continuously allocate memory without ever deallocating it.

6.7 Ask window problem (crn 486)

This is a non fatal problem which is caused by rapid succession of ask windows.

Undelayed back to back ASK windows result in the following type of error message in the window from which OASIS-CC was started:

```
X Error of failed request: BadWindow (invalid Window parameter)
Major opcode of failed request: 38 (X_QueryPointer)
Major opcode of failed request: 0
```

Resource id in failed request: 0x200820 (e.g)
Serial number of failed request:43641

6.8 Running awb remotely with the SOLARIS version (crn 378)

You cannot run the awb code delivered with OASIS-CC from a remote workstation if you set the DISPLAY environmental variable using the full node name (such as `setenv DISPLAY mirza.colorado.edu:0.0`). You need to set DISPLAY using the Internet address instead (such as `setenv DISPLAY 128.138.137.20:0.`). This problem concerns the SOLARIS version only.

6.9 OASIS-CC not compiling procedures (crn 409, tbd)

When OASIS-CC compiles a procedure, it creates some temporary files in `$OASIS_TMP`. Those files are deleted (except for the files generated by the special `clps`) when OASIS-CC terminates via a `CSTOL OFF`. The files created by the special `clps` are not deleted. If OASIS is not terminated via a `CSTOL OFF` no files are deleted. This can cause problem if and when OASIS-CC (in the same environment) is run with different privileges, as it may not have the permission to overwrite the files left by a previous session.

6.10 Size limitation for command log and command window (crn 508)

When a command with many subfields is used, the message generated when the command is built can be truncated (because of the limitation of the message size in the event message log). The same problem exists with the ASCII text displayed in the command window.

6.11 res2rfg TAE utility may crash on *_.res resource files (crn 525)

The `res2rfg` utility crashes when it encounters a string larger than 132 characters. For example this can occur when using the `Cstolq` macro in `awb`. A workaround this problem is to use the `'\'` continuation character to end a line before it reaches a dangerous length.

6.12 Leak when displaying panel with DDOs (crn 529)

There is a leak (which has been traced to Motif and to the Interview code used by TAE) when a panel with a DDO is displayed. This leak has been discovered in the Solaris version. It probably exists in all versions of OASIS-CC.

6.13 Use caution when using remote displays

Testing remote displays has shown that problems can occur in a heterogeneous environment. For example we found problems when displaying panels with presentation types that have text input from the `HP_UX` version of OASIS-CC to an `X11R4` server running the X MIT code or to a `X11R5` server running the X Bluestone code or the X Sun code. Therefore users should carefully test their usage of remote displays before running in an operational environment.

6.14 OASIS-CC never told when crash occur on a remote X server (crn 529)

Assume that OASIS-CC is displaying on a remote X server and that the workstation on which the remote X server runs crashes.

OASIS-CC is made aware of the crash only after a period of time that may be rather long. OASIS-CC itself does not crash, but all X activities (input and output) are stopped until OASIS-CC is made aware of the crash. Same thing happens if the Ethernet connection to the remote X server is severed. Note that this is a different situation from the X server being terminated on the remote workstation.

6.15 Exiting a loop with repeat count via a "GOTO" statement (crn 516)

If a loop with repeat count is not exited via either the "end loop" or an "escape" statement, the loop counter is not re-initialized when loop is re-entered at the "loop" statement.

6.16 Duplicate subfield reference in command request not reported (crn 528)

Assume the following statement:

```
set telemetry with format 1, format 2
```

No errors or warnings are printed by Oasis to caution the user that the same subfield is referenced twice in the command request statement. Oasis uses the last value (2 in the example) for the subfield.

7 Anomaly Or Enhancement Request Reporting -----

The mechanism previously used with the VMS version since 1988 to report OASIS-CC anomalies or to suggest enhancements to the OASIS-CC functionality has been extended to the SunOS version. The report generated using this mechanism can be sent to the OASIS project office by electronic mail (the preferred way) or by regular mail. Each report is assigned a Change Request Number (CRN) and is acknowledged to the originator. The CRN can be used to track progress on the report.

To report an anomaly enter:

```
$ODIST/bin/report.csh
```

8 Documentation Set Status -----

none.

9 Upgrades To The Spectrometer Application -----

none.

10 Goodies

The \$ODIST/common_distrib/user_provided directory contains user-provided OASIS-CC tools. If you have tools that you have developed for your OASIS-CC application that you feel can be of some use to the user community we will be glad to distribute them here.

As a starter the snoe_db_macro directory contains some of the macros developed by SNOE students to populate and maintain the SNOE application database.

Of course we need to put a disclaimer: this is provided "as is" without warranty of any kind.