

**CEM User
Release Notes
Release 20010321
Version 3.9.20**

Purpose

The purpose of this document is to provide information pertaining to the release of the CEM Kernel and user interface. This document is divided into three sections:

<u>Enhancements</u>	Describes changes that enhance the capability of the CEM Kernel.
<u>Problem Reports</u>	Describes changes that correct errors reported in problem reports.
<u>CEM Help</u>	Describes changes made to the user interface that will eventually be added to the CEM On-Line Help.

Enhancements

CEM SubChannels Reset Capability

ATLAS Compilers, the Flow Analyzer and the Resource Allocator have designed within them the concept of Signal and Sub-Signal Objects. These Objects are generated and used by ATLAS Compilers upon detection of certain verbs and nouns. For example, REQUIRE, DIGITAL TEST Statements usually cause the generation of a Signal Object (which is used for DO, DIGITAL TEST Statements), a STIM Sub-Signal Object (which is used for SETUP, DIGITAL TEST Statements specifying Stimulate Modifiers) and a RESP Sub-Signal Object (which is used for SETUP, DIGITAL TEST Statements specifying Response Modifiers). However, the CEM Kernel has no knowledge of the Signal/Sub-Signal relationship between these Objects.

Prior to this release, the CEM Kernel was unable to perform reset operations for Sub-Signal Objects when the associated Signal Object was reset. For example, a REMOVE, DIGITAL TEST Statement would result in the CEM Kernel resetting CEM Kernel Modifier Data for the Signal Object but not for any of the associated Sub-Signal Objects. If the Device Database contains only one Channel (also called a Function) for the Device, this did not cause a problem. However, if the Device Database contains one Channel for the Signal (the Sub-Channel Parent) and one or more Channels for the Sub-Signal(s) (the Sub-Channel Children), the Device Driver was then responsible for determining what Sub-Channel Child Modifier Data was "fresh" or "stale".

With this release, the CEM Kernel allows a CEM Device Driver to specify any Device/Channel as a Sub-Channel Parent (the Signal) so that the CEM Kernel can find and perform reset processing for the Sub-Channel Children (the Sub-Signals). See the CEM Help Section below for detailed information about the new CEM Sub-Channel Functions *SubChanParent()*, *SubChanResetEnable()* and *SubChanResetDisable()*.

Problem Reports

None.

CEM Help

The purpose of this Section is to describe changes made to the CEM User Interface that will eventually be added to the CEM On-Line Help.

Update to "Modifier Data in CEM Kernel" Section

Note The following will be added to the end of the Section.

SubChanParent()

For those devices that have a "parent"/"child" relationship between the various "channels" (also known as "functions") defined within the Device Database, a driver can call this function to inform the CEM Kernel that such a relationship exists. This allows the CEM Kernel to remove any modifier data for a particular "child channel" when the "parent channel" is RESET

Update to Data Access CEM Macro Group

SubChanParent ()
SubChanResetEnable ()
SubChanResetDisable ()

Name: SubChanParent

Type: Data Access

Usage:

```
char *pcParentDevChan;  
int nStatus;  
nStatus = SubChanParent( pcParentDevChan );
```

Description: This Function identifies the Device/Channel specified by the String pointed to by `pcParentDevChan` as the "parent" Channel for the Device. The format of the String is:

Device:**CH***Channel*

<u>where</u>	<u>is</u>
<i>Device</i>	the Device Name.
:CH	a Literal.
<i>Channel</i>	the Device Channel Number.

Note TYX strongly recommends that this Function be called within the User's Non-ATLAS Action CONNECT Function (which is called by the CEM Kernel just one time at the end of the CEM Kernel's initialization processing.)

This Function performs the following:

- Verifies that the specified Device/Channel String is valid.
- Marks the Device/Channel as a Sub-Channel Parent.
- For each Device/Channel with the same Device Name as the Sub-Channel Parent:
- Marks the Device/Channel as a Sub-Channel Child.
- Disables the calling of the Device/Channel ATLAS Action RESET Function when the Sub-Channel Parent is RESET.
- Verifies that the Sub-Channel Parent has at least one Sub-Channel Child.

Note When the CEM Kernel receives a Message from the RTS to RESET a Sub-Channel Parent, the CEM Kernel resets the Device by:

- Calling the Sub-Channel Parent ATLAS Action RESET

Function (if defined).

- Removing all accumulated Sub-Channel Parent DATUM's (i.e., Modifier Data).
- Resetting each Sub-Channel Child of the Sub-Channel Parent by:
- Calling the Sub-Channel Child ATLAS Action RESET Function (if enabled and defined).
- Removing all accumulated Sub-Channel Child DATUM's (i.e., Modifier Data).

Returns: Integer == **OSRSERR** = Error detected.
 == **OSRSOK** = No errors detected.

See Also: **Data Access** CEM Macros and CEM Functions
SubChanResetEnable() and *SubChanResetDisable()*.

Name: SubChanResetEnable

Type: Data Access

Usage:

```
char *pcChildDevChan;  
int nStatus;  
nStatus = SubChanResetEnable( pcChildDevChan );
```

Description: This Function enables the ATLAS Action RESET Function for the Device/Channel specified by the String pointed to by `pcChildDevChan`. The format of the String is:

Device:**CH***Channel*

<u>where</u>	<u>is</u>
<i>Device</i>	the Device Name.
: CH	a Literal.
<i>Channel</i>	the Device Channel Number.

This Function performs the following:

- Verifies that the specified Device/Channel String is valid.
- Verifies that the specified Device/Channel is marked as a Sub-Channel Child.
- Enables the calling of the Device/Channel ATLAS Action RESET Function when the Sub-Channel Parent is RESET.

Returns: Integer == **OSRSERR** = Error detected.
 == **OSRSOK** = No errors detected.

See Also: CEM Functions *SubChanParent()* and *SubChanResetDisable()*.

Name: SubChanResetDisable

Type: Data Access

Usage:

```
char *pcChildDevChan;  
int nStatus;  
nStatus = SubChanResetDisable( pcChildDevChan );
```

Description: This Function disables the ATLAS Action RESET Function for the Device/Channel specified by the String pointed to by `pcChildDevChan`. The format of the String is:

Device:**CH***Channel*

<u>where</u>	<u>is</u>
<i>Device</i>	the Device Name.
:CH	a Literal.
<i>Channel</i>	the Device Channel Number.

This Function performs the following:

- Verifies that the specified Device/Channel String is valid.
- Verifies that the specified Device/Channel is marked as a Sub-Channel Child.
- Disables the calling of the Device/Channel ATLAS Action RESET Function when the Sub-Channel Parent is RESET.

Returns: Integer == **OSRSERR** = Error detected.
 == **OSRSOK** = No errors detected.

See Also: CEM Functions *SubChanParent()* and *SubChanResetEnable()*.