

**CEM User
Release Notes
Release 19991026
26 October 1999**

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

Current Channel Number

Prior to this release, the CEM Macro *GetCurChnNum()* was incorrectly returning a zero (0) to indicate that an error was detected.

With this release, the CEM Macro *GetCurChnNum()* correctly returns a minus one (-1) to indicate that an error was detected.

Current Noun and Measured Characteristic

With the previous release, the RTS was changed to send the Noun and Measured Characteristic of the Current ATLAS Statement to the CEM Module. However, this did not fully resolve all conflicts when a CEM Device Driver required Noun and Measured Characteristic information.

With this release, these conflicts have been resolved.

WARNING

CEM Device Drivers that use the CEM Macros *GetCurMChar()* within their FETCH Atlas Action must be changed to use the new CEM Macro *GetCurDevMChar()* in order to correctly determine what is being fetched.

Noun and Measured Characteristic for Current ATLAS Statement

With this release, the CEM Macros *GetCurNoun()* and *GetCurMChar()* return the Noun and Measured Characteristic Mnemonics, respectively, of the Current ATLAS Statement. Refer to Section 3 for the new descriptions of these CEM Macros.

Noun and Measured Characteristic for Current Device / Channel

With this release, the new CEM Macros *GetCurDevNoun()* and *GetCurDevMChar()* return the Noun and Measured Characteristic Mnemonics, respectively, of the Current Device / Channel. Refer to Section 3 for a full description of these new CEM Macros.

User Stub Functions

Prior to this release, User Stub Functions printed the CIIL Strings for the Noun and Measured Characteristic Mnemonics returned by the CEM Macros *GetCurNoun()* and *GetCurMChar()*, respectively, when printing an Action Line.

With this release, User Stub Functions print the CIIL Strings for the Noun and Measured Characteristic Mnemonics returned by the CEM Macros *GetCurNoun()*, *GetCurMChar()*, *GetCurDevNoun()* and *GetCurDevMChar()* as follows:

- If the CEM Macros *GetCurNoun()* and *GetCurDevNoun()* (or *GetCurMChar()* and *GetCurDevMChar()*) return the same Mnemonic, only the appropriate CIIL Noun (or Measured Characteristic) String will be printed.

Note The Measured Characteristic is not printed if it is not defined.

- If the CEM Macros *GetCurNoun()* and *GetCurDevNoun()* (or *GetCurMChar()* and *GetCurDevMChar()*) return different Mnemonics, the CIIL Noun (or Measured Characteristic) String for the Current ATLAS Statement will be printed first, followed by an ASCII Vertical Bar (|) Character, followed by the CIIL Noun (or Measured Characteristic) String for the Current Device / Channel.

Note The String "None" is printed when any Noun or Measured Characteristic is either not defined or not available.

Problem Reports

None.

CEM Help

Update to Current State CEM Macro Group

GetCurDevMChar ()

GetCurDevNoun ()

Name: GetCurDevMChar

Type: Current State

Usage: `short nMeasChar;
nMeasChar = GetCurDevMChar();`

Description: This Macro causes the Short Variable **nMeasChar** to be set to the Modifier Mnemonic that represents the Current Device Measured Characteristic.

Note The Current Device Measured Characteristic is the Measured Characteristic that the RTS sends to the CEM Kernel within certain RTS-to-CEM Data Messages.

Modifier Mnemonics are of the form **M_XXXX** (e.g., **M_VOLT** for "Voltage") and may be found in the PAWS-generated CEM Header File **key.h**.

If an error is detected or if there is no Current Device Measured Characteristic, **nMeasChar** will be set to zero.

Some ATLAS Signal Statements have a Measured Characteristic Field and some do not. If a CEM Device Driver needs to know the Measured Characteristic of the Current ATLAS Statement, the CEM Macro *GetCurMChar()* must be used. However, there are some ATLAS Signal Statements that do not have a Measured Characteristic (e.g., DO, DIGITAL TEST) but for which the RTS sends additional information (e.g., STIM or RESP) to the CEM Kernel as the Measured Characteristic. And there are some ATLAS Actions (e.g., FETCH) for which the Measured Characteristic needed by a CEM Device Driver is not the Measured Characteristic in the ATLAS Statement.

The RTS sends a Measured Characteristic (if appropriate) to the CEM Kernel within the following RTS-to-CEM Data Messages: Function/Setup (FNC); Initiate (INX); Fetch (FTH); and Remove (REM). When the CEM Kernel receives an FNC Message, the Measured Characteristic (if specified) is saved for the Current Device/Channel and is available to the CEM Device Driver for all ATLAS Actions (except INITIATE, FETCH and REMOVE) until the Device/Channel is reset. When the CEM Kernel receives either an INX, FTH or REM Message, the Measured Characteristic is saved in a Global Variable and is available to the CEM Device Driver during the CEM Device Driver's INITIATE, FETCH and RESET ATLAS Actions, respectively.

Therefore, CEM Device Drivers should perform as follows:

INITIATE, FETCH and REMOVE ATLAS Actions These Actions should always use this CEM Macro. It is by no means unusual for the RTS to send multiple FETCH Messages to the CEM Kernel for certain ATLAS Statements. Thus, this CEM Macro will tell the CEM Device Driver what is being fetched.

All other ATLAS Actions These Actions should probably use the CEM Macro *GetCurMChar()* to get the Measured Characteristic of the Current ATLAS Statement.

When there is doubt about which CEM Macro to use, the CEM Device Driver Action Function should be temporarily modified to include a call to the appropriate CEM User Stub Function, which will print the CIIL Strings for the Modifier Mnemonics returned by both this CEM Macro and the CEM Macro *GetCurMChar()* (if they are different).

See Also: CEM Macros *GetCurDevNoun()* and *GetCurMChar()*.

Name: GetCurDevNoun

Type: Current State

Usage: `short nNoun;
nNoun = GetCurDevNoun();`

Description: This Macro causes the Short Variable **nNoun** to be set to the Noun Mnemonic that represents the Current Device Noun.

Note The Current Device Noun is the Noun that the RTS sends to the CEM Kernel within certain RTS-to-CEM Data Messages.

Noun Mnemonics are of the form **N_XXX** (e.g., **N_ACS** for “AC Signal”) and may be found in the PAWS-generated CEM Header File **key.h**.

If an error is detected or if there is no Current Device Noun, **nNoun** will be set to zero.

Every ATLAS Signal Statement (except REMOVE, ALL) has a Noun Field. If a CEM Device Driver needs to know the Noun of the Current ATLAS Statement, the CEM Macro *GetCurNoun()* must be used. As currently implemented, there are several situations where this CEM Macro would return a zero value, but there are no known situations where this CEM Macro would return a non-zero value that was different from what the CEM Macro *GetCurNoun()* would return.

See Also: CEM Macros *GetCurNoun()* and *GetCurDevMChar()*.

Name: GetCurMChar

Type: Current State

Usage: `short nMeasChar;`
`nMeasChar = GetCurMChar();`

Description: This Macro causes the Short Variable **nMeasChar** to be set to the Modifier Mnemonic that represents the Current ATLAS Statement Measured Characteristic.

Modifier Mnemonics are of the form **M_XXXX** (e.g., **M_VOLT** for "Voltage") and may be found in the PAWS-generated CEM Header File **key.h**.

If an error is detected or if there is no Current ATLAS Statement Measured Characteristic, **nMeasChar** will be set to zero.

Some ATLAS Signal Statements have a Measured Characteristic Field and some do not. If a CEM Device Driver needs to know the Measured Characteristic of the Current ATLAS Statement, this CEM Macro must be used. However, there are some situations where the ATLAS Statement Measured Characteristic is not what the CEM Device Driver needs. It is strongly recommended that the CEM Macro *GetCurDevMChar()* section be read.

See Also: CEM Macros *GetCurDevMChar()* and *GetCurNoun()*.

Name: GetCurNoun

Type: Current State

Usage: `short nNoun;`
`nNoun = GetCurNoun();`

Description: This Macro causes the Short Variable **nNoun** to be set to the Noun Mnemonic that represents the Current ATLAS Statement Noun.

Noun Mnemonics are of the form **N_XXX** (e.g., **N_ACS** for “AC Signal”) and may be found in the PAWS-generated CEM Header File **key.h**.

If an error is detected or if there is no Current ATLAS Statement Noun, **nNoun** will be set to zero.

Every ATLAS Signal Statement (except REMOVE, ALL) has a Noun Field. If a CEM Device Driver needs to know the Noun of the Current ATLAS Statement, this CEM Macro must be used. However, it is recommended that the CEM Macro *GetCurDevNoun()* section be read.

See Also: CEM Macros *GetCurDevNoun()* and *GetCurMChar()*.