

# Perl to CDF Programming Interface- V2.7

## Using the Package

Both CDF's Standard and Internal Interface are provided to the Perl codes in the Perl-CDF package module. In order to use either one or both from Perl, the search path needs to be set up properly. The Perl-CDF package needs to be imported to the Perl script which will access CDF library. There are two ways to accomplish this. One is to include the needed directories in the script. For examples, the following codes are required at the front section of a Perl script using the Perl-CDF package running on a DEC/Alpha/OSF1 box, xfiles:

```
use strict;

BEGIN { unshift @INC, '/home/cdf/cdf27-dist/PerlCDF27/blib/arch',
                  '/home/cdf/cdf27-dist/PerlCDF27/blib/lib' ) }

use CDF;
```

The other way is to have both

```
-I/home/cdf/cdf27-dist/PerlCDF27/blib/arch
-I/home/cdf/cdf27-dist/PerlCDF27/blib/lib
```

at the command line while running the Perl script.

The shared version of the CDF library is used while accessing the CDF interface from the Perl. To access the most current shared CDF library, an environment variable may need to be set. On a DEC Alpha/OSF1, Sun Solaris or SGI, the environment variable `LD_LIBRARY_PATH` must be set to be the directory containing `libcdf.so`. For example, if the most recent CDF V2.7 is at `/usr/local/share/cdf27/lib` on xfiles, so under the C-shell, enter:

```
setenv LD_LIBRARY_PATH /usr/local/share/cdf27/lib
```

For BSD-based Mac OS X, the environment variable is `DYLD_LIBRARY_PATH`. The variable must be set to the directory containing the shared library `libcdf.dylib`.

For Windows 9x/NT, similarly, set the path to include the directory that contains `libcdf.lib`.

For Macintosh OS, the location of the Perl-CDF package should be included into `@INC`:

```
HD:where:...:CDF:blib:lib
HD:where:...:CDF:blib:lib:MacPPC
```

Also, make sure that the dynamic library, `dllcdf.PPC`, is in the System Folder:Extensions.

Two Perl test scripts, `testPerlCDFii.pl` and `testPerlCDFsi.pl`, are provided in the distribution. Both use extensive Perl-CDF interface functions: `testPerlCDFii.pl` tests CDF's Internal Interface functions

while `testPerlCDFsi.pl` tests the Standard Interface functions. They can be used as sample scripts for development.

## Standard Interface

```
my $status=CDF::CDFcreate ($CDFpath, $numDims, \@dimSizes, $encoding,
                           $majority, $id)

my $CDFpath;                                /* in */
my $numDims;                                /* in */
my @dimSizes;                                /* in */
my $encoding;                                /* in */
my $majority;                                /* in */
my $id;                                      /* out */

my $status=CDF::CDFopen ($CDFpath, $id)
my $CDFpath;                                /* in */
my $id;                                      /* out */

my $status= CDF::CDFdoc ($id, $version, $release, $text)
my $id;                                      /* in */
my $version;                                /* out */
my $release;                                /* out */
my $text;                                    /* out */

my $status=CDF::CDFinquire ($id, $numDims, \@dimSizes, $encoding,
                           $majority, $maxRec, $numVars, $numAttrs)
my $id;                                      /* in */
my $numDims;                                /* out */
my @dimSizes;                                /* out */
my $encoding;                                /* out */
my $majority;                                /* out */
my $maxRec;                                  /* out */
my $numVars;                                /* out */
my $numAttrs;                                /* out */

my $status=CDF::CDFclose ($id)
my $id;                                      /* in */

my $status=CDF::CDFdelete ($id)
my $id;                                      /* in */

my $status=CDF::CDFerror ($statusi, $message)
my $statusi;                                /* in */
my $message;                                /* out */

my $status=CDF::CDFattrCreate ($id, $attrName, $attrScope, $attrNum)
my $id;                                      /* in */
my $attrName;                                /* in */
my $attrScope;                                /* in */
```

```

my $attrNum; /* out */

my $attrNum=CDF::CDFAttrNum ($id, $attrName)
my $id; /* in */
my $attrName; /* in */

my $status=CDF::CDFAttrRename ($id, $attrNum, $attrName)
my $id; /* in */
my $attrNum; /* in */
my $attrName; /* in */

my $status=CDF::CDFAttrInquire ($id, $attrNum, \$attrName, \$attrScope,
                                \$maxEntry)
my $id; /* in */
my $attrNum; /* in */
my $attrName; /* out */
my $attrScope; /* out */
my $maxEntry; /* out */

my $status=CDF::CDFAttrEntryInquire ($id, $attrNum, $entryNum, \$dataType,
                                      \$numElements)
my $id; /* in */
my $attrNum; /* in */
my $entryNum; /* in */
my $dataType; /* out */
my $numElements; /* out */

my $status=CDF::CDFAttrPut ($id, $attrNum, $entryNum, $dataType, $numElements,
                            \$value)
my $id; /* in */
my $attrNum; /* in */
my $entryNum; /* in */
my $dataType; /* in */
my $numElements; /* in */
my $value; /* in */

my $status=CDF::CDFAttrGet ($id, $attrNum, $entryNum, \$value)
my $id; /* in */
my $attrNum; /* in */
my $entryNum; /* in */
my $value; /* out */

my $status=CDF::CDFvarCreate ($id, $varName, $dataType, $numElements,
                              $recVariances, \@dimVariances, \$varNum)
my $id; /* in */
my $varName; /* in */
my $dataType; /* in */
my $numElements; /* in */
my $recVariance; /* in */
my @dimVariances; /* in */
my $varNum; /* out */

```

```

my $varNum=CDF::CDFvarNum ($id, $varName)
my $id; /* in */
my $varName; /* in */

my $status=CDF::CDFvarRename ($id, $varNum, $varName)
my $id; /* in */
my $varNum; /* in */
my $varName; /* in */

my $status=CDF::CDFvarInquire ($id, $varNum, $varName, $dataType,
                                $numElements, $recVariance, \@dimVariances)
my $id; /* in */
my $varNum; /* in */
my $varName; /* out */
my $dataType; /* out */
my $numElements; /* out */
my $recVariance; /* out */
my @dimVariances; /* out */

my $status=CDF::CDFvarPut ($id, $varNum, $recNum, \@indices, \$value)
my $id; /* in */
my $varNum; /* in */
my $recNum; /* in */
my @indices; /* in */
my $value; /* in */

my $status=CDF::CDFvarGet ($id, $varNum, $recNum, \@indices, \$value)
my $id; /* in */
my $varNum; /* in */
my $recNum; /* in */
my @indices; /* in */
my $value; /* out */

my $status=CDF::CDFvHpPut ($id, $varNum, $recStart, $recCount,
                            $recInterval, \@indices, \@counts,
                            \@intervals, \@buffer)
my $id; /* in */
my $varNum; /* in */
my $recStart; /* in */
my $recCount; /* in */
my $recInterval; /* in */
my @indices; /* in */
my @counts; /* in */
my @intervals; /* in */
my @buffer; /* in */

my $status=CDF::CDFvHpGet ($id, $varNum, $recStart, $recCount,
                            $recInterval, \@indices, \@counts,
                            \@intervals, \@buffer)
my $id; /* in */

```

```

my $varNum; /* in */
my $recStart; /* in */
my $recCount; /* in */
my $recInterval; /* in */
my @indices; /* in */
my @counts; /* in */
my @intervals; /* in */
my @buffer; /* out */

my $status=CDF::CDFvarClose ($id, $varNum)
my $id; /* in */
my $varNum; /* in */

```

## Internal Interface

```

my $status=CDF::CDFlib ($op, ...)
my $op; /* in */

CLOSE_
    CDF_
    rVAR_
    zVAR_

CONFIRM_
    ATTR_ /* out */
    ATTR_EXISTENCE_ $attrName /* in */
    CDF_ $id /* out */
    CDF_ACCESS_
    CDF_CACHESIZE_ \ $numBuffers /* out */
    CDF_DECODING_ \ $decoding /* out */
    CDF_NAME_ \ $CDFpath /* out */
    CDF_NEGtoPOSfp0_MODE_ \ $mode /* out */
    CDF_READONLY_MODE_ \ $mode /* out */
    CDF_STATUS_ \ $status /* out */
    CDF_zMODE_ \ $mode /* out */
    COMPRESS_CACHESIZE_ \ $numBuffers /* out */
    CURgENTRY_EXISTENCE_
    CURrENTRY_EXISTENCE_
    CURzENTRY_EXISTENCE_
    gENTRY_ \ $entryNum /* out */
    gENTRY_EXISTENCE_ $entryNum /* in */
    rENTRY_ \ $entryNum /* out */
    rENTRY_EXISTENCE_ $entryNum /* in */
    rVAR_ \ $varNum /* out */
    rVAR_CACHESIZE_ \ $numBuffers /* out */
    rVAR_EXISTENCE_ $varName /* in */
    rVAR_PADVALUE_
    rVAR_RESERVEPERCENT_ \ $percent /* out */
    rVAR_SEQPOS_ \ $recNum /* out */

```

	\@indices	/* out */
rVARs_DIMCOUNTS_	\@counts	/* out */
rVARs_DIMINDICES_	\@indices	/* out */
rVARs_DIMINTERVALS_	\@intervals	/* out */
rVARs_RECCOUNT_	\\$recCount	/* out */
rVARs_RECINTERVAL_	\\$recInterval	/* out */
rVARs_RECNUMBER_	\\$recNum	/* out */
STAGE_CACHESIZE_	\\$numBuffers	/* out */
zENTRY_	\\$entryNum	/* out */
zENTRY_EXISTENCE_	\$entryNum	/* in */
zVAR_	\\$varNum	/* out */
zVAR_CACHESIZE_	\\$numBuffers	/* out */
zVAR_DIMCOUNTS_	\@counts	/* out */
zVAR_DIMINDICES_	\@indices	/* out */
zVAR_DIMINTERVALS_	\@intervals	/* out */
zVAR_EXISTENCE_	\$varName	/* in */
zVAR_PADVALUE_		
zVAR_RECCOUNT_	\\$recCount	/* out */
zVAR_RECINTERVAL_	\\$recInterval	/* out */
zVAR_RECNUMBER_	\\$recNum	/* out */
zVAR_RESERVEPERCENT_	\\$percent	/* out */
zVAR_SEQPOS_	\\$recNum	/* out */
	\@indices	/* out */
CREATE_		
ATTR_	\$attrName	/* in */
	\$scope	/* in */
	\\$attrNum	/* out */
CDF_	\$CDFpath	/* in */
	\$numDims	/* in */
	\@dimSizes	/* in */
	\\$id	/* out */
rVAR_	\$varName	/* in */
	\$dataType	/* in */
	\$numElements	/* in */
	\$recVary	/* in */
	\$dimVarys	/* in */
	\\$varNum	/* out */
zVAR_	\$varName	/* in */
	\$dataType	/* in */
	\$numElements	/* in */
	\$numDims	/* in */
	\@dimSizes	/* in */
	\$recVary	/* in */
	\$dimVarys	/* in */
	\\$varNum	/* out */
DELETE_		

ATTR_		
CDF_		
gENTRY_		
rENTRY_		
rVAR_		
rVAR_RECORDS_	\$firstRecord	/* in */
	\$lastRecord	/* in */
zENTRY_		
zVAR_		
zVAR_RECORDS_	\$firstRecord	/* in */
	\$lastRecord	/* in */
GET_		
ATTR_MAXgENTRY_	\\$maxEntry	/* out */
ATTR_MAXrENTRY_	\\$maxEntry	/* out */
ATTR_MAXzENTRY_	\\$maxEntry	/* out */
ATTR_NAME_	\\$attrName	/* out */
ATTR_NUMBER_	\$attrName	/* in */
	\\$attrNum	/* out */
ATTR_NUMgENTRIES_	\\$numEntries	/* out */
ATTR_NUMrENTRIES_	\\$numEntries	/* out */
ATTR_NUMzENTRIES_	\\$numEntries	/* out */
ATTR_SCOPE_	\\$scope	/* out */
CDF_COMPRESSION_	\\$cType	/* out */
	\@cParms	/* out */
	\\$cPct	/* out */
CDF_COPYRIGHT_	\\$copyRight	/* out */
CDF_ENCODING_	\\$encoding	/* out */
CDF_FORMAT_	\\$format	/* out */
CDF_INCREMENT_	\\$increment	/* out */
CDF_INFO_	\$path	/* in */
	\\$cType	/* out */
	\@cParms	/* out */
	\\$cSize	/* out */
	\\$uSize	/* out */
CDF_MAJORITY_	\\$majority	/* out */
CDF_NUMATTRS_	\\$numAttrs	/* out */
CDF_NUMgATTRS_	\\$numAttrs	/* out */
CDF_NUMrVARS_	\\$numVars	/* out */
CDF_NUMvATTRS_	\\$numAttrs	/* out */
CDF_NUMzVARS_	\\$numVars	/* out */
CDF_RELEASE_	\\$release	/* out */
CDF_VERSION_	\\$version	/* out */
DATATYPE_SIZE_	\$dataType	/* in */
	\\$numBytes	/* out */
gENTRY_DATA_	\\$value	/* out */
gENTRY_DATATYPE_	\\$dataType	/* out */
gENTRY_NUMELEMS_	\\$numElements	/* out */
LIB_COPYRIGHT_	\\$copyRight	/* out */
LIB_INCREMENT_	\\$increment	/* out */
LIB_RELEASE_	\\$release	/* out */

LIB_subINCREMENT_	\\$subincrement	/* out */
LIB_VERSION_	\\$version	/* out */
rENTRY_DATA_	\\$value	/* out */
rENTRY_DATATYPE_	\\$dataType	/* out */
rENTRY_NUMELEMS_	\\$numElements	/* out */
rVAR_ALLOCATEDFROM_	\$startRecord	/* in */
	\\$nextRecord	/* out */
rVAR_ALLOCATEDTO_	\$startRecord	/* in */
	\\$lastRecord	/* out */
rVAR_BLOCKINGFACTOR_	\\$blockingFactor	/* out */
rVAR_COMPRESSION_	\\$cType	/* out */
	\@cParms	/* out */
	\\$cPct	/* out */
rVAR_DATA_	\\$value	/* out */
rVAR_DATATYPE_	\\$dataType	/* out */
rVAR_DIMVARYS_	\@dimVarys	/* out */
rVAR_HYPERDATA_	\@buffer	/* out */
rVAR_MAXallocREC_	\\$maxRec	/* out */
rVAR_MAXREC_	\\$maxRec	/* out */
rVAR_NAME_	\\$varName	/* out */
rVAR_nINDEXENTRIES_	\\$numEntries	/* out */
rVAR_nINDEXLEVELS_	\\$numLevels	/* out */
rVAR_nINDEXRECORDS_	\\$numRecords	/* out */
rVAR_NUMallocRECS_	\\$numRecords	/* out */
rVAR_NUMBER_	\$varName	/* in */
	\\$varNum	/* out */
rVAR_NUMELEMS_	\\$numElements	/* out */
rVAR_NUMRECS_	\\$numRecords	/* out */
rVAR_PADVALUE_	\\$value	/* out */
rVAR_RECVAR_	\\$recVary	/* out */
rVAR_SEQDATA_	\\$value	/* out */
rVAR_SPARSEARRAYS_	\\$sArraysType	/* out */
	\@sArraysParms	/* out */
	\\$sArraysPct	/* out */
rVAR_SPARSERECORDS_	\\$sRecordsType	/* out */
rVARs_DIMSIZES_	\@dimSizes	/* out */
rVARs_MAXREC_	\\$maxRec	/* out */
rVARs_NUMDIMS_	\\$numDims	/* out */
rVARs_RECADATA_	\$numVars	/* in */
	\@varNums	/* in */
	\@buffer	/* out */
STATUS_TEXT_	\\$text	/* out */
zENTRY_DATA_	\\$value	/* out */
zENTRY_DATATYPE_	\\$dataType	/* out */
zENTRY_NUMELEMS_	\\$numElements	/* out */
zVAR_ALLOCATEDFROM_	\$startRecord	/* in */
	\\$nextRecord	/* out */
zVAR_ALLOCATEDTO_	\$startRecord	/* in */
	\\$lastRecord	/* out */
zVAR_BLOCKINGFACTOR_	\\$blockingFactor	/* out */
zVAR_COMPRESSION_	\\$cType	/* out */

	\@cParms	/* out */
	\\$cPct	/* out */
zVAR_DATA_	\\$value	/* out */
zVAR_DATATYPE_	\\$dataType	/* out */
zVAR_DIMSIZES_	\@dimSizes	/* out */
zVAR_DIMVARYS_	\@dimVarys	/* out */
zVAR_HYPERDATA_	\@buffer	/* out */
zVAR_MAXallocREC_	\\$maxRec	/* out */
zVAR_MAXREC_	\\$maxRec	/* out */
zVAR_NAME_	\\$varName	/* out */
zVAR_nINDEXENTRIES_	\\$numEntries	/* out */
zVAR_nINDEXLEVELS_	\\$numLevels	/* out */
zVAR_nINDEXRECORDS_	\\$numRecords	/* out */
zVAR_NUMallocRECS_	\\$numRecords	/* out */
zVAR_NUMBER_	\$varName	/* in */
	\\$varNum	/* out */
zVAR_NUMDIMS_	\\$numDims	/* out */
zVAR_NUMELEMS_	\\$numElements	/* out */
zVAR_NUMRECS_	\\$numRecords	/* out */
zVAR_PADVALUE_	\\$value	/* out */
zVAR_RECVAR_	\\$recVary	/* out */
zVAR_SEQDATA_	\\$value	/* out */
zVAR_SPARSEARRAYS_	\\$sArraysType	/* out */
	\@sArraysParms	/* out */
	\\$sArraysPct	/* out */
zVAR_SPARSERECORDS_	\\$sRecordsType	/* out */
zVARs_MAXREC_	\\$maxRec	/* out */
zVARs_RECdata_	\$numVars	/* in */
	\@varNums	/* in */
	\@buffer	/* out */
OPEN_		
CDF_	\$CDFpath	/* in */
	\\$id	/* out */
PUT_		
ATTR_NAME_	\$attrName	/* in */
ATTR_SCOPE_	\$scope	/* in */
CDF_COMPRESSION_	\$cType	/* in */
	\@cParms	/* in */
CDF_ENCODING_	\$encoding	/* in */
CDF_FORMAT_	\$format	/* in */
CDF_MAJORITY_	\$majority	/* in */
gENTRY_DATA_	\$dataType	/* in */
	\$numElements	/* in */
	\\$value	/* in */
gENTRY_DATASPEC_	\$dataType	/* in */
	\$numElements	/* in */
rENTRY_DATA_	\$dataType	/* in */
	\$numElements	/* in */
	\\$value	/* in */

rENTRY_DATASPEC_	\$dataType	/* in */
	\$numElements	/* in */
rVAR_ALLOCATEBLOCK_	\$firstRecord	/* in */
	\$lastRecord	/* in */
rVAR_ALLOCATERECS_	\$numRecords	/* in */
rVAR_BLOCKINGFACTOR_	\$blockingFactor	/* in */
rVAR_COMPRESSION_	\$cType	/* in */
	\@cParms	/* in */
rVAR_DATA_	\\$value	/* in */
rVAR_DATASPEC_	\$dataType	/* in */
	\$numElements	/* in */
rVAR_DIMVARYS_	\@dimVarys	/* in */
rVAR_HYPERDATA_	\@buffer	/* in */
rVAR_INITIALRECS_	\$nRecords	/* in */
rVAR_NAME_	\$varName	/* in */
rVAR_PADVALUE_	\\$value	/* in */
rVAR_RECVAR_	\$recVary	/* in */
rVAR_SEQDATA_	\\$value	/* in */
rVAR_SPARSEARRAYS_	\$sArraysType	/* in */
	\@sArraysParms	/* in */
rVAR_SPARSERECORDS_	\$sRecordsType	/* in */
rVARs_RECDA_	\$numVars	/* in */
	\@varNums	/* in */
	\@buffer	/* in */
zENTRY_DATA_	\$dataType	/* in */
	\$numElements	/* in */
	\\$value	/* in */
zENTRY_DATASPEC_	\$dataType	/* in */
	\$numElements	/* in */
zVAR_ALLOCATEBLOCK_	\$firstRecord	/* in */
	\$lastRecord	/* in */
zVAR_ALLOCATERECS_	\$numRecords	/* in */
zVAR_BLOCKINGFACTOR_	\$blockingFactor	/* in */
zVAR_COMPRESSION_	\$cType	/* in */
	\@cParms	/* in */
zVAR_DATA_	\\$value	/* in */
zVAR_DATASPEC_	\$dataType	/* in */
	\$numElements	/* in */
zVAR_DIMVARYS_	\@dimVarys	/* in */
zVAR_INITIALRECS_	\$nRecords	/* in */
zVAR_HYPERDATA_	\@buffer	/* in */
zVAR_NAME_	\$varName	/* in */
zVAR_PADVALUE_	\\$value	/* in */
zVAR_RECVAR_	\$recVary	/* in */
zVAR_SEQDATA_	\\$value	/* in */
zVAR_SPARSEARRAYS_	\$sArraysType	/* in */
	\@sArraysParms	/* in */
zVAR_SPARSERECORDS_	\$sRecordsType	/* in */
zVARs_RECDA_	\$numVars	/* in */
	\@varNums	/* in */
	\@buffer	/* in */

SELECT_		
ATTR_	\$attrNum	/* in */
ATTR_NAME_	\$attrName	/* in */
CDF_	\$id	/* in */
CDF_CACHESIZE_	\$numBuffers	/* in */
CDF_DECODING_	\$decoding	/* in */
CDF_NEGtoPOSfp0_MODE_	\$mode	/* in */
CDF_READONLY_MODE_	\$mode	/* in */
CDF_SCRATCHDIR_	\$dirPath	/* in */
CDF_STATUS_	\$status	/* in */
CDF_zMODE_	\$mode	/* in */
COMPRESS_CACHESIZE_	\$numBuffers	/* in */
gENTRY_	\$entryNum	/* in */
rENTRY_	\$entryNum	/* in */
rENTRY_NAME_	\$varName	/* in */
rVAR_	\$varNum	/* in */
rVAR_CACHESIZE_	\$numBuffers	/* in */
rVAR_NAME_	\$varName	/* in */
rVAR_RESERVEPERCENT_	\$percent	/* in */
rVAR_SEQPOS_	\$recNum	/* in */
	\@indices	/* in */
rVARs_CACHESIZE_	\$numBuffers	/* in */
rVARs_DIMCOUNTS_	\@counts	/* in */
rVARs_DIMINDICES_	\@indices	/* in */
rVARs_DIMINTERVALS_	\@intervals	/* in */
rVARs_RECCOUNT_	\$recCount	/* in */
rVARs_RECINTERVAL_	\$recInterval	/* in */
rVARs_RECNUMBER_	\$recNum	/* in */
STAGE_CACHESIZE_	\$numBuffers	/* in */
zENTRY_	\$entryNum	/* in */
zENTRY_NAME_	\$varName	/* in */
zVAR_	\$varNum	/* in */
zVAR_CACHESIZE_	\$numBuffers	/* in */
zVAR_DIMCOUNTS_	\@counts	/* in */
zVAR_DIMINDICES_	\@indices	/* in */
zVAR_DIMINTERVALS_	\@intervals	/* in */
zVAR_NAME_	\$varName	/* in */
zVAR_RECCOUNT_	\$recCount	/* in */
zVAR_RECINTERVAL_	\$recInterval	/* in */
zVAR_RECNUMBER_	\$recNum	/* in */
zVAR_RESERVEPERCENT_	\$percent	/* in */
zVAR_SEQPOS_	\$recNum	/* in */
	\@indices	/* in */
zVARs_CACHESIZE_	\$numBuffers	/* in */
zVARs_RECNUMBER_	\$recNum	/* in */

## EPOCH Utility Routines

```
my $epoch=CDF::computeEPOCH ($year, $month, $day, $hour, $minute, $second,
                             $msec)

my $year;                                /* in */
my $month;                               /* in */
my $day;                                 /* in */
my $hour;                                /* in */
my $minute;                              /* in */
my $second;                              /* in */
my $msec;                                /* in */

CDF::EPOCHbreakdown ($epoch, \ $year, \ $month, \ $day, \ $hour, \ $minute,
                    \ $second, \ $msec)

my $epoch;                                /* in */
my $year;                                /* out */
my $month;                               /* out */
my $day;                                 /* out */
my $hour;                                /* out */
my $minute;                              /* out */
my $second;                              /* out */
my $msec;                                /* out */

CDF::encodeEPOCH ($epoch, \ $epString)

my $epoch;                                /* in */
my $epString;                             /* out */

CDF::encodeEPOCH1 ($epoch, \ $epString)

my $epoch;                                /* in */
my $epString;                             /* out */

CDF::encodeEPOCH2 ($epoch, \ $epString)

my $epoch;                                /* in */
my $epString;                             /* out */

CDF::encodeEPOCH3 ($epoch, \ $epString)

my $epoch;                                /* in */
my $epString;                             /* out */

CDF::encodeEPOCHx ($epoch, $format, \ $epString)

my $epoch;                                /* in */
my $format;                               /* in */
my $epString;                             /* out */

my $epoch=CDF::parseEPOCH ($epString)

my $epString;                             /* in */

my $epoch=CDF::parseEPOCH1 ($epString)

my $epString;                             /* in */
```

```

my $epoch=CDF::parseEPOCH2 ($epString)
my $epString;                                     /* in */

my $epoch=CDF::parseEPOCH3 ($epString)
my $epString;                                     /* in */

```

## Summary

C Interface (Input)	Perl Interface
-----	-----
CDFid varname;	\$varname
char varname;	\$varname
char *varname;	\$varname
char varname[];	\$varname
double varname;	\$varname
long varname;	\$varname
long varname[];	\@varname
void *buffer; (>= 1 value)	\@buffer
void *value; (1 value)	\\$value
C Interface (Output)	Perl Interface
-----	-----
CDFid *varname;	\\$varname
char *varname;	\\$varname
char varname[];	\\$varname
long *varname;	\\$varname
long varname[];	\@varname
void *buffer; (>= 1 value)	\@buffer
void *value; (1 value)	\\$value