



CODEC

Developer Documentation v1.0.1

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Items in **Bold** were just added in the latest release of the CODEC component.
Items in *Italic* have not had their content filled in completely as of yet.
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Preface

The CODEC component is distributed solely as “Peepware”. Of course, this is as opposed to distribution as freeware or postcardware.

In case you are not familiar with peepware, it is considered very similar to postcardware. If you find the methods and functionality available within this software to be useful, we ask that you send along your favorite variety of marshmallow peeps to the programming staff at Deep Sky Technologies, Inc.

Just in case, if you have no idea what marshmallow peeps are, please visit <http://www.marshmallowpeeps.com/> and become a fan of the greatest programmer food to have ever existed.

About this Manual

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Acknowledgements

The creation of the CODEC component is not directly attributable to any single person. Particular pieces of functionality within the CODEC component may be from the direct knowledge and experience of certain developers, but the overall concept and construction of the CODEC component has come from all of the developers at Deep Sky Technologies, Inc.

Of course, the CODEC component is merely a subset of a few pieces of functionality from the very popular BASH component. Though not directly compatible with BASH, the CODEC component provides useful encoding and digest creation routines in a much smaller package for 4D developers.

In particular, James T. Crate provided many of the routines directly available within the CODEC component. Mr. Crate's tireless efforts to provide quality software tools and solutions for 4th Dimension programmers is evident directly in the routines available in the CODEC component.

Finally, I, Steven G. Willis, might have had something to do with the creation of the CODEC component...

Features

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System Requirements

The CODEC component is compatible with both Macintosh and Windows installations of 4th Dimension.

Since it is a component, it does require at least version 6.7 of 4th Dimension or above, including 4D Insider v6.7 or above for installation.

Other than the normal hardware and software requirements for your version of 4th Dimension, there are no other minimum requirements for proper use of this software.

Support

As peepware, there obviously is no guaranteed support which is available for the CODEC component.

But, on an "as available" basis, with no implied or expressed warranty for support whatsoever, Deep Sky Technologies, Inc., can be contacted for support for the software in the CODEC component.

Contact information, including email address(es), phone number(s), and a Contact Us request form, for Deep Sky Technologies, Inc., can be found on the DSTi web site located at:

<http://www.deepskytech.com/>

Components

A component groups various 4D objects (tables, project methods, forms, menu bars, variables, etc.) representing one or more additional functions. Developing a 4D component providing electronic mail functionality is one such example. A component is autonomous and must be able to be installed in any 4D structure.

Components are defined, generated, and installed with the help of 4D Insider. The component definition is based on the cross referencing analysis performed by 4D Insider (target objects and source objects).

Unlike libraries and groups, components embed the idea of security of objects that they compose. During the development phase of the component, each object is attributed an access type, "Public", "Protected" or "Private". This attribute determines whether each object will be visible or modifiable in 4th Dimension and in 4D Insider once the component is installed within a 4D database.

Installing and Updating CODEC

Installing CODEC or updating an existing version of CODEC within a 4D database is performed using 4D Insider. The activity primarily consists of installing the CODEC component in a database structure opened with 4D Insider (installing the CODEC component in a library is not supported at this time).

Keep in mind, the CODEC component is not compatible with the BASH component, also available from Deep Sky Technologies, Inc. All of the routines available within the CODEC component are also available within the BASH component. So, there is absolutely no need to ever have both components installed in any single 4D structure.

4D Insider will manage possible conflict issues within the installation and will inform you as they are detected. Though, with the naming conventions used within the CODEC component and the limited number of object names, conflicts should be very rare.

To install or update the CODEC component, follow these very simple steps:

Open the uncompiled structure that you wish to install CODEC into using 4D Insider.

Choose the "Install/Update..." command in the "Components" menu.

A standard open file dialog box will appear.

Select the CODEC component file and click on the "Open" button.

4D Insider parses the CODEC component and prepares to integrate it with your open database. 4D Insider will detect if the operation is an installation or an update of the CODEC component.

In the event of a new installation, all CODEC objects are installed.

In the event of an update, 4D Insider compares the version numbers of both the currently installing CODEC component and the already installed CODEC component. If the date of the "new" component is older than the already installed component, a dialog box will alert you, allowing you to then "Continue" or "Cancel" the update.

4D Insider replaces old objects with newer objects within the CODEC component and adds new objects from the new CODEC component. 4D Insider takes into account "public" objects having been modified by you and will prompt you to either save or replace them. If any other conflicts arise from the installation or update of the CODEC component, 4D Insider will prompt you with an appropriate dialog box.

Save the database in 4D Insider.

The CODEC component is now installed/updated in your database and is listed on the "Components" page of the 4D Explorer.

Managing Installation Conflicts

On very rare occasions, when the CODEC component is installed or updated in your 4D database, several questions and conflicts may arise. In the event of an update, 4D Insider will detect that you have modified one of more "Public" objects in CODEC after the initial installation. Or, one or more objects of the same type and of the same name may already exist in your database and in the CODEC component.

4D Insider detects and solves these conflicts during installation:

Modified public objects (updates only)

In this case, 4D Insider alerts you by a dialog box, allowing you to choose an update mode:

Replace the object

Replace all objects

Do not replace the object

Stop installation

Name conflicts

In this case, 4D Insider stops the CODEC's installation process, alerts you through a dialog box and saves the list of objects in conflict. This list is stored as a text file in the 4D database folder.

Naming conflicts between logical objects, such as variables, are managed by 4D Insider, in a manner that allows database compilation and avoids conflicts between CODEC and other 4D components.

It may be necessary to rename certain objects in your database or in other components in order to be able to install the CODEC.

If any naming conflicts do occur between CODEC and other 4D components, please notify Deep Sky Technologies, Inc., immediately.

Uninstalling CODEC

4D Insider allows you to uninstall the CODEC component from your 4D database.

To uninstall CODEC from your 4D database:

Using 4D Insider, open your database containing the copy of CODEC to be uninstalled.

In the "Main" listing window, select the CODEC component.

Consider again how great the CODEC component is and make certain that you will *really* no longer need it in your 4D database.

Select the "Uninstall..." command in the "Components" menu.

This command is only active when a component is installed in the database. A dialog box appears allowing you to confirm or cancel the operation. If you uncertain about the previous step then the cancel option is probably your best choice at this time.

Click "OK" to validate the operation.

All objects from the CODEC component are deleted from your 4D database. Obviously, you are now very sad to no longer have the CODEC component in your 4D database. Crying is allowed...

Methods

The CODEC component provides two different methods for MD5 encoding. One method will create an MD5 encoded digest from a 4D text value. The second method will create an MD5 encoded digest from a referenced 4D BLOB value.



CODEC_Encode_MD5_x

CODEC_Encode_MD5_x (*Text Value*) => *MD5 Encoded Text Digest*

CODEC_Encode_MD5_x

```
(
    -> Text Value : Text
)
=> MD5 Encoded Text Digest : Text
```

| Parameter | Type | Description |
|--------------------------------|-------------|---|
| <i>Text Value</i> | Text | Text value to create MD5 digest for |
| <i>MD5 Encoded Text Digest</i> | Text | MD5 encoded digest of <i>Text Value</i> |

The method **CODEC_Encode_MD5_x** creates a MD5 encoded digest of a supplied text value. Specifications for the MD5 encoded digest scheme are available in RFC 1321, available at:

http://www.deepskytech.com/rfcs/rfc_1321.txt

Text Value is the text which is to used to create the MD5 encoded digest.

MD5 Encoded Text Value is the MD5 encoded digest created using *Text Value* .

Note: the MD5 encoded digest is a one-way encoding schema. There is no way to retrieve the original value from an MD5 encoded digest. Often, MD5 encoded digests are used for logging into POP3 email servers when using the optional APOP authentication option.



CODEC_Encode_MD5_z

CODEC_Encode_MD5_z (*Referenced BLOB*)

CODEC_Encode_MD5_z

```
(
    -> Referenced BLOB : Pointer
)
```

| Parameter | Type | Description |
|------------------------|-------------|---|
| <i>Referenced BLOB</i> | Pointer | Reference to BLOB value to encode into MD5 digest |

The method *CODEC_Encode_MD5_z* creates a MD5 encoded digest from a referenced BLOB value. Specifications for the MD5 encoded digest scheme are available in RFC 1321, available at:

http://www.deepskytech.com/rfcs/rfc_1321.txt

Referenced BLOB is the referenced BLOB to be used to create the MD5 encoded digest. The MD5 encoded digest is returned directly in this referenced value.

Version History

The following is a brief version history of the CODEC component. It details release notes, bug fixes, and changes for each version publicly available.

CODEC v1.0.1

released 20010330

Fixed a bug in applying the padding to the encoding object within the method CODEC_Encode_MD5_z. This bug would cause a range checking error or BLOB creation error when encountered but is now corrected.

CODEC v1.0.0

released 20010223

Initial release of component. Code corresponds almost exactly to CODEC methods which exist in the CODEC module of the BASH component, also available from Deep Sky Technologies, Inc.

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