

BUFR: Local configuration

Users can define their own local BUFR tables to adapt ecCodes to their own needs e.g., to use a local descriptor.



Please note:

According to the WMO, the use of local tables in messages intended for non-local or international exchange is **strongly discouraged**.

The local BUFR tables are stored in the following definitions directories:

```
definitions/bufr/tables/[masterTableName]/local/[localTablesVersionNumber]/[bufrHeaderCentre]/[bufrHeaderSubCentre]
```

e.g. definitions/bufr/tables/0/local/101/98/0/ (98 is for ecmwf)

The environment variable `ECCODES_DEFINITION_PATH` can be set to locate local BUFR tables. This is similar to how the `PATH` environment variable works in Unix, it is a list of directories separated by colons (":"):

```
export ECCODES_DEFINITION_PATH=/path/to/local/defs:/path/to/default/defs
```

The library searches for each required definition file first in `/path/to/local/defs` and then in `/path/to/default/defs`. If the file is found in `/path/to/local/defs` then it is used by the decoding engine.

In order to find out where the default definitions are stored, use the tool `codes_info`. E.g.

```
% codes_info
ecCodes Version 2.2.0

Default definition files path is used: /usr/local/apps/eccodes/2.2.0/share/eccodes/definitions
Definition files path can be changed by setting ECCODES_DEFINITION_PATH environment variable

Default SAMPLES path is used: /usr/local/apps/eccodes/2.2.0/share/eccodes/samples
SAMPLES path can be changed by setting ECCODES_SAMPLES_PATH environment variable
```

On this platform, ecCodes is installed in `/usr/local/apps/eccodes/2.2.0` and the definitions are in `/usr/local/apps/eccodes/2.2.0/share/eccodes/definitions`.

To get just the definition path above, you can run `codes_info` with the `"-d"` option:

```
% def=`codes_info -d`
% echo $def
/usr/local/apps/eccodes/2.2.0/share/eccodes/definitions
```

This is useful for embedding in Shell scripts.

If you have a BUFR message and want to know which files/directories are being accessed by ecCodes during the decoding, you can use the Unix `"strace"` command:

```
% strace -o trace.txt bufr_dump my.bufr
```

This will create a new file called `"trace.txt"` which records the system calls made. Search this for strings like `"definitions/bufr/tables"` and you can see which files ecCodes is trying to access and open.

Worked Example

Download an example [here](#).

This tarball contains a BUFR file which uses local descriptors as well as the definition files needed to decode the tables.

1. Try decoding the BUFR file `"ikco_217.local.bufr"` using `bufr_dump`. This file uses a local table version (`localTablesVersionNumber=66`). Decoding should fail as ecCodes does not know about these descriptors.
2. Run the `codes_info` tool to find the location of the default definitions.
3. Now set `ECCODES_DEFINITION_PATH` to include the provided `"mydefs"` directory.
E.g.

```
export ECCODES_DEFINITION_PATH=`pwd`/mydefs:`codes_info -d`
```
4. Now see if ecCodes can decode the BUFR file.
5. Search the output of `bufr_dump` for the overridden unit `"MyOwnUnits"`.
This was added as an example of a centre defining its own parameter attributes

