



esiwace

CENTRE OF EXCELLENCE IN SIMULATION OF WEATHER
AND CLIMATE IN EUROPE

Compatibility Between ESDM and NetCDF4

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1 Files From Directory nc_test4

1.1 h5testszip.c

Example illustrates the use of SZIP compression in HDF5.

***PASS

Status: SUCCESS!

1.2 Test cdm_sea_soundings.c

The cdm tests confirm compliance with the Common Data Model. This file creates some sample data structures to hold sea soundings.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

1.3 Test t_type.c

This test program is only built if netCDF-4 is disabled. It tests the netCDF-3 version of NC_inq_type().

*** Tests successful!

Status: SUCCESS!

1.4 Test test_szip.c

Example illustrates the use of SZIP compression in netCDF5. Taken from HDF5 example.

ESDM does not support compression!

Remove lines 67-88. Specific to compression.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.5 Test `tst_atts.c`

Test the netCDF-4 attribute code.

```
//TODO Testing the permission and reserved words before name/rename.
```

Remove lines 90-98. Expected error: `NC_EPERM`

Remove lines 116, 118, 234. Expected error: `NC_ENOTVAR`

Remove line 117. Expected error: `NC_EINVAL`

Remove lines 148, 180, 186. Expected error: `NC_ENOTINDEFINE`

Remove line 207, because the test works with ESDM.

`tst_atts: /home/lucy/esiwace/esdm/deps/smd/src/smd-core.c:2619: smd_attr_new_usertype: Assertion 'name != NULL' failed.`

```
//TODO Change the function from assertion to returning something meaningful
```

Expected error: `NC_EBADNAME`

Remove lines 235-242. Testing invalid parameters as input.

Remove lines 243-269. Check that the reserved words (`NC_GLOBAL`) are rejected. ESDM does not have this limitation.

Remove lines 280-317, 327-335, 341-343, 353-355, 365-367, 375. Testing invalid parameters as input.

Remove lines 372, 383, 414, 423. Same problem with `smd_attr_copy_value` and strings.

`tst_atts: /home/lucy/esiwace/esdm/src/esdm-datypes.c:959: esdmI_dataset_metadata_create: Assertion 'd->dataspace->size != ((void *)0)' failed.`

```
//TODO This error is out of my league.
```

Remove lines 376-385, 415-424. NetCDF is creating a file with one variable and one attribute. The variable has zero dimensions. ESDM doesn't handle it. So it cannot close and reopen the file. ERROR dimension zero.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.6 Test `tst_atts1.c`

Test attributes.

```
// TODO This test deals with the conversion of types. It needs to be tested later.
```

Status: INCONCLUSIVE!

1.7 Test `tst_atts2.c`

Test copy of attributes.

ESDM does not support user-defined datatypes from NetCDF!

Remove lines 57-78, 157-212. Specific to compound type.

Remove lines 101-105. Testing invalid parameters as input.

Remove lines 214-259. Specific to enum type.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.8 Test `tst_atts3.c`

This is a very simple example which writes a netCDF file with Unicode names encoded with UTF-8. It is the NETCDF3 equivalent of `tst_unicode.c`

Remove lines 2393-2404. Testing invalid parameters as input.

`tst_atts3: /home/lucy/esiwace/esdm/src/esdm-datatypes.c:959: esdmI_dataset_metadata_create: Assertion 'd->dataspace->size != ((void *)0)' failed.`

//TODO This error is out of my league.

Remove lines 2407-2427. ERROR dimension zero.

//TODO Find file `nc_test`

Remove lines 2431-2488. NetCDF calls `create_file()` with no parameters at all. ESDM does not handle it.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.9 Test `tst_atts_string_rewrite.c`

This test was provided by Jeff Whitaker as an example of a bug, specifically a segfault when re-writing an `NC_CHAR` attribute as an `NC_STRING` attribute.

*** Tests successful!

Status: SUCCESS!

1.10 Test `tst_attsperf.c`

Test the netCDF-4 attribute code.

Too long to run!

Status: INCONCLUSIVE!

1.11 Test `tst_bug324.c`

No description.

Remove line 71. Expected error: NC_FORMAT_NETCDF4_CLASSIC.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.12 Test `tst_camrun.c`

This program writes a data file from the CAM model run.

tst_camrun: /home/lucy/esiwace/esdm/src/esdm-datatypes.c:959: esdmI_dataset_metadata_create: Assertion 'd->dataspace->size != ((void *)0)' failed.

//TODO This error is out of my league.

/* rank (number of dimensions) for each variable */

define RANK_P0 0

Remove lines 7390, 7396. ERROR dimension zero.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.13 Test `tst_chunks.c`

Test netcdf-4 variables.

ESDM does not support compression!

Status: FAILURE!

1.14 Test `tst_chunks2.c`

Test netcdf-4 chunking.

ESDM does not support compression!

Remove lines 106, 102-121, 137-140, 170-176, 208-214, 246-252, 287-293, 327-333, 369-375, 408-414, 447-453. ESDM does not support compression!.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.15 Test `tst_chunks3.c`

Runs benchmarks on different chunking sizes.

ESDM does not support compression!

Remove lines 283-296. ESDM does not support compression!

Too long to run!

Status: INCONCLUSIVE!

1.16 Test `tst_compounds.c`

Test netcdf-4 compound type feature.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

1.17 Test `tst_compounds2.c`

Test netcdf-4 compound type feature.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

1.18 Test `tst_compounds3.c`

Test netcdf-4 compound type feature, even more.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

1.19 Test `tst_converts.c`

Test data conversions and fill value handling.

//TODO once the smd tests are finished

Sorry! Unexpected result, ../../nc_test4/tst_converts.c, line: 147

2 failures

7 errors detected! Sorry!

Status: INCONCLUSIVE!

1.20 Test `tst_converts2.c`

tst_converts2: /home/lucy/esiwace/esdm/src/hypercube.c:62: esdmI_hypercube_make: Assertion 'offset' failed.

//TODO This error is out of my league.

Remove lines 31-51. ERROR dimension zero.

```
if (mem_nc.type != type_esdm_to_nc(esdm_dataspace_get_type(space)))
```

//TODO once the smd tests are finished

Status: INCONCLUSIVE!

1.21 Test `tst_coords.c`

Test netcdf-4 coordinate variables and dimensions.

//TODO This is a test I would like to make it work.

ESDM does not support groups from NetCDF!

Remove lines 92-93. ESDM does not keep the same order for dimids.

Remove lines 115, 122. ESDM does not support compression!

Remove lines 157, 505. it's not working due to a problem in `smd_attr_copy_value` and strings.

Remove lines 488, 490, 492, 494. ESDM does not keep the same order for dimids.

Remove lines 537, 539, 781, 785, 786, 790, 792. ESDM does not keep the same order for dimids.

Remove line 583-602. ESDM does not work with groups.

Remove line 606-647. This is actually an interesting problem.

NetCDF inserts two variables with the same name, different type, and that will have the same id.

```
// if (nc_def_var(ncid, VAR_NAME, NC_USHORT, NDIMS, time_dimids, &time_id) !=  
NC_NOERR) ERR;
```

```
// if (nc_def_var(ncid, VAR_NAME, NC_CHAR, NDIMS, time_dimids, &time_id)) ERR;
```

ESDM does not allow two variables with the same name. This might be a big restriction.

tst_coords: /home/lucy/esiwace/esdm/src/esdm-datatypes.c:382: esdmI_fragment_create:
Assertion 'sspace->size[i] > 0' failed.

```
//TODO This error is out of my league.
```

Remove lines 711-738. NetCDF is creating a file with one unlimited dimension and one variable. Then a value is assigned to the variable without an update in the dimension (currently zero). ESDM doesn't handle it. ERROR dimension zero.

I was assuming that before using an unlimited dimension its value should be defined. Clearly I was wrong.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.22 Test `tst_coords2.c`

Test netcdf-4 coordinate variables and dimensions.

ESDM does not support groups from NetCDF!

Remove line 121.

```
// if (ndims_in != NDIMS) ERR;
```

```
//TODO This is a problem that needs to be understood it and fixed.
```

*** Tests successful!

Status: PARTIAL SUCCESS!

1.23 Test `tst_coords3.c`

Test netcdf-4 coordinate variables and dimensions with an example from the CF conventions.

Remove lines 136, 138, 140, 144-145, 155-156, 177-178, 186-187, 195-196. ESDM does not keep the same order for dimids.

Remove lines 147, 149, 151, 158, 160, 162, 171, 173, 180, 182, 189, 191, 198, 200. Same problem with `smd_attr_copy_value` and strings.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.24 Test `tst_create_files.c`

This program creates a test file.

ESDM does not support groups from NetCDF!

`tst_create_files: /home/lucy/esiwace/esdm/src/esdm-scheduler.c:125: backend_thread: Assertion 'status->pending_ops >= 0' failed.`

//TODO This error is out of my league.

Too long to run!

Status: INCONCLUSIVE!

1.25 Test `tst_dims.c`

Test netcdf-4 dimensions.

ESDM does not support groups from NetCDF!

Remove lines 104-106, 115-120, 136-138, 141, 150, 163-164, 190-200, 216-217, 225-227, 225-227, 260-263, 466. Testing invalid parameters as input.

Remove lines 907-909, 947-949, 1106-1108. This is an interesting error related to NC_NAT.

Two float variables were defined.

```
if (nc_def_var(ncid, LAT_NAME, NC_FLOAT, 1, dimids, &lat_varid)) ERR;
```

```
if (nc_def_var(ncid, LON_NAME, NC_FLOAT, 1, dimids, &lon_varid)) ERR;
```

Then, some values with the correct type are attributed.

```
if (nc_put_var_float(ncid, lat_varid, lat)) ERR;
if (nc_put_var_float(ncid, lon_varid, lon)) ERR;
```

After that, the values are retrieved.

When using the specific function `nc_get_var_float`, it works. When using the general function `nc_get_var`, this function calls `NC_get_var(ncid, varid, ip, NC_NAT)` with the `NC_NAT` parameter.

```
if (nc_get_var(ncid, lat_varid, lat_in)) ERR;
if (nc_get_var_float(ncid, lon_varid, lon_in)) ERR;
```

ESDM cannot understand that the type is correct, because `ESDM_get_vars` has the following test.

```
esdm_dispatch.c:1273: if (mem_nc.type != type_esdm_to_nc(esdm_dataspace_get_type(space)))
```

Eventually this test will change, but even then will not be compatible with `NC_NAT`. For `NetCDF`, this is transparent.

```
tst_dims: /home/lucy/esiwace/esdm/src/esdm-scheduler.c:456:
```

```
esdm_scheduler_makeSplitRecommendation: Assertion 'splitFactors[i] >= 1' failed.
```

```
//TODO This error is out of my league.
```

Remove lines 1101-1103. ERROR dimension zero.

```
455     splitFactors[i] = (int64_t)ceil(space->size[i]/targetEdgeLength);
(gdb)
456     eassert(splitFactors[i] >= 1);
(gdb) p splitFactors[i]
$8 = 0
(gdb) p space->size[i]
$9 = 0
(gdb) p i
$10 = 3
(gdb) p targetEdgeLength
$11 = 11.445523142259598
(gdb) p space->dims
$12 = 4
```

`NetCDF` defines an unlimited dimension and does not fill its value.

/* Write our 4D pressure, elevation, and hp data. But this * should do nothing for pressure and hp, because these are * record vars, and nc_put_var_* doesn't do anything to record * vars, because it doesn't know how big the var is supposed to * be. */

Remove lines 1157-1162. For some reason, the double variable is turning into (int) zero.

```
(gdb) p pres
$1 = {{{{1013.1, 1013.1, 1013.1, 1013.1}, {1013.1, 1013.1, 1013.1, 1013.1},
{1013.1, 1013.1, 1013.1, 1013.1}}, {{1014.1, 1014.1, 1014.1, 1014.1},
{1014.1, 1014.1, 1014.1, 1014.1}, {1014.1, 1014.1, 1014.1, 1014.1}}}}
(gdb) p pres_in
$2 = {{{{0, 0, 0, 0}, {0, 0, 0, 0}, {0, 0, 0, 0}},
{{0, 0, 0, 0}, {0, 0, 0, 0}, {0, 0, 0, 0}}}}
```

Remove lines 1165-1168. Conversion from INT64 to UINT64. Eventually it will work.

```
1273 if (mem_nc_type != type_esdm_to_nc(esdm_dataspace_get_type(space))) {
(gdb)
1274     return NC_EBADTYPE;
(gdb) p mem_nc_type
$1 = 11
(gdb) p type_esdm_to_nc(esdm_dataspace_get_type(space))
$2 = 10
```

Remove lines 1171-1175. For some reason, the ushort variable is turning into zero.

```
(gdb) p hp
$1 = {{{{100, 101, 102, 103}, {100, 101, 102, 103}}}}
(gdb) p hp_in
$2 = {{{{0, 0, 0, 0}, {0, 0, 0, 0}}}}
```

Remove lines 1257-1258. ESDM does not keep the same order for dimids.

Remove lines 1326-1356. Creates a new file name (file_in) and tries to open it.

```
strcpy(file_in, "");
if (getenv("srcdir"))
{
    strcat(file_in, getenv("srcdir"));
    strcat(file_in, "/");
}
strcat(file_in, REF_FILE_NAME);

if (nc_open(file_in, NC_NOWRITE, &ncid)) ERR;
```

ESDM does not recognize the metadata and cannot open the container.

```
301  status = esdm_container_open(cpath, 0, &e->c);
303  if (status != ESDM_SUCCESS) {
(gdb) p status
$1 = ESDM_ERROR
```

*** Tests successful!

Status: PARTIAL SUCCESS!

1.26 Test `tst_dims2.c`

Test netcdf-4 dimensions some more.

Remove lines 58-59. ESDM does not keep the same order for dimids.

Remove lines 440-441. Testing invalid parameters as input.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.27 Test `tst_dims3.c`

Test netcdf-4 dimensions inheritance.

ESDM does not support groups from NetCDF!

Status: FAILURE!

1.28 Test `tst_elfill.c`

Test proper elfill return when fillvalue is assigned outside of the initial define.

line 41 expecting NC_ELATEFILL but got 0

Expected error: NC_ELATEFILL

Status: INCONCLUSIVE!

1.29 Test `tst_empty_vlen_unlim.c`

This program excersizes HDF5 variable length array code.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

1.30 Test `tst_endian_fill.c`

Create a test file with fill values for a variable of specified endianness.

ESDM does not support endianness!

Status: FAILURE!

1.31 Test `tst_enums.c`

Test netcdf-4 enum types.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

1.32 Test `tst_files.c`

Test netcdf-4 file code.

Remove line 131. Expected error: NC_ERANGE

Remove line 189. Expected error: NC_ENOTINDEFINE

Remove line 279, 303. Expected error: NC_FORMAT_CLASSIC

Remove line 285, 309. Expected error: NC_FORMAT_64BIT_OFFSET

Remove line 291. Expected error: NC_FORMAT_NETCDF4

Remove lines 336-337. ESDM does not support compression!

Remove lines 251-269, 519-527. Expected errors related to the format.

Remove line 534. Expected error: NC_EPERM

Remove lines 479-481, 517-518, 529-530. Testing invalid parameters as input.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.33 Test `tst_files3.c`

This is a benchmark program which tests file writes with compressed data.

ESDM does not support compression!

Too long to run!

Status: INCONCLUSIVE!

1.34 Test `tst_files4.c`

Test netcdf-4 file from user-reported error. This code based on an ncgen output.

ESDM does not support groups from NetCDF!

Status: FAILURE!

1.35 Test `tst_files5.c`

Test netcdf files a bit.

*** Tests successful!

Status: SUCCESS!

1.36 Test `tst_files6.c`

Test netcdf files a bit.

Remove line 86. Expected error: NC_EHDFERR

*** Tests successful!

Status: PARTIAL SUCCESS!

1.37 Test `tst_fill_attr_vanish.c`

Based on `tst_fillbug.c`

Remove lines 91-97. Expected error: NC_ELATEFILL

*** Tests successful!

Status: PARTIAL SUCCESS!

1.38 Test `tst_fillbug.c`

Test for a bug that Russ found testing fill values.

Remove lines 64-67. Expected error: NC_EINVAL / NC_EBADTYPE

Remove lines 72-74, 83-86. Expected error: NC_FILL_FLOAT

*** Tests successful!

Status: PARTIAL SUCCESS!

1.39 Test `tst_fills.c`

Create a test file with default fill values for variables of each type.

Remove line 59.

```
// if (NC_def_var(ncid, STRING_var_NAME, NC_STRING, 0, NULL, &varid)) ERR;
```

Create file with a 1D string var. Set its fill value to the empty string. I'm not sure this should work with ESDM.

Test using fill values. I don't understand yet.

Status: INCONCLUSIVE!

1.40 Test `tst_fills2.c`

Create a test file with default fill values for variables of each type.

ESDM does not support NC_STRING from NetCDF!

Status: FAILURE!

1.41 Test `tst_filterparser.c`

No description.

SUCCESS!!

Status: SUCCESS!

1.42 Test `tst_grps.c`

Test netcdf-4 group code.

ESDM does not support groups from NetCDF!

Status: FAILURE!

1.43 Test `tst_grps2.c`

Test netcdf-4 group code some more.

ESDM does not support groups from NetCDF!

Status: FAILURE!

1.44 Test `tst_h_refs.c`

This program tests fixes for reading netCDF-4 files that contain datasets with reference datatypes. The netCDF-4 library should ignore the datasets and attributes that have reference datatypes and allow the rest of the file to be accessed.

ESDM does not support HDF5 format!

```
// if (NC_open(FILE_NAME, NC_NOWRITE, &ncid)) ERR;
```

```
//TODO Insert a condition in FILE_NAME if the file is .h5
```

Status: FAILURE!

1.45 Test `tst_h_scalar.c`

This program tests reading HDF5 files that contain scalar attributes and variables, of both string and numeric datatypes. The netCDF-4 library should allow access to all of these.

ESDM does not support HDF5 format!

Status: FAILURE!

1.46 Test `tst_h_strbug.c`

This program tests fixes for bugs reported with accessing fixed-length scalar string variables and variable-length scalar string attributes from HDF5 files through the netCDF-4 API.

ESDM does not support HDF5 format!

Status: FAILURE!

1.47 Test `tst_h5_endians.c`

No description.

ESDM does not support HDF5 format!

ESDM does not support endianness!

Status: FAILURE!

1.48 Test `tst_hdf5_file_compat.c`

Tests library ability to open files generated by a netcdf instance linked against libhdf5 1.10.0.

ESDM does not support HDF5 format!

Status: FAILURE!

1.49 Test `tst_interops.c`

Test that HDF5 and NetCDF-4 can read and write the same file.

ESDM does not support HDF5 format!

Status: FAILURE!

1.50 Test `tst_interops5.c`

Test that HDF5 and NetCDF-4 can read and write the same file.

ESDM does not support HDF5 format!

Status: FAILURE!

1.51 Test `tst_interops6.c`

Test that HDF5 and NetCDF-4 can read and write the same file.

ESDM does not support HDF5 format!

Status: FAILURE!

1.52 Test `tst_large.c`

Test netcdf-4 large file fill values.

WARN ESDM_set_fill():503 NOT IMPLEMENTED

Status: INCONCLUSIVE!

1.53 Test `tst_large2.c`

Test large file problems reported by user.

Too long to run!

Status: INCONCLUSIVE!

1.54 Test `tst_mem.c`

Test internal netcdf-4 file code.

*** Tests successful!

Status: SUCCESS!

1.55 Test `tst_mode.c`

Test some illegal mode combinations

ESDM does not support compression!

Remove line 27. Expected error: NC_EINVAL

*** Tests successful!

Status: PARTIAL SUCCESS!

1.56 Test `tst_mpi_parallel.c`

This just excersizes MPI file I/O to make sure everything's working properly. If this does not work, netcdf/HDF5 parallel I/O also won't work.

*** Tests successful!

Status: SUCCESS!

1.57 Test `tst_opaques.c`

Test netcdf-4 opaque types.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

1.58 Test `tst_parallel.c`

This program tests netcdf-4 parallel I/O.

WARN ESDM_var_par_access():520 NOT IMPLEMENTED

Status: INCONCLUSIVE!

1.59 Test `tst_put_vars.c`

No description.

*** SUCCESS writing example file `tst_put_vars.nc`!

Status: SUCCESS!

1.60 Test `tst_rehash.c`

Tests to see if the hashmap is being properly updated.

Tests successful!

Status: SUCCESS!

1.61 Test `tst_rename.c`

Test renames of vars and dims.

ESDM does not support groups from NetCDF!

Remove lines 482-555. Specific to groups.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.62 Test `tst_rename2.c`

Test more renames of vars and dims.

*** Tests successful!

Status: SUCCESS!

1.63 Test `tst_simplerw_coll_r.c`

This test is for parallel IO and the collective access of metadata with HDF5.

WARN ESDM_var_par_access():520 NOT IMPLEMENTED

Status: INCONCLUSIVE!

1.64 Test `tst_strings.c`

Test netcdf-4 string types.

ESDM does not support NC_STRING from NetCDF!

Status: FAILURE!

1.65 Test `tst_strings2.c`

Test netcdf-4 string types.

*** Tests successful!

How is this test successful if ESDM does not support NC_STRING?

Status: SUCCESS!

1.66 Test `tst_sync.c`

Test netcdf-4 syncs.

Remove line 128. Expected error: NC_EINDEFINE

*** Tests successful!

Status: PARTIAL SUCCESS!

1.67 Test `tst_types.c`

Test netcdf-4 types.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

1.68 Test `tst_udf.c`

Test user-defined formats.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

1.69 Test `tst_unlim_vars.c`

Test netcdf-4 variables with unlimited dimensions.

Sorry! Unexpected result, ../../nc_test4/tst_unlim_vars.c, line: 70

Works, does not work. Who knows...

Status: INCONCLUSIVE!

1.70 Test `tst_utf8.c`

This is a very simple example which writes a netCDF file with Unicode names encoded with UTF-8. It is the NETCDF3 equivalent of `tst_unicode.c`

ESDM does not support Unicode names encoded with UTF-8!

//TODO Insert in the function that does this test this message.

Status: FAILURE!

1.71 Test `tst_v2.c`

Test internal netcdf-4 file code.

*** Tests successful!

Status: SUCCESS!

1.72 Test `tst_varms.c`

Test netcdf-4 mapped var operations.

*** Tests successful!

Status: SUCCESS!

1.73 Test `tst_vars.c`

Test netcdf-4 variables.

ESDM does not support groups from NetCDF!

//TODO WARN ESDM.inq_typeid():1549 NOT IMPLEMENTED

/* Open the file and read everything as double. */

Why does this not work?

Great test for the conversions.

Status: INCONCLUSIVE!

1.74 Test `tst_vars2.c`

Test netcdf-4 variables.

//TODO Understand and implement the fill value.

Remove line 148. Expected error: NC_EPERM

Remove lines 434-439, 522-524, 530-535, 541, 544-551, 638-639, 644-646, 652, 716-725, 744-745, 1060-1062, 1079-1083, 1107-1111, 1232-1259, 1242-1243, 1274-1275, 1291-1318, 1457-1458. Testing invalid parameters as input.

Remove lines 649, 671-672. Conversion.

Remove lines 703, 732-733, 757-758. ESDM does not support endianness!

Remove lines 767-1032, 1145, 1158-1159, 1179-1180. ESDM does not support compression!

Remove line 1270. ESDM does not support user-defined datatypes from NetCDF!

Remove lines 1190-1228. ERROR dimension zero.

Remove lines 1284-1285. ESDM does not support groups from NetCDF!

Remove lines 1286-1287. //TODO Implement function nc_inq_typeids.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.75 Test `tst_vars3.c`

Test netcdf-4 variables.

Remove lines 115, 117, 119, 123-124, 126-127, 140, 142, 144, 149-150, 152-153, 285. ESDM does not keep the same order for dimids.

Remove lines 159-197. ESDM does not support endianness!

Remove lines 219. ESDM does not support endianness!

Remove lines 229-230, 447. ESDM does not support compression!

Remove lines 269-276. Testing invalid parameters as input.

Remove lines 274-276, 286-288. Expected error: NC_FILL_FLOAT.

/** Default fill value. This is used unless _FillValue attribute * is set. These values are stuffed into newly allocated space as * appropriate. The hope is that one might use these to notice that a * particular datum has not been set. */

Remove lines 311. ESDM does not support compression!

Remove lines 322-363. ESDM does not support groups from NetCDF!

Remove lines 409-558. ESDM does not support szip filter.

*** Tests successful!

Status: PARTIAL SUCCESS!

1.76 Test `tst_vars4.c`

Test netcdf-4 variables.

ESDM does not support compression!

Remove lines 74-76, 81-82, 96-98, 103-104. ESDM does not support compression!

*** Tests successful!

Status: PARTIAL SUCCESS!

1.77 Test `tst_vl.c`

Test netcdf-4 variable length code.

ESDM does not support user-defined datatypes from NetCDF!

Status: FAILURE!

Filename	Success	Partial Success	Inconclusive	Failure	Not Tested Yet
h5teststzip.c	✓				
cdm_sea_soundings.c				✓	
t_type.c	✓				
test_szip.c		✓			
tst_atts.c		✓			
tst_atts1.c			✓		
tst_atts2.c		✓			✓
tst_atts3.c		✓			
tst_atts_string_rewrite.c	✓				
tst_attsperf.c					✓
tst_bug324.c		✓			
tst_camrun.c		✓			
tst_chunks.c				✓	
tst_chunks2.c				✓	
tst_chunks3.c				✓	
tst_compounds.c				✓	
tst_compounds2.c				✓	
tst_compounds3.c				✓	
tst_converts.c			✓		
tst_converts2.c			✓		
tst_coords.c		✓			
tst_coords2.c		✓			
tst_coords3.c		✓			
tst_create_files.c			✓		
tst_dims.c		✓			
tst_dims2.c		✓			
tst_dims3.c				✓	
tst_elatefill.c			✓		
tst_empty_vlen_unlim.c				✓	
tst_endian_fill.c				✓	
tst_enums.c				✓	
tst_files.c		✓			
tst_files3.c					✓
tst_files4.c				✓	
tst_files5.c	✓				
tst_files6.c		✓			
tst_fill_attr_vanish.c		✓			
tst_fillbug.c		✓			
tst_fills.c			✓		
tst_fills2.c				✓	
tst_filterparser.c	✓				
tst_grps.c				✓	
tst_grps2.c				✓	

Table 1.1: Status – Part I

Filename	Success	Partial Success	Inconclusive	Failure	Not Tested Yet
tst_h_refs.c				✓	
tst_h_scalar.c				✓	
tst_h_strbug.c				✓	
tst_h5_endians.c				✓	
tst_hdf5_file_compat.c				✓	
tst_interops.c				✓	
tst_interops5.c				✓	
tst_interops6.c				✓	
tst_large.c				✓	
tst_large2.c					✓
tst_mem.c	✓				
tst_mode.c		✓			
tst_mpi_parallel.c	✓				
tst_opaques.c				✓	
tst_parallel.c			✓		
tst_put_vars.c	✓				
tst_rehash.c	✓				
tst_rename.c		✓			
tst_rename2.c	✓				
tst_simplerw_coll_r.c			✓		
tst_strings.c				✓	
tst_strings2.c	✓				
tst_sync.c		✓			
tst_types.c				✓	
tst_udf.c				✓	
tst_unlim_vars.c			✓		
tst_utf8.c				✓	
tst_v2.c	✓				
tst_varms.c	✓				
tst_vars.c			✓		
tst_vars2.c		✓			
tst_vars3.c		✓			
tst_vars4.c		✓			
tst_vl.c				✓	

Table 1.2: Status – Part II

Filename	Output
h5testszip.c	PASS
cdm_sea_soundings.c	ESDM does not support user-defined datatypes from NetCDF!
t_type.c	Tests successful!
test_szip.c	ESDM does not support compression!
tst_atts.c	Tests successful!
tst_atts1.c	
tst_atts2.c	Tests successful!
tst_atts3.c	Tests successful!
tst_atts_string_rewrite.c	Tests successful!
tst_attspref.c	Too long to run!
tst_bug324.c	Tests successful!
tst_camrun.c	Tests successful!
tst_chunks.c	ESDM does not support compression!
tst_chunks2.c	ESDM does not support compression!
tst_chunks3.c	ESDM does not support compression!
tst_compounds.c	ESDM does not support user-defined datatypes from NetCDF!
tst_compounds2.c	ESDM does not support user-defined datatypes from NetCDF!
tst_compounds3.c	ESDM does not support user-defined datatypes from NetCDF!
tst_converts.c	
tst_converts2.c	
tst_coords.c	Tests successful!
tst_coords2.c	Tests successful!
tst_coords3.c	Tests successful!
tst_create_files.c	Too long to run!
tst_dims.c	Tests successful!
tst_dims2.c	Tests successful!
tst_dims3.c	ESDM does not support groups from NetCDF!
tst_elatefill.c	line 41 expecting NC_ELATEFILL but got 0
tst_empty_vlen_unlim.c	ESDM does not support user-defined datatypes from NetCDF!
tst_endian_fill.c	ESDM does not support endianness!
tst_enums.c	ESDM does not support user-defined datatypes from NetCDF!
tst_files.c	Tests successful!
tst_files3.c	Too long to run!
tst_files4.c	ESDM does not support groups from NetCDF!
tst_files5.c	Tests successful!
tst_files6.c	Tests successful!
tst_fill_attr_vanish.c	Tests successful!
tst_fillbug.c	Tests successful!
tst_fills.c	
tst_fills2.c	ESDM does not support NC_STRING from NetCDF!
tst_filterparser.c	SUCCESS!!
tst_grps.c	ESDM does not support groups from NetCDF!
tst_grps2.c	ESDM does not support groups from NetCDF!

Table 1.3: Output – Part I

Filename	Justification
tst_h_refs.c	ESDM does not support HDF5 format!
tst_h_scalar.c	ESDM does not support HDF5 format!
tst_h_strbug.c	ESDM does not support HDF5 format!
tst_h5_endians.c	ESDM does not support endianness!
tst_hdf5_file_compat.c	ESDM does not support HDF5 format!
tst_interops.c	ESDM does not support HDF5 format!
tst_interops5.c	ESDM does not support HDF5 format!
tst_interops6.c	ESDM does not support HDF5 format!
tst_large.c	
tst_large2.c	Too long to run!
tst_mem.c	Tests successful!
tst_mode.c	Tests successful!
tst_mpi_parallel.c	Tests successful!
tst_opaques.c	ESDM does not support user-defined datatypes from NetCDF!
tst_parallel.c	
tst_put_vars.c	SUCCESS writing example file!
tst_rehash.c	Tests successful!
tst_rename.c	Tests successful!
tst_rename2.c	Tests successful!
tst_simplerw_coll_r.c	
tst_strings.c	ESDM does not support NC_STRING from NetCDF!
tst_strings2.c	Tests successful!
tst_sync.c	Tests successful!
tst_types.c	ESDM does not support user-defined datatypes from NetCDF!
tst_udf.c	ESDM does not support user-defined formats from NetCDF!
tst_unlim_vars.c	
tst_utf8.c	ESDM does not support Unicode names encoded with UTF-8!
tst_v2.c	Tests successful!
tst_varms.c	Tests successful!
tst_vars.c	
tst_vars2.c	Tests successful!
tst_vars3.c	Tests successful!
tst_vars4.c	Tests successful!
tst_vl.c	ESDM does not support user-defined datatypes from NetCDF!

Table 1.4: Output – Part II

File	Not Tested	Not Working Build	Not Working Run	Working
bigmeta.c	✓			
openbigmeta.c	✓			
bm_file.c		✓		
bm_many_atts.c		✓		
bm_many_objs.c		✓		
bm_netcdf4_recs.c		✓		
ref_bzip2.c		✓		
renamegroup.c				✓
test_filter.c		✓		
test_filter_misc.c		✓		
test_szip.c				✓
tst_atts1.c				✓
tst_atts2.c				✓
tst_atts3.c				✓
tst_atts.c				✓
tst_attsperf.c				✓
tst_atts_string_rewrite.c				✓
tst_ar4_3d.c		✓		
tst_ar4_4d.c		✓		
tst_ar4.c		✓		
tst_bug324.c				✓
tst_camrun.c				✓
tst_chunks.c				✓
tst_chunks2.c				✓
tst_chunks3.c				✓
tst_compounds.c			✓	
tst_compounds2.c				✓
tst_compounds3.c				✓
tst_converts.c				✓
tst_converts2.c				✓
tst_coords.c				✓
tst_coords2.c				✓
tst_coords3.c				✓
tst_create_files.c				✓

Table 1.5: List of nc.test4 files – Part I

File	Not Tested	Not Working Build	Not Working Run	Working
tst_dims.c			✓	
tst_dims2.c				✓
tst_dims3.c				✓
tst_elfatfill.c				✓
tst_empty_vlen_unlim.c				✓
tst_endian_fill.c				✓
tst_enums.c				✓
tst_files.c				✓
tst_files2.c		✓		
tst_files3.c				✓
tst_files4.c				✓
tst_files5.c				✓
tst_files6.c				✓
tst_fill_attr_vanish.c				✓
tst_fillbug.c				✓
tst_fills.c				✓
tst_fills2.c				✓
tst_filterparser.c				✓
tst_grps.c				✓
tst_grps2.c				✓
tst_h_many_atts.c		✓		
tst_h_refs.c				✓
tst_h_scalar.c				✓
tst_h_strbug.c				✓
tst_h5_endians.c				✓
tst_hdf5_file_compat.c				✓
tst_interops.c				✓
tst_interops4.c			✓	
tst_interops5.c				✓
tst_interops6.c				✓
tst_knmi.c		✓		
tst_large.c				✓
tst_large2.c				✓
tst_mem.c				✓

Table 1.6: List of nc_test4 files – Part II

File	Not Tested	Not Working Build	Not Working Run	Working
tst_mode.c				✓
tst_mpi_parallel.c				✓
tst_nc4perf.c			✓	
tst_opaques.c				✓
tst_parallel.c				✓
tst_parallel3.c			✓	
tst_parallel4.c			✓	
tst_parallel5.c			✓	
tst_put_vars.c				✓
tst_put_vars_two_unlim_dim.c		✓		
tst_rehash.c				✓
tst_rename2.c				✓
tst_rename.c				✓
tst_simplerw_coll_r.c				✓
tst_strings2.c				✓
tst_strings.c				✓
tst_sync.c				✓
tst_types.c				✓
tst_udf.c				✓
tst_unlim_vars.c				✓
tst_utf8.c				✓
tst_utils.c		✓		
tst_v2.c				✓
tst_varms.c				✓
tst_vars2.c				✓
tst_vars3.c				✓
tst_vars4.c				✓
tst_vars.c				✓
tst_vl.c				✓
tst_xplatform2.c			✓	
tst_xplatform.c			✓	
t_type.c				✓

Table 1.7: List of nc_test4 files – Part III

NetCDF TYPE	Number	ESDM Type	ESDM Representation
NC_BYTE	1	SMD_DTYPE_INT8	int8_t
NC_UBYTE	7	SMD_DTYPE_UINT8	uint8_t
NC_CHAR	2	SMD_DTYPE_CHAR	char
NC_SHORT	3	SMD_DTYPE_INT16	int16_t
NC_USHORT	8	SMD_DTYPE_UINT16	uint16_t
NC_INT	4	SMD_DTYPE_INT32	int32_t
NC_LONG	4	SMD_DTYPE_INT32	int32_t
NC_UINT	9	SMD_DTYPE_UINT32	uint32_t
NC_INT64	10	SMD_DTYPE_INT64	int64_t
NC_UINT64	5	SMD_DTYPE_UINT64	uint64_t
NC_FLOAT	11	SMD_DTYPE_FLOAT	32 bits
NC_DOUBLE	6	SMD_DTYPE_DOUBLE	64 bits

Table 1.8: Conversion between ESDM and NetCDF4 datatypes – Datatypes sorted by size.

NetCDF TYPE	Number	ESDM Type	ESDM Representation
NC_BYTE	1	SMD_DTYPE_INT8	int8_t
NC_CHAR	2	SMD_DTYPE_CHAR	char
NC_SHORT	3	SMD_DTYPE_INT16	int16_t
NC_INT	4	SMD_DTYPE_INT32	int32_t
NC_LONG	4	SMD_DTYPE_INT32	int32_t
NC_UINT64	5	SMD_DTYPE_UINT64	uint64_t
NC_DOUBLE	6	SMD_DTYPE_DOUBLE	64 bits
NC_UBYTE	7	SMD_DTYPE_UINT8	uint8_t
NC_USHORT	8	SMD_DTYPE_UINT16	uint16_t
NC_UINT	9	SMD_DTYPE_UINT32	uint32_t
NC_INT64	10	SMD_DTYPE_INT64	int64_t
NC_FLOAT	11	SMD_DTYPE_FLOAT	32 bits

Table 1.9: Conversion between ESDM and NetCDF4 datatypes – Datatypes sorted by NETCDF4 description.

Functionality	NetCDF Support	ESDM Support
	Datatypes Support	
NC Data Type	NC Description	ESDM Data Type
NC_NAT	NAT = Not A Type (c.f. NaN)	NOT SUPPORTED
NC_BYTE	signed 1 byte integer	SMD_DTYPE.INT8
NC_CHAR	ISO/ASCII character	SMD_DTYPE.CHAR
NC_SHORT	signed 2 byte integer	SMD_DTYPE.INT16
NC_INT	signed 4 byte integer	SMD_DTYPE.INT32
NC_LONG	deprecated, but required for backward compatibility	SMD_DTYPE.INT32
NC_FLOAT	single precision floating point number	SMD_DTYPE.FLOAT
NC_DOUBLE	double precision floating point number	SMD_DTYPE.DOUBLE
NC_UBYTE	unsigned 1 byte int	SMD_DTYPE.UINT8
NC_USHORT	unsigned 2-byte int	SMD_DTYPE.UINT16
NC_UINT	unsigned 4-byte int	SMD_DTYPE.UINT32
NC_INT64	signed 8-byte int	SMD_DTYPE.INT64
NC_UINT64	unsigned 8-byte int	SMD_DTYPE.UINT64
NC_STRING	string	SMD_DTYPE.STRING
NC_VLEN	used internally for vlen types	NOT SUPPORTED YET
NC_OPAQUE	used internally for opaque types	NOT SUPPORTED YET
NC_COMPOUND	used internally for compound types	NOT SUPPORTED YET
NC_ENUM	used internally for enum types	NOT SUPPORTED YET

Table 1.10: Functionalities – NetCDF and ESDM – Datatypes Support.

Functionality	NetCDF Support	ESDM Support
	Modes – Creating a file	
NC_CLOBBER	Overwrite existing file	ESDM_CLOBBER
NC_NOCLOBBER	Do not overwrite existing file	ESDM_NOCLOBBER
NC_SHARE	Limit write caching - netcdf classic files only	NOT SUPPORTED
NC_64BIT_OFFSET	Create 64-bit offset file	NOT SUPPORTED
NC_64BIT_DATA	Create CDF-5 file (alias NC_CDF5)	NOT SUPPORTED
NC_NETCDF4	Create netCDF-4/HDF5 file	NOT SUPPORTED
NC_CLASSIC_MODEL	Enforce netCDF classic mode on netCDF-4/HDF5 files	NOT SUPPORTED
NC_DISKLESS	Store data in memory	NOT SUPPORTED
NC_PERSIST	Force the NC_DISKLESS data from memory to a file	NOT SUPPORTED

Table 1.11: Functionalities – NetCDF and ESDM – Modes – Creating a file.

Functionality	NetCDF Support	ESDM Support
	Modes – Opening a file	
NC_NOWRITE	Open the dataset with read-only access	ESDM_NOWRITE
NC_WRITE	Open the dataset with read-write access	ESDM_WRITE
NC_SHARE	Share updates, limit caching	NOT SUPPORTED
NC_DISKLESS	Store data in memory	NOT SUPPORTED
NC_PERSIST	Force the NC_DISKLESS data from memory to a file	NOT SUPPORTED

Table 1.12: Functionalities – NetCDF and ESDM – Modes – Opening a file.