Definition of the H5edit Command Language

1. Introduction

This section describes the command language (CL) of the *h5edit* tool. The description is in Backus-Naur Form.

2. Explanation of Symbols

This section contains a brief explanation of the symbols used in the CL.

```
::=           defined as
<tname>       a token with the name tname
<a> | <b>     one of <a> or <b>
<a>opt        zero or one occurrence of <a>
<a>*          zero or more occurrence of <a>
<a>+          one or more occurrence of <a>
[0-9]         an element in the range between 0 and 9
'['           the token within the quotes (used for special characters)
TBD           To Be Decided
/* … */       Comments
```

3. The H5edit Command Language

```
<h5edit_command_file> ::= <h5edit_statement>+


<h5edit_statement> ::= <h5edit_command> ;


/* Commands */
<h5edit_command> ::= <attribute_create_command> | <attribute_copy_command> |
      <attribute_delete_command> | <attribute_rename_command>


<attribute_create_command> ::= CREATE <attribute_name_new> <attribute_definition>


<attribute_delete_command> ::= COPY <attribute_name_old> <attribute_name_new>


<attribute_delete_command> ::= DELETE <attribute_name_old>


<attribute_delete_command> ::= RENAME <attribute_name_old> <attribute_name_new>


<attribute_delete_command> ::= MODIFY <attribute_name_old> <attribute_data>


/* Attribute definition */
```

The HDF Group

```
<attribute_name_old> ::= <attribute_name>


<attribute_name_new> ::= <attribute_name>


<attribute_name> ::= <target_object_name>/<name> | <target_object_name> <name>


< target_object_name> ::= <group_name> | <dataset_name>


<group_name> ::= GROUP opt <name>


<dataset_name> ::= DATASET opt <name>


/* Attribute Definition */
<attribute_definition> ::= { <attribute_datatype_definition> opt
        <attribute_dataspace_definition> opt <attribute_data> }


/* attribute_datatype_definition defaults to H5T_NATIVE_FLOAT if not given */
<attribute_datatype_definition> ::= DATATYPE opt <datatype_definition>


/* attribute_dataspace_definition defaults to SCALAR if not given */
<attribute_dataspace_definition> ::= DATASPACE opt <dataspace_definition>


<attribute_data> ::= DATA opt { <data> , <data>* }


/* Datatype Definition */
<datatype_definition> ::= <atomic_type> | <compound_type> | <variable_length_type>
        | <array_type>


<atomic_type> ::= <integer_type> | <float_type> | <string_type> | <time_type> |
        <bitfield_type> | <opaque_type> | <reference_type> | <enum_type>

<integer_type> ::= H5T_STD_I8BE      | H5T_STD_I8LE       |
                   H5T_STD_I16BE     | H5T_STD_I16LE      |
                   H5T_STD_I32BE     | H5T_STD_I32LE      |
                   H5T_STD_I64BE     | H5T_STD_I64LE      |
                   H5T_STD_U8BE      | H5T_STD_U8LE       |
                   H5T_STD_U16BE     | H5T_STD_U16LE      |
                   H5T_STD_U32BE     | H5T_STD_U32LE      |
                   H5T_STD_U64BE     | H5T_STD_U64LE      |
                   H5T_NATIVE_CHAR   | H5T_NATIVE_UCHAR   |
                   H5T_NATIVE_SHORT  | H5T_NATIVE_USHORT  |
                   H5T_NATIVE_INT    | H5T_NATIVE_UINT    |
                   H5T_NATIVE_LONG   | H5T_NATIVE_ULONG   |
                   H5T_NATIVE_LLONG  | H5T_NATIVE_ULLONG
```

The HDF Group

```
<float_type> ::= H5T_IEEE_F32BE   | H5T_IEEE_F32LE    |
                 H5T_IEEE_F64BE   | H5T_IEEE_F64LE    |
                 H5T_NATIVE_FLOAT | H5T_NATIVE_DOUBLE |
                 H5T_NATIVE_LDOUBLE

<string_type> ::= H5T_STRING {
                    STRSIZE <strsize> ;
                    STRPAD <strpad> ;
                    CSET <cset> ;
                    CTYPE <ctype> ;
                 }

<strsize> ::= <int_value>

<strpad>  ::= H5T_STR_NULLTERM | H5T_STR_NULLPAD | H5T_STR_SPACEPAD

<cset>    ::= H5T_CSET_ASCII

<ctype>   ::= H5T_C_S1 | H5T_FORTRAN_S1

<compound_type>   ::= H5T_COMPOUND { <member_type_def>+ }

<member_type_def> ::= <datatype_definition> <field_name> ;

<field_name> ::= <identifier>

<time_type> ::= <TBD>

<bitfield_type> ::= <TBD>

<opaque_type> ::= <TBD>

<reference_type> ::= <TBD>

<enum_type> ::= <TBD>

<variable_length_type> ::= <TBD>

<array_type> ::= <TBD>

/* Dataspace Definition */
<dataspace_definition> ::=
      <dataspace_scalar_definition> |
      <dataspace_null_definition> |
      <dataspace_simple_definition>

/* Scalar Dataspace definition */
<dataspace_simple_definition> ::= SCALAR

/* Null Dataspace definition */
<dataspace_simple_definition> ::= NULL

/* Simple Dataspace definition */
<dataspace_simple_definition> ::= SIMPLE opt <dataspace_dims_list>

/* Dataspace Dimension list definition */
< dataspace_dims_list> ::= ( <dim_size> , <dim_size>* )
```

```
<dim_size> ::= <int_value>

/* Integer value */
<int_value> ::= [0-9]+

/* Floating Point value */
<float_value> ::= [0-9]*.[0-9]+
```

4. Examples

```
CREATE /m1/Percentage_per_Volume 40;

CREATE /m2 GPS_Location {
     DATATYPE H5T_IEEE_F32LE
     DATASPACE SIMPLE {(2)/(2)}
     DATA {0.0, 180.0}
     };

DELETE /m1/"Temp Scale";

CREATE GROUP /m1/"Temp Scale" {
     DATATYPE H5T_C_S1
     DATA {"Celsius"}
     };

RENAME /m2/GPS_Location /m2/Geo_Location;

COPY /m1/"Temp Scale" /m2/"Temp Scale";

MODIFY /m1/Percentage_per_Volume 42;
```

Revision History

Nov 2, 2010:   Version 0 draft for initial review

Jul 30, 2011:   Version 1.0.0 for first release of the h5edit tool

Oct 10, 2011:   Version 1.0.1 release of the h5edit tool

Mar 4, 2013:   Version 1.1.0 release of the h5edit tool

Aug 8, 2013:   Version 1.2.0 release of the h5edit tool