

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> | one of <a> or |
| <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 */
```

```

<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

```

```

<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

| | |
|----------------------|--|
| <i>Nov 2, 2010:</i> | Version 0 draft for initial review |
| <i>Jul 30, 2011:</i> | Version 1.0.0 for first release of the h5edit tool |
| <i>Oct 10, 2011:</i> | Version 1.0.1 release of the h5edit tool |
| <i>Mar 4, 2013:</i> | Version 1.1.0 release of the h5edit tool |
| <i>Aug 8, 2013:</i> | Version 1.2.0 release of the h5edit tool |
| <i>Jun 30, 2014:</i> | Version 1.3.0 release of the h5edit tool |
| <i>Nov 14, 2014:</i> | Version 1.3.1 release of the h5edit tool |