

# 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.

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

```
<attribute_delete_command> ::= COPY <attribute_name> <attribute_name>
```

```
<attribute_delete_command> ::= DELETE <attribute_name>
```

```
<attribute_delete_command> ::= RENAME <attribute_name> <attribute_name>
```

```
/* Attribute definition */
```

```
<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_daspace_definition> opt <attribute_data> }

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

/* attribute_daspace_definition defaults to SCALAR if not given */
<attribute_daspace_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"}  
};
```

## 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