# 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_delete_command>

<attribute_create_command> ::= CREATE <attribute_name> <attribute_definition>

<attribute_delete_command> ::= DELETE <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_dataspace_definition> opt <attribute_data> }


<attribute_datatype_definition> ::= DATATYPE opt <datatype_definition>


<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> ::=
```

# 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

| | |
|---|---|
| *Nov 2, 2010:* | Version 0 draft for initial review |
| *Jul 30, 2011:* | Version 1.0.0 for first release of the h5edit tool |