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 \*/

<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

|  |  |
| --- | --- |
| *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 |
| *Jun 30, 2014:* | Version 1.3.0 release of the h5edit tool |
| *Nov 14, 2014:* | Version 1.3.1 release of the h5edit tool |
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