h5watch Examples



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Contents

1. h5watch Examples 4

1.1. Case A: Monitor a One-dimensional Dataset 4

1.2. Case B: Monitor a Two-dimensional Dataset 5

1.3. Case C: Monitor a Dataset with a Compound Datatype 9

1.4. Case D: Monitor Changes in the Size of Dataset Dimensions via the ––dim Option 12

# h5watch Examples

This document describes several ways that the h5watch tool can be used.

h5watch can be used to monitor data that is added to a dataset. The functionality is similar to the Unix user command tail with the follow option, which outputs appended data as the file grows. See the [h5watch reference manual entry](h5watch.htm) for more information.

## Case A: Monitor a One-dimensional Dataset

In this case, we see how h5watch might be used to monitor changes to a one-dimensional dataset of three records. The picture below shows the dataset, and the examples in this case will start with this dataset.

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We start h5watch running with the following command line:

h5watch example.h5/dsetA

The dataset we are watching in this case is dsetA and is located in the file example.h5.

Example 1

Suppose in this example the dimension size of dsetA is changed from three to five and is written to dsetA. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: 3->5

Data:

(3): record

(4): record

Example 2

Suppose in this example the dimension size of dsetA is changed from three to two and is written to dsetA. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: 3->2

## Case B: Monitor a Two-dimensional Dataset

In this case, we see how h5watch might be used to monitor changes to a two-dimensional dataset of 3x4 records. The picture below shows the dataset, and the examples in this case will start with this dataset.

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We start h5watch running with the following command line:

h5watch example.h5/dsetB

The dataset we are watching in this case is dsetB and is located in the file example.h5.

Example 1

Suppose in this example the dimension size of dsetB dims[0] is changed from three to six and is written to dsetB. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: 3->6

dims[1]: unchanged

Data:

(3, 0): record0, record1, record2, record3

(4, 0): record0, record1, record2, record3

(5, 0): record0, record1, record2, record3

Example 2

Suppose in this example the dimension size of dsetB dims[1] is changed from four to five and is written to dsetB. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: unchanged

dims[1]: 4->5

Data:

(0, 4): record

(1, 4): record

(2, 4): record

Example 3

Suppose in this example the dimension size of dsetB dims[0] is changed from three to five, dims[1] is changed from four to five, and both are written to dsetB. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: 3->5

dims[1]: 4->5

Data:

(0, 4): record

(1, 4): record

(2, 4): record

(3, 0): record0, record1, record2, record3, record4

(4, 0): record0, record1, record2, record3, record4

(5, 0): record0, record1, record2, record3, record4

Example 4

Suppose in this example the dimension size of dsetB dims[0] is changed from three to five, dims[1] is changed from four to three, and both are written to dsetB. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: 3->5

dims[1]: 4->3

Data:

(3, 0): record0, record1, record2

(4, 0): record0, record1, record2

Example 5

Suppose in this example the dimension size of dsetB dims[0] is changed from three to two, dims[1] is changed from four to five, and both are written to dsetB. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: 3->2

dims[1]: 4->5

Data:

(0, 4): record

(1, 4): record

Example 6

Suppose in this example the size of dsetB dims[0] is changed from three to two, dims[1] is changed from four to two, and both are written to dsetB. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: 3->2

dims[1]: 4->2

## Case C: Monitor a Dataset with a Compound Datatype

In this section, we see how h5watch might be used to monitor changes to a two-dimensional dataset with a compound datatype. The examples in this case will start with different datasets.

Example 1

For this example, we start h5watch running with the following command line:

h5watch example.h5/dsetC1

The dataset we are watching is dsetC1 and is located in the file example.h5.

Suppose in this example dsetC1 is a two-dimensional dataset of 3x4 records with a compound datatype defined as the following:

DATATYPE "ctype1" H5T\_COMPOUND {

H5T\_STD\_I32BE "c1";

H5T\_STD\_I32BE "c2";

H5T\_STD\_I32BE "c3";

H5T\_STD\_I32BE "c4"; }

Suppose the dimension size of dsetC1 dims[0] is changed from three to five and is written to dsetC1. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: 3->5

dims[1]: unchanged

Data:

(3, 0): {{data for c1,c2,c3,c4}, {data for c1,c2,c3,c4},

{data for c1,c2,c3,c4}, {data for c1,c2,c3,c4}}

(4, 0): {{data for c1,c2,c3,c4}, {data for c1,c2,c3,c4},

{data for c1,c2,c3,c4}, {data for c1,c2,c3,c4}}

Example 2

For this example, we will continue to watch dsetC1 with its compound datatype.

We will run h5watch with the ––fields option with the following command line:

h5watch ––fields=c2,c4 example.h5/dsetC1

This command line could also be written as the following:

h5watch ––fields=c2 ––fields=c4 example.h5/dsetC1

Suppose in this example the dimension size of dsetC1 dims[1] is changed from four to five and is written to dsetC1. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: unchanged

dims[1]: 4->5

Data:

(0, 4): {{data for c2,c4}}

(1, 4): {{data for c2,c4}}

(2, 4): {{data for c2,c4}}

Example 3

In this example, we will look at a different dataset with a nested compound datatype. The picture below shows the dataset.

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The dataset is a one-dimensional dataset of three records with nested compound data type defined as:

DATATYPE "ctype2" H5T\_COMPOUND {

H5T\_STD\_I32BE "c,1";

H5T\_STD\_I32BE "c,2";

H5\_COMPOUND {

H5T\_STD\_I32BE "sub.1";

H5T\_STD\_I32BE "sub.2";

} c3;

}

We first start h5watch running with the following command line:

h5watch ––fields=c\,1 ––fields=c3.sub\.2 example.h5/dsetC2

The dataset we are watching is dsetC2 and is located in the file example.h5. The ––fields=c\,1 and ––fields=c3.sub\.2 options will show the first element of the compound datatype and the second element of the nested compound datatype.

Suppose the dimension size of dsetC2 dims[0] is changed from three to five and is written to dsetC2. The picture below shows the change.

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h5watchwill produce the following output:

dims[0]: 3->5

Data:

(3): {{data for “c,1”, “sub.2”}}

(4): {{data for “c,1”, “sub.2”}}

## Case D: Monitor Changes in the Size of Dataset Dimensions via the ––dim Option

h5watch has a ––dim option. When this option is used, only the dimension changes are monitored.

Suppose in the examples below dsetD1 is a one-dimensional dataset of three records and dsetD2 is a two-dimensional dataset of 3x4 records.

Example 1

Suppose the dimension size of dsetD1 is changed from three to five. The picture below shows the change.

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If h5watch is run with the following command line:

h5watch ––dim example.h5/dsetD1

then h5watchwill produce the following output:

dims[0]: 3->5

Example 2

Suppose the dimension size of dsetD1 is changed from three to two. The picture below shows the change.

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If h5watch is run with the following command line:

h5watch ––dim example.h5/dsetD1

then h5watchwill produce the following output:

dims[0]: 3->2

Example 3

Suppose the dimension size of dsetD2 dims[0] is changed from three to six. The picture below shows the change.

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If h5watch is run with the following command line:

h5watch ––dim example.h5/dsetD2

then h5watchwill produce the following output:

dims[0]: 3->6

dims[1]: unchanged

Example 4

Suppose the dimension size of dsetD2 dims[0] is changed from three to five and dims[1] is changed from four to five. The picture below shows the change.

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If h5watch is run with the following command line:

h5watch ––dim example.h5/dsetD2

then h5watchwill produce the following output:

dims[0]: 3->5

dims[1]: 4->5