zcorrector

MATLAB 7.3.0 (R2006b)

File Edit Debug Desktop Window Help

Current Directory: C:\Program Files\MATLAB\R2006b\work

Shortcuts How to Add What's New

Workspace

Base

Name	Value
activedata	<56x1 cell>
maxis	<8x8 char>

Current Directory | Workspace

Command Window

>>

This tutorial contains navigation buttons that enable you to move throughout the tutorial.

Please use the navigation buttons and not the page up/page down or arrow keys to navigate through the tutorials.

This is the 'Next' button. It takes you to the next frame or stop point.

This is the 'Previous' button. It takes you to the previous frame or stop point.

This is the 'Go to frame' button. It takes you to a specified frame.

This is the 'Go to URL' button. It takes you to a website link.

Press the 'Next' button below to start this tutorial.

Command History

Start

OVR

3D Tools

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is box before
vie.

lice Movie

lice Movie

Save Corr XZ

Save Corr YZ

Y

Z

min

zcorrector

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Base

Name	Value
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maxis	<8x8 char>

Command Window

>>

This tutorial will cover how to import data from the Matlab workspace into the zcorrectorgui.

For this to work, the matlab variables containing the data must be named and formated exactly as shown in this tutorial. If they are not, the import will not work.

The zcorrectorgui works with peak area images selected and exported from the instrument software. It cannot read raw data and only works with peak area images.

Iontof users can export the data for each slice into .bif or .bif6 files and import them directly into the zcorrectorgui. This is described in the tutorial 'Zcorrectorgui_01_MainPage.pdf'.

PHI is working on an importer that will enable PHI users to get their data into matlab.

In the meantime, if you can get your data into Matlab and format it as described in this tutorial, you can import your data from the workspace and then use the zcorrectorgui.

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Shortcuts How to Add What's New

Workspace

Base

Name	Value
activedata	<56x1 cell>
maxis	<8x8 char>

There are two required variables for the zcorrectorgui, activedata and maxis.

'activedata' is a cell array that contains the total counts image and peak area images for each slice in the depth profile.

'maxis' contains the masses of the selected peaks in a character array.

Command Window

>>

Current Directory Workspace

Command History

Start

OVR

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ve the movie
is box before
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lice Movie

lice Movie

Save Corr XZ

Save Corr YZ

^ | Y | v

^ | Z | v

min

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MATLAB 7.3.0 (R2006b)

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Shortcuts How to Add What's New

Workspace

Base

Name	Value
activedata	<56x1 cell>
maxis	<8x8 char>

Command Window

```
>> activedata
```

Let's look at the format of 'activedata'.

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Command History

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zcorrector

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ve the movie
is box before
vie.

lice Movie

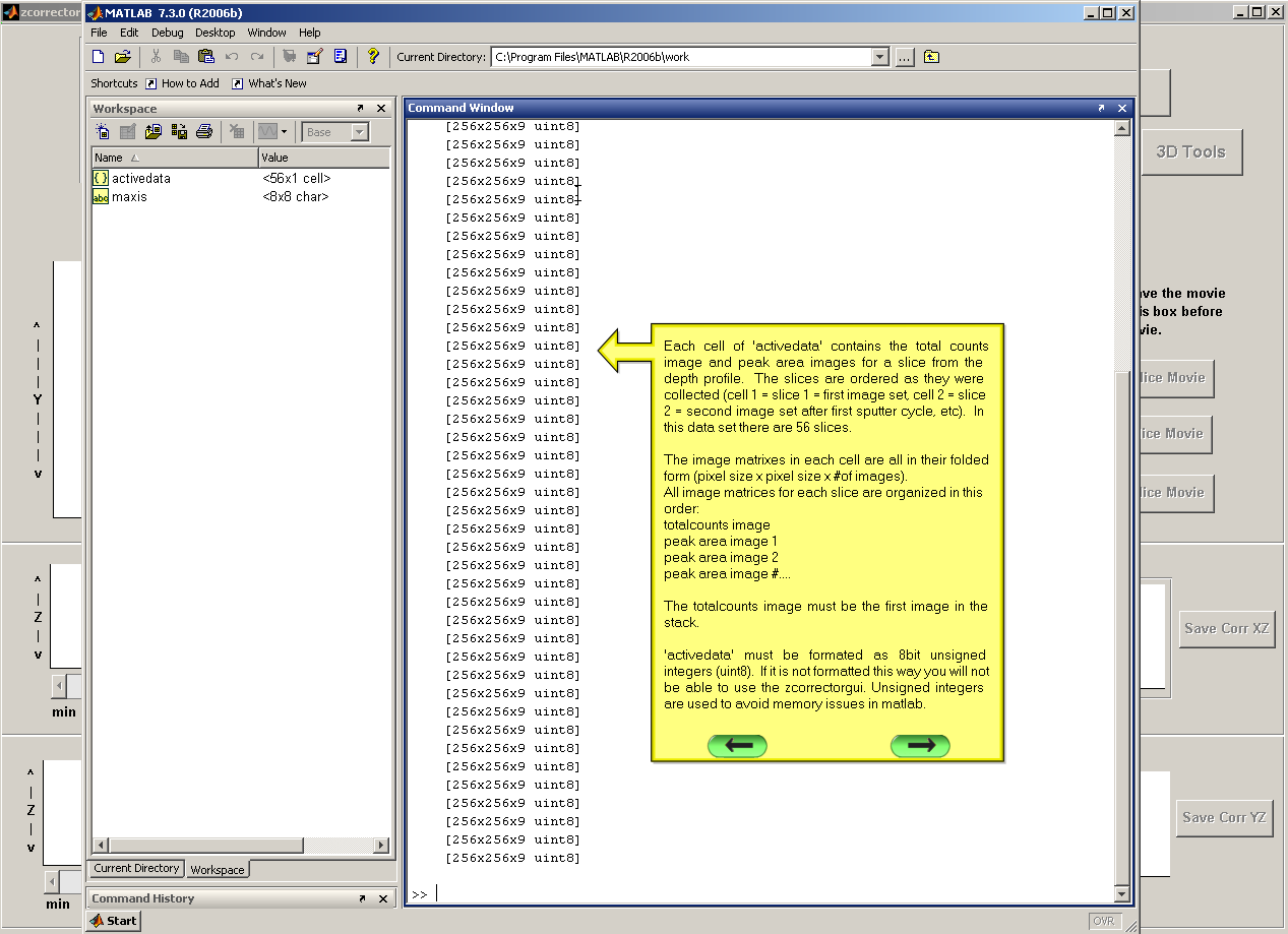
lice Movie

Save Corr XZ

Save Corr YZ

min

min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Shortcuts How to Add What's New
Workspace
Base
Name
Value
activedata <56x1 cell>
maxis <8x8 char>
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Command Window
[256x256x9 uint8]
>>
Each cell of 'activedata' contains the total counts image and peak area images for a slice from the depth profile. The slices are ordered as they were collected (cell 1 = slice 1 = first image set, cell 2 = slice 2 = second image set after first sputter cycle, etc). In this data set there are 56 slices.
The image matrixes in each cell are all in their folded form (pixel size x pixel size x #of images).
All image matrices for each slice are organized in this order:
totalcounts image
peak area image 1
peak area image 2
peak area image #....
The totalcounts image must be the first image in the stack.
'activedata' must be formated as 8bit unsigned integers (uint8). If it is not formatted this way you will not be able to use the zcorrectorgui. Unsigned integers are used to avoid memory issues in matlab.
3D Tools
ve the movie
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ice Movie
lice Movie
Save Corr XZ
Save Corr YZ
Y
Z
Z
min
min
OVR

Current Directory: C:\Program Files\MATLAB\R2006b\work

Name	Value
activedata	<56x1 cell>
maxis	<8x8 char>

```
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
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    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]

>> maxis
```

Now let's look at the format for the maxis variable.

Name	Value
activedata	<56x1 cell>
maxis	<8x8 char>

```
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
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    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]
    [256x256x9 uint8]

>> maxis

maxis =

58.10555
70.13471
86.19242
104.2413
125.1504
166.2641
184.3038
224.3978

>> 
```

'maxis' contains the peak masses for the peaks used to create the peak area images in 'activedata'.

This variable must be formatted as a character array. If you import the peak masses into matlab you can covert them to characters by using the num2str function.
maxis = num2str(maxis);

zcorrectorgui

Import BiF Data From Directory

Import

Import Data From Workspace

Load WS

Number of image layers: None

Down binning the data cannot be undone.

Once you have the 'activedata' and 'maxis' variables set up properly, you simply press the 'Load WS' button and the data is loaded into the zcorrectorgui.

tal Counts Threshold Value

with Uncorrected Data

lize Corrected Data

Close

Overlay Tools

3D Tools

Data Being Displayed
None

< ------ X ------ >

^ | Y | v

max

min

Layer number: 1

Z corrected image XY

< ------ X ------ >

^ | Y | v

max

min

Layer number: 1

If you want to save the movie frames check this box before creating the movie.

Create XY Corr Slice Movie

Create XZ Corr Slice Movie

Create YZ Corr Slice Movie

^ | Z | v

< ------ X ------ >

min column # 1 max

Thresholded total counts XZ

Z line XZ

Z corrected image XZ

Save Corr XZ

^ | Z | v

< ------ Y ------ >

min row # 1 max

Thresholded total counts YZ

Z line YZ

Z corrected image YZ

Save Corr YZ

zcorrectorgui

Import BiF Data From Directory

Import

Import Data From Workspace

Load WS

Number of image layers: 56

Down binning the data cannot be undone.
You must reload the original data in order to restore the original matrix.

Downbin Data

Adjust Total Counts Threshold Value

Work with Uncorrected Data

Close

Overlay Tools

3D Tools

Initialize Corrected Data

The data is loaded and you can now continue using the zcorrectorgui as described in the other tutorials.

Data Being Displayed
Total_Counts

Peak List

Total_Counts
58.10555
70.13471
86.19242
104.2413
125.1504
166.2641
184.3038
224.3978

< ------ X ------ >

^ | Y | v

56

0

Layer number: 1

^ | Y | v

0

Layer number: 1

If you want to save the movie frames check this box before creating the movie.

Create XY Corr Slice Movie

Create XZ Corr Slice Movie

Create YZ Corr Slice Movie

Thresholded total counts XZ

Z line XZ

Z corrected image XZ

< ------ X ------ >

^ | Z | v

0 column # 1 256

Save Corr XZ

Thresholded total counts YZ

Z line YZ

Z corrected image YZ

< ------ Y ------ >

^ | Z | v

0 row # 1 256

Save Corr YZ

zcorrectorgui

Import BiF Data From Directory

Import

Import Data From Workspace

Load WS

Number of image layers: 56

Down binning the data cannot be undone.
You must reload the original data in order to restore the original matrix.

Downbin Data

Adjust Total Counts Threshold Value

Work with Uncorrected Data

Close

Overlay Tools

3D Tools

Data Being Displayed
Total_Counts

Peak List

Initialize Corrected Data

Z corrected image XY

< ------ X ------ >

^ | Y | v

56

0

Layer number: 1

Total_Counts
58.10555
70.13471
86.19242
104.2413

That's it for this tutorial.

Press the green button on the left to go back to the previous step. Press the button the right to go back to the beginning of the tutorial.

56

0

Layer number: 1

If you want to save the movie frames check this box before creating the movie.

Create XY Corr Slice Movie

Create XZ Corr Slice Movie

Create YZ Corr Slice Movie

< ------ X ------ >

^ | Z | v

0 column # 1 256

Thresholded total counts XZ

Z line XZ

Z corrected image XZ

Save Corr XZ

< ------ Y ------ >

^ | Z | v

0 row # 1 256

Thresholded total counts YZ

Z line YZ

Z corrected image YZ

Save Corr YZ