


```
-filename "ipl_aim |
```

Commented [HB6]: Write grayscale aim to disk.

```
!  
! Segmentation  
!
```

```
/sup org
```

```
-supdim_numbers 4 4 1  
-testoff_pixels "ipl_support0  
-suppos_pixels_local -1 -1 -1  
-subdim_pixels -1 -1 -1 |
```

Commented [HB7]: Divide the data into 4x4x1 pieces for analysis. The testoff pixels is an overlap used for the sections to account for lost voxels from Gaussian smoothing.

```
/seg_gauss org seg
```

```
-sigma "ipl_sigma0  
-support "ipl_support0  
-low "ipl_lower0  
-upp "ipl_upper0  
-unit "ipl_unit0  
-value 127 |
```

Commented [HB8]: Gaussian smoothing followed by global thresholding.

```
/gobj
```

```
-input_output seg  
-gobj_filename "ipl_gobj0  
-peel_iter "ipl_peel0 |
```

Commented [HB9]: Mask segmented image with contour file (if found).

```
/write seg "ipl_segaim
```

```
-compress bin |
```

Commented [HB10]: Write segmented image to disk.

```
/db_clear_eval seg
```

Commented [HB11]: Clear the results database for this measurement, in case an evaluation was previously run.

```
! uncomment if the script shall be started from terminal,  
! without clicking on 'Start 3D evaluation' ever for that measurement
```

```
!/db_calib_unit_fill seg
```

Commented [HB12]: This will write the slope and intercept values to the database, which will enable calibration of grayscale values to densities.

```
/vox_sanco_param
```

```
-input seg
```

Commented [HB13]: Voxel counting (VOX) method: Measures BV, TV, and BV/TV.

```
! apparent density
```

```
/voxgobj_sanco_param
```

```
-input org
```

```
-gobj_filename "ipl_gobj0"
```

```
-peel_iter "ipl_peel0"
```

```
-region_number 0
```

Commented [HB14]: Measures the apparent density (i.e. bone and pores) within the contoured region. Results are stored as Mean 1 (region number 0)

```
! tissue (matrix) density of segmented volume
```

```
/voxgobj_sanco_param
```

```
-input org
```

```
-gobj_filename "ipl_segaim"
```

```
-peel_iter 2
```

```
-region_number 1
```

```
..
```

```
$ ON ERROR THEN CONTINUE
```

```
$ IPL_BATCH
```

Commented [HB15]: Measures the tissue density (i.e. bone only) within the segmented region. Results are stored as Mean 2 (region number 1)

```
/db_sanco_activate true
```

Commented [HB16]: Exit IPL, continue if an error is encountered, and restart IPL. This ensures other parameters are measured, even if an error occurred previously.

```
/read seg "ipl_segaim"
```

Commented [HB17]: Enables result writing to the database. If this is not enabled, then results are only written in the log file.

```
/sup seg
```

```
-supdim_numbers 4 4 1
```

```
-testoff_pixels 0 0 0
```

```
-suppos_pixels_local -1 -1 -1
```

```
-subdim_pixels -1 -1 -1
```

Commented [HB18]: Read the segmented aim file into the variable "seg"

Commented [HB19]: Divide the data into 4x4x1 pieces for analysis. The testoff pixels is an overlap used for the sections to account for lost voxels from Gaussian smoothing.

```

/tri seg tri
  -gobj_filename      gobj_from_log
  -peel_iter          -1
  -ip_sigma           0.000000
  -ip_support         0
  -ip_threshold       50
  -nr_ave_iter        2
  -t_dir_radius       2
  -epsilon            1.200000
  -size_image         512 512
  -scale_image        0.700000
  -edges              false
  -nr_views           0
..
$ ON ERROR THEN CONTINUE
$ IPL_BATCH

/db_scanco_activate true

/read seg "ipl_segaim

/connectivity
  -in_out             seg
..
$ ON ERROR THEN CONTINUE
$ IPL_BATCH

/db_scanco_activate true

/read seg "ipl_segaim

/dt_object

```

Commented [HB20]: Triangulate (TRI) the surface using the marching cubes algorithm. Measures SMI, DA, and BS.BV.

Commented [HB21]: Exit and restart IPL. Helps to clear memory and also enables script to continue if there was a problem with a previous measurement (e.g., insufficient memory).

Commented [HB22]: This will write the slope and intercept values to the database, which will enable calibration of grayscale values to densities.

Commented [HB23]: Read the segmented aim file into the variable "seg"

Commented [HB24]: Measure connectivity density (ConnD)

Commented [HB25]: Exit and restart IPL. Helps to clear memory and also enables script to continue if there was a problem with a previous measurement (e.g., insufficient memory).

Commented [HB26]: Enables result writing to the database. If this is not enabled, then results are only written in the log file.

Commented [HB27]: Read the segmented aim file into the variable "seg"

```

 
 
 
 
 
 
 
 

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```

Commented [HB28]: Distance transform (DT) method to measure thickness (TbTh) using maximal spheres. Write out the histogram to text.

Commented [HB29]: Write out the 3D thickness map to disk.

Commented [HB30]: Check the accuracy of thickness measurements, here the criteria is set to a min of 6 pixels.

Commented [HB31]: Exit and restart IPL. Helps to clear memory and also enables script to continue if there was a problem with a previous measurement (e.g., insufficient memory).

Commented [HB32]: Enables result writing to the database. If this is not enabled, then results are only written in the log file.

Commented [HB33]: Read the segmented aim file into the variable "seg"

```

-assign_epsilon      1.800000
-histofile_or_screen "ipl_fname3 |

/write out "ipl_fname2
..
$ ON ERROR THEN CONTINUE
$ IPL_BATCH |

/db_scanco_activate true

/read seg "ipl_segaim

/dt_mat
-input      seg
-output     out
-gobj_filename gobj_from_log
-peel_iter   -1
-roi_radius_factor 10000.000000
-ridge_epsilon 0.900000
-assign_epsilon 1.800000
-histofile_or_screen "ipl_fname4 |
..
$ EXIT

```

Commented [HB34]: Distance transform (DT) method to measure separation(TbSp) using maximal spheres. Write out the histogram to text.

Commented [HB35]: Write out the 3D separation map to disk.

Commented [HB36]: Exit and restart IPL. Helps to clear memory and also enables script to continue if there was a problem with a previous measurement (e.g., insufficient memory).

Commented [HB37]: Enables result writing to the database. If this is not enabled, then results are only written in the log file.

Commented [HB38]: Read the segmented aim file into the variable "seg"

Commented [HB39]: Distance transform (DT) method to measure trabecular number (TbN) using maximal spheres. Write out the histogram to text.

Commented [HB40]: Exit IPL and exit the script.