

Category/Name/Description	Parameters	Comments/default
Main Input/Output		
input :load current image to process (from Omero or Files)	project :name of project name dataset :name of dataset name image :name of the image channel :the channel number frame :the frame number	project :?project? dataset : ?dataset? image :?image? channel :?channel? frame :?frame? Channel and frame number start at 1
output :save the current image (to Omero or Files)	project :name of project name dataset :name of dataset name image :name of the image	project :?project? dataset :?dataset? Will delete previous image with same name
Additional Input/Output		
attach :attach a file to an image data (in Omero or Files)	project :name of project name dataset :name of dataset name image :name of the image data dir :directory file :filename to attach to the project/dataset/name image data	project :?project? dataset : ?dataset? image :?image? Can use special directory names (?ij?,?home?,?tmp?)
attachList :attach a list of files to an image data (in Omero or Files)	project :name of project name dataset :name of dataset name image :name of the image data dir :directory list :list of filenames to attach to the project/dataset/image image data	project :?project? dataset : ?dataset? image :?image? Can use special directory names (?ij?,?home?,?tmp?)
delete :delete a file	dir :directory file :file name	(keywords for file) (keywords for dir)
deleteList :delete a list of files	dir :directory to find files to delete list :list of files names separated by ,	(keywords for file) (keywords for dir)
inputBinning :input a binned data (reduce memory)	project :name of project name dataset :name of dataset name image :name of the image channel :the channel number frame :the frame number binningXY :binning in XY binningZ :binning in Z	project :?project? dataset : ?dataset? image :?image? channel :?channel? frame :?frame? binningXY :1 binningZ :1
load :load an image from file	dir :directory file :file name(keywords for file) (keywords for dir)	(keywords for file) (keywords for dir)
loadOMERO :load a hyperstack image from OMERO (use with caution)	project :name of project name dataset :name of dataset name image :name of the image channels :the channels to load (c0-c1) frames :the frames to load (t0-t1)	project :?project? dataset : ?dataset? image :?image? channels :1 frames :1

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	(you can use all to specify all channels or all frames)	Channel and frame number start at 1
mergeChannels : merge color channels	dir :directory for the files to merge list : list of files to merge rgb : rgb mode (yes) or composite mode (no)	(keywords for dir) (keywords for file) rgb :no
noInput :to use when no specific input is required as first module	No parameters	
save :save an image as a file	dir :directory file :file name format :file format to save	(keywords for file) (keywords for dir) format : tif by default, else can be zip
sequence : open a stack as sequence of 2D images	dir : directory containing the files filename : pattern that file names should contain (or * for all files) dimension : Z (or T)	(keywords for dir) filename :* dimension :Z
test :create a image with random noise	3D :creates 3D image	3D : no (will create a 2D image by default, use yes for a 3D image)
Calibration		
calibrationLoadAndApply : will load a saved calibration and apply it to an image (current one by default). Will update calibration on OMERO.	dir :directory of the saved calibration file :name of the saved calibration file project :name of project name dataset :name of dataset name image :name of the image	project :?project? dataset : ?dataset? image :?image? (keywords for file) (keywords for dir)
calibrationSave :saves the calibration of the current image into a file	dir :directory of the saved calibration file :name of the saved calibration file	(keywords for file) (keywords for dir)
calibrationSet :will set the calibration to the current image	scaleXY :pixel size in XY scaleZ :pixel size in Z	scaleXY :1 scaleZ :1
Processing		
crop :crop the image using a Roi	dir :directory of the roi file :name of the roi file	Will use ImageJ roi file
cropZ :crop the image in the Z dimension	zMin :slice number for first z zMax :slice number for last z	Slice numbering starts at 0
invert : invert gray values	No parameters	
mask :applies a mask to image	dirMask :directory for the mask image fileMask : file name for the mask image	Mask must be a binary or labelled image (background value equals 0)

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math :arithmetic operation between images	dir :directory for the other image file : file name for the other image operation :arithmetic operation to perform coef0 :coefficient to apply for first (current image) coef1 :coefficient to apply for second (other image)	coef0 : 1 coef1 : 1 The available operations are : add , mult , max , min and diff A subtraction will be performed with add and coefficient -1
normalise :normalise intensity values	mean :new mean value sd :new standard deviation value	mean :128 sd :32
project :project in Z a 3D image	No parameters	Will perform maximum projection
scale :scale a image	scalex :the scale ratio in X scaley :the scale ratio in Y scalez :the scale ratio in Z normalise :normalise the Z dimension (will override scalez)	scalex :1 scaley :1 scalez :1 normalise :no (put "yes" to normalise)
Filtering		
filters :filter an image (2D and 3D version)	radxy :the radius of filtering in X-Y radz :the radius of filtering in Z filter :the filter to apply	radxy :2 radz :0 Available filter parameter values are : median , mean , tophat , open , close , min and max
filtersCLIJ :filter an image (2D and 3D version) using CLIJ.	radxy :the radius of filtering in X-Y radz :the radius of filtering in Z filter :the filter to apply	radxy :2 radz :0 Available filter parameter values are : median , mean , tophat , open , close , min and max
rollingBall :applies the rolling ball algorithm from ImageJ (2D)	radius :radius of the rolling ball dark :dark (yes) or light (no) background	radius :50 dark :50
Threshold		
autoThreshold :threshold an image using automatic threshold	method : the method to use (based on IJ automatic threshold) dark :for dark background	method can be one of the following : Isodata , Otsu , Intermodes , Yen , Triangle , Mean , Huang , IJ_Isodata dark is yes by default, set it to no for light background

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threshold :threshold an image (creates binary image)	value :the thresholding value (for bright pixels)	
percentileThreshold :perform thresholding based on percentage of brightest pixels	percentile :percentile value between 0 and 1 (for instance 0.05 will compute the threshold for 95% of the pixels, <i>i.e</i> 5% of the brightest pixels)	
Threshold / Segment		
hysteresis :perform a hysteresis thresholding	minValue :low threshold value maxValue :high threshold value labeling :also labels the image	Keep objects thresholded with low threshold but containing values with high threshold) labeling:no (will create a binary image, set to yes to create a labelled image)
iterative :iterative thresholding, detect objects using multiple thresholds, based on compactness criteria	minVolume :minimum volume for objects maxVolume :maximum volume for objects minThreshold :minimum threshold	minVolume :100 maxVolume : -1 (no maximum limit) minThreshold :0
label :label a binary image and detect individual objects	minVolume :minimum volume for objects maxVolume :maximum volume for objects unit : yes if volume in unit, else in voxels	minVolume :0 maxVolume : -1 (no limit on max volume) unit :no (voxels by default)
watershed :performs watershed segmentation	seedsRadius : radius in X-Y-Z to compute seeds (in pixels) seedsThreshold :minimum value to be considered as seeds signalThreshold :minimum value for signal	Will compute local maxima and use them as seeds for watershed
Post-processing / mathematical morphology		
biggest :keep only the biggest object from labelled image	No parameters	
closeLabels : performs closing on labelled objects	radxy :the radius of filtering in X-Y radz :the radius of filtering in Z	radxy :5 radz :0
excludeEdges :exclude labeled objects touching edges in XY and Z	excludeZ :exclude objects touching edges in Z	excludeZ :no (only exclude in XY by default)
fillHoles : fills holes in images using ImageJ algorithm (2D)	No parameters	
filterObjects :filter objects in a labelled image	minValue :minimum value maxValue :maximum value	minValue :0 maxValue :1

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	descriptor :the descriptor to use for filtering (volume, compactness, elongation, compactnessDiscrete)	Objects not within the defined range will be deleted from labelled image
separate2D :performs ImageJ binary watershed (to separate touching objects)	No parameters	
Analysis / Measurement		
analyzeParticles :performs the analyzeParticles function from ImageJ (labelling + measurements)	minSize :minimum size for particles maxSize :maximum size for particles unit :yes/no if size in unit minCirc :minimum circularity maxCirc :maximum circularity excludeEdges :exclude particles touching image edges list :list of measurement dir :directory for results file file :name for results file	minSize :0 maxSize :-1(for no limit in size) minCirc :0 maxCirc :1 list :area,perimeter (default), additional measurement are centroid, ellipse, shape and feret file :results.csv
measurement :measurement to perform on labelled image	list :list of measurements to perform separated by comma dir :directory to save results file :file name to save results	(keywords for file) (keywords for dir) Available measurements for list : volume,area,centroid,compactness,ellipsoid,DC (Distance to Center)
multiColoc :quantify colocalisation between objects from two images	dirLabel :directory for the second image fileLabel :file name for the second image dir :directory for results file file : file name for results file	(keywords for file) (keywords for dir)
number :quantify objects inside other objects using another labelled image	dirLabel :directory for the second image fileLabel :file name for the second image dir :directory for results file file : file name for results file	(keywords for file) (keywords for dir) The results will be saved as a .csv file file :results.csv Results will be volume occupied by objects and number of objects
quantif :signal quantification to perform on a labelled image	dirRaw :directory to the raw signal image fileRaw :file name of the raw signal image dir :directory to save results file :file name to save results list :list of quantification to perform separated by comma	(keywords for file) (keywords for dir) The results will be saved as a .csv file file :results.csv Available quantifications in list : mean,min,max,sd,sum,centre

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Analysis / Distances		
distancesBorder :compute distances center to center for all pairs of objects within the image	dir :directory for results file file : file name for results file	(keywords for file) (keywords for dir)
distancesBorder2 :compute distances border to border for all pairs of objects in two images	dirLabel :directory for the second image fileLabel :file name for the second image dir :directory for results file file : file name for results file	(keywords for file) (keywords for dir)
distancesCenter :compute distances center to center for all pairs of objects within the image	dir :directory for results file file : file name for results file	(keywords for file) (keywords for dir)
distancesCenter2 :compute distances center to center for all pairs of objects in two images	dirLabel :directory for the second image fileLabel :file name for the second image dir :directory for results file file : file name for results file	(keywords for file) (keywords for dir)
distancesCenterBorder2 :compute distances center to border for all pairs of objects in two images	dirLabel :directory for the second image fileLabel :file name for the second image dir :directory for results file file : file name for results file	(keywords for file) (keywords for dir)
Analysis / Other		
density :compute the density of objects based on neighbouring distance analysis	neighbours :numbers of neighbours to use for computation radius :extension radius from each object	Neighbours :10
edt_evf :computes the euclidean distance transform (EDT) or the eroded volume fraction (EVF) as a normalised EDT	evf :computes EDT (no) or the EVF (yes)	evf :no (computes EDT by default) EVF is computed per label
evfLayers :compute objects distribution within evf layers (layers with equal volumes)	dirEvf :directory for the evf image fileEvf :file name of the evf image nbLayers :number of layers dir :directory for results image file :file name for results image	(keywords for file) (keywords for dir) A csv file along with a png image file will be output. The -all files will serve as control and contains all evf values within a layer.
localThickness :computes calibrated local thickness (based on ImageJ localThickness plugin)	No parameters	
Misc.		
exe :execute a program	dir : full path to the exe file	(keywords for file)

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(experimental feature)	file : name of the exe file arg : argument of the executable	(keywords for dir)
macro :run an ImageJ macro	dir :directory for macro file : macro file name	(keywords for file) (keywords for dir) The macro should create a new image window as a result
show :display the current image	title :title for the image	title: ?image? (name of the current image) Will not display the image in batch mode.
sleep : pause execution	(sec)	
subProcess :execute a TAPAS processing file	dir :directory of the processing text file file : file name of the processing text file	(keywords for file) (keywords for dir)
Utilities		
appendResults :append a result table to another one	dir :directory for the files to process file1 :first file file2 :second file	(keywords for file) (keywords for dir) The file2 will be appended to file1
mergeResults :merges two or more results tables	dir :directory for the files to merge list :list of file name to merge fileMerge :file name of the merged file (will be saved in the same directory as input files)	(keywords for file) (keywords for dir)

Specials keywords :

For the name of an image in Omero or a file name :

?project? : the name of the current project

?dataset? : the name of the current dataset

?image? : the name of the current image (?name? is deprecated from 0.6.3)

?channel? : the channel number of the current data

?channel+1? : the channel number +1 of the current data

?channel-1? : the channel number -1 of the current data

?frame? : the frame number of the current data

?frame+1? : the frame number +1 of the current data

?frame-1? : the frame number -1 of the current data

For a directory name :

?home? : the user home directory

?ij? : the ImageJ/Fiji directory

?tmp? : the system temporary directory