Pipeline Tasks Reference Manual

Release unknown

pipeline team

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PIPELINE TASKS

pipeline.h.cli	Generic Tasks
pipeline.hif.cli	Interferometry Generic Tasks
pipeline.hifa.cli	Interferometry ALMA Tasks
pipeline.hifv.cli	Interferometry VLA Tasks
pipeline.hsd.cli	ALMA Single Dish Tasks
pipeline.hsdn.cli	Nobeyama Tasks

CHAPTER

ONE

PIPELINE.H.CLI

Generic Tasks

cli	
h_applycal([vis, field, intent, spw, ...])	Apply the calibration(s) to the data
h_export_calstate([filename, state])	Save the pipeline calibration state to disk
h_exportdata([vis, session, ...])	Prepare interferometry data for export
h_import_calstate(filename)	Import a calibration state from disk
h_importdata([vis, session, asis, ...])	Imports data into the interferometry pipeline
h_init([loglevel, plotlevel, weblog])	Initialize the pipeline
h_mssplit([vis, outputvis, field, intent, ...])	Select data from calibrated MS(s) to form new MS(s) for imaging
h_restoredata([vis, session, products_dir, ...])	Restore flags and calibration state from a pipeline run
h_resume([filename])	Restore a saved pipeline state
h_save([filename])	Save the pipeline state to disk
h_show_calstate()	Show the current pipeline calibration state
h_tsyscal([vis, caltable, chantol])	Derive a Tsys calibration table
h_weblog([relpath])	Open the pipeline weblog in a browser
utils	

1.1 pipeline.h.cli.cli

1.2 pipeline.h.cli.h_applycal

1.3 pipeline.h.cli.h_export_calstate

1.4 pipeline.h.cli.h_exportdata

1.5 pipeline.h.cli.h_import_calstate

1.6 pipeline.h.cli.h_importdata

1.7 pipeline.h.cli.h_init

1.8 pipeline.h.cli.h_mssplit

1.9 pipeline.h.cli.h_restoredata

1.10 pipeline.h.cli.h_resume

1.11 pipeline.h.cli.h_save

1.12 pipeline.h.cli.h_show_calstate

1.13 pipeline.h.cli.h_tsyscal

1.14 pipeline.h.cli.h_weblog

1.15 pipeline.h.cli.utils

Functions

cli_wrapper	Wrap pipeline task CLI functions to handle the extra 'pipelinemode' argument.
execute_task	
get_context	
get_heuristic	
get_ms	
get_output_dir	

1.15.1 pipeline.h.cli.utils.cli_wrapper

cli_wrapper(*func: Callable*)

Wrap pipeline task CLI functions to handle the extra 'pipelinemode' argument.

PIPE-1884: this decorator function removes the "pipelinemode" argument from pipeline CLI task calls, which commonly exists in archival casa_pipescript.py/casa_pipestorescript.py scripts generated by old pipeline versions before PIPE-1686.

1.15.2 pipeline.h.cli.utils.execute_task

execute_task(*context*, *casa_task*, *casa_args*)

1.15.3 pipeline.h.cli.utils.get_context

get_context()

1.15.4 pipeline.h.cli.utils.get_heuristic

get_heuristic(*arg*)

1.15.5 pipeline.h.cli.utils.get_ms

get_ms(*vis*)

1.15.6 pipeline.h.cli.utils.get_output_dir

get_output_dir()

CHAPTER

TWO

PIPELINE.HIF.CLI

Interferometry Generic Tasks

hif_analyzealpha([vis, image, alphafile, ...])	Extract spectral index from intensity peak in VLA/VLASS images
hif_antpos([vis, caltable, hm_antpos, ...])	Derive an antenna position calibration table
hif_applycal([vis, field, intent, spw, ...])	Apply the calibration(s) to the data
hif_bandpass([vis, caltable, field, intent, ...])	Compute bandpass calibration solutions
hif_checkproductsize([vis, maxcubesize, ...])	Check imaging product size
hif_correctedampflag([vis, intent, field, ...])	Flag corrected - model amplitudes based on calibrators.
hif_editimlist([imagename, ...])	Add to a list of images to be produced with hif_makeimages()
hif_findcont([vis, target_list, ...])	Find continuum frequency ranges
hif_gaincal([vis, caltable, field, intent, ...])	Determine temporal gains from calibrator observations
hif_lowgainflag([vis, intent, spw, refant, ...])	Flag antennas with low or high gain
hif_makecutoutimages([vis, offsetblc, offsettrc])	Cutout central 1 sq.
hif_makeimages([vis, target_list, ...])	Compute clean map
hif_makeimlist([vis, imagename, intent, ...])	Compute list of clean images to be produced
hif_makermsimages([vis])	Create RMS images for VLASS data.
hif_mstransform([vis, outputvis, field, ...])	Create new MeasurementSets for science target imaging
hif_rawflagchans([vis, spw, intent, ...])	Flag deviant baseline/channels in raw data
hif_refant([vis, field, spw, intent, ...])	Select the best reference antennas
hif_selfcal([vis, field, spw, contfile, ...])	Determine and apply self-calibration with the science target data
hif_setjy([vis, field, intent, spw, model, ...])	Fill the model column with calibrated visibilities
hif_setmodels([vis, reference, refintent, ...])	Set calibrator source models
hif_transformimagedata([vis, outputvis, ...])	Extract fields for the desired VLASS image to a new MS and reset weights if desired
hif_uvcontsub([vis, field, intent, spw, ...])	Fit and subtract continuum from the data

CHAPTER

THREE

PIPELINE.HIFA.CLI

Interferometry ALMA Tasks

hifa_antpos([vis, caltable, hm_antpos, ...])	Derive an antenna position calibration table
hifa_bandpass([vis, caltable, field, ...])	Compute bandpass calibration solutions
hifa_bandpassflag([vis, caltable, intent, ...])	Bandpass calibration flagging
hifa_bpsolint([vis, field, intent, spw, ...])	Compute optimal bandpass calibration solution intervals
hifa_diffgaincal([vis])	Derive SpW phase offsets from differential gain calibrator.
hifa_exportdata([vis, session, ...])	Prepare interferometry data for export
hifa_flagdata([vis, autocorr, shadow, ...])	Do metadata based flagging of a list of MeasurementSets.
hifa_flagtargets([vis, template, ...])	Do science target flagging
hifa_fluxcalflag([vis, field, intent, spw, ...])	Locate and flag line regions in solar system flux calibrators
hifa_gaincalsnr([vis, field, intent, spw, ...])	Compute gaincal signal-to-noise ratios per spw
hifa_gfluxscale([vis, reference, transfer, ...])	Derive flux density scales from standard calibrators
hifa_gfluxscaleflag([vis, intent, ...])	Flag the flux, diffgain, phase calibrators and check source
hifa_imageprecheck([vis, ...])	Calculates the best Briggs robust parameter to achieve sensitivity and angular resolution goals.
hifa_importdata([vis, session, asis, ...])	Imports data into the interferometry pipeline
hifa_lock_refant([vis])	Lock reference antenna list
hifa_polcal([vis, minpacov, solint_chavg, ...])	Derive instrumental polarization calibration for ALMA.
hifa_polcalflag([vis])	Flag polarization calibrators
hifa_renorm([vis, createcaltable, ...])	ALMA renormalization task
hifa_restoredata([vis, session, ...])	Restore flagged and calibration interferometry data from a pipeline run
hifa_session_refant([vis, phase_threshold])	Select best reference antenna for session(s)
hifa_spwphaseup([vis, caltable, field, ...])	Compute phase calibration spw map and per spw phase offsets
hifa_targetflag([vis])	Flag target source outliers
hifa_timegaincal([vis, calamptable, ...])	Determine temporal gains from calibrator observations
hifa_tsysflag([vis, caltable, flag_nmedian, ...])	Flag deviant system temperatures for ALMA interferometry measurements.
hifa_tsysflagcontamination([vis, caltable, ...])	Flag line contamination in ALMA interferometric Tsys caltables
hifa_unlock_refant([vis])	Unlock reference antenna list
hifa_wvrgcal([vis, caltable, offsetstable, ...])	Generate a gain table based on Water Vapor Radiometer data, and calculate a QA score based on its effect on the interferometric data.
hifa_wvrgcalflag([vis, caltable, ...])	Generate a gain table based on Water Vapor Radiometer data, interpolating over antennas with bad radiometers.

CHAPTER

FOUR

PIPELINE.HIFV.CLI

Interferometry VLA Tasks

hifv_analyzestokescubes([vis])	Characterize stokes IQUV flux densities as a function of frequency for VLASS Coarse Cube (CC) images.
hifv_applycals([vis, field, intent, spw, ...])	Apply calibration tables to input MeasurementSets.
hifv_checkflag([vis, checkflagmode, ...])	Run RFI flagging using flagdata in various modes.
hifv_circfeedpolcal([vis, Dterm_solint, ...])	Perform polarization calibration for VLA circular feeds.
hifv_exportdata([vis, session, ...])	Prepare and export interferometry and imaging data.
hifv_exportvlassdata([vis])	Export Image data from QL, SE, and Coarse Cube modes of VLASS Survey.
hifv_finalcals([vis, weakbp, refantignore, ...])	Compute final gain calibration tables.
hifv_fixpointing([vis])	Base fixpointing task
hifv_flagcal([vis, caltable, clipminmax])	Flagcal task.
hifv_flagdata([vis, autocorr, shadow, scan, ...])	Do basic deterministic flagging of a list of MeasurementSets.
hifv_flagtargetsdata([vis, template, ...])	Apply a flagtemplate to target data prior to running imaging pipeline tasks.
hifv_fluxboot([vis, caltable, fitorder, ...])	Fluxboot
hifv_gaincurves([vis, caltable])	Runs gencal in gc mode.
hifv_hanning([vis, maser_detection])	Hanning smoothing on a dataset.
hifv_importdata([vis, session, asis, ...])	Imports data into the VLA pipeline.
hifv_mstransform([vis, outputvis, ...])	Create new MeasurementSets for science target imaging
hifv_opcal([vis, caltable])	Runs gencal in opac mode.
hifv_pbcor([vis])	Apply primary beam correction to VLA and VLASS images.
hifv_plotsummary([vis])	Create pipeline summary plots.
hifv_priorcals([vis, show_tec_maps, ...])	Runs gaincurves, opacities, requantizer gains, antenna position corrections, tec_maps, switched power.
hifv_restoredata([vis, session, ...])	Restore flagged and calibration interferometry data from a pipeline run.
hifv_restorepims([vis, reimaging_resources])	Restore VLASS SE per-image measurement set data, resetting flagging, weights, and applying self-calibration.
hifv_rqcal([vis, caltable])	Runs gencal in rq mode.
hifv_selfcal([vis, refantignore, combine, ...])	Perform phase-only self-calibration, per scan row, on VLASS SE images.
hifv_semiFinalBPdcals([vis, weakbp, ...])	Runs a second delay and bandpass calibration and applies to calibrators to setup for RFI flagging.
hifv_solint([vis, limit_short_solint, ...])	Determines different solution intervals.
hifv_statwt([vis, datacolumn, ...])	Compute statistical weights and write them to measurement set.

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Table 1 – continued from previous page

hifv_swpowcal([vis, caltable, spw])	Runs gencal in swpow mode.
hifv_syspower([vis, clip_sp_template, ...])	Determine amount of gain compression affecting VLA data below Ku-band.
hifv_targetflag([vis, intents])	Targetflag
hifv_tecmaps([vis])	Base tecmaps task
hifv_testBPdcals([vis, weakbp, ...])	Runs initial delay and bandpass calibration to setup for RFI flagging.
hifv_vlasetjy([vis, field, intent, spw, ...])	Sets flux density scale and fills calibrator model to measurement set.
hifv_vlassmasking([vis, vlass_ql_database, ...])	Create clean masks for VLASS Single Epoch (SE) images.

CHAPTER

FIVE

PIPELINE.HSD.CLI

ALMA Single Dish Tasks

hsd_applycal([vis, field, intent, spw, ...])	Apply the calibration(s) to the data.
hsd_atmcor([atmtype, dtem_dh, h0, infiles, ...])	Apply offline ATM correction to the data.
hsd_baseline([fitfunc, fitorder, ...])	Detect and validate spectral lines, subtract baseline by masking detected lines.
hsd_blflag([iteration, edge, flag_tsys, ...])	Flag spectra based on predefined criteria of single dish pipeline.
hsd_exportdata([pprfile, targetimages, ...])	Prepare single dish data for export.
hsd_flagdata([vis, autocorr, shadow, scan, ...])	Do basic flagging of a list of MeasurementSets.
hsd_imaging([mode, restfreq, infiles, ...])	Generate single dish images.
hsd_importdata([vis, session, ...])	Imports data into the single dish pipeline.
hsd_k2jycal([dbservice, endpoint, reffile, ...])	Derive Kelvin to Jy calibration tables.
hsd_restoredata([vis, session, ...])	Restore flagged and calibration single dish data from a pipeline run.
hsd_skycal([calmode, fraction, noff, width, ...])	Calibrate data.
hsd_tsysflag([vis, caltable, flag_nmedian, ...])	Flag deviant system temperature measurements.

5.1 pipeline.hsd.cli.hsd_applycal

5.2 pipeline.hsd.cli.hsd_atmcor

5.3 pipeline.hsd.cli.hsd_baseline

5.4 pipeline.hsd.cli.hsd_blflag

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CHAPTER

SIX

PIPELINE.HSDN.CLI

Nobeyama Tasks

hsdn_exportdata([pprfile, targetimages, ...])	Prepare single dish data for export.
hsdn_importdata([vis, session, ...])	Imports Nobeyama data into the single dish pipeline.
hsdn_restoredata([vis, caltable, reffile, ...])	Restore flagged and calibration single dish data from a pipeline run.

6.1 pipeline.hsdn.cli.hsdn_exportdata

6.2 pipeline.hsdn.cli.hsdn_importdata

6.3 pipeline.hsdn.cli.hsdn_restoredata

CHAPTER

SEVEN

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PYTHON MODULE INDEX

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