

Wide-field Infrared Survey Explorer (WISE)

Data Ingest Operations Procedures

Version [0.1]

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Prepared by: Ron Beck



**Infrared Processing and Analysis Center
California Institute of Technology**

WSDC D-C001

Approved By:

Ned Wright, WISE Principal Investigator

Donald Royer, WISE Mission Operations Center Manager

Roc Cutri, WISE Science Data Center Manager

[Other Appropriate Names], WISE Science Data Center [Title]

[Other Appropriate Names], WISE Science Data Center [Title]

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1 INTRODUCTION

1.1 Document Scope

This document will explain the procedures for Data Ingest for WSDC operations. Incoming MOS (Mission Operations System) data and science telemetry data from White Sands tracking station come into the wsdcin machine at IPAC. MOS ancillary data such as pointing data, housekeeping etc. will be delivered to the wsdcin:/local/wsdcin/inbox/mos directory. The White Sands HRP (High Rate Processor) telemetry data will be delivered to wsdcin:/local/wsdcin/inbox/hrp. The MOS deliveries will be ongoing daily whereas we expect to receive four telemetry downlinks per day on average 25 gigabytes.

The Data Ingest procedures can be broken up into three broad categories. There is a process running continuously on the wsdcin machine that looks for incoming data, validates it and creates a delivery manifest. There is a process continuously running on caustic that looks for newly created delivery manifests and copies the data into the ingest-expected format on the WSDC operations system. Lastly, the ingestpipe decommutates the science packets into individual frames grouped by scans (approximately one half orbit). Ingestpipe also copies the MOS data to the correct locations and loads the housekeeping data into the HK database.

1.2 Applicable Documents

http://wise.ipac.caltech.edu/wiki/index.php/Raw_copy_command

http://wise.ipac.caltech.edu/wiki/index.php/Get_wsdcin_command

http://wise.ipac.caltech.edu/wiki/index.php/Qlook_summary_command

1.3 Acronyms

IPAC - Infrared Processing and Analysis Center, California Institute of Technology

MOS - Mission Operations System

WSDC - WISE Science Data Center (IPAC)

WSDS - WISE Science Data System

2MASS - The Two Micron All-Sky Survey

2 raw_copy Procedure

2.1 raw_copy Command

The raw_copy command runs continuously on machine wsdcin checking the /local/wsdcin/inbox mos and hrp directories for new deliveries. The data are actually written to the tmp subdirectory until the file has been completely transferred. Once the data is complete, the file is moved to the appropriate

mos or hrp subdirectory. The subdirectory takes the form YYYY_JJJ_HH_MM_SS.

2.2 Raw Data Locations

Here is the incoming directory on wsdcin.

```
-bash-3.2$ ls -al /local/wsdcin/inbox
drwxr-xr-x 53 wsdcin wise 4096 Jul 31 14:16 hrp
drwxr-xr-x  2 wsdcin wise 4096 Apr 30 15:00 logs
drwxr-xr-x 32 wsdcin wise 4096 Jul 25 06:37 mos
drwxrwxr-x  4 wsdcin wise 4096 Apr  6 16:13 operations
drwxr-xr-x  2 wsdcin wise 4096 Jul 31 23:41 tmp
drwxr-xr-x  2 wsdcin wise 4096 Jan 16 2009 trash
```

These are the timestamped subdirectories.

```
-bash-3.2$ ls -al /local/wsdcin/inbox/hrp/
drwxrwxrwt 2 wsdcin wise 4096 Jul 31 13:26 2009_212_20_14_03
drwxrwxrwt 2 wsdcin wise 4096 Jul 31 13:39 2009_212_20_27_19
drwxrwxrwt 2 wsdcin wise 4096 Jul 31 23:41 2009_212_20_41_44
```

This is an example of the telemetry packet files, one per band. Note the timestamp on the directory is the same as the files within.

```
-bash-3.2$ ls -al /local/wsdcin/inbox/hrp/2009_212_20_41_44/
-rwxr-xr-- 1 wsdcin wise 2136137640 Jul 31 21:00
WIS_HRP_PKT_FE1A_2009_212_20_41_44.bin
-rwxr-xr-- 1 wsdcin wise 1988368200 Jul 31 20:34
WIS_HRP_PKT_FE1B_2009_212_20_41_44.bin
-rwxr-xr-- 1 wsdcin wise 2998850400 Jul 31 23:41
WIS_HRP_PKT_FE1C_2009_212_20_41_44.bin
-rwxr-xr-- 1 wsdcin wise 647577840 Jul 31 16:22
WIS_HRP_PKT_FE1D_2009_212_20_41_44.bin
-rw-r--r-- 1 wsdcin wise 221 Jul 31 14:16
WIS_HRP_SUM_2009_212_20_41_44.txt
```

A sample MOS directory. The *.bc file is pointing data whereas the *.zip file is housekeeping.

```
-bash-3.2$ ls -al /local/wsdcin/inbox/mos/2009_206_13_37_10/
-rw-r--r-- 1 wsdcin wise 225280 Jul 25 06:37 WISE_CK_2009_07_25_13_30_28.bc
-rw-r--r-- 1 wsdcin wise 113 Jul 25 06:37
WIS_MOS_SUM_2009_206_13_37_10.txt
-rw-r--r-- 1 wsdcin wise 19968292 Jul 25 06:37
WIS_WTCCS_VALUE_2009_07_25_13_36_03.zip
```

2.3 Command Usage

Here is the raw_copy command usage.

```
-bash-3.2$ /home/beck/bin/raw_copy  
command usage: raw_copy SLEEP
```

where SLEEP is number of seconds to sleep

this command will check /local/wsdcin/inbox dirs hrp and mos for new data. once finding the new dir, will check the summary file for filenames and sizes. assuming that checks out ok, a file will be created in /local/wsdcin/inbox/operations/[hrp|mos] with the dir name. this file will contain the filenames, sizes and checksums used for checking the copy to /wise/fops.

raw_copy will wake up every SLEEP seconds and check for new deliveries. Once finding a new one, will check the delivery versus the *SUM* file accompanying the delivery. For example, raw_copy checks the contents of the *SUM* file and makes sure the filenames and sizes match.

2.4 Example MOS Delivery

```
-bash-3.2$ ls -al /local/wsdcin/inbox/mos/2009_206_13_37_10/  
-rw-r--r-- 1 wsdcin wise 225280 Jul 25 06:37 WISE_CK_2009_07_25_13_30_28.bc  
-rw-r--r-- 1 wsdcin wise 113 Jul 25 06:37  
WIS_MOS_SUM_2009_206_13_37_10.txt  
-rw-r--r-- 1 wsdcin wise 19968292 Jul 25 06:37  
WIS_WTCCS_VALUE_2009_07_25_13_36_03.zip
```

Here are the *SUM* file contents.

```
-bash-3.2$ cat  
/local/wsdcin/inbox/mos/2009_206_13_37_10/WIS_MOS_SUM_2009_206_13_37_10.txt  
#BEGIN_FILE  
WISE_CK_2009_07_25_13_30_28.bc,225280  
WIS_WTCCS_VALUE_2009_07_25_13_36_03.zip,19968292  
#END_FILE
```

In this example you can see that both the filenames and sizes match the *SUM* file and what is actually in the directory. When raw_copy is happy with the delivery, it creates a manifest file in the /local/wsdcin/inbox/operations/mos directory.

2.5 Manifest File Creation

```
-bash-3.2$ ls -al /local/wsdcin/inbox/operations/mos/2009_206_13_37_10
-rw-r--r-- 1 beck wise 158 Jul 25 06:37
/local/wsdcin/inbox/operations/mos/2009_206_13_37_10
```

Here are the manifest contents.

```
-bash-3.2$ cat /local/wsdcin/inbox/operations/mos/2009_206_13_37_10
WISE_CK_2009_07_25_13_30_28.bc 225280 4030132031
WIS_MOS_SUM_2009_206_13_37_10.txt 113 3974201741
WIS_WTCCS_VALUE_2009_07_25_13_36_03.zip 19968292 2224941162
```

This file contains the same information as in the *SUM* file adding the *SUM* filename and checksums for all files.

2.6 raw_copy Output Log

The raw_copy command creates a log file in /local/wsdcin/inbox/operations/raw_check.log. Here is sample output.

```
-bash-3.2$ tail -20 /local/wsdcin/inbox/operations/raw_check.log
Jul 25 21:33:18: checking dir /local/wsdcin/inbox/hrp/2009_195_20_53_09 ...
file WIS_HRP_PKT_FE1A_2009_195_20_53_09.bin looks good ...
file WIS_HRP_PKT_FE1B_2009_195_20_53_09.bin looks good ...
file WIS_HRP_PKT_FE1C_2009_195_20_53_09.bin looks good ...
file WIS_HRP_PKT_FE1D_2009_195_20_53_09.bin looks good ...
```

```
Jul 31 11:24:30: checking dir /local/wsdcin/inbox/hrp/2009_212_18_17_34 ...
ERROR file: WIS_HRP_PKT_FE1A_2009_212_18_17_34.bin missing ...
ERROR file: WIS_HRP_PKT_FE1B_2009_212_18_17_34.bin missing ...
ERROR file: WIS_HRP_PKT_FE1C_2009_212_18_17_34.bin missing ...
file WIS_HRP_PKT_FE1D_2009_212_18_17_34.bin looks good ...
ERROR: raw_check failed with 3 return ...
```

```
Jul 31 11:34:30: checking dir /local/wsdcin/inbox/hrp/2009_212_18_17_34 ...
file WIS_HRP_PKT_FE1A_2009_212_18_17_34.bin looks good ...
file WIS_HRP_PKT_FE1B_2009_212_18_17_34.bin looks good ...
file WIS_HRP_PKT_FE1C_2009_212_18_17_34.bin looks good ...
file WIS_HRP_PKT_FE1D_2009_212_18_17_34.bin looks good ...
```

The error occurs when the *SUM* file does not match the directory. In this case the band 4 telemetry packet was complete while the other bands were still transferring over.

3 get_wsdcin Procedures

3.1 get_wsdcin Command

Command `get_wsdcin` runs continuously on caustic and checks the `wsdcin:/local/wsdcin/inbox/operations/` directories `mos` and `hrp` for new manifests. Once finding a new manifest will copy it to `/wise/fops/operations` directories `mos` and `hrp` and the files contained within the manifest to the `/wise/fops/ingest/delivs` directory. The data copied over will be checked for filenames, sizes and checksums to ensure the data copies are correct. Directory names are changed from `YYYY_JJJ_HH_MM_SS` to `ingest-expected YYJJJ/YYJJJTHHMMSS` names for telemetry (`hrp`) deliveries and `YYJJJ/YYJJJMHHMMSS` for MOS deliveries. Once a transfer is successful, an email is sent out to the list of people contained in `/wise/fops/operations/ingest.email`. An email is sent out should a transfer fail also.

3.2 Command Usage

```
beck@caustic:rhe4(ops):~[0]% get_wsdcin
command usage: get_wsdcin SLEEP
```

where SLEEP is number of seconds to sleep

this command will check `wsdcin:/local/wsdcin/inbox/operations` dirs `hrp` and `mos` for new files. once finding the new file, will copy the new dir from `wsdcin:/local/wsdcin/inbox` dirs `hrp` or `mos` to a temporary directory with subdirs conforming to the ingest convention. the `wsdcin:/local/wsdcin/inbox/operations` file will also be copied to the same dir on the ingest machine. this file containing filenames, sizes and checksums will then be used to ensure the copy was complete. the last step following checkout is to move the subdirs from the temporary dir to the ingest expected dir.

3.3 get_wsdcin Log File

The `get_wsdcin` log file is in `/wise/fops/operations/raw_del/tranfer_summary`.

```
beck@caustic:rhe4(ops):raw_del[0]% ls -al
/wise/fops/operations/raw_del/tranfer_summary
-rw-rwxr-x 1 beck wise 102836 Jul 31 11:35
/wise/fops/operations/raw_del/tranfer_summary
```

Here is a sample of the log file.

```
beck@caustic:rhe4(ops):raw_del[0]% tail !$
tail /wise/fops/operations/raw_del/tranfer_summary
Jul 31 11:15:04: sleeping 600 ...
Jul 31 11:25:05: sleeping 600 ...
```

```
Jul 31 11:35:05: found 09212T181734 to transfer ...
mkdir -p /wise/fops/ingest/delivs/transfer/09212/09212T181734
scp wsdcin:/local/wsdcin/inbox/hrp/2009_212_18_17_34/*
/wise/fops/ingest/delivs/transfer/09212/09212T181734
scp wsdcin:/local/wsdcin/inbox/operations/hrp/2009_212_18_17_34
/wise/fops/operations/hrp
mv transfer/09212 /wise/fops/ingest/delivs
transfer successful for 09212T181734 ...
Jul 31 11:35:13: sleeping 600 ...
```

3.4 get_wsdcin Data Locations

Here is the data on wsdcin. Note the YYYY_JJJ_HH_MM_SS dir name.

```
-bash-3.2$ ls -al /local/wsdcin/inbox/hrp/2009_212_18_17_34/
-rwxr-xr-- 1 wsdcin wise 68481504 Jul 31 11:29
WIS_HRP_PKT_FE1A_2009_212_18_17_34.bin
-rwxr-xr-- 1 wsdcin wise 67516176 Jul 31 11:29
WIS_HRP_PKT_FE1B_2009_212_18_17_34.bin
-rwxr-xr-- 1 wsdcin wise 63101220 Jul 31 11:30
WIS_HRP_PKT_FE1C_2009_212_18_17_34.bin
-rwxr-xr-- 1 wsdcin wise 15643992 Jul 31 11:24
WIS_HRP_PKT_FE1D_2009_212_18_17_34.bin
-rw-r--r-- 1 wsdcin wise    214 Jul 31 11:20 WIS_HRP_SUM_2009_212_18_17_34.txt
```

3.5 get_wsdcin Manifest Files

Here is the manifest file and it's contents for this delivery.

```
-bash-3.2$ ls -al /local/wsdcin/inbox/operations/hrp/2009_212_18_17_34
-rw-r--r-- 1 beck wise 283 Jul 31 11:34
/local/wsdcin/inbox/operations/hrp/2009_212_18_17_34
```

```
-bash-3.2$ cat /local/wsdcin/inbox/operations/hrp/2009_212_18_17_34
WIS_HRP_PKT_FE1A_2009_212_18_17_34.bin 68481504 3591429130
WIS_HRP_PKT_FE1B_2009_212_18_17_34.bin 67516176 3573394291
WIS_HRP_PKT_FE1C_2009_212_18_17_34.bin 63101220 49348116
WIS_HRP_PKT_FE1D_2009_212_18_17_34.bin 15643992 2966573232
WIS_HRP_SUM_2009_212_18_17_34.txt 214 2887854670
```

3.6 get_wsdcin Log File

Here is the log file from get_wsdcin where this delivery was transferred.

```
Jul 31 11:35:05: found 09212T181734 to transfer ...
mkdir -p /wise/fops/ingest/delivs/transfer/09212/09212T181734
scp wsdcin:/local/wsdcin/inbox/hrp/2009_212_18_17_34/*
/wise/fops/ingest/delivs/transfer/09212/09212T181734
scp wsdcin:/local/wsdcin/inbox/operations/hrp/2009_212_18_17_34
/wise/fops/operations/hrp
mv transfer/09212 /wise/fops/ingest/delivs
transfer successful for 09212T181734 ...
```

3.7 Output Files Locations

Here is the output location on caustic and the dir contents.

```
beck@caustic:rhe4(ops):~[0]% ls -al /wise/fops/ingest/delivs/09212/09212T181734
-rwxr-xr-- 1 beck wise 68481504 Jul 31 11:35
WIS_HRP_PKT_FE1A_2009_212_18_17_34.bin
-rwxr-xr-- 1 beck wise 67516176 Jul 31 11:35
WIS_HRP_PKT_FE1B_2009_212_18_17_34.bin
-rwxr-xr-- 1 beck wise 63101220 Jul 31 11:35
WIS_HRP_PKT_FE1C_2009_212_18_17_34.bin
-rwxr-xr-- 1 beck wise 15643992 Jul 31 11:35
WIS_HRP_PKT_FE1D_2009_212_18_17_34.bin
-rw-r--r-- 1 beck wise    214 Jul 31 11:35 WIS_HRP_SUM_2009_212_18_17_34.txt
```

4 ingestpipe Procedures

4.1 ingestpipe Command

The ingestpipe command basically takes all the MOS data and copies it to the correct location, loads the housekeeping data into the hk database, decommutates the telemetry packet files into their scan delimited frames and starts the quicklook processing. It probably does a lot more that I do not know about.

Here is a "vanilla" ingestpipe command line. This command will ingest the MOS delivery 09202M001533.

```
ingestpipe -delivid 09202M001533 -run @mos
```

Here is an example of a telemetry ingest. The '-v' turns on the verbose output for delivery telemetry 09154T205309. Note the '@tln' for telemetry. The '@ql' means run the telemetry code without starting the quicklook pipeline processing. the '-replace' means this delivery has been done previously and I want to

replace the frames in the /wise/fops/l0 and /wise/fops/scans directories with this run. The 'orbitoff=200' means to add 200 to the beginning scan number. This is used prior to launch for testing with limited amounts of test data.

```
ingestpipe -v -delivid 09154T205309 -run @t1m,-@ql -replace -opts orbitoff=200
```

There are any number of parameters input to ingestpipe that can be displayed with the "ingestpipe -help" command. Probably best to start with what works and build upon that. All the expanded ingestpipe parameters are displayed in the redirected output file.

4.1 Input Data Location

The input to ingestpipe are in the /wise/fops/ingest/delivs directory. To run ingestpipe, the output directory is created in /wise/fops/ingest. For example, in the above 09154T205309 delivery, the input data will be found in /wise/fops/ingest/delivs/09154/09154T205309. The files are the four bands of packet telemetry.

```
beck@caustic:rhe4(ops):delivs[1]% ls -al /wise/fops/ingest/delivs/09154/09154T205309
-rw-rw-r-- 1 beck wise 1241800560 Jun  4 15:29
WIS_HRP_PKT_FE1A_2009_06_03_20_53_09.bin
-rw-rw-r-- 1 beck wise 1403922156 Jun  4 15:29
WIS_HRP_PKT_FE1B_2009_06_03_20_53_09.bin
-rw-rw-r-- 1 beck wise 2107553448 Jun  4 15:30
WIS_HRP_PKT_FE1C_2009_06_03_20_53_09.bin
-rw-rw-r-- 1 beck wise  509920320 Jun  4 15:30
WIS_HRP_PKT_FE1D_2009_06_03_20_53_09.bin
```

4.2 Output Data Location

The output directory has been created in /wise/fops/ingest/09154/09154T205309 and the ingestpipe command has been run from this directory. The *frames.tbl contain the frame numbers and associated info for each scan. The scan numbers are the 004??a identifiers at the beginning of the *frames.tbl. The 09154T205309-scans.tbl contains a summary of the scans for the delivery also. Any errors from the ingestpipe will end up in the stderr*.txt files, one per band.

```
beck@caustic:rhe4(ops):delivs[0]% ls -al /wise/fops/ingest/09154/09154T205309
-rw-rw-r-- 1 beck wise  360364 Jul 31 10:12 00485a_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise  397156 Jul 31 10:12 00486a_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise   15524 Jul 31 10:12 00486x_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise  393124 Jul 31 10:13 00487a_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise   14008 Jul 31 10:13 00487x_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise  395140 Jul 31 10:13 00488a_09154T205309-frames.tbl
```

```

-rw-rw-r-- 1 beck wise 13972 Jul 31 10:13 00488x_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 393124 Jul 31 10:13 00489a_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 13972 Jul 31 10:13 00489x_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 395140 Jul 31 10:13 00490a_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 13972 Jul 31 10:13 00490x_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 393124 Jul 31 10:14 00491a_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 14008 Jul 31 10:14 00491x_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 394132 Jul 31 10:14 00492a_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 13972 Jul 31 10:14 00492x_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 4672 Jul 31 10:14 00493x_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 22392 Jul 31 10:16 09154T205309-meta-ingest.tbl
-rw-rw-r-- 1 beck wise 9204 Jul 31 10:14 09154T205309-scans.tbl
-rw-rw-r-- 1 beck wise 86339496 Jul 31 10:12 09154T205309-state.pds
-rw-rw-r-- 1 beck wise 160686 Jul 31 10:16 ingestpipe.out
-rw-rw-r-- 1 beck wise 0 Jul 31 10:10 stderr-w1.txt
-rw-rw-r-- 1 beck wise 0 Jul 31 10:11 stderr-w2.txt
-rw-rw-r-- 1 beck wise 0 Jul 31 10:11 stderr-w3.txt
-rw-rw-r-- 1 beck wise 0 Jul 31 10:03 stderr-w4.txt

```

The ingestpipe will create or in the case of '-replace' rewrite the frame dirs in both the /wise/fops/l0 and scans directories. The /wise/fops/l0 dir is the actual location for the raw frame data.

4.3 L0 Data Location

Here is the actual l0 directory for the 09154T205309 scan 00485a.

```

beck@caustic;rhe4(ops):~[0]% ls -al /wise/fops/l0/5a/00485a/
-rw-rw-r-- 1 beck wise 32680 Jul 31 09:19 00485a_09154T175416-frames.tbl
-rw-rw-r-- 1 beck wise 4972 Jul 31 09:19 00485a_09154T175416-meta-ingest-
scan.tbl
-rw-rw-r-- 1 beck wise 2304 Jul 31 09:19 00485a_09154T175416-scans.tbl
-rw-rw-r-- 1 beck wise 360364 Jul 31 10:12 00485a_09154T205309-frames.tbl
-rw-rw-r-- 1 beck wise 4972 Jul 31 10:14 00485a_09154T205309-meta-ingest-
scan.tbl
-rw-rw-r-- 1 beck wise 2304 Jul 31 10:14 00485a_09154T205309-scans.tbl
drwxrwxr-x 252 beck wise 252 Jun 29 12:59 fr

```

Here are all the frame dirs for scan 00485a.

```

beck@caustic;rhe4(ops):~[0]% ls /wise/fops/l0/5a/00485a/fr/
001 019 036 054 072 089 107 124 142 160 177 195 212 230 248 265
002 020 037 055 073 090 108 125 143 161 178 196 213 231 249 266
003 021 039 056 074 091 109 127 144 162 179 197 215 232 250 267
004 022 040 057 075 092 110 128 145 163 180 198 216 233 251 268
006 023 041 058 076 094 111 129 146 164 182 199 217 234 252 270

```

```

007 024 042 059 077 095 112 130 147 165 183 200 218 235 253 271
008 025 043 061 078 096 113 131 149 166 184 201 219 237 254 272
009 026 044 062 079 097 114 132 150 167 185 202 220 238 255 273
010 028 045 063 080 098 116 133 151 168 186 204 221 239 256 274
011 029 046 064 081 099 117 134 152 169 187 205 222 240 257 275
012 030 047 065 083 100 118 135 153 171 188 206 223 241 259
013 031 048 066 084 101 119 136 154 172 189 207 224 242 260
014 032 050 067 085 102 120 138 155 173 190 208 226 243 261
015 033 051 068 086 103 121 139 156 174 191 209 227 244 262
017 034 052 069 087 105 122 140 157 175 193 210 228 245 263
018 035 053 070 088 106 123 141 158 176 194 211 229 246 264

```

Here are the contents of the frame 1 directory. The *.fits files are the actual raw images for the four bands.

```

beck@caustic;rhe4(ops):~[0]% ls -al /wise/fops/l0/5a/00485a/fr/001
-rw-rw-r-- 1 beck wise 61204 Jul 31 09:19 00485a001-meta-ingest.tbl
-rw-rw-r-- 1 beck wise 4224960 Jul 31 09:14 00485a001-w1-int-0.fits
-rw-rw-r-- 1 beck wise 4224960 Jul 31 09:16 00485a001-w2-int-0.fits
-rw-rw-r-- 1 beck wise 4224960 Jul 31 09:16 00485a001-w3-int-0.fits
-rw-rw-r-- 1 beck wise 1080000 Jul 31 09:07 00485a001-w4-int-0.fits

```

4.3 Scans Data Location

Here is the actual scan frame directories for the 09154T205309 scan 00485a. Note the directory structure is the same except the l0 is replaced by scans and there are the same number of frames.

```

beck@caustic;rhe4(ops):~[0]% ls /wise/fops/scans/5a/00485a/fr
001 019 036 054 072 089 107 124 142 160 177 195 212 230 248 265
002 020 037 055 073 090 108 125 143 161 178 196 213 231 249 266
003 021 039 056 074 091 109 127 144 162 179 197 215 232 250 267
004 022 040 057 075 092 110 128 145 163 180 198 216 233 251 268
006 023 041 058 076 094 111 129 146 164 182 199 217 234 252 270
007 024 042 059 077 095 112 130 147 165 183 200 218 235 253 271
008 025 043 061 078 096 113 131 149 166 184 201 219 237 254 272
009 026 044 062 079 097 114 132 150 167 185 202 220 238 255 273
010 028 045 063 080 098 116 133 151 168 186 204 221 239 256 274
011 029 046 064 081 099 117 134 152 169 187 205 222 240 257 275
012 030 047 065 083 100 118 135 153 171 188 206 223 241 259
013 031 048 066 084 101 119 136 154 172 189 207 224 242 260
014 032 050 067 085 102 120 138 155 173 190 208 226 243 261
015 033 051 068 086 103 121 139 156 174 191 209 227 244 262
017 034 052 069 087 105 122 140 157 175 193 210 228 245 263
018 035 053 070 088 106 123 141 158 176 194 211 229 246 264

```

Here is the contents of the frame 1 dir. Note they are links to the raw data in the corresponding 10 directory. No need to keep two sets of files online.

```
beck@caustic:rhe4(ops):~[0]% ls -al /wise/fops/scans/5a/00485a/fr/001
lrwxrwxrwx  1 beck wise    66 Aug  2 00:44 00485a001-w1-int-0.fits -> /wise-ops/01/wise/fops/10/5a/00485a/fr/001/00485a001-w1-int-0.fits
lrwxrwxrwx  1 beck wise    66 Aug  2 00:44 00485a001-w2-int-0.fits -> /wise-ops/01/wise/fops/10/5a/00485a/fr/001/00485a001-w2-int-0.fits
lrwxrwxrwx  1 beck wise    66 Aug  2 00:44 00485a001-w3-int-0.fits -> /wise-ops/01/wise/fops/10/5a/00485a/fr/001/00485a001-w3-int-0.fits
lrwxrwxrwx  1 beck wise    66 Aug  2 00:44 00485a001-w4-int-0.fits -> /wise-ops/01/wise/fops/10/5a/00485a/fr/001/00485a001-w4-int-0.fits
```

4.4 Quicklook Processing

ingestpipe will also setup and run quicklook processing on the telemetry deliveries as a default. The quicklook processing will algorithmically select about 100 frames per delivery to run through an abbreviated scan pipeline. Output for this example is in /wise/fops/ql/4m/09194m. The dir naming convention is the YYJJJ increased alphabetically from a for each YYJJJ delivery for that julian day. This delivery was the mth quicklook run for this day.

```
beck@caustic:rhe4(ops):09194m[0]% ls -al /wise/fops/ql/4m/09194m
-rw-rw-r--  1 beck wise  2110 Jul 13 10:56 09194m-frames.tbl
-rw-rw-r--  1 beck wise  2764 Jul 13 10:56 09194m-meta-sspipe.tbl
-rw-rw-r--  1 beck wise  4987 Jul 13 10:56 09194m-metasum-framestat.tbl
-rw-rw-r--  1 beck wise   500 Jul 13 10:56 WQLPipe.09194m.stderr.txt
-rw-rw-r--  1 beck wise 61063 Jul 13 10:56 WQLPipe.09194m.stdout.txt
-rwxrwxr-x  2 beck wise 69508 Jul 13 10:56 WQLSPipe.log
-rwxrwxr-x  2 beck wise 69508 Jul 13 10:56
WQLSPipe_090713_175516_etec.save_log
drwxrwxr-x  2 beck wise   2 Jul 13 10:55 cal
drwxrwxr-x 31 beck wise  31 Jul 13 10:55 fr
drwxrwxr-x  2 beck wise   2 Jul 13 10:55 qa
drwxrwxr-x  2 beck wise   2 Jul 13 10:55 work
-rw-rw-r--  1 beck wise 29161 Jul 13 10:55 wqlfpipe.condor.submit
```

4.5 Quicklook Summary

Quicklook processing is done to get a quick look of the delivery before the formal scan pipeline processing runs. The QA people are to be alerted when a quicklook has completed by emailing quicklook location and a summary of the processing. The quicklook summary can be generated following quicklook completion with the following command. Parm LOGDIR is the quicklook dir such as /wise/fops/ql/4m/09194m in the previous example.


```
beck@caustic;rhe4(ops):~[0]% /home/beck/bin/qlook_summary
command qlook_summary: LOGDIR
beck@caustic;rhe4(ops):~[0]%
```

Here is an example of the output from qlook_summary. In this example, frame 1 pipeline blew with a 64 return code. The error messages directly following the 001 frame number were hand edited from the frame 1 log files. This case the pattern match failed because there was only one band for that frame.

```
beck@caustic;rhe4(ops):~[0]% m /wise/fops/operations/problems/09195j.errors
FRAME   START      ELAP STAT  SIG CODE HOST  PROGRAM
 09/07/26_18:14:19 10:22  1  1  0  01 WSSPipe
 09/07/26_18:14:19 10:23  1  1  0  01 WQLSPipe
 09/07/26_18:14:19 10:23 256  0  1  01 Spawn_wsspipe
001 09/07/26_18:14:47 00:35 64 64  0 10 WQLFPipe
PAT_MCH_FAILED_f 3 0.0375841843392298 -430.39430895390024 -
22.400645419265686
2459.690419256077 0.9863284482974116
===WARNING: SFPReX/pmr dif - NO PATTERN MATCH   3   0.0375841843
0
.0010000000
pmrdif-99 2
***ERROR: SFPReX - fatal error code from pmrdif: 2
>>>> END iam=>'Spawn_sfprex', host=>'wcnod10', pid=>'31979.32019', starttime=>
'09/07/26_18:15:21Z',
>>>>+ endtime=>'09/07/26_18:15:21Z', status=>16384, signal=>0, retcode=>64, upcp
u=>0.66, spcpu=>0.15, uccpu=>0.17, sccpu=>0.07,
>>>>+ totcpu=>1.05, util=>0.790, elapt=>0.535, ttime=>0, load=>0, rssk=>2704, rs
smb=>2.641, rdmb=>0.000, wtmb=>0.000, rxmb=>0.000,
>>>>+ txmb=>0.000, pkcoll=>0,
002 09/07/26_18:14:49 05:04  0  0  0  10 WQLFPipe
003 09/07/26_18:14:48 09:00  0  0  0  02 WQLFPipe
004 09/07/26_18:14:47 06:16  0  0  0  11 WQLFPipe
005 09/07/26_18:14:47 05:26  0  0  0  10 WQLFPipe
006 09/07/26_18:14:47 06:39  0  0  0  02 WQLFPipe
007 09/07/26_18:14:47 04:18  0  0  0  20 WQLFPipe
008 09/07/26_18:14:47 05:21  0  0  0  11 WQLFPipe
009 09/07/26_18:14:46 05:09  0  0  0  10 WQLFPipe
010 09/07/26_18:14:47 05:07  0  0  0  21 WQLFPipe
011 09/07/26_18:14:49 06:26  0  0  0  02 WQLFPipe
012 09/07/26_18:14:48 06:30  0  0  0  03 WQLFPipe
013 09/07/26_18:14:48 04:35  0  0  0  20 WQLFPipe
014 09/07/26_18:14:48 05:00  0  0  0  30 WQLFPipe
015 09/07/26_18:14:48 05:17  0  0  0  11 WQLFPipe
016 09/07/26_18:14:48 05:06  0  0  0  12 WQLFPipe
017 09/07/26_18:14:46 05:06  0  0  0  10 WQLFPipe
```

018 09/07/26_18:14:48 05:03 0 0 0 21 WQLFPipe
019 09/07/26_18:14:47 06:16 0 0 0 02 WQLFPipe
020 09/07/26_18:14:47 06:09 0 0 0 03 WQLFPipe
021 09/07/26_18:14:46 05:06 0 0 0 10 WQLFPipe
022 09/07/26_18:14:48 04:21 0 0 0 20 WQLFPipe
023 09/07/26_18:14:47 04:59 0 0 0 30 WQLFPipe
024 09/07/26_18:14:47 05:20 0 0 0 11 WQLFPipe
025 09/07/26_18:14:48 04:58 0 0 0 12 WQLFPipe
026 09/07/26_18:14:48 05:03 0 0 0 08 WQLFPipe
027 09/07/26_18:14:47 05:03 0 0 0 21 WQLFPipe
028 09/07/26_18:14:47 04:21 0 0 0 13 WQLFPipe
029 09/07/26_18:14:47 06:37 0 0 0 02 WQLFPipe
030 09/07/26_18:14:49 06:37 0 0 0 03 WQLFPipe
031 09/07/26_18:14:46 05:50 0 0 0 10 WQLFPipe
032 09/07/26_18:14:49 05:21 0 0 0 08 WQLFPipe
033 09/07/26_18:14:47 04:45 0 0 0 20 WQLFPipe
034 09/07/26_18:14:47 04:07 0 0 0 31 WQLFPipe
035 09/07/26_18:14:46 04:06 0 0 0 22 WQLFPipe
036 09/07/26_18:14:46 04:53 0 0 0 30 WQLFPipe
037 09/07/26_18:14:46 05:15 0 0 0 04 WQLFPipe
038 09/07/26_18:14:47 05:41 0 0 0 11 WQLFPipe
039 09/07/26_18:14:46 05:01 0 0 0 12 WQLFPipe
040 09/07/26_18:14:47 05:04 0 0 0 21 WQLFPipe
041 09/07/26_18:14:48 04:32 0 0 0 09 WQLFPipe
042 09/07/26_18:14:46 04:03 0 0 0 13 WQLFPipe
043 09/07/26_18:14:47 06:14 0 0 0 02 WQLFPipe
044 09/07/26_18:14:47 06:09 0 0 0 03 WQLFPipe
045 09/07/26_18:14:47 05:12 0 0 0 08 WQLFPipe
046 09/07/26_18:14:46 05:09 0 0 0 30 WQLFPipe
047 09/07/26_18:14:47 04:04 0 0 0 18 WQLFPipe
048 09/07/26_18:14:46 04:24 0 0 0 31 WQLFPipe
049 09/07/26_18:14:46 04:19 0 0 0 22 WQLFPipe
050 09/07/26_18:14:46 04:29 0 0 0 20 WQLFPipe
051 09/07/26_18:14:47 05:24 0 0 0 04 WQLFPipe
052 09/07/26_18:14:46 05:08 0 0 0 10 WQLFPipe
053 09/07/26_18:14:48 05:19 0 0 0 11 WQLFPipe
054 09/07/26_18:14:48 05:06 0 0 0 12 WQLFPipe
055 09/07/26_18:14:48 05:00 0 0 0 21 WQLFPipe
056 09/07/26_18:14:46 04:33 0 0 0 09 WQLFPipe
057 09/07/26_18:14:48 04:23 0 0 0 13 WQLFPipe
058 09/07/26_18:14:48 06:13 0 0 0 02 WQLFPipe
059 09/07/26_18:14:48 06:41 0 0 0 03 WQLFPipe
060 09/07/26_18:14:49 05:26 0 0 0 08 WQLFPipe
061 09/07/26_18:14:47 03:47 0 0 0 32 WQLFPipe
062 09/07/26_18:14:46 03:49 0 0 0 14 WQLFPipe
063 09/07/26_18:14:47 03:42 0 0 0 23 WQLFPipe

064	09/07/26_18:14:46	05:02	0	0	0	30	WQLFPipe
065	09/07/26_18:14:46	04:15	0	0	0	22	WQLFPipe
066	09/07/26_18:14:47	03:51	0	0	0	18	WQLFPipe
067	09/07/26_18:14:47	04:05	0	0	0	31	WQLFPipe
068	09/07/26_18:14:48	04:13	0	0	0	20	WQLFPipe
069	09/07/26_18:14:48	05:16	0	0	0	04	WQLFPipe
070	09/07/26_18:14:48	04:16	0	0	0	05	WQLFPipe
071	09/07/26_18:14:47	05:18	0	0	0	11	WQLFPipe
072	09/07/26_18:14:49	05:11	0	0	0	12	WQLFPipe
073	09/07/26_18:14:48	05:07	0	0	0	21	WQLFPipe
074	09/07/26_18:14:48	04:41	0	0	0	09	WQLFPipe
075	09/07/26_18:14:48	04:12	0	0	0	13	WQLFPipe
076	09/07/26_18:14:47	06:16	0	0	0	03	WQLFPipe
077	09/07/26_18:14:47	06:17	0	0	0	02	WQLFPipe
078	09/07/26_18:14:48	05:09	0	0	0	08	WQLFPipe
079	09/07/26_18:14:46	03:16	0	0	0	19	WQLFPipe
080	09/07/26_18:14:46	04:57	0	0	0	30	WQLFPipe
081	09/07/26_18:14:48	04:05	0	0	0	22	WQLFPipe
082	09/07/26_18:14:46	04:04	0	0	0	31	WQLFPipe
083	09/07/26_18:14:47	03:51	0	0	0	18	WQLFPipe
084	09/07/26_18:14:46	04:37	0	0	0	20	WQLFPipe
085	09/07/26_18:14:48	03:34	0	0	0	28	WQLFPipe
086	09/07/26_18:14:48	04:23	0	0	0	23	WQLFPipe
087	09/07/26_18:14:47	03:30	0	0	0	14	WQLFPipe
088	09/07/26_18:14:47	03:30	0	0	0	32	WQLFPipe
089	09/07/26_18:14:46	05:17	0	0	0	04	WQLFPipe
090	09/07/26_18:14:48	05:16	0	0	0	11	WQLFPipe
091	09/07/26_18:14:48	04:37	0	0	0	05	WQLFPipe
092	09/07/26_18:14:47	05:24	0	0	0	12	WQLFPipe
093	09/07/26_18:14:47	05:17	0	0	0	21	WQLFPipe
094	09/07/26_18:14:47	05:18	0	0	0	09	WQLFPipe
095	09/07/26_18:14:46	04:33	0	0	0	13	WQLFPipe
096	09/07/26_18:14:47	06:58	0	0	0	03	WQLFPipe
097	09/07/26_18:14:47	05:29	0	0	0	08	WQLFPipe
098	09/07/26_18:14:46	05:16	0	0	0	12	WQLFPipe
099	09/07/26_18:14:46	04:15	0	0	0	22	WQLFPipe
100	09/07/26_18:14:48	04:05	0	0	0	31	WQLFPipe
101	09/07/26_18:14:47	03:56	0	0	0	18	WQLFPipe
102	09/07/26_18:14:47	03:23	0	0	0	24	WQLFPipe
103	09/07/26_18:14:47	03:23	0	0	0	15	WQLFPipe
104	09/07/26_18:14:48	03:22	0	0	0	28	WQLFPipe
105	09/07/26_18:14:46	05:01	0	0	0	30	WQLFPipe
106	09/07/26_18:14:47	03:52	0	0	0	19	WQLFPipe
107	09/07/26_18:14:47	04:27	0	0	0	23	WQLFPipe
108	09/07/26_18:14:46	03:49	0	0	0	14	WQLFPipe
109	09/07/26_18:14:47	03:29	0	0	0	32	WQLFPipe

110	09/07/26_18:14:46	05:23	0	0	0	04	WQLFPipe
111	09/07/26_18:14:48	04:12	0	0	0	06	WQLFPipe
112	09/07/26_18:14:48	04:27	0	0	0	05	WQLFPipe
113	09/07/26_18:14:47	05:08	0	0	0	21	WQLFPipe
114	09/07/26_18:14:47	04:34	0	0	0	09	WQLFPipe
115	09/07/26_18:14:46	04:11	0	0	0	13	WQLFPipe
116	09/07/26_18:14:48	06:12	0	0	0	03	WQLFPipe
117	09/07/26_18:14:47	05:08	0	0	0	08	WQLFPipe
118	09/07/26_18:14:47	03:14	0	0	0	29	WQLFPipe
119	09/07/26_18:14:46	04:05	0	0	0	31	WQLFPipe
120	09/07/26_18:14:47	03:51	0	0	0	18	WQLFPipe
121	09/07/26_18:14:46	03:24	0	0	0	28	WQLFPipe
122	09/07/26_18:14:47	05:00	0	0	0	30	WQLFPipe
123	09/07/26_18:14:48	03:21	0	0	0	15	WQLFPipe
124	09/07/26_18:14:47	03:23	0	0	0	24	WQLFPipe
125	09/07/26_18:14:46	04:15	0	0	0	22	WQLFPipe
	09/07/26_18:23:52	00:03	0	0	0	01	Spawn_rotmeta
	09/07/26_18:23:55	00:04	0	0	0	01	Spawn_wsspcal
	09/07/26_18:23:56	00:03	0	0	0	01	Spawn_spcal
	09/07/26_18:23:56	00:03	0	0	0	01	WSSPCal
	09/07/26_18:24:11	00:27	0	0	0	10	ScanQA
	09/07/26_18:24:12	00:03	0	0	0	10	Spawn_rotmeta
	09/07/26_18:24:16	00:08	0	0	0	10	Spawn_rotmeta
	09/07/26_18:24:25	00:00	0	0	0	10	Spawn_rotmeta
	09/07/26_18:24:26	00:02	0	0	0	10	Spawn_rotmeta
	09/07/26_18:24:28	00:04	0	0	0	10	Spawn_rotmeta
	09/07/26_18:24:32	00:02	0	0	0	10	Spawn_rotmeta
	09/07/26_18:24:35	00:00	0	0	0	10	Spawn_rotmeta
	09/07/26_18:24:36	00:02	0	0	0	10	Spawn_dumptbl