fastrack2012.1_prognotes.pdf

This file lists some of the software and structural changes included in McIDAS-X version 2012.1 that are most likely to affect your locally-developed McIDAS code.

(See *http://www.ssec.wisc.edu/mcidas/software/x/fastrack2012.1_changes.txt* for the complete list of code changes included in McIDAS-X 2012.1.)

SSEC recommends that you always compile and link all local code after installing each new version of McIDAS-X. Use the information below to determine if you should make additional changes or accommodations to your local code.

- The maximum number of files allowed by the MODIS Level 1b server was raised from 500 to 1000 in the module **modsadir.cp**.

- Preliminary development has begun for ADDE communications using tunneling with SSH network protocol. This method creates a level of security for ADDE requests that can be controlled by the server administrator. Full documentation and support of this feature will be provided in the next release of McIDAS. The following new modules were released:

m0tunnel.c	**m0tunnel.h**	**mctunnel.c**

  The preliminary work also required changes to the following:

dataloc.pgm	**ddesub.for**	**imgcha.pgm**
m0adde.h	**m0addef.for**	**m0addec.c**
m0local_data.for	**mcadel.for**	**mcdsnum.for**
m0tunnel.c	**m0tunnel.h**	**mcinit.c**
mcserv.cp	**mctunnel.c**	**servutil.c**
UC.DOC		

  A new function, **m0localreq()**, was added to **m0adde.c** to determine if a request block is local.

- Updates were made to the image commands and AREA, GVAR and MTSAT servers to give client commands control when tracking is enabled on the server. Tracking allows commands to receive data as it is being ingested by a server. With tracking enabled, commands complete when their data request has been fulfilled. When tracking is disabled, the server only sends data that is currently available. A new keyword, **TRACK.ing**, was added to the image commands to request tracking from the server. The following commands were updated to recognize the new keyword:

imgconv.pgm	**imgcopy.pgm**	**imgdisp.pgm**
imgfilt.pgm	**imgmag.pgm**	**imgoper.pgm**
imgplot.pgm	**imgprobe.pgm**	**imgremap.pgm**
imgrgb.pgm	**imgtrack.pgm**	

  A new client environment variable, **MCTRACK**, was also added. The value for **MCTRACK** is used if **TRACK.ing** is not specified. The following were updated to look at **MCTRACK**:

mcaget.for	**mcasort.for**	**mtstaget2.for**
areaagetsub.for		

  If the server administrator sets the environment variable **MCTRACK** to **NO**, client requests for tracking will not be honored.

- Problems were discovered with IMGLIST when MODIS and other XRD servers were failing to initialize variables. The following core supported modules were updated:

mod4adir.cp	**mod8adir.cp**	**modradir.cp**
modsadir.cp	**modxadir.cp**	

- New HRIT servers and calibration routines were written to support the new Korean geostationary satellite, COMS. SSEC used two COMS HRIT formatted data files for development and testing. Currently SSEC does not have a real-time feed to fully test the data. The following new modules were added:

  `comsadir.cp`   `comsadir2.for`   `comsaget.cp`
  `comsaget2.for`   `kbxcoms.dlm`

  Satellite sensor 250 was added to **SATBAND** for COMS data in McIDAS-X 2011.1.

- Tracking request for hh:10 and hh:40 images from GOES-15 were found to have missing lines of data. The cause was related to longer than expected duration of Block 11 data. An improved algorithm was implemented in **SDIUtil.c**. Additionally the server performance was improved by limiting the number of file open/close by using a rewind function.

- All new modules were added to **makefile**. Additionally, a change was added to allow users to install McIDAS in locations other than **/home/mcidas**. The line **--prefix** was changed to **--exec-prefix** for gzip. Previously it was thought that **--prefix** implied **--exec-prefix**.

- The code for the servers handling McIDAS formatted GRID data (**ggetserv.fp** and **gdirserv.fp**) has been moved to two new functions **addegdir.for** and **addegget.for**. Two new subservers (**gridgget.cp** and **gridgdir.cp**) have been created to call these new functions. Additionally, the code to handle GRIB data has been moved from the subservers (**gribgget.cp** and **gribgdir.cp**) to new individual functions (**addegribgget.c** and **addegribgdir.c**)

- New information is now being sent in the GVAR data stream identifying if the data sent has been corrected for stray light. When using IMGCOPY, the information is in the line documentation beginning at byte 5 (bytes following the validity code). The McIDAS-XRD command GVARINFO lists this information out in tabular format. Note, McIDAS applications cannot change the data, the servers only return what was sent in the signal. The following is a description of the bits stored:

Bit Value	Condition
0 = 1	Stray light correction is enabled.
0 = 0	Stray light correction is disabled. The rest of bit fields are not set.
1 = 1	The stray light correction is performed.
1 = 0	The stray light correction is not performed, this may corresponds to either the sun angle is larger than 20.5 degrees or sun is in eclipse. Bit 1 and 2 will not be set.
2 = 1	Sun is on the east side of the earth, which means that the sun angle on east-west direction is positive.
2 = 0	Sun is on the west side of the earth, which means that sun angle on the east-west direction is negative.
3 = 1	Sun is on the north side of the earth, which means that sun angle on the north-south direction is positive.
3 = 0	Sun is on the south side of the earth, which means that the sun angle on the north-south direction is negative.
4-7	The minimum sun angle range of Earth pixels in a scan. It is obtained by casting the double type minimum sun angle value into an integer. Additional changes have been made to the GVAR server to do a better job of identifying and filing the SS (satellite ID), block headers and navigation during periods of noisy data.

  The following modules were updated to accommodate this change in the GVAR signal:

  `GVAR.c`   `gvaradir.cp`   `gvaraget.cp`
  `SDIUtil.c`   `SDIUtil.h`

  Updates to the McIDAS-XRD command **gvarinfo.pgm** make it possible to list this information.

- The Level 1b servers have been upated to handle pre-KLM NOAA polar orbiting satellite data. Updates to the following modules were made:

  lv1badir.cp   **lv1baget.cp**   **lv1butil.c lv1butil.h**

- The **USCOUNTY.MAP**, **USSTATE.MAP** and **USZONE.MAP** files were updated. A larger number of points in the updated files required buffer size increases for the following modules:

  m0sczget.for   **m0wwmisc.h**   **map.c**   **mcsczget.for**

- Raw values of 0 or 1 found in MTSAT data were creating a negative square root computation for albedo. Albedo for these values is now set to 0 in **kbxmtst.dlm**.

- Support has been added for the National Weather Service Radar Dual Polarization products that became available in the summer of 2011. The following NEXRAD servers and calibration modules were updated to handle the new products.

  kbxnexr.dlm   **nexradir.cp**   **nexraget.cp**
  nexrutil.c   **nexrutil.h**
  servutil.c

  A new suite of color enhancement tables have been added along with updates to **IMGDISP.CORE** and **SATBAND**. New products that are available include:

  Correlation Coef - tilt 1 (0.5deg) (N0C)
  Correlation Coef - tilt 2 (0.9deg) (NAC)
  Correlation Coef - tilt 3 (1.3|1.5deg) (N1C)
  Correlation Coef - tilt 4 (1.8 deg) (NBC)
  Correlation Coef - tilt 5 (2.4|2.5deg) (N2C)
  Correlation Coef - tilt 6 (3.1|3.4|3.5deg) (N3C)
  Digital Accumulation Array (DAA)
  Digital One Hour Difference (DOD)
  Diff Reflec - tilt 1 (0.5deg) 248nmi (N0X)
  Diff Reflec - tilt 2 (0.9deg) 248nmi (NAX)
  Diff Reflec - tilt 3 (1.3|1.5deg) 248nmi (N1X)
  Diff Reflec - tilt 4 (1.8deg) 248nmi (NBX)
  Diff Reflec - tilt 5 (2.4|2.5deg) 248nmi (N2X)
  Diff Reflec - tilt 6 (3.1|3.4|3.5deg) 248nmi (N3X)
  Digital Storm Total Difference (DSD)
  Digital Storm Total Accumulation (DTA)
  Hybrid Scan Hydrometeor Classification (HHC)
  Hydrometeor Class - tilt 1 (0.5deg) (N0H)
  Hydrometeor Class - tilt 2 (0.9deg) (NAH)
  Hydrometeor Class - tilt 3 (1.3|1.5deg) (N1H)
  Hydrometeor Class - tilt 4 (1.8 deg) (NBH)
  Hydrometeor Class - tilt 5 (2.4|2.5deg) (N2H)
  Hydrometeor Class - tilt 6 (3.1|3.4|3.5deg) (N3H)
  One Hour Accumulation (OHA)
  Storm Total Accumulation (PTA)
  Spec Diff Phase - tilt 1 (0.5deg) (N0K)
  Spec Diff Phase - tilt 2 (0.9deg) (NAK)
  Spec Diff Phase - tilt 3 (1.3|1.5deg) (N1K)
  Spec Diff Phase - tilt 4 (1.8 deg) (NBK)
  Spec Diff Phase - tilt 5 (2.4|2.5deg) (N2K)
  Spec Diff Phase - tilt 6 (3.1|3.4|3.5deg) (N3K)