

## *McIDAS-X 2015.2 Programmer Notes*

This file lists some of the software and structural changes included in McIDAS-X version 2015.2 that are most likely to affect your locally-developed McIDAS code.

(See [http://www.ssec.wisc.edu/mcidas/software/x/fastrack2015.2\\_changes.txt](http://www.ssec.wisc.edu/mcidas/software/x/fastrack2015.2_changes.txt) for the complete list of code changes included in McIDAS-X 2015.2.)

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 calibration block size defined in **mcaget.for** was increased from 10,000 to 20,000 words. This was necessary to store the look up tables sent from the INSAT-3D servers. This change will be required for the Himawaricast servers.
- To accommodate the increased resolution of new model data, the maximum number of grid points in **gridparm.inc** and **mcidas.h** has been increased to 10,000,000. These larger grids will not work on the Windows 7 version of McIDAS-X.
- Vendor compilers are no longer supported for Solaris. Sites must use the GNU compilers. Additionally, optimization has been turned off for Solaris installs. Updates were required to **makefile** and **mccomp.sh**.
- Support for OSX 10.10 was added for McIDAS-X 2015.2. Updates to **mccomp.sh** were required to compile code for this OS.
- The McIDAS-X text window was crashing making the session unusable for one user. This is only occurring when running McIDAS on a remote workstation using an -X Windows server. A check for an invalid buffer length was removed from **mct\_obuf.c** to prevent the problem.
- When running McIDAS-V on a Windows 7 platform, there were occasions when some of the child and parent processes were not exiting properly. An update to the **mcserv1.cp** now checks for these processes before ending.
- The version of the netCDF libraries has been updated to 4.3.
- This is the first release of servers requiring HDF5 libraries. HDF5 libraries are included, compiled and installed with McIDAS-X 2015.2. Additionally, all third party libraries are now linked statically. The distribution files and total disk space required by McIDAS-X has increased by approximately 45%. Modules to compile and install these libraries include:  
**makefile**                      **mccomp.sh**                      **mcinst.sh**

- Servers utilizing the HDF5 libraries are for data from the Indian satellites Kalpana and INSAT-3D. There are two versions of the INSAT-3D imager server. The first (indi prefix) extracts look-up tables from the HDF5 file. These look-up tables are used to convert raw counts to values of radiance, temperature or albedo. When using IMGCOPY, the look-up tables are written to the AREA files. The second imager server (inst prefix) extracts calibration coefficients from the HDF5 files. Equations supplied by *Indian Space Research Organization (ISRO)* use the coefficients to convert raw counts to values of radiance, temperature or albedo. A similar server was written sounder data (inds prefix). The servers extracting the calibration coefficients utilize a single calibration module. New server and calibration modules include:

<b>kph5aget.cp</b>	<b>kph5adir.cp</b>	<b>indiaget.cp</b>	<b>indiadir.cp</b>
<b>instadir.cp</b>	<b>instaget.cp</b>	<b>indsadir.cp</b>	<b>indsaget.cp</b>
<b>kbxkph5.dlm</b>	<b>kbxindi.dlm</b>	<b>kbxinst.dlm</b>	

- First release of ADDE servers for native format Meteosat Second Generation Level 1.5 files transmitted by EUMETSAT. New or updated modules include:

<b>makefile</b>	<b>msgsadir.cp</b>	<b>msgsadir2.for</b>	<b>msgsaaget.cp</b>
<b>msgsaaget2.for</b>			

- After initial release of the Himawari server, several bugs were identified requiring updates. Words 46 and 47 of AREA directory now contain the documented values of image date and time. The amount of data downloaded was corrected when a user specified large negative magnification factors combined with SIZE=SAME. The correct number of images is listed for data from Japan sectors.

<b>wariadir.cp</b>	<b>wariaget.cp</b>
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- Many servers now have a return code of 0 to signify a successful completion of an ADDE transaction. Servers updated include:

<b>areaaget.cp</b>	<b>comsadir.cp</b>	<b>comsaaget.cp</b>	<b>fsdxadir.cp</b>
<b>fsdxaget.cp</b>	<b>gridgdir.cp</b>	<b>gridgaget.cp</b>	<b>makecw24.c</b>
<b>modsaaget.cp</b>	<b>msgtadir.cp</b>	<b>msgtaaget.cp</b>	<b>msgxadir.cp</b>
<b>msgxaaget.cp</b>	<b>mtstadir.cp</b>	<b>mtstaaget.cp</b>	<b>omtpadir.cp</b>
<b>omtpaaget.cp</b>			

- Added support for TDWR 256-level Base Reflectivity (TSx, product code 180), 16-level Base Velocity (TVx, product code 183), 8-level Base Spectrum Width (TSx, product code 185) and 16-level long range Base Reflectivity (TZx, product code 189) products. Changes to the following modules were required:

<b>kbxnexr.dlm</b>	<b>nexradir.cp</b>	<b>nexraaget.cp</b>	<b>nexrutil.c</b>
<b>servutil.c</b>			

- The amount of ship and buoy observations has increased. This increase required the number of columns defined in **DCISHP** to change to correctly create MD files for McIDAS-XCD.
- Updates to **grib2NavLookup.txt** and **grib2Parameters.txt** were required for new model grids.
- The native units of some sea level pressure grids are now in Pascals (Pa). When trying to display one of these grids, the GRDDISP command failed attempting to draw too many contour lines. A line was added to **CONTOUR.DEF** for MSL in units of Pa.

- Cloud cover symbols can now be plotted with PTDISP and SFCPLOT. Symbols can be plotted using the parameters CIGC, CC1 and CC2 and FORMAT=SYMB. When using **SFCPLOT PLOT**, the default station location is now a cloud symbol; this required a change to **SFCPLOT.CORE**. In this case, the symbol plotted is the maximum value for CIGC, CC1 and CC2. An open circle is plotted if no clouds are reported. Additional modules changed include:  
**m0ptget.for**            **ptdisp.pgm**            **sfcplot.pgm**
- A new subroutine, **mcgetscantime.for**, was released to centralize the calculation of the pixel time for any satellite. This routine is currently used by **imgprobe.pgm** and **imgparm.pgm**.
- The command **imgparm.pgm** was moved from McIDAS-XRD to core McIDAS-X. A new calibration module, **kbximgp.dlm** was required to view images created by **imgparm.pgm**.
- Three new commands, **imgcheck.pgm**, **wxsymb.pgm**, **satcomp.pgm** and one data file, **MCAWIPS.CORE** were added to McIDAS-XRD.
- The output from command **imgprobe.pgm** has been updated to accommodate large image line numbers. To accomplish this, a space following the value of the latitude was removed. Users utilizing scripts to parse the latitude and longitude values from IMGPROBE LIST POINT and Alt-D output will require updating.