

McIDAS-X Version 2007 Upgrade Procedure May 2007

Please take the time to read this entire document; it's important to understand the whole procedure before you begin. If you connect to ADDE remote servers at other sites, contact the site coordinators at those sites. The site coordinators can tell you if any server problems that might affect your system were noted since this upgrade was distributed.

This upgrade procedure is divided into four sections.

- **Section I. Supported Software Configurations** contains the software versions to use with McIDAS-X 2007.
- **Section II. Before Installing McIDAS-X** describes the Required and Optional Actions to perform before installing McIDAS-X 2007.
- **Section III. Installing McIDAS-X** explains how to install McIDAS-X 2007.
- **Section IV. McIDAS-X Significant Changes** describes the Required and Optional Actions to perform after installing McIDAS-X 2007.

Section I. Supported Software Configurations

McIDAS-X 2007 is supported on systems running Apple Mac OS X, HP-UX, IBM AIX, Microsoft Windows XP with Services for Unix, Red Hat Linux, SGI IRIX or Sun Solaris. The software configurations compatible with McIDAS-X 2007 are listed in the table below and in Chapter 1 of the *McIDAS User's Guide* (revised 5/07).

McIDAS-X 2007 was tested on these versions only. The McIDAS Users' Group (MUG) is extremely limited in its ability to support sites running 2007 with other software versions.

Vendor: Apple

Operating System	Mac OS X 10.4 Intel
Fortran compiler	<i>g77</i> : 3.4 (available for free at http://hpc.sourceforge.net)
C compiler	<i>gcc</i> : 4.0 (packaged with Mac OS X 10.4)
X Window System	packaged with Mac OS X 10.4

Operating System	Mac OS X 10.4 PPC
Fortran compiler	<i>g77</i> : 3.4.3 (available for free at http://fink.sourceforge.net)
C compiler	<i>gcc</i> : 4.0 (packaged with Mac OS X 10.4)
X Window System	packaged with Mac OS X 10.4

Vendor: HP

Operating System	HP-UX 11.11
Fortran compiler	<i>vendor</i> : HP Fortran 90 version 3.1
C compiler	<i>vendor</i> : HP C/ANSI C 11.11.16
X Window System	packaged with HP-UX 11.11

Vendor: IBM

Operating System	AIX 5L version 5.3.3
Fortran compiler	<i>vendor</i> : XLF 8.1.0 -or- <i>g77</i> : 3.4.4
C compiler	<i>vendor</i> : XLC 6.0 -or- <i>gcc</i> : 3.4.4
X Window System	AIXwindows 5.3.3

Vendor: Microsoft

Operating System	Windows XP Professional with Service Pack 2 and Services for Unix 3.5
Fortran compiler	<i>g77</i> : 3.3
C compiler	<i>gcc</i> : 3.3
X Server	see below

Windows XP Notes:

1. Because McIDAS-X for XP is distributed as a binary package, the Fortran and C compilers are needed only if you do local development on the workstation. The compilers are included in the Software Development Kit (SDK) available with Services for Unix (SFU).
2. We do not have a specific X server that we recommend. We have tried many X servers, but have encountered problems with all of them, especially when cutting and pasting. Some work better than others; many people at SSEC use MI/X 4.1.2 or MI/X 4.2.3 in Windows Desktop mode (both available for \$25 from www.microimages.com) or Exceed 6.1.1 (an older version that's no longer available; we have not acquired and tested newer versions).
3. McIDAS-X for XP will not run (it gives a "mcimagem: ERROR fork()ing" error at startup) if the Windows XP Physical Address Extension (PAE) is enabled. See the McIDAS-X for XP section in Chapter 1 of the McIDAS User's Guide for more information and how to check and/or disable PAE.

Vendor: Red Hat

Operating System	Enterprise Linux 4.0 in 32 or 64 bit mode
Fortran compiler	<i>g77</i> : 3.4.6
C compiler	<i>gcc</i> : 3.4.6
X Window System	packaged with Enterprise Linux 4.0

Linux Notes:

1. On Linux systems, we recommend that you use the GNOME desktop environment. Other desktops, such as KDE, will not display the McIDAS-X windows correctly.
2. We recommend that you run your Enterprise Linux workstations in 32 bit mode. The McIDAS-X 2007 core software has been fully system tested in 64 bit mode, but many other problems have been reported, especially with locally developed code.
3. Enterprise Linux 4.0 does not install Unix **compress** by default. So you must install **compress** if you will be configuring your Enterprise Linux 4.0 workstation as an ADDE remote server.

Vendor: SGI

Operating System	IRIX 6.5.21
Fortran compiler	<i>vendor</i> : SGI Fortran 77 7.4.2 -or- <i>g77</i> : 3.3.2
C compiler	<i>vendor</i> : ANSI C 7.4.2 -or- <i>gcc</i> : 3.3.2
X Window System	packaged with IRIX 6.5.21

Vendor: Sun

Operating System	Solaris 10 OS SPARC Platform Edition
Fortran compiler	<i>vendor</i> : Sun Studio 11 -or- <i>g77</i> : 3.4.6
C compiler	<i>vendor</i> : Sun Studio 11 -or- <i>gcc</i> : 3.4.6
X Window System	packaged with Solaris 10

Operating System	Solaris 10 OS x86 Platform Edition
Fortran compiler	<i>g77</i> : 3.4.6
C compiler	<i>gcc</i> : 3.4.6
X Window System	packaged with Solaris 10

Section II. Before Installing McIDAS-X

Complete all Required Actions below.

Core Software Changes

Review the changes to core software before installing McIDAS-X 2007. Section IV lists some of the significant changes since the last upgrade. Two ASCII text files, **MAY07PRG.TXT** and **MAY07INQ.TXT**, list all software changes made to McIDAS-X since the previous upgrade. A third file, **MAY07OPN.TXT**, lists all software bugs known at the time this upgrade was distributed. These three files are available on the McIDAS Website (<http://www.ssec.wisc.edu/mcidas/>) and are provided with the upgrade CD for sites that receive their software that way. After installing McIDAS-X 2007, the files are in the `~mcidas/data` directory.

Required Action:

See Section IV of this document to review the significant changes made to core software. You can also place the three text files in the `~mcidas` directory before installing the upgrade. To do so, complete the instructions in *Obtaining McIDAS-X 2007* in Chapter 1 of the *McIDAS User's Guide* (revised 5/07).

Operating System and Compiler Changes

Beginning with this upgrade, the following changes were made to operating system and compiler versions that McIDAS-X is supported on.

- The Apple Mac OS X versions that McIDAS-X is supported on changed from 10.3 and 10.4 to 10.4 PPC and 10.4 Intel (a new platform for McIDAS).
- The HP-UX version that McIDAS-X is supported on remains at 11.11. However, it is now supported only on vendor compilers, and the vendor compiler versions changed from 2.5.1 to 3.1 for HP Fortran 90, and from 11.11.02 to 11.11.16 for HP C/ANSI C. Also, support for McIDAS-X on HP-UX was originally scheduled to be sunset with the 2006 upgrade, but was extended through 2009 due to the Australian Bureau of Meteorology agreeing to pay the support costs for three additional years and purchasing a new HP workstation for the MUG.
- The Red Hat Enterprise Linux versions that McIDAS-X is supported on changed from Enterprise Linux 3.0 and 4.0 to Enterprise Linux 4.0 (in 32 or 64 bit mode, though we recommend you run it in 32 bit mode).
- The Sun Solaris versions that McIDAS-X is supported on changed from Solaris 9 to Solaris 10 (in both SPARC and x86 editions). There are corresponding compiler changes (Forte Developer 7 to Sun Studio 11 for vendor compilers; 3.3.2 to 3.4.6 for g77/gcc) for the switch to Solaris 10.

Required Action:

See the table in Section I, *Supported Software Configurations*, for the complete list of operating system and compiler versions that McIDAS-X 2007 is supported on. We recommend that you update the operating systems and/or compiler versions on your McIDAS-X workstation(s) to those listed in the table.

Compatibility with -X Remote Servers and -XCD

McIDAS-X 2007 can run in a stand-alone mode. However, many commands can access data on other workstations (remote servers). Therefore, your McIDAS-X client workstations and the remote servers they access must be running compatible versions in order for all features to work as expected.

For example, the item below is dependent upon the McIDAS-X version that the client and/or server is running.

- The GRDCOPY, GRDDISP, GRDIMG, GRDINFO and GRDLIST commands in this 2007 upgrade contain a new ENSEMBLE= keyword that selects only grids matching the specified ensemble number(s). In order for the keyword to work, both the client and server must be running version 2007.

Required Action:

Coordinate upgrading your site's McIDAS-X and -XCD systems according to your needs, considering the compatibility requirement listed above.

Disk Space

McIDAS-X disk space requirements increased with this upgrade.

The overall disk space requirements for obtaining, building and installing McIDAS-X 2007 are listed in the table below. The disk space requirements for 2006 are listed for comparison. The compiler type (vendor or gcc/g77) used for each build are also listed.

<i>Operating system</i>	<i>Compilers</i>	<i>McIDAS-X 2006</i>	<i>McIDAS-X 2007</i>
AIX 5L version 5.3.3	vendor	415 MB	445 MB
HP-UX 11.11	vendor	450 MB	465 MB
IRIX 6.5.21	vendor	485 MB	515 MB
Enterprise Linux 4.0	gcc/g77	475 MB	470 MB
Mac OS X 10.4 Intel	gcc/g77	n/a	435 MB
Mac OS X 10.4 PPC	gcc/g77	425 MB	460 MB
Solaris 10 SPARC	vendor	n/a	605 MB
Solaris 10 x86	gcc/g77	n/a	405 MB
Windows XP Pro	gcc/g77	325 MB	340 MB

Required Action:

Verify that you have sufficient disk space available to obtain, build, and install McIDAS-X 2007.

Section III. Installing McIDAS-X

If you need assistance with the upgrade or want to know if any problems that might affect your site were noted since this upgrade was mailed, call the McIDAS Help Desk at (608) 262-2455 or send email to mug@ssec.wisc.edu.

Required Action:

Obtain and install McIDAS-X 2007 using the instructions in Chapter 1, *Installing and Configuring McIDAS-X*, in the *McIDAS User's Guide* (revised 5/07).

Section IV. McIDAS-X Significant Changes

Complete all Required Actions below. Optional Actions are only for your consideration.

New Command

A beta version of the ADT command and associated software was added to McIDAS-X with this upgrade. The ADT command estimates tropical cyclone intensity by using the Advanced Dvorak Technique (ADT) algorithm with infrared satellite imagery. See the online help and the Commands chapter of the McIDAS User's Guide (revised 5/07) for details.

McIDAS-X GUI

The McIDAS-X GUI was modified to include the changes listed below.

- The Grid Display GUI was modified to work with GRIB datasets and to list only the derived parameters valid for the current dataset (rather than all of them).
- The Image Display GUI was modified to request a DAY= keyword value via popup window when the GUI is used with an image archive dataset.
- The Grid Select GUI was modified to sort its output by Day and Time, and then by FHour.

Optional Action:

Use the GUI by starting it with the GUI command, selecting the *Start GUI upon McIDAS startup* option in the `mcidas -config` GUI's *Miscellaneous* tab, or automatically start the GUI with each McIDAS-X session by adding a `-c GUI` command in the *Run commands at startup* section of your `.mcidasrc` file.

McIDAS-X for XP Remote Servers

Due to a change in the Windows XP service installation, the ADDE remote server installation script (e.g., `mcinet2005.sh`) no longer works on XP workstations with Service Pack 2 (SP2) or later. Therefore, we are NOT including a remote server installation script for McIDAS-X for XP with this 2007 upgrade. (We also did not include it in the 2006 upgrade.)

If your McIDAS-X for XP workstation is already running the remote server (e.g., from version 2004 or 2005), you can continue to run it even after installing McIDAS-X for XP version 2007. Please note, however, that if you uninstall it (with a command similar to `sh ./mcinet2005.sh uninstall mcadde`) you will NOT be able to reinstall it because the failure occurs during the install portion of any version of the `mcinet` script. Therefore, we strongly recommend that you do NOT uninstall the remote server on your McIDAS-X for XP workstations at any time unless you're sure you will not need to run it again in the future.

Required Action:

If you are currently running an ADDE Remote Server on your McIDAS-X for XP workstation, do NOT uninstall it. If you do so, you will not be able to reinstall it. As noted above, we did not include a 2006 or 2007 version of the McIDAS-X for XP ADDE remote server because of this problem.

Other Modifications

The modifications below require no special action.

Command / Topic	Modification
GRDCOPY	added new keyword ENSEMBLE= to select ensemble grids by specifying their ensemble number(s); also fixed bug in version 2006 that prevented use of GRID as a search value in the Gn= keywords
GRDDISP	added new keyword ENSEMBLE= to select ensemble grids by specifying their ensemble number(s); also improved selection of default subset bounds, especially when subsectioning across a global grid's breakpoint
GRDIMG, GRDINFO	added new keyword ENSEMBLE= to select ensemble grids by specifying their ensemble number(s)
GRDLIST	added new keyword ENSEMBLE= to select ensemble grids by specifying their ensemble number(s); also removed documentation for the FORM=OLD keyword option because it does not work with GRIB1 or GRIB2 data; although it's undocumented, the option is still available for use with McIDAS Grid files
IMGCOPY	added ability to specify positive MAG= keyword values when copying data from a GOES archive server
IMGREMAP	updated to work correctly if the destination image has LALO navigation
WWDISP, WWLIST	modified to accommodate Areal Flood Warnings sent in NOAAPORT FLS (Flood Statement) products

GRIB Server	updated GRIB server to allow creation of datasets containing GRIB2 files from the NOAAPORT data stream, and to display or manipulate the data using the GRD* commands; see the DSSERVE command's online help or its documentation in the <i>MclDAS User's Guide</i> (revised 5/07) for information about creating the datasets; in addition to the support of GRIB2 data, the GRIB server was also modified to limit its searches to a maximum of 20,000 grids; if a client requests more than that an error message is returned
GVAR Calibration	updated GVAR calibration module (<code>kbxgvar.d1m</code>) to use correct gain and bias values for GVAR sounder band 19
MODIS Level 1b Servers	updated MODIS Level 1b servers to work better (faster transfers) with internally compressed Scientific Datasets from the Goddard DAAC
Meteosat-8, -9	updated Meteosat Second Generation calibration module (<code>kbxmsg.d1m</code>) to have its coefficient values match EUMETSAT's
MTSAT HRIT Servers	added MTSAT HRIT servers to MclDAS-X to allow creation of datasets of segmented MTSAT data in HRIT format on local and remote servers, and display or manipulation of the data using the IMG* commands; see the DSSERVE command's online help or its documentation in the <i>MclDAS User's Guide</i> (revised 5/07) for information about creating the datasets
POES Level 1b Servers	updated POES Level 1b servers to work with NOAA-18 data, to no longer shift IMGCOPYed data 1x1 line/element, and to correctly include bands 3a and 3b (bands 6 and 3, respectively, in MclDAS) when both are present in an image

Data Files

The following changes were made to files in the `~mcidas/data` directory.

<i>File name</i>	<i>Change</i>
<code>CORE.SAT</code>	added entries for GOES-16, DMSP F-16, DMSP F-17, MetOp-A, MetOp-B and MetOp-C so the NAV* commands work with those satellites
<code>gbtbpds001.2v2</code>	changed parameter 186 from ICNG to TIPD (Total Icing Potential Diagnostic) so it matches NCEP Office Note 388; removed the apostrophe from "Blackadar's" in the parameter 226 description
<code>gbtbpds001.2v129</code>	new data file for GRIB files with info from NCEP Table 2 Version 129
<code>gbtbpds001.bv1</code>	added entries for Geographical ID number 98 (Global Gaussian Latitude/Longitude T62 Resolution Mercator) and 253 (Eastern North Pacific Regional Mercator)
<code>grib2NCEPModels.txt</code> <code>grib2NavLookup.txt</code> , <code>grib2Parameters.txt</code>	new data files used by the GRIB server and the -XCD GRIB filer to translate GRIB2 file information to McIDAS grid header data
<code>SATANNOT</code>	added sensor source numbers 160, 161, 170 and 171 for TERRA-NDVI, TERRA-CREF, AQUA-NDVI and AQUA-CREF; added sensor source numbers 186 for GOES-16 Imager; 196 for DMSP F-17; 240, 241, 242 for MetOp-A, MetOp-B, MetOp-C
<code>SATBAND</code>	added band information for DMSP-F17 and MetOp-A through -C; added LUT calibration type for MTSAT and GOES Imager; added MODIS NDVI and CREF calibrations; added ABIS calibration for GOES-16
<code>STNDB.CORE</code>	updated WMO numbers for Antarctic AGO (Automated Geophysical Observatory) stations; added 88 GFS MOS stations that went online in August 2006 (see http://www.weather.govmdl/synop/tin/newsites2006.htm for list of stations)
<code>TOPOHRES</code> , <code>TOPOLRES</code>	new topography files used by new command ADT
<code>towns.txt</code> , <code>towns.nd1</code> , <code>towns.nd2</code>	updated TOWNS and FIND database files to include U.S. territories (e.g., Puerto Rico and Virgin Islands), and also for general 2007 update
<code>XRD2007.TXT</code>	updated with list of commands, servers and data files in McIDAS-XRD version 2007 sidecar package; run McIDAS-X command SEE XRD2007.TXT to view the list

Required Action:

Merge these modifications with all local copies of the data files.

Local Code

Compile and link all local code after installing the upgrade. Listed below are some of the software and structural changes most likely to affect your local code.

- The start time of image calculated in the modules `lv1butil.c` and `lv1baput.cp` was previously adjusted by the milliseconds variable. Rounding navigation parameters and the value of `tnavcod[46]` are now used to adjust the start time of the image.
- Modules `lv1butil.c` and `lv1baget.cp` were updated to be compatible with NOAA version 4.
- The return code -2 from `SubSectLALONav` (`lv1butil.c`) was added for cases when the aux block needs to be larger.
- The calibration alpha and beta values in module `msgutil.for` were updated for some IR bands to match EUMETSAT's values.
- MTSAT modules `mtstaget2.for` and `mtsataidir2.for` were updated to handle little-endian files on big-endian machines.
- The size of the calibration lookup table in `kbxmods.dlm` was increased.
- Corrected the `update_cal` function in `fsdxaget2.for` by adding FLIPBYTE common block. Also added FLIPBYTE common block to `fsdxutil.for`.
- The subpoint for MTSAT in `nvxmtst.dlm` was changed to 140.25°E.
- The module `modsaget.cp` was updated to change 1D address into 2D computation.
- The following modules are either new or were updated for GRIB data and in preparation of GRIB2 data:

<code>database.c</code>	<code>daytime.c</code>	<code>fghed.for</code>
<code>gbtbpds001.2v3</code>	<code>gbtbpds002.2v3</code>	<code>gdirserv.fp</code>
<code>ggetserv.fp</code>	<code>grdcopy.pgm</code>	<code>grddisp.pgm</code>
<code>grding.pgm</code>	<code>grdinfo.pgm</code>	<code>grdlist.pgm</code>
<code>gribfunc.c</code>	<code>gribgdir.cp</code>	<code>gribgget.cp</code>
<code>m0count.for</code>	<code>m0grdens.for</code>	<code>m0gserv.c</code>
<code>m0parstr.for</code>	<code>makefile</code>	<code>mcgdir.for</code>
<code>mcgget.for</code>	<code>mcgrib.h</code>	<code>mcgrib2.h</code>
<code>mcncdf.h</code>	<code>ncdffunc.c</code>	<code>readsort.for</code>
<code>xcdgrib.c</code>	<code>grib2NavLookup.txt</code>	
<code>grib2NCEPModels.txt</code>		<code>grib2Parameters.txt</code>

- Removed 'long int' for 64 bit SU tables in `mod8aget.cp` and `mod4aget.cp`. Also added GEO dimension definition for fetching LON values in `mod4aget.cp`.
- The module `makefile` was updated to install `libz.a`. Search locations were also updated in `mccomp.sh` when the `-mysql` flag is used.
- A sleep function was added to `mcar.sh` so very fast workstations will compile without error.
- Calibration module `kbxabis.dlm` and navigation module `nvxabis.dlm` were added for simulated ABI data.
- Updates to `mcinst.sh` were added for McIDAS to compile on Mac OS X Intel workstations.

- The following modules are new or were updated to create an interface between McIDAS-X and McIDAS-V:

```

argglo.c           constants.h       cursor.c
frmflag.c         m0wrtgiffd.c      mcline.c
mclisten.c        mclisten.h       md5.c
md5.h             sendimage.c      sendimage.h
urldecode.c      virtgeo.pgm

```

- The call to `mcafree` was removed in module `imgremap.pgm` to prevent losing LALO navigation.
- The allocation of local data buffer in `gvaraget.cp` was changed to maximum GVAR block size.
- The flash flood category FLS is now decoded by `wwmisc.c`. It was also updated to correctly decode thunderstorm and tornado boxes where the watch number was less than 10.
- The DAY= keyword information is now used by `imgcopy.pgm` for GOES archive servers.
- The number of grids sent from the server is now limited to 20000. Modules updated for this change include `database.c`, `gribgdir.cp` and `gribgget.cp`.
- Checks for BAND=ALL were added to `kbxmodx.dlm` to prevent accessing data arrays with a bad index.
- The GVAR servers were updated to return data if the navigation block is not perfect. The `pid_t` declaration was moved in `GVAR.c` to satisfy all compilers. The size of text lines was increased in `GVAR.h` to allow for long comment lines. Extensive changes were made to `SDIUtil.c` to check for good image data.
- The array index in `kbxgvar.dlm` was updated so correct gain and bias values are used for GVAR sounder band 19 (visible).
- The module `ddeservf.for` was updated to support ADDE dataset group names consisting of numbers.
- A line was added to `mcinet.sh` to force rebuilding of `inetd.conf` on Solaris 10.
- The size of the glob buffer was increased in `mtstadir2.for` and `mtstaget2.for`.
- The pointer type for `day_equals` was changed to `char*` in `mcidas.h`. The prototype for `m0getimagenav` was also updated.
- Added `CFLAGS=-D_64BIT_` to `makefile` when configuring `g2clib` on 64bit Linux. Also removed long variable declarations from function calls in `gribfunc.c`.
- The Meteosat-8 visible coefficients were updated and coefficients for Meteosat-9 were added to `kbxmsg.dlm`.
- The optimization flag in `mccomp.sh` was set to `-O0` to turn off optimization for all modules when building on Solaris using vendor compilers. Optimization was also turned off for `imgremap.pgm` on HP-UX.

- The following modules were added to support estimating tropical cyclone strength using the Advanced Dvorak Technique (ADT), along with storing and displaying history information:

<code>adt.c</code>	<code>argglo.c</code>
<code>constants.h</code>	<code>cursor.c</code>
<code>odtapi.h</code>	<code>odtatcfoutputfile.c</code>
<code>odtauto.c</code>	<code>odtautomodel.c</code>
<code>odtautomode2.c</code>	<code>odtbulletinoutput.c</code>
<code>odtcoords.c</code>	<code>odtdata.c</code>
<code>odtdiagnostics.c</code>	<code>odtextern.h</code>
<code>odttexterror.c</code>	<code>odteyecloudtemp.c</code>
<code>odtfft.c</code>	<code>odtfreememory.c</code>
<code>odtfuncs.c</code>	<code>odtgetwindprofile.c</code>
<code>odtgrid.c</code>	<code>odtgrid.h</code>
<code>odtgsdomain.c</code>	<code>odtgsforecastfile.c</code>
<code>odtgsghistory.c</code>	<code>odtgsIRimage.c</code>
<code>odtgslocation.c</code>	<code>odtgsmiscopts.c</code>
<code>odtgs scenetypes.c</code>	<code>odtgs sstvalue.c</code>
<code>odtgsstartstr.c</code>	<code>odtgsstopovalue.c</code>
<code>odtgsversion.c</code>	<code>odthistory.c</code>
<code>odthistorybullfmt.c</code>	<code>odthistorycomment.c</code>
<code>odthistorydelete.c</code>	<code>odthistoryinsertrec.c</code>
<code>odthistorylistfmt.c</code>	<code>odthistorynextrec.c</code>
<code>odthistorywrite.c</code>	<code>odtinitialize.c</code>
<code>odtintensity.c</code>	<code>odtintensityest.c</code>
<code>odtlib.h</code>	<code>odtlibdefs.h</code>
<code>odtlibdefs-x.h</code>	<code>odtlibfuncs.h</code>
<code>odtloadIRimage.c</code>	<code>odtmccerror.c</code>
<code>odtmccgrid.c</code>	<code>odtmccidas.c</code>
<code>odtmccidas.h</code>	<code>odtmccinput.c</code>
<code>odtmessages.c</code>	<code>odtoutput.c</code>
<code>odtreadtopofile.c</code>	<code>odtremap.h</code>
<code>odtscene.c</code>	<code>odtscenemap.c</code>
<code>odtscenetype.c</code>	<code>odtsetdatetime.c</code>
<code>odtsst.c</code>	<code>odtsst.h</code>
<code>odttopo.c</code>	<code>odtwarmeyetemp.c</code>
<code>odtwinds.c</code>	<code>TOPOHRES</code>
<code>TOPOLRES</code>	

Other existing modules were updated to support ADT. Optimization was turned off for `nvxgvar.dlm`. All modules were added to `makefile`. New function `M0defpathdir()` was added to `m0mccpath.c` and its prototype was added to `mcidas.p.h`, which returns the first writable directory in `MCPATH` (no file name required).

McIDAS-XRD

A new version of the McIDAS-XRD optional sidecar is available with this upgrade. The new version, 2007, contains two new commands, 19 new data files, and four new servers. These changes bring the total number of -XRD 2007 modules to 103 commands, 71 data files, and 14 servers.

The list of -XRD 2007 software is available on the McIDAS Website at <http://www.ssec.wisc.edu/mcidas/software/xrd/2007commands.html> or in the file `~mcidas/data/XRD2007.TXT` that's distributed with -X 2007. To view the file, run the command **SEE XRD2007.TXT** after -X 2007 is installed.

The -XRD 2007 package can only be used in combination with -X and must be installed after -X 2007 has been installed. The -XRD package contains research and development commands, servers and data files that are not part of -X. The -XRD software is provided on an "as is" basis, meaning it is not MUG-supported. The software in -XRD comes from programmers at various MUG sites. The software is added to the package if it may be useful to other sites and it meets some basic code standards.

SSEC McIDAS User Services packages and distributes the -XRD software, but does little or no testing of it and does not provide any documentation. Each command's on-line help is all that's available for documentation. McIDAS User Services will forward all bug reports to the programmer that submitted the software. However, there is no guarantee that bugs will be fixed, as it's up to the programmer to decide whether or not to fix them.

Optional Action:

Install McIDAS-XRD 2007 by obtaining the files and completing the installation instructions on the McIDAS Website at <http://www.ssec.wisc.edu/mcidas/software/xrd/>.