

AWIPS SOFTWARE INSTALLATION INSTRUCTION NOTE 64

Maintenance, Logistics, and Acquisition Division

W/OPS12: JCS

SUBJECT: AWIPS Release OB7.1

PURPOSE: Provide installation instructions for the operating system upgrade and software installation procedures to be followed at each AWIPS site.

SITES AFFECTED: All Weather Forecast Offices (WFO), River Forecast Centers (RFC), National Centers for Environmental Prediction (NCEP), National Training Center, and regional headquarters.

AUTHORIZATION: The authority for this note is Request for Change (RC) 9698 (SEC_A100799).

VERIFICATION STATEMENT: This procedure was tested and verified at test platforms at the National Headquarters in Silver Spring, MD (NMTW, NMTR, and NHOR), and the following operational platforms: Central Region Headquarters in Kansas City, MO (BCQ); Southern Region Headquarters in Ft. Worth, TX (EHU); Western Region Headquarters in Salt Lake City, UT (VHW); Pacific Region Headquarters in Honolulu, HI (PBP); Alaska Region Headquarters in Anchorage, AK (VRH); WFO Salt Lake City, UT (SLC); WFO Grand Junction, CO (GJT); WFO Cleveland, OH (CLE); WFO Hastings, NE (GID); Northwest RFC, Portland, OR (PTR); WFO Pleasant Hill, MO (EAX); WFO Wilmington, OH (ILN); WFO Morehead City, NC (MHX); California/Nevada RFC, Sacramento, CA (RSA); and WFO Huntsville, AL (HUN).

ESTIMATED COMPLETION DATE: January 21, 2007. The installation date must be scheduled on the NWS Oracle AWIPS Schedule calendar.

TIME REQUIRED: Rebooting of all baseline Linux devices, workstations, and servers must be completed one week prior to the main scheduled installation date. The rebooting of devices will take approximately two hours to complete.

Pre-installation steps may be completed up to a week prior to the main installation date. These pre-installation steps take four to six hours to complete.

The main installation of the operating system upgrade and the software takes a total of 9 to 10 hours on WFO systems, and 10 to 12 hours on RFC systems.

On WFO systems, the operating system upgrade portion of the installation takes approximately 5 hours to complete, and will take 6 hours on RFC systems. On WFO and RFC systems, the software upgrade portion of the installation takes approximately 4 hours to complete.

ACCOMPLISHED BY: Electronic Systems Analysts (ESA) and Interactive Forecast Preparation System (IFPS) Focal Points (FP) or their designee.

| | |
|---|--|
| EQUIPMENT AFFECTED: | AWIPS |
| SPARES AFFECTED: | None. |
| PARTS/MATERIALS REQUIRED: | One operating system DVD, one software DVD, and one Linux rescue CD. The rescue CD will only be needed if specific operating system problems occur during the installation. More information on the rescue CD is provided in Attachment B. |
| SOURCE OF PARTS/MATERIALS: | Raytheon. |
| DISPOSITION OF REMOVED PARTS/MATERIALS: | Not applicable. |
| TOOLS AND TEST EQUIPMENT REQUIRED: | None. |
| DOCUMENTS AFFECTED: | File this note in EHB-13, Section 3.1. Discard all previous software installation instructions, prior to Build OB5 (AWIPS Software Installation Instruction Note 55) in section 3.1. |
| PROCEDURE: | <p>All AWIPS sites must complete the AWIPS Modification Note 27, <i>DX3 and DX4 Installation Procedure</i>, for installation of the new server hardware, DX3 and DX4.</p> <p>All AWIPS sites must install AWIPS Major Release OB6.0.</p> <p>In addition, all AWIPS sites must install the AWIPS Emergency Releases OB6.1.1 and OB6.1.3. The instructions provided in the <i>Site Support Team (SST) Instruction Note 06-002, OB6.x IFPS Service Backup Issues</i> must be completed by the Interactive Forecast Preparation System (IFPS) Focal Point prior to the installation of AWIPS OB7.1.</p> <p>All prerequisites, coordination requirements and installation instructions are documented in Attachment A, <i>Installation Instructions for AWIPS Release OB7.1</i>. Review the instructions before performing the upgrade.</p> |
| TECHNICAL ASSISTANCE: | For questions or problems pertaining to this note, contact the Network Control Facility (NCF) at 301-713-9344 and ask for OB7.1 install support. |

REPORTING INSTRUCTIONS: Report the completed modification using the Engineering Management Reporting System (EMRS) according to the instructions in [EHB-4, Maintenance Documentation](#), Part 4, and Appendix F. Include the following information on the EMRS report:

Maintenance Description (block 5): **Install AWIPS Release OB7.1**

Equipment Code (block 7): **AWIPS**

Serial Number (block 8): **001**

Maintenance Comments (block 15): **Installed Release OB7.1 I.A.W. AWIPS Software Installation Instruction Note 64.**

Mod No. (block 17a): **S64**

A sample EMRS report is provided as attachment **G**.

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Attachment A – Installation Instructions for AWIPS Release OB7.1

Attachment B – Known Issues and Workarounds

Attachment C – List of LDAD and MSAS Files Modified During Installation

Attachment D – Nationally Managed Shapefiles and National Data Files

Attachment E – WarnGen Template Changes

Attachment F – Freeware and COTS Changes

Attachment G – Sample EMRS Report

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ATTACHMENT A - Installation Instructions for Major AWIPS Release OB7.1

A.1 General Information

This software installation instruction note provides instructions to install an upgraded version of the operating system, and software provided for new functionality and to correct defects identified in software provided in previous AWIPS releases. These instructions apply for AWIPS located at WFOs, RFCs, test platforms, and all other non-operational AWIPS sites, e.g., the NWS Training Center; and at National Centers for Environmental Prediction (NCEP).

To ensure that each step in the instructions is completed, it is highly recommended that a check mark be placed next to the step number as the installation proceeds.

A.1.1 Prerequisites

All prerequisites must be completed prior to the scheduled main installation day. It is recommended that primary and secondary backup sites test the service backup functionality for a site a few days prior to the main installation date. Make arrangements for service backup for a minimum of 12 hours on the scheduled main installation date.

A.1.2 Pre-Installation Procedures

The rebooting of all Linux devices, workstations and servers at the site must be completed one week prior to the scheduled main installation date. Contact the Network Control Facility (NCF) at 301-713-9344, and request OB7.1 Install support prior to rebooting the workstations.

Some sections of the GFE Pre-Installation procedures should be completed by the site IFPS Focal Point.

A.1.3 Known Issues with Operating System Upgrade

If problems with any Linux servers or devices are encountered during the operating system upgrade, review the procedures in *Attachment B, Known Issues and Workarounds* or contact the NCF and request OB7.1 Install support.

A.2 Prerequisites

1. All sites must install the DX3 and DX4 hardware prior to proceeding with the installation of the Major Release OB7.1 using the instructions provided in AWIPS Modification Note 27, DX3 and DX4 Installation Procedure.
2. All sites must have AWIPS Major Release OB6.0 installed prior to proceeding.
3. All sites must have AWIPS Emergency Release OB6.1.1 installed prior to proceeding.
4. All sites must complete the installation of the AWIPS Emergency Release OB6.1.3 and complete the instructions provided in the Site Support Team (SST) Instruction Note 06-002, OB6.x IFPS Service Backup Issues. These instructions should be completed by the Interactive Forecast Preparation System (IFPS) Focal Point prior to proceeding.
5. Coordinate the installation with backup sites, hub site pairs, and CWSUs if applicable:
 - a. Weather Wire uplink sites must ensure that the backup Weather Wire site(s) are not upgrading to this release concurrently. Contact the AWIPS Regional Focal Point to request their assistance with this coordination.

- b. Wide area network (WAN) hub sites must ensure that their hub site pair is not upgrading to this release concurrently. Contact the AWIPS Regional Focal Point to request their assistance with this coordination.
 - c. Sites with connections to Center Weather Service Units (CWSUs) must coordinate the installation of this release with those sites, since there will be a disconnection during the release installation.
6. Review the Addendum/Errata Page Documentation for this release. This documentation will provide the corrections and additions to these Instructions and should be downloaded from http://www.ops1.nws.noaa.gov/awips_software.htm
 7. Remove any test software.
 8. Review the Commercial Off the Shelf (COTS) and freeware changes listed in Attachment F of this document, and make local software application changes if necessary.

A.3 Pre-installation Procedures

These pre-installation steps apply to all AWIPS sites. Review this entire section prior to proceeding with the installation of the operating system upgrade to the Red Hat Enterprise Version 4 Update 2 (RHEL4U2) and the software upgrade.

NOTE: Step A.3.1 must be completed at least one week prior to the main installation date.

Steps A.3.2 – A.3.8 are pre-installation procedures that may be completed up to one week prior to the main installation date.

A.3.1 Reboot Devices

(Must be completed one week prior to main installation date)

In order to mitigate any potential issues with the operating system (OS) installation, reboot all AWIPS Linux servers, devices and workstations a minimum of one week prior to the day of installation. The reboot will reinitialize the memory and remove hung or persistent processes that may interfere with the OS upgrade.

A.3.1.1 Reboot Procedures

1. If a period of more than 2 weeks has passed since the installation of DX3 and DX4, spare the packages and reboot the following Linux devices, servers and workstations:

DXs, PXs, LXs, XTs, AX (at WFOs), **RP**s (at RFCs) and **CPSBN**s.

Contact the NCF prior to rebooting any Linux device. Contact the NCF if assistance is needed while performing the rebooting procedures.

2. Or, if a period of less than 2 weeks has passed since the installation of DX3 and DX4, spare the packages and reboot the following Linux devices, servers and workstations:

PXs, LXs, XTs, AX (at WFOs), **RP**s (at RFCs) and **CPSBN**s.

A reboot is performed on the **DX**s as part of the **DX3** and **DX4** setup.

Contact the NCF prior to rebooting any Linux device. Contact the NCF if assistance is needed while performing the rebooting procedures.

A.3.2 Verify the Setup of DX3 and DX4

The AWIPS installation requires that **DX3** and **DX4** have read and write access to the NAS. Type the following command from **DX1** as `root` on a Linux terminal window:

```
rsh nas1 "exportfs -a" (No terminal screen output displayed.)
```

A.3.3 Download OB7.1 National Data and Shapefiles

Download the latest National Data Management (NDM) files and the latest versions of the nationally managed AWIPS shapefiles prior to proceeding with the installation. These files will be downloaded from the NOAA1 server and moved from the safe directory to an active directory on the main installation day. See Attachment D for a list of the NDM and nationally managed shapefiles downloaded in this step.

The new versions of the downloaded shapefiles are copied to the appropriate directory for the GFE during the pre-installation steps and to the appropriate directory for the D2D application in the main installation.

If a message relating to the RSA key asks whether you are sure you want to continue connecting, type **yes**.

NOTE: If sites use locally customized shapefiles, local staff will need to follow these pre-installation steps, and additional procedures to maintain local customizations.

As user `root` from **DX1** type:

```
cd /data/local/nationalData
mv /data/local/nationalData/* /tmp
sftp ftpawips@165.92.25.137
type in password !SAWIPS4 when prompted
cd pub/ndm/OB71
mget *
cd ../../maps/ob7.1
mget * (Takes about 1 hour at some sites.)
exit
chown fxa:fxalpha *
```

A.3.4 Check Available Disk Space in the /data/fxa Partition.

Find the available disk space on all the partitions in Mega-Bytes (MB). At a minimum, 2.5 Giga Bytes (2500 MB) of available disk space in the /data/fxa partition is needed to install RHEL4U2.

Login to **DX1** as `root` and run the following command:

```
rm -rf /data/fxa/install_root
df -m /data/fxa
```

If space is insufficient, contact the NCF prior to proceeding to the operating system installation procedures.

A.3.5 Verify Contents of the Operating System and Software DVDs

Make sure the DVD is mountable and examine a few files to make sure it is readable. Insert the AWIPS Software DVD into the DX1 DVD-ROM drive.

1. Login to **DX1** as `root`, and type the following commands:

```
mount /mnt/cdrom1
cat /mnt/cdrom1/installLinux_OB7
cat /mnt/cdrom1/gfe/INSTALLATION.html
eject /mnt/cdrom1
```

2. Remove AWIPS Software DVD and insert the RHEL 4u2 OS DVD into the **DX1** DVD-ROM drive. Then, issue the following commands:

```
mount /mnt/cdrom1
cat /mnt/cdrom1/RHEL4u2/scripts/kickMany.sh
cat /mnt/cdrom1/RHEL4u2/awipsConfig/gdm.conf
```

3. Leave the DVD in the drive until the following step, A.3.6 is completed.

If there are any errors mounting the DVD or read problems with the `cat` command, contact the NCF OB7.1 install support.

A.3.6 Copy files to the NAS for the Operating System upgrade

1. While the RHEL 4u2 upgrade DVD is in the **DX1** DVD drive, on **DX1** as `root`, copy the installation files to the NAS:

```
mkdir /data/fxa/install_root          (The next step takes 15 minutes to
copy)
cp -R /mnt/cdrom1/RHEL4u2/* /data/fxa/install_root/
chmod -R 777 /data/fxa/install_root/*
```

2. When completed, type:

```
eject /mnt/cdrom1
```

3. Remove the DVD from the DVD drive.

A.3.7 GFE Pre-Installation Procedures (On WFO systems only)

These GFE pre-installation procedures are divided into two sections. The first section of the GFE pre-installation steps should be completed by the Electronic System Analyst (ESA), and the second section of steps should be completed by the Interactive Forecast Preparation System (IFPS) Focal Point.

The GFE instructions are provided on the AWIPS Software DVD. There are two parts of the GFE installation completed in OB7.1, Climo and CORE. Beginning in this release, the GFE map files are

not included as a part of the GFE installation steps although new versions of D2D shapefiles are downloaded as a part of the pre-installation steps.

It is essential that a correctly configured `localMapFiles.py` file be created in the `/awips/GFESuite/primary` and `/awips/GFESuite/svcbu` directories prior to the main installation day, or the installation of GFE will fail.

A.3.7.1 GFE Pre-Installation Procedures

(To be completed by ESA)

1. Check available disk space.

On **DX4**, type:

```
df -P /awips/GFESuite
```

Ensure that there is a minimum of 1,500,000 1024-blocks available in the `/awips/GFESuite` directory. If not, contact the NCF installation support staff prior to proceeding.

2. Verify ssh connectivity.

As user `root` and `ifps`, verify ssh connectivity from **DX1** to **DX2**.

As `root` on **DX1**:

```
ssh DX2
```

As `root` on **DX2**:

```
ssh DX1
```

As `ifps` on **DX1**:

```
ssh DX2
```

As `ifps` on **DX2**:

```
ssh DX1
```

3. Check that `/awips/GFESuite` as `root` on **DX4** is owned by `ifps:fxalpha`.

```
cd /awips
```

```
ls -l
```

Verify that GFESuite ownership is `ifps:fxalpha`, and permissions are set to 755.

4. Ensure `afos2awips.txt` pils are correct.

Download the `checkPIL.tar` script from the GSD web page:

<http://www-md.fsl.noaa.gov/ef/AWIPS/ob7.1b>

The link is at the bottom of the page and is labeled as:

Check `afos2awips.txt` FILS for Formatter Configuration formatters (updated for new SRF formatter).

From a public web client, and not from inside the AWIPS firewall, copy the downloaded `checkPIL.tar` file, across the AWIPS firewall to one of the host machines on AWIPS, such as **DX4**. Expand the tar file using the command on **DX4**:

```
tar xvf checkPIL.tar
```

Read the README file, which explains the meaning of the output. To run the checkPIL script, ensure that a valid Python is on the command path and type:

```
python checkPIL.py XXX
```

where XXX is the upper-case site identifier, such as BOU (python checkPIL.py BOU)

If an error displays (for ex. *No Module Named os*), then it is possible that the environment variables PYTHONHOME and/or PYTHONPATH have been defined. These environment variables should never be set. If the installation is continued with this environment, the installation may fail. If an error displays (for ex. *No Module Named os*), check the environment variables and unset PYTHONHOME or PYTHONPATH by typing:

```
unsetenv PYTHONPATH
```

Correct the afos2awips.txt file as necessary to ensure that ALL of the products generated at the site are identified. Some products such as the SFT may be duplicated on the list. Normally, a site will use only one of the PILs for the SFT, and thus, the unused one may be removed. Note that with GHG, there are many civil emergency message products that may not already have valid PILs and these PILs need to be added.

If the PILs are modified after the installation of this release, execute these commands (as user ifps on DX4) to regenerate the text templates:

```
cd /awips/GFESuite/primary/bin
```

```
./configureTextProducts
```

```
cd /awips/GFESuite/svcbu/bin
```

```
./configureTextProducts
```

(On ANC and VRH only) Alaska Multi-Domain sites run these additional commands on DX4:

```
cd /awips/GFESuite/Domain2/primary/bin
```

```
./configureTextProducts
```

```
cd /awips/GFESuite/Domain2/svcbu/bin
```

```
./configureTextProducts
```

A.3.7.2 GFE Pre-Installation Procedures

(To be completed by the IFPS Focal Point)

The IFPS Focal Point should complete the GFE pre-installation procedures listed in this section. The GFE Maps installation is not installed in this release. Only the Climo and CORE packages are included. After updating the map file directory with the new shapefiles, the map file names must be preserved by copying this information into the localMapfiles.py script.

The complete GFE documentation is available from the following file of the installation DVD:
/mnt/cdrom1/gfe/INSTALLATION.html

1. Make any necessary backups.

The install does not modify any SITE- or user- level configuration files, nor does it modify the grid databases, except for the Key West ID conversion. Although it is not necessary to back up the databases, it is recommended that a CD, DVD or disk copy of all tools, configuration files, procedures and edit areas be prepared. **No** backups are performed by the installation scripts.

2. Update the GFE maps directory.

Starting with OB7.1, map shapefiles are not automatically provided in the GFE installation. Sites are now responsible for maintaining the maps directory. Update the `/awips/GFESuite/primary/data/maps` directory by copying the new shapefiles that were downloaded to the `/data/local/nationalData` directory in section A.3.3. Ignore any errors displayed when performing the copy commands. Type **yes** if prompted whether the files should be uncompressed.

As user `root` from **DX4**:

```
cd /data/local/nationalData
mkdir /awips/GFESuite/newmaps
cp c_* z_* w_* oz* mz* s_* ba* fz* rf* hz* cm* cf*
/awips/GFESuite/newmaps          (This command is all one line)
cd /awips/GFESuite/newmaps
uncompress *.Z
gzip -9 *
chown ifps:fxalpha *
cp -p * /awips/GFESuite/primary/data/maps
cp -p * /awips/GFESuite/svcbu/data/maps
cd ..
rm -rf newmaps
```

3. Check `localMapFiles.py` file.

Even though the GFE Maps is not installed in this release, the GFE CORE installation contains an updated `BASE/MapFiles.py` which points to a default set of map shapefiles. As a result, it will be necessary to override the `MapFiles.py` with `SITE/localMapFiles.py`. The GFE install will fail if the `localMapFiles.py` does not point to valid shapefiles.

The general process is to prepare the local map configuration (this step), and then add the references to the general shapefiles from `MapFiles.py` to `localMapFiles.py`. (step 4)

If a `localMapFiles.py` file exists, make a backup copy of the file.

```
cd /awips/GFESuite/primary/etc/SITE
cp localMapFiles.py localMapFiles.py.bak
```

4. Check the local map configuration.

Rather than using the explicit mapfile name (such as `c_02fe06`), use mnemonics (i.e., `CountyMapName`) that exist in `Maps.py` or are defined in `localMapFiles.py`. Remove any "filename" definition for any entries in `.../etc/SITE/localMaps.py` that **modify** an existing map.

Refer to the example below or the `localMapFiles` documentation for additional details.

```
# Add new map
WYcounties = ShapeFile(MAPDIR)
WYcounties.filename(CountyMapName)

#This is okay, since it is a new map, and uses a mnemonic
WYcounties.filter(lambda x : x['STATE'] == "WY")
WYcounties.name = 'WYCounties'
WYcounties.editAreaName = ['STATE', 'COUNTYNAME']
WYcounties.groupName = 'WYCounties'
WYcounties.expandDomain = (2, 2, 0, 0)
maps.append(WYcounties)

# Add new map
COcounties = ShapeFile(MAPDIR)
COcounties.filename("c_24se05")

#This is NOT okay even though it is a new map, since an
explicit shapefile name is specified.

#An existing mnemonic or a new mnemonic should be used.
COcounties.filter(lambda x : x['STATE'] == "CO")
COcounties.name = 'COCounties'
maps.append(COcounties)

Counties.filename("c_24se05")

#This is not okay, since it modifies an existing map defined in
Maps.py with an explicit shapefile name, rather than a
mnemonic.
# Shapefile names should only exist in localMapFiles.py.
```

Changes to the `localMaps.py` and `localMapFiles.py` files should be similar to examples below (the changes are in **bold**).

```
localMaps.py:

# Add new map
WYcounties = ShapeFile(MAPDIR)
WYcounties.filename(CountyMapName)
WYcounties.filter(lambda x : x['STATE'] == "WY")
WYcounties.name = 'WYCounties'
WYcounties.editAreaName = ['STATE', 'COUNTYNAME']
WYcounties.groupName = 'WYCounties'
WYcounties.expandDomain = (2, 2, 0, 0)
maps.append(WYcounties)

# Add new map
COcounties = ShapeFile(MAPDIR)
COcounties.filename(CountyMapName)
COcounties.filter(lambda x : x['STATE'] == "CO")
COcounties.name = 'COCounties'
```

```
maps.append(COcounties)
```

```
Counties.filename("c_24se05")
```

```
localMapFiles.py:
CountyMapName = "c_24se05"
#definition for CountyMapName mnemonic.
```

5. Preserve map file references.

Using `etc/BASE/MapFiles.py`, copy the following entries to `etc/SITE/localMapFiles.py` to preserve map file references. This list contains all of the entries in `MapFiles.py` with the exception of the comment lines and the special Alaska section.

Create and populate the `/awips/GFESuite/svcbu/data/maps`

Create the `/awips/GFESuite/svcbu/etc/SITE` directory with the same ownership and permissions as the `/awips/GFESuite/primary/etc/SITE` directory. Complete the steps for the `localMapFiles.py` in both the `/awips/GFESuite/primary` and `/awips/GFESuite/svcbu` directories.

NOTE: If an office performs IFPS Service Backup after setting up the `/awips/GFESuite/svcbu/etc/SITE/localMapFiles.py` file, this file will need to be re-created by creating the directory and copying the `localMapFiles.py` over from the `/awips/GFESuite/primary/etc/SITE` directory.

When Service Backup runs, it will delete

```
/awips/GFESuite/svcbu/etc/SITE/localMapFiles.py
```

```
CountyMapName = 'c_08au05'
ZoneMapName = 'z_28de04'
CWAMapName = 'w_28de04'
OffshoreMapName = 'oz15de04'
MarineZonesMapName = 'mz06mr05'
StatesMapName = 's_29my03'
BasinsMapName = 'ba18mr05'
FireWxZonesName = 'fz06jn05'
RFCMapName = 'rf12ja05'
LakeMapName = 'lk21se99'
HighSeaMapName = 'hz28au04'
CityMapName = 'web_city'
InterstateMapName = 'rilloc01'
HighwayMapName = 'loreshwy'
ISCMapName = 'cm16my05'
FireWxAORMapName = 'cf07mr05'
CanadaMapName = 'province'
WorldMapName = 'world_adm0'
RailroadMapName = 'railrdl020'
AirportMapName = 'airprtx020'
```

The entries in `localMapFiles.py` should be the same for the `/awips/GFESuite/primary` and `/awips/GFESuite/svcbu` directories.

6. Edit `localMapFiles.py`.

Edit entries in `etc/SITE/localMapFiles.py` as necessary to ensure that they point to a map shapefile that exists in the GFESuite's `data/maps` directory. If there are entries in the backed up `localMapFiles.py` file, merge them into the new `localMapFiles.py` file if desired. The entries in the `etc/SITE/localMapFiles.py` file and the map shapefiles in the `/data/maps` directory should be the same for both the primary and `svcbu` directories. The `svcbu /data/maps` directory may be changed later.

7. Test the new map configuration.

Test the new map configuration using `runIFPServer -n` on the existing GFESuite release before the main scheduled installation day. Type:

```
/awips/GFESuite/primary/bin/runIFPServer -n
```

The latest versions of the shapefiles are downloaded from NOAA 1 in the pre-installations steps. The `localMapFiles.py` needs to be updated to reference new versions of the shapefiles, and older versions of the shapefiles can then be removed from `/data/maps`.

A.3.8 LDAD Pre-Installation Procedures

Copy local non-baseline LDAD scripts to **PX1** and **PX2**.

Any local non-baseline LDAD scripts which run on **DS1** or **DS2** must be copied from the `/awips/fxa/ldad/bin` directory to **PX1** and **PX2** prior to the scheduled main installation date. Convert any local non-baseline LDAD scripts and compiled LDAD executables from HPUX to Linux. The conversion of local non-baseline scripts and compiled executables from UNIX to Linux is the responsibility of the script author at the local site, or the Local Applications Database (LAD) script author.

A.3.9 Ghost Procedure

NOTE: The following procedure applies to WFO sites in Central Region using ghost to backup for workstation images for restoration. Other sites should skip this pre-installation step.

Edit the `/etc/fstab` file by commenting out the line referencing the `/dev/md0` mounting to `/ghost` from:

```
/dev/md0          /ghost  vfat    user,auto,owner,rw
```

to:

```
#/dev/md0        /ghost  vfat    user,auto,owner,rw
```

NOTE: At this point the pre-installation steps are completed, and the next stage is the upgrade to the operating system. Do not proceed with the following steps until the scheduled day of the main installation.

A.4 Installation Strategy for the Linux Operating System Upgrade

Perform the upgrade for the operating system on one group of baseline Linux servers and workstations at a time to allow the ability to troubleshoot.

The operating system upgrade will modify the operating system files on:

- the **DX**, **PX** and **CPSBN** servers for all sites
- the **LX** and **XT** workstations for all sites
- the **AX** servers for WFO sites
- the **RP** servers for RFC sites

The installation strategy for the OS upgrade is to divide the Linux devices into two groups, even numbered devices, and odd numbered devices. The operating system upgrade is performed on the even numbered devices first and the odd numbered devices second. This strategy allows for easier recovery if unexpected problems develop with devices during the upgrade.

Group 1 consists of all devices at the site with host names containing even numbers: DX2, DX4, PX2, LX2, XT2, LX4, XT4...etc.

Group 2 consists of all devices at the site with host names containing odd numbers: DX1, DX3, PX1, LX1, XT1, LX3, XT3 ...etc.

- Include **AX** on WFO systems
- The **AX** server at RFCs will not be upgraded

It is recommended that the names of the baseline Linux devices in each group is written down to keep track of the devices to be upgraded.

Typical WFO sites will have 4 **DX** servers, 5 **LX** Linux workstations, 5 **XT** Linux text workstations, 2 **PX** servers, 2 **CPSBN** servers, and one **AX**. Typical RFC sites will have 4 **DX** servers, 9 **LX** Linux workstations, 9 **XT** Linux workstations, 2 **PX** servers, 2 **CPSBN** servers, and two **RP** servers.

A.5 Installation Procedure for the OB7.1 Operating System (OS) Upgrade

This procedure updates the Linux operating system to Red Hat Enterprise 4u2 on all Linux devices, except for the **AX** on RFC systems.

A.5.1 Time to complete the OS upgrade

It will take approximately 4 hours for WFO systems and up to 6 hours for RFC systems to complete the OS upgrade.

A.5.2 Notify the NCF

Before starting the installation, open a trouble ticket with the NCF by calling (301) 713-9344. If problems are encountered during the install, contact the NCF and ask for OB7.1 install support.

A.5.3 Prepare for installation

1. Initiate service backup.
2. Terminate all D2D sessions and log out of the **LX** workstations.
3. Log out of all text and graphics workstations, and terminate any local and AWIPS applications open.
4. (PACE sites) Switch off PACE input during the installation.
5. (Radar sites) Send a message indicating radar unavailability during the installation.
6. Sites with data feeds to the FFA should contact the FFA to notify them of the installation.

7. Weather wire uplink sites should contact Dyncorp, and ensure a backup uplink site is not expected to be in service backup.
8. Sites with a CWSU connection should request that the CWSU log out of their D2D application. Unplug the wire to the CWSU.

A.5.4 Upgrade the first group of devices

1. Select an odd-numbered workstation (e.g., **LX1**, **LX3**, or **LX5**) and log on as `root`. Open a terminal window (Red Hat icon -> System Tools -> Terminal Window) and log in to **DX1** as `root`.

2. Change to the install directory.

```
cd /data/fxa/install_root/scripts
```

3. Create a log directory.

```
mkdir /data/fxa/install_root/logs
```

4. As the installation proceeds, review the appropriate section of the Log Output File document, to verify that the output displayed is as expected.

5. (On WFO Systems only.)

Define the environment variables of host names. Sites with more than 4 workstations must add the additional LX and XT devices to the appropriate groups.

```
export HN1="cpsbn2 dx2 dx4 px2 lx2 lx4 xt2 xt4 ax"
```

```
export HN2="cpsbn1 dx1 dx3 px1 lx1 lx3 xt1 xt3"
```

```
echo $HN1 (Verify variables are set.)
```

```
echo $HN2
```

Sites VRH and AFC also need to add PX3 and PX4 to the lists.

6. (On RFC Systems only.)

Define the environment variables of host names. Sites with more than 4 workstations must add the additional LX and XT boxes to the appropriate groups.

```
export HN1="cpsbn2 dx2 dx4 px2 rp2 lx2 lx4 xt2 xt4"
```

```
export HN2="cpsbn1 dx1 dx3 px1 rp1 lx1 lx3 xt1 xt3"
```

```
echo $HN1 (Verify variables are set.)
```

```
echo $HN2
```

RFC systems that do not have the **RP** servers should omit **RP1** and **RP2** from the list.

7. Verify that all devices are accessible by running the verify script.

Type yes if prompted whether a connection should be made to specific devices, and then rerun the verify script to ensure all devices are available.

```
script -a -f ../logs/preinstall_verify.out
```

```
./verify.sh $HN1 $HN2 (Takes < 1 minute)
```

exit

The screen output should be similar to:

```
cpsbn2-XXX RSH OK
2.4.21-32.0.1.EL
Red Hat Enterprise Linux WS release 3 (Taroon Update 4)
cpsbn2-XXX SSH OK
...
xt3-XXX RSH OK
2.4.21-32.0.1.ELsmp
Red Hat Enterprise Linux WS release 3 (Taroon Update 4)
xt3-XXX SSH OK
```

The screen output must contain each device that was defined in the environment variable. If problems occur, contact the NCF and ask for OB7.1 install support.

8. Upgrade the first group of devices by using the **\$HN1** environment variable that was previously defined. Type **yes** when prompted.

```
script -a -f ../logs/installOSgroup1.out
./kickMany.sh $HN1
```

exit

The devices in the first group will reboot and start to upgrade the OS from RHEL3u4 to RHEL4u2. The prompt will return prior to completing the upgrade.

Verify that all machines have started the upgrade. For the **LX** and **XT** workstations, review the progress on the screen. For the **DX** servers, monitor the progress from the KVM switch on the rack. For all other machines, attach a portable terminal to each box and check the installation progress.

NOTE: If the error message *That directory could not be mounted from server* displays on any device screen, press **Enter** 4 times. This action should allow the upgrade to proceed. If the error occurs again, repeat the action.

Upon reboot, if any device displays an error message (via the KVM console or external monitor) stating that the NAS is not accessible, reboot the device by powering it off/on. The device should automatically boot into `kick_net` at the splash screen, and commence the operating system upgrade. If the device does not begin upgrading after attempting this, contact NCF Upgrade Support.

It will take approximately 90 minutes for all the devices to complete the OS upgrade. Normally, the upgrade of the **DX** and **RP** servers takes approximately 30 minutes; the new **LX** and **XT** workstations takes approximately 60 minutes; the older IBM **LXs** take approximately 90 minutes; the **PX** servers take approximately 75 minutes; and the **CPSBN** servers take approximately 90 minutes.

After the upgrade, if an error indicates that the NAS is unavailable to any device, power the device off/on, and connectivity should resume. If unable to restore connectivity, contact the NCF for install support.

9. Once all devices in the first group have been upgraded, run a script to verify that the first group of devices has been successfully upgraded with the new kernel.

```
script -a -f ../logs/verifygroup1.out
./verify-rsh.sh $HN1 (Takes < 1 minute)
exit
```

The screen output from this script has a similar style to the earlier verify script. Verify that all devices in group one identify the OS as the release 4 Update 2.

```
cpsbn2-XXX RSH OK
2.6.9-22.EL
Red Hat Enterprise Linux WS release 4 (Nahant Update 2)
...
```

Do **NOT** proceed if any device in this group did not successfully upgrade. Contact the NCF and ask for OB7.1 install support.

10. Run the post install script for the first group of devices. Ensure this script is run in the same window the environmental variables were set.

```
script -a -f ../logs/postinstall_group1.out
./postinstall.sh $HN1 (Takes 40 to 50 minutes)
exit
```

The devices will reboot again after the new kernels are installed.

Wait until all devices are back up before proceeding.

11. Run the verify script. Ensure this script is run in the same window the environmental variables were set.

```
script -a -f ../logs/postinstall_verify_group1.out
./verify.sh $HN1 (Takes < 1 minute)
exit
```

The screen output should be similar to the following:

```
dx2-XXX RSH OK
2.6.9-37.ELsmp
Red Hat Enterprise Linux WS release 4 (Nahant Update 2)
dx2-XXX SSH OK
...
xt2-XXX RSH OK
2.6.9-37.EL
Red Hat Enterprise Linux WS release 4 (Nahant Update 2)
```

```
xt2-XXX SSH OK
```

Verify the output contains the new kernel, 2.6.9-37EL, and that RSH and SSH are OK. If the kernel version is not correct or the script asks for a password, contact the NCF and ask for OB7.1 install support.

12. Log out of both **DX1** and the odd-numbered workstation.

A.5.5 Upgrade the Second Group of Devices

1. Select an even-numbered workstation (e.g., **LX2**, **LX4**, or **LX6**) and log on as `root`. Open a terminal window and log in to **DX2** as `root`.

2. Change to the install directory.

```
cd /data/fxa/install_root/scripts
```

3. (On WFO systems only)

Redefine the environment variables of host names. The variable must be redefined since the script will run from **DX2**. Sites with more than 4 workstations must add the additional odd numbered **LX** and **XT** devices to the appropriate groups.

```
export HN2="cpsbn1 dx1 dx3 px1 lx1 xt1 lx3 xt3"
```

```
echo $HN2
```

(Verify variables are set.)

Sites VRH and AFC also need to add **PX3** to this list of devices.

4. (On RFC systems only)

Redefine the environment variables of host names. The variable must be redefined since it is now run from **DX2**. Sites with more than 4 workstations must add the additional odd-numbered **LX** and **XT** devices to the appropriate groups.

```
export HN2="cpsbn1 dx1 dx3 px1 rp1 lx1 xt1 lx3 xt3"
```

```
echo $HN2
```

(Verify variables are set.)

RFC systems that do not have the RP servers should omit **RP1** from the list.

5. Upgrade the second group of baseline Linux devices by using the **\$HN2** environment variable that was just defined.

```
script -a -f ../logs/installOSgroup2.out
```

```
./kickMany.sh $HN2
```

```
exit
```

The devices in the second group will reboot and start to upgrade the OS from RHEL3u4 to RHEL4u2.

Verify that all devices in group 2 have started the upgrade. For the **LX** and **XT** workstations, review the progress on the screen. For the **DX** servers, monitor the progress from the KVM switch on the rack. For all other machines, attach a terminal to each box and check the installation progress.

NOTE: The error message *That directory could not be mounted from server* may display on some Linux devices at the beginning of the OS upgrade, especially the **LX** and **XT** workstations. If this occurs on any device, select the **Enter** key 4 times. This action should allow the upgrade to proceed. If the error occurs again, repeat the action.

Upon reboot, if any device displays an error message (via the KVM console or external monitor) stating that the NAS is not accessible, reboot the device by powering it off/on. The device should automatically boot into *kick_net* at the splash screen, and commence the operating system upgrade. If the device does not begin upgrading after attempting this, contact NCF Upgrade Support.

It will take approximately 90 minutes for all the devices to finish the upgrade. Normally, the upgrade of the **DX** and **RP** servers takes approximately 30 minutes; the **LX** and **XT** workstations takes approximately 60 minutes; the older IBM **LXs** take approximately 90 minutes; the **PX** servers take approximately 75 minutes; and the **CPSBN** servers take approximately 90 minutes to upgrade.

After the upgrade, if an error indicates that the NAS is unavailable to any device, power the device off/on, and connectivity should resume. If unable to restore connectivity, contact the NCF for install support.

6. Once all devices in the second group have been upgraded, run a script to verify the second group of devices has been successfully upgraded to the new kernel.

```
script -a -f ../logs/verifygroup2.out
```

```
./verify-rsh.sh $HN2
```

```
exit
```

The screen output will have a similar style to the earlier verify script. Verify that all devices in the group two identify release 4 Update 2.

```
cpsbn1-XXX RSH OK
```

```
2.6.9-22.EL
```

```
Red Hat Enterprise Linux WS release 4 (Nahant Update 2)
```

```
...
```

Do **NOT** proceed if any Linux device in group two did not successfully upgrade. Contact the NCF and ask for OB7.1 install support if any device has not upgraded to the version of new kernel.

7. Run the post install script for the second group.

```
script -a -f ../logs/postinstall_group2.out
```

```
./postinstall.sh $HN2 (Takes 40 to 50 minutes.)
```

```
exit
```

The devices reboot again after the new kernels are installed.

Wait until all devices are back up before proceeding.

8. Run the verify script.

```
script -a -f ../logs/postinstall_verify_group2.out
```

```
./verify.sh $HN2 (Takes < 1 minute.)
```

```
exit
```

The screen output should be similar to:

```
dx1-XXX RSH OK
2.6.9-37.ELsmp
Red Hat Enterprise Linux WS release 4 (Nahant Update 2)
dx1-XXX SSH OK
...
xt3-XXX RSH OK
2.6.9-37.EL
Red Hat Enterprise Linux WS release 4 (Nahant Update 2)
xt3-XXX SSH OK
```

Verify that the output contains the new kernel, 2.6.9-37EL, and that RSH and SSH are OK. If the version of the kernel is not correct or the script asks for a password, contact the NCF and ask for OB7.1 install support.

A.5.6 OS Post-Installation Procedures

1. Run a final OS post-install for the whole platform.

```
script -a -f ../logs/postinstall_global.out
./postinstall-global.sh (Takes < 1 minute)
exit
```

2. Log out of **DX2**.

The OS upgrade is now complete for all baseline Linux devices.

A.6 Installation Procedure for the OB7.1 Software Upgrade

A.6.1 Prepare System for Software Upgrade

1. Log into any workstation as `root`, open a terminal window, and log in to **DX1** (as `root`).
2. As the installation proceeds, review the appropriate section of the Log Output File document, to verify that the output displayed is as expected.
3. Run the script to move the Nationally Managed Data (NDM) data files and nationally managed shapefiles into the proper location.

| |
|---|
| <p>NOTE: If the site uses customized shapefiles, additional steps must be taken to locally save and restore them. See Attachment D for a list of shapefiles and NDM files that are moved in this step.</p> |
|---|

```
script -a -f /local/install/moveob7files.out
cd /data/local/nationalData
```

./moveob7files.sh (Takes < 1 minute)

exit

- Return the application packages back to the primary servers. The apps packages are running on all of the even numbered servers due to the OS upgrade. Use the following heartbeat commands to return the application packages back to the primary servers.

ssh dx1 hb_swap dx1apps

ssh dx3 hb_swap dx3apps

ssh px1 hb_swap px1apps

(For AFC and VRH only)

ssh px3 hb_swap px3apps

(For RFC Systems with RP servers only)

ssh rp1 hb_swap rp1apps

- Use the heartbeat status commands to verify application packages are on the primary servers.

ssh dx1 hb_stat

ssh dx3 hb_stat

ssh px1 hb_stat

(For AFC and VRH only)

ssh px3 hb_stat

(For RFC Systems with RP servers only)

ssh rp1 hb_stat

If packages did not swap properly, contact the NCF and ask for OB7.1 install support.

- Insert the OB7.1 AWIPS Software DVD into **DX1** DVD drive.
- Mount the DVD.

From **DX1** as `root`.

mkdir -p /mnt/cdrom1

mount /dev/cdrom /mnt/cdrom1

cd /mnt/cdrom1

- Copy the new `VerifySSHkeys.sh` script from the DVD and run it on the system to set up keys for **DX3** and **DX4** and to verify `ssh` connectivity between all devices.

When prompted with a statement that some sites use `ssh` to connect, respond yes to clean up the `known_hosts` file on the devices. The `ssh` keys will be restored to the baseline AWIPS. Any non-baseline information will be removed and saved off, and can be restored manually if necessary.

If no response is given, the script will skip this step and the site will then be responsible for fixing any bad `ssh` keys prior to continuing with the installation.

/bin/cp -f home/awipsadm/ssh/VerifySSHkeys.sh

/home/awipsadm/ssh

(This is all one line.)

rlogin px1

```
mkdir -p /local/install
script -a -f /local/install/VerifySSHkeys.out
cd /home/awipsadm/ssh
./VerifySSHkeys.sh (Takes about 4 minutes.)
exit (Exits output script.)
exit (Returns to DX1.)
```

A.6.2 Install OB7.1 Software

1. Execute the preinstall script. As user `root` login to DX1. Ignore `kill` error messages.

```
script -a -f /local/install/preinstallOB7-1.out
cd /mnt/cdrom1
./preinstall_OB7 (Takes about 5 minutes.)
exit
```

2. Execute the `installLinux` script.

In the LDAD section, ignore Permission denied or `scp: No such file or directory` messages. Elsewhere, ignore `mkdir: Cannot create directory /awips/fxa/data/localization/KEY` messages and `cp: cannot stat /etc/init.d/postgresql: no such file or directory` error messages.

The `installLinux` script may pause periodically, prompting the installer to accept SSH keys. If prompted, respond by typing `yes`.

A list of WarnGen templates that are modified during this portion of the installation is provided in Attachment E.

```
script -a -f /local/install/installLinuxOB7-1.out
cd /mnt/cdrom1
./installLinux_OB7 (Takes 80 to 100 minutes.)
exit
```

3. Execute the Hydro script.

Ignore `chmod: cannot access` error messages.

```
script -a -f /local/install/installOHOB7-1.out
cd /mnt/cdrom1
./installOH_OB7 (Takes about 5 minutes.)
exit
```

4. (On WFO systems only)

Execute the Adapt script.

Ignore `climate_HP.tar.gz` and `wwa_hp.tar.gz` error messages.

```
script -a -f /local/install/installADAPTOB7-1.out
cd /mnt/cdrom1
./installADAPT_OB7                      (Takes about 5 minutes.)
exit
```

5. (On WFO systems only.)

Execute the NWRWAVES script.

This script installs NWRWAVES version 2.6.1 if it has not yet been installed, or exits without updating if the NWRWAVES version 2.6.1 is the current version on the system. Enter yes if prompted to continue with the installation of NWRWAVES.

Ignore chmod: changing permissions of /mnt/cdrom1/updateProductCFG failed error messages.

```
script -a -f /local/install/installNWRWAVESOB7-1.out
cd /mnt/cdrom1
./installNWRWAVES.sh                    (Takes about 5 minutes.)
exit
```

6. (Select systems only)

NOTE: Only the following sites should install the NMAP software. All other sites skip to the next step.

ACR, AFC, AFG, AJK, ALR, BCQ, EHU, FWR, GUM, HFO, KRF, MFL, MSR, NHCR,
NHCW, NHDA, NHOR, NHOW, ORN, PBP, RHA, SJU, SPCW, TAR, TBDR, TIR, TUA,
VHW, VRH, VUY, WNAW, WNOR, WNOW

Execute the NMAP script.

```
script -a -f /local/install/installNMAPOB7-1.out
cd /mnt/cdrom1
./installNMAP_OB7                      (Takes about 5 minutes.)
exit
```

7. (All sites)

Execute the postinstall script.

```
script -a -f /local/install/postinstallOB7-1.out
cd /mnt/cdrom1
./postinstall_OB7                      (Takes about 15 minutes.)
exit
```

8. (On WFO systems only)

Execute the GFE Climo script. Replace the CCC in the command with the localization ID in capital letters.

```
script -a -f /local/install/gfeClimoOB7-1.out
cd /mnt/cdrom1/gfeClimo
./masterGFEInstall_Climo CCC           (Takes about 5 minutes.)
exit
```

9. (On WFO systems only)

Execute the GFE install script. Replace the CCC in the command with the localization ID in capital letters.

```
script -a -f /local/install/gfeOB7-1.out
cd /mnt/cdrom1/gfe
./masterGFEInstall CCC           (Takes about 15 minutes.)
exit
```

10. (On WFO systems only)

Execute the IFPS install script.

```
script -a -f /local/install/installIFPSOB7-1.out
cd /mnt/cdrom1/ifps
./installIFPS           (Takes about 10 minutes.)
exit
```

11. (On WFO systems only.)

Execute the AvnFPS install script. Ensure the `/data/local/avnfps` directory exists prior to proceeding with this step. If the directory does not exist, create the directory using the `mkdir` command.

```
script -a -f /local/install/installAVNFPSOB7-1.out
cd /mnt/cdrom1/avnfps/3.2
./installAVNFPS.sh /mnt/cdrom1/avnfps/3.2
(Takes about 3 minutes.)
exit
```

12. Eject the DVD.

```
cd
eject /mnt/cdrom1
```

The AWIPS Release OB7.1 software installation is now complete.

A.7 Post-installation Information and Procedures

A.7.1 Restore the System

Complete or review the following steps to return the system to full operation.

1. Permit users to log back on to AWIPS.
2. (PACE sites) Turn the PACE input back on.
3. (Radar sites) Send a message regarding the return to service of the radar.
4. Baseline crons (such as the `px1cron`) were delivered during the install. Verify crons such as climate are set to the proper run time.
5. Complete system checkout.

Check the following to verify the system monitoring capabilities are functioning, and that the processing and the storage of radar data is restored to normal.

- a. Mozilla System Monitoring Window.

Start the Mozilla browser and verify that servers and processes are processing normally.

- b. Radar products.

Verify that radar products are being stored locally. Verify radar products are disseminated via the Wide Area Network (WAN) by checking the following site:

<http://weather.noaa.gov/monitor/radar>

6. Modify the settings for the new firewall.

As user `root` on **PX1**:

```
script -a -f /local/install/installFIREWALLOB7-1.out
cd /home/awipsadm/install/fw
./ob71firewall.sh
./ob71firewall (Takes < 1 minute)
exit
```

7. Update the LS1 Release file

As user `root` on **DX1**:

```
scp /awips/Release_ID ls1:/ldad/Release_ID
```

8. Restore the CWSU connection if applicable.

9. Complete the ghost procedures if applicable.

NOTE: The following procedures apply to WFO sites in Central Region using ghost to backup for workstation images for restoration. Other sites should skip this post-installation step.

Edit the `/etc/fstab` file by removing the comment (`#` symbol) from the line referencing the `/dev/md0` mounting to `/ghost` from:

```
#/dev/md0    /ghost    vfat      user,auto,owner,rw
```

to:

```
/dev/md0    /ghost    vfat      user,auto,owner,rw
```

A.7.2 Notify the NCF

Contact the NCF and close the trouble ticket that was opened for the installation.

A.7.3 AvnFPS Post-Installation Instructions

A.7.3.1 Update the AvnFPS Text Triggers

To include the new Collaborative Convective Forecast Product issued by the Aviation Weather Center, the text triggers must be updated. OCONUS sites should perform this step as well to remove references to any AvnFPS 3.1-style triggers in the PostgreSQL database.

A.7.3.2 Start the AvnFPS GUI

1. Start the AvnFPS Configuration GUI via the AWIPS root menu, or at a terminal window as user `fxa` with the following command:


```
/awips/adapt/avnfps/bin/avnstart.sh avnsetup
```
2. Once the AvnSetup GUI appears, select the **Triggers** button. Once the *Trigger Editor* GUI appears, press the **Update** button to fill-in any missing AFOS identifiers for the text products that need to be sent or received. OCONUS WFOs can leave the CCFP columns blank. WFOs not planning to issue 30-h TAFs can leave the XFT column blank as well.
3. Once the fields are updated, press the **Make** button to update the text triggers in the PostgreSQL database. The status window at the bottom of the Trigger Editor GUI should indicate a successful operation.

A.7.4 GFE Post-Installation Information and Procedures (On WFO Systems Only)

A.7.4.1 ETA to NAM Conversion

The capability to process the ETA numerical model guidance is no longer provided in GFE, the ETA is now called the NAM to parallel the AWIPS D2D model naming scheme. This will force the conversion of scripts that identify the ETA model to the NAM model. This installation contains conversion scripts to convert local scripts (e.g., Smart Initializations, Smart Tools, Procedures, localConfig.py) from ETA to NAM. The installation doesn't convert local scripts in place; instead it converts them and writes the converted copies into the GFE installation directory's

`EtaToNAM_files` directory (on AWIPS this directory is

`/awips/GFESuite/primary/EtaToNAM_files`).

The conversion scripts rename files that contain ETA to NAM, and examine file contents and perform string substitutions from ETA to NAM. In the event that an ETA appears either in the filename or contents of the file that doesn't refer to the ETA model, the conversion will still occur but may not be appropriate.

After the installation is complete, review the converted files that were put into this directory and if appropriate, copy them into the GFESuite runtime tree. The installation log lists each renamed file and provides a context-sensitive "diff" of the previous and converted contents of files for reference.

There is no preparation required before the installation for the Conversion from ETA to NAM; however, just be aware that not all local scripts may correctly function until the scripts are modified directly, or use (as a template) the automatically converted scripts placed into the EtaToNAM directory.

A.7.4.2 Remove Old IFP Model Data Source Options in Weather Element Browser

After the main GFE install, start GFE and open the IFP Sources menu of the Weather Element Browser and identify any old model sources, and clean these out from the databases. These steps may be completed a few days after the main installation date.

Login to **DX4** as user `ifps`.

```
cd /awips/GFESuite/primary/data/databases/BASE/GRID
```

```
ls -alt
```

Look for any directories that contain old data, and remove all files within those directories and the directories themselves. For example, the Eta12 is now an old database, so any files within that directory should be deleted, and the Eta12 directory should also be deleted. After removing these old files and directories, restart the `ifps` server.

A.7.4.3 Remove old D2D Model Data Source Options in Weather Element Browser

After the main GFE install, start GFE and open the D2D Sources menu of the Weather Element Browser and identify any old model sources, and clean these out from the databases. These steps may be completed a few days after the main installation date.

Login to **DX4** as user `ifps`.

```
cd /awips/GFESuite/primary/etc/BASE
```

```
more serverConfig.py
```

Search for old model sources such as `gfsLR` and find the path defined for the `D2DDIRS` for each of the old model sources. Change to the directory defined for the `gfsLR` and all other old model sources, and delete any old `netCDF` files within those directories, and the old directories.

Also check the `localConfig.py` for old model sources. Not all sites will have this file.

```
cd /awips/GFESuite/primary/etc/SITE
```

```
more localConfig.py
```

Search for old model sources such as `gfsLR` and find the path defined for the `D2DDIRS` for each of the old model sources. Change to the directory defined for the `gfsLR` and all other old model sources, and delete any old `netCDF` files within those directories, and the old directories.

Restart the `ifpserver` after removing all old model sources from the `serverConfig.py` and `localConfig.py` files.

A.7.4.4 Service Backup Procedures

Once modifications to the `localMapFiles.py` file are completed, export the configuration Information to the Central Server. Also, to ensure compatibility with OB6 and OB7.1, verify that the `primary/etc/SITE/localConfig.py` file shown in the GFE pre-install step 6 is updated.

Send the `localMapFiles.py` file by e-mail to all the potential backup sites. Ask the IFPS focal point to compare the `localMapFiles.py` with the shapefiles they have in `/awips/GFESuite/svcbu/data/maps`. If the backup site's focal point discovers there are map shapefiles listed in the `localMapFiles.py` that they don't have, the staff should contact the office to request those shapefiles. Service Backup will fail unless the `localMapFiles.py` file and the map shapefiles in `/data/maps` match.

Before performing service backup for a site, check with the sites which back up the office, to make sure the site has the backup site's shapefiles available in `/awips/GFESuite/svcbu/data/maps`.

If the shapefiles are not available by the time service backup begins, the error message *WARNING: MAP-RELATED CONFIGURATION ERRORS* will display. If this error displays, the `ifpServer` log for service backup (`DX4:/awips/GFESuite/svcbu/data/logfiles/`) will show an error message like the one below:

```
17:45:47.490 MapManager.C 338 PROBLEM: ***** MAP BACKGROUND
GENERATION ERROR - Source Shapefile *****
Error in generating map #20 Name: ISC_all Basename: Code: Traceback
(most recent call last):
  File "./ifpServer/ShapeFile.py", line 371, in open
  File "./ifpServer/ShapeFile.py", line 173, in __init__
  File "./ifpServer/ShapeFile.py", line 49, in __init__
  File "./ifpServer/ShapeFile.py", line 57, in open
  File "./ifpServer/ShapeFile.py", line 32, in _open
exceptions.IOError: /awips/GFESuite/svcbu/data/maps/cm02se05.shp,
/awips/GFESuite/svcbu/data/maps/cm02se05.shp.gz, or
/awips/GFESuite/svcbu/data/maps/cm02se05.shp.Z does not exists
```

If this happens, get the missing shapefiles from the site to be backed up and restart the backup `ifpServer`. There still may be compatibility problems with text formatters between Releases OB6 and OB7.1 due to text formatter infrastructure changes. Remember that the baseline version of the formatters may be run if the SITE-level formatters fail.

A.7.5 Hydro Post-Installation Procedures

A.7.5.1 Localization Required for Local MPE Display in D2D (On WFO and RFC systems)

1. Enable QPE GRIB File Transmission.

Starting in AWIPS Release OB6, the capability to display Quantitative Precipitation Estimate (QPE) grids generated by the Multi-Sensor Precipitation Estimator (MPE) application in the D2D application is available. To enable this capability, the MPE application must be configured using settings defined in the `/awips/hydroapps/Apps_defaults_site` file.

As discussed in the Office of Hydrologic Development (OHD) documentation on MPE operations, this text file must be edited so that the following two tokens are set as follows. Make the changes on any device (except the DS) as user oper. If a token is new, place it at the end of the file.

```
mpe_save_grib      :      save
mpe_d2d_display_grib      :      ON
```

The mpe_save_grib token instructs MPE applications to save the QPE grid in GRIB format whenever a "save" operation is performed, while the mpe_d2d_display_grib token results in the GRIB file being sent to the AWIPS GRIB decoder for subsequent decoding, storage, and display in D2D.

The resulting netCDF grids can be displayed in D2D using the options under the NCEP/Hydro Menu option. Go to the Hydro section, and select **QPE ->1 hour MPE grids->Local Image** and view the data. If the Local Image/Contour options are grayed out, then select **Regional** or **State** or **WFO** under Options->Display Properties->Scale

2. Localization Required for D2D QPE Display

Because the MPE "areas" are not fully defined in the D2D environment, additional localization is required to allow proper processing and display of the data in D2D.

- a. Log in to **DX3** or **DX4** with the GribDecoder running.

```
ps -ef | grep GribDecoder
```

- b. Check that the file `localMPE.txt` and `MPE.cdlTemplate` exist.

- 1) To do this, as user `fxa`, type:

```
find /awips/fxa -name localMPE.txt
```

- 2) If the template file does not exist, run localization as user `fxa` using the command:

```
/awips/fxa/data/localization/scripts/mainScript.csh
-clipSupps -grids
```

This localization script will create the template file for site `XXX`:

```
/awips/fxa/data/localizationDataSets/xxx/MPE.cdlTemplate
```

NOTE: A number of other files are created in `/awips/fxa/data/localizationDataSets/XXX`, where the environment variable `FXA_LOCAL_SITE` is used for `XXX`.

- 3) Review the attributes of the file `MPE.cdlTemplate`:

```
cd /awips/fxa/data/localizationDataSets/xxx
/usr/local/netcdf/bin/ncdump -h MPE.cdlTemplate
```

For example, the following x, y dimensions should be set up correctly for `BOX`.

```
// global attributes:
:cdlDate = "20041103" ;
:depictorName = "HrapBOX@18353770" ;
:projIndex = 1 ;
```

```

:projName = "STEREOGRAPHIC" ;
:centralLat = 90.f ;
:centralLon = -105.f ;
:rotation = 0.f ;
:xMin = -0.01482168f ;
:xMax = 0.02603814f ;
:yMax = -0.4546655f ;
:yMin = -0.4831071f ;
:lat00 = 38.40784f ;
:lon00 = -106.7573f ;
:latNxNy = 41.02996f ;
:lonNxNy = -101.7223f ;
:dxKm = 4.223799f ;
:dyKm = 4.242133f ;
:latDxDy = 39.75437f ;
:lonDxDy = -104.3147f ;

```

- 4) This step defines the change required to the `gribTableInfo.txt`. It is a permanent solution to address the grid definition – i.e. it is not affected by any subsequent localization. However, it does require localization to be run.

As user `fxa`, create a new file called `gribTableInfo.txt` under `/data/fxa/customFiles`, and add the following two lines to it. Note that the first line is an instruction; it is not a comment line. The second line should not include the carriage return shown. Also, substitute the actual office name for `BOX`.

```
#append
```

```
NWSO_KBOX_ed1 | gribGridsNCEP_ed1.txt | gribModelsNWSO_
ed1.txt | gribParametersNWSO_ed1.txt           (All on one line)
```

This will append this line to the default table each time a localization is run.

Run the following localization:

```
/awips/fxa/data/localization/scripts/mainScript.csh
- clipSups -grids           (All on one line)
```

- 5) Kill the `GribDecoder` process; it will then restart on its own. This allows the above changes to take affect. Use:

```
ps -ef | grep GribD
kill -9 processid
```

A.7.5.2 Setup of MPE Processing (on WFO and RFC Systems)

The following scripts must be executed for Multi-sensor Precipitation Estimator (MPE) processing to operate properly. These scripts can be executed as any user.

Run MPE scripts by typing the following commands:

```
cd /awips/hydroapps/precip_proc/bin
run_create_mpe_gage_file
run_create_mpe_beam_height_file
```

run_create_triangles

NOTE: For large RFCs, the `run_create_triangles` script takes 1 to 2 hours to complete. This script may be executed after the main installation date at the convenience of the site. For typical WFOs, it takes approximately 1-3 minutes.

The scripts perform the following functions:

`run_create_mpe_gage_file` - This script creates the `mpe_gage_locations` file in the `/awips/hydroapps/precip_proc/local/data/app/mpe/gage_locations` directory. This file contains a list of the gages and their lat/lon coordinates used by MPE Fieldgen. Whenever the `IngestFilter` table is modified to add or remove gages from MPE, this script needs to be run to update the `mpe_gage_locations` file.

`run_create_mpe_beam_height_file` - This script creates the `mpe_radar_beam_height` file in the `/awips/hydroapps/precip_proc/local/data/app/mpe/beam_height` directory. For each HRAP grid bin in a DPA product grid, this routine computes the height of the radar beam using the 0.5 degree base tilt. At run time, MPE Fieldgen reads this file and uses it in the creation of the Radar Mosaic.

`run_create_triangles` - Even if an office does not plan on using the P3LMOSAIC (the Triangulated Local Bias Mosaic), it is recommended that this script be run. It creates the `utiltriangles` and `radarconfile` files in the `/awips/hydroapps/precip_proc/local/data/app/mpe/utiltriangles` directory. These files create the HRAP-based Triangular Irregular Network (TIN) which MPE Fieldgen requires for the creation of the P3LMOSAIC.

Running the `create_triangles` program is only required if the `p3_lmosaic` ("Triangulated Local Bias Mosaic") field, which is new for OB7.1, is to be generated.

To configure this, edit the `/awips/hydroapps/.Apps_defaults_site` file and add `p3_lmosaic` to the `mpe_generate_list` token.

If the `create_triangles` application is not run, and `p3_lmosaic` field is added in the `mpe_generate_list` token, the following behavior would occur:

- Running `mpe_fieldgen` would not generate a `p3_lmosaic xmrg` file. P3_lmosaic calculation would abort and a message is added to the log file mentioning that the static files required to calculate `p3_lmosaic` were not found.
- In the interactive MPE_Editor application, if the user clicks the *Triangulated Local Bias Mosaic* (i.e., the `p3_lmosaic`) field, it would display a blank field.

A.7.5.3 Adjust HydroGen Configuration (On WFO Systems Only)

The Hydrograph Generation (HydroGen) software should be configured as follows.

1. Edit the `/awips/hydroapps/HydroGen/input/hg.cfg` file as user `oper`:
Change the number in the database name from 6 to 7. For example, the line
`DBname = hd_ob6oun` would change to `DBname = hd_ob7oun`
The correct database name will include the office id in place of "oun".
2. Comment out the line that begins:

```
OHD_PERL_LIBS =
```

by placing a # sign directly in front of the variable as in:

```
#OHD_PERL_LIBS = ...
```

Examine the new `hg.cfg` file to confirm that all changes look consistent with the `/awips/hydroapps/HydroGen/input/hg.cfg.baseline` example.

A.7.5.4 Configure River Monitoring Operations

New river monitoring applications are provided in OB7.1 based on lessons learned from the hydro-VTEC Operational Test and Evaluation. Although optional for OB7.1, WFOs and RFCs should consider incorporating these two applications into their local configuration. They are described on the WHFS support team web page at: <http://www.nws.noaa.gov/om/whfs/>.

River Monitor

A new application provides a continuous, automatically-updated display table with key river data monitoring information. However, River Monitor was not included in the OB7.1 AWIPS D2D or desktop menus. To start RiverMonitor, issue the following command from a terminal window:

```
/awips/hydroapps/whfs/bin/start_rivermonitor
```

This startup command can be added to local menus as desired. If RiverMonitor is enabled, also remove the following file in order to ensure proper operation of the RiverMon application, using the following commands:

```
cd /awips/hydroapps/whfs/local/data/log/rivermon
rm rivermon_PCMS_placeholder
```

ObsFcst Monitor

A new cron-scheduled process compares observed river data with forecast data, and if the differences are larger than a user-managed threshold, an alert/alarm is noted as per existing WHFS alert/alarm operations. These alert/alarms can then be viewed interactively within the existing HydroView Alert/Alarm display window, they can be reported as an internal product using the existing `report_alarm` cron job, or they can be displayed in the new persistent RiverMonitor. To enable the comparison, the following run script entry should be added to a local cron definition:

```
/awips/hydroapps/whfs/local/bin/run_obsfcst_monitor
```

It is recommended that the process be scheduled to run approximately 15-30 minutes, in order to adequately capture changes to the observed and forecast data sets.

Populate River Monitor Database Tables

The database population script must be acquired from the NOAA1 server. To acquire the file and place it in the proper directory, log into DX1 (on AWIPS) as user `oper` and do the following:

1. Type `cd /awips/hydroapps/whfs/bin`
2. sftp to [ftpawips@165.92.25.137](ftp://ftpawips@165.92.25.137)
3. At the password prompt, enter the password **!SAWIPS4**

4. Type:

```
cd pub/ohd/rivermon
get init_rivermon_tables_ob71.v2.ksh
bye
```

This action (*bye*) exits the NOAA1 server.

5. On DX1, ensure the `init_rivermon_tables_ob71.v2.ksh` script is executable by typing:

```
chmod 775 init_rivermon_tables_ob71.v2.ksh
```

6. Execute the script:

```
init_rivermon_tables_ob71.v2.ksh
```

This action will populate the `rivermongroup` and `rivermonlocation` tables in the hydro database. The River Monitor application may now be started.

A.7.5.5 Reset MPE State Parameter Information

Bias Information

In OB7.1, the Multi-Sensor Precipitation Estimator (MPE) local bias state variables file has a different binary format. This file is used to calculate the local bias corrected radar and local bias corrected satellite fields.

If an office is NOT using the local bias information, as is the case for probably all WFOs and some RFCs, the files should be deleted; they will be automatically re-created by later MPE cron operations. Remove all files from the two directories containing MPE state variable files by carefully using the following commands:

```
cd /awips/hydroapps/precip_proc/local/data/mpe/state_var
rm -f *

cd /awips/hydroapps/precip_proc/local/data/mpe/sat_state_var
rm -f *
```

This command can be issued as any user, as these directories are not protected.

If an office is using the local bias information, contact NWS HQ (WHFS or RFC support teams) to request a conversion be performed using a special utility application. This utility will perform the one-time conversion of the file.

A.7.5.6 Modify Font Token on Archive Server (On RFC systems only)

Modify Font Token

Change the `datview_plot` token on the Archive Server (AX) in the `/awips/hydroapps/.Apps_default` file from:

```
-adobe-courier-bold-r-normal-*-*-90-*-*-m*-iso8859-1
```

to:

```
-adobe-courier-bold-r-normal-*-*-80-*-*-m*-iso8859-1
```

A.7.6 OB7.1 WarnGen Post Installation Procedures

A.7.6.1 Baseline and Customized WarnGen Templates

1. Changes to Baseline WarnGen Templates

The following WarnGen templates are delivered in AWIPS OB7.1 and are located in the `/data/fixa/nationalData` directory:

| | |
|--|------------------------------|
| <code>wwa_ffw.preWWA</code> | (one line change from OB6.1) |
| <code>wwa_ffw_svr.preWWA</code> | (one line change from OB6.1) |
| <code>wwa_flflood_sta.preWWA</code> | (no changes from OB6.1) |
| <code>wwa_flflood_sta_county.preWWA</code> | (no changes from OB6.1) |
| <code>wwa_flood_adv_sta.preWWA</code> | (no changes from OB6.1) |
| <code>wwa_flood_sta.preWWA</code> | (no changes from OB6.1) |
| <code>wwa_svrwx_sta_county.preWWA</code> | (no changes from OB6.1) |
| <code>wwa_tor.preWWA</code> | (two line change from OB6.1) |

2. Changes recommended for customized templates.

The OB7.1 WarnGen template changes are minor. The easiest way to incorporate the OB7.1 changes into customized OB6.1 templates is to manually make the OB7.1 changes in the custom templates, and then localize the workstations.

The following changes should be made in the customized version of three WarnGen templates in `/data/fixa/customFiles`:

a. `wwa_ffw.preWWA` (Convective Flash Flood)

Change the following line from this:

```
{=VEHICLES CAUGHT IN RISING WATER= Do not drive into water... |
```

To this (to prevent the auto trigger of this bullet):

```
{= Do not drive into water... |
```

b. `wwa_ffw_svr.preWWA` (Convective Flash Flood with Severe Thunderstorm)

Change the following line from this:

```
{=VEHICLES CAUGHT IN RISING WATER= Do not drive into water... |
```

To this (to prevent the auto trigger of this bullet):

```
{= Do not drive into water... |
```

c. `wwa_tor.preWWA` (Tornado)

Change the following line from this:

```
@@PTPE |proximal=9 |proximal=OVER~
```

To this (to correct the PTPE variable error): (Change from 2 to 3 @ symbols)

```
@@@PTPE |proximal=9 |proximal=OVER~
```

Change the following line from this:

```
|item_format=[99,`][1702,county_type][2702,counties_type][599,~AND~] >
```

To this:

```
|item_format=[99,`][1702,county_type][2702,counties_type][599,~AND~]
|var=fourthBullet>
```

NOTE: The above “item_format” change needs to be made in two separate locations in the template to correct an “other locations” error in the fourth bullet.

3. After making the above changes, implement the new templates by running the following localization on each workstation:

```
./mainScript.csh f -wwa
```

4. After the localization, restart D2D/WarnGen and verify that WarnGen still works properly.

A.7.7 Localization

A.7.7.1 Localization of Flash Flood Monitoring and Prediction

1. As user `fxa` on **LX1** run the forced localization for the site by typing:

```
cd /awips/fxa/data/localization/scripts
```

```
./mainScript.csh f -scan
```

2. Stop the FFMPprocessor on PX1:

```
ssh px1
```

```
stopFFMPprocessor
```

3. Remove data files for each radar set up for monitoring within the FFMP application:

```
cd /data/fxa/radar/XXXX/ffmp
```

```
rm 200* FFG?hr.dat accum* FFG?hrOverride.dat
```

Where `XXXX` is the 4-letter radar ID and `?` is the FFG time frame (1, 3, 6). If Override files are removed, re-apply them using the `ForcedFFG.tcl` GUI.

```
ForcedFFG.tcl
```

(optional)

4. Re-start the FFMPprocessor on PX1:

```
startFFMPprocessor
```

After completing these localization procedures, the Flash Flood Monitoring and Prediction (FFMP) application will not function until the processor has build up data. For example, only after a minimum of 30 minutes have passed since completion of the localization procedures, the application will be able to display the 30 minute data.

Once the data is displayable in FFMP after the localization, ensure it is correct, and then copy files from LX1 to other workstations at which D2D is run.

5. Copy selected files to each LX device at which D2D is run:

```
exit
```

```
cd /awips/fxa/data/localizationDataSets/xxx
```

```
scp *aggr_basins*
```

```
lx#:/awips/fxa/data/localizationDataSets/xxx/
```

(This command is all on one line from `scp` to `/xxx/`)

Where `xxx` is the 3 letter WFO Identifier, and `#` is the number of LX device.

ATTACHMENT B - Known Issues and Workarounds

B.1 Known Issues and Workarounds

B.1.1 Operating System Upgrade: Mounting Directories

If the message *That directory could not be mounted from server* displays during the OS upgrade, press **Enter** 4 times. If the same error message appears again, press **Enter** 4 more times. If the system keeps prompting about this error message, contact the NCF for assistance.

B.1.2 Operating System Upgrade: Devices Hanging

Occasionally a device will hang during the OS upgrade. Periodically monitor the progress of the machines (every 10 minutes is recommended).

NOTE: For PX, CPSBN, and AX devices, it is necessary to connect an external monitor to the device to monitor the progress of the OS upgrade. If any machine hangs, reboot it and the installation should resume.

Occasionally a device will fail to start-up after the post-install reboot, because the new kernel did not install properly. A message of *kernel panic* is displayed on the screen. If this happens, use the following procedure to recover.

1. Follow the **Rescue Procedure** below to get a usable shell on your system.

2. Get into the boot directory:

```
cd /mnt/sysimage/boot
```

3. If this machine is a DX, PX, LX or RP, run the following command:

```
ls -l vmlinuz-2.6.9-37.ELsmp initrd-2.6.9-37.ELsmp.img
```

Otherwise run the following command:

```
ls -l vmlinuz-2.6.9-37.EL initrd-2.6.9-37.EL.img
```

Pay close attention to the sizes of those files.

4. Get into the rescue directory by typing `cd rescue` and repeat step 3.

5. Compare the sizes of the files in step 3 to the sizes of the same files in step 4. The `vmlinuz` files should be the exact same sizes. The sizes of the `initrd` files may vary from machine to machine, but the difference should be as small as a few bytes to a few hundred bytes. If the difference of the two `initrd` files is much larger than that, the `initrd` file on the system is likely corrupted. For example, in the two cases encountered during testing, the differences of the sizes of the two `initrd` files were about 100,000 bytes (100 kb). If that occurs, run the following command:

```
cp -f initrd-2.6.9-37* ../
```

This copies the correct `initrd` file from the rescue directory to the boot directory. Reboot to see if the error is fixed. If it still fails, contact the NCF for assistance.

If the two `initrd` files have similar sizes, then this is not the issue. Contact the NCF install support for further assistance.

If the system fails to boot even before the Red Hat picture shows up, (for example, if there is only a *grub* prompt on a black screen and nothing else), follow the **Rescue Procedure** listed above to get a shell on the system, and run the following commands:

```
chroot /mnt/sysimage
grub-install hd0
exit
```

NOTE: `hd0` is hd(**zero**), not the alphabet **O**.

Reboot the device. If this method doesn't resolve the problem, contact the NCF for further assistance.

B.1.3 Operating System Upgrade: Workstation Rebooting

When a workstation reboots after the kickStart script installs the new *22* kernel, and hangs at *kernel panic...* boot into Linux rescue mode. If the rescue mode hangs at *Starting aic7xxx drivers...* perform the following procedures.

RHEL4 and previous RedHat releases have successively added more and more graphical features and applications to the rescue mode that are not supported on older devices. These features of the RHEL4 rescue mode may be disabled by typing the following options after the *linux rescue* command in rescue mode:

```
boot: linux rescue acpi=off
or
boot: linux rescue acpi=off noapci
```

This should allow booting into rescue mode and continue troubleshooting.

B.1.4 Operating System Upgrade: Language Selection

If a device has started upgrading after running the kickMany script for either HN1 or HN2 (group 1 – even devices; group 2 – odd devices) via a monitor and keyboard a prompt may appear to select the language such as:

```
SELECT LANGUAGE: English
```

This may occur if the kickStart configuration file (*ks.cfg*) was not read into the installation scripts. This file is specific for each device and is located in */data/fxa/install_root/awipsConfig/ks.cfg.[device]-[siteID]*

Copy the correct *ks.cfg* file for the device in question to a floppy disk. This can be accomplished by mounting a floppy to a workstation that is currently not being upgraded (i.e., an odd workstation if the even devices are being upgraded; an even workstation if the odd devices are being upgraded).

For example: If the problem occurs on CPSBN2-WNCF

1. Place a floppy in a LX box not being upgraded
2. As user *root* type:

```
mount /mnt/floppy
```

NOTE: The following command is all on one line with a single space between the “f” in `wncf` and the “/” in `/mnt/floppy/ks.cfg`

```
cp -p /data/fxa/install_root/awipsConfig/ks.cfg.cpsbn2-
wncf /mnt/floppy/ks.cfg          (all on one line)
```

```
cd /
```

```
umount /mnt/floppy
```

3. With the rescue CD in CPSBN2 reboot the device into Linux rescue mode.
4. Place the floppy into the diskette drive.
5. At the boot prompt in linux rescue mode, type **linux ks=floppy**

The device should then start to upgrade. Call the NCF and ask for install support if any problems arise during these procedures.

B.1.5 Operating System: Device Hanging After Rebooting

If a device reboots (especially the PXs) after the installation of the Operating System completes, and it hangs at:

Loading MS-DOS

This may occur since the Dell PXs have a special `sda1` partition preloaded with system information formatted in FAT, Windows95. Sometimes, while installing the grub loader the system defaults to using the wrong device as the default boot loader.

To resolve this hanging:

Boot into linux rescue mode with the recovery cd

1. Type:

```
chroot /mnt/sysimage
grub
```

2. At the `grub>` prompt, type **root (hd0,1)**
3. After the output information about the file system referencing `ext2fs` and drive `0xfd` displays, type **setup (hd0)**
4. References to various grub levels display, and the first instance displays *NO*. This is normal. At the `grub>` prompt type **quit**
5. At the shell prompt, type **reboot**
6. During the reboot process remove the CD from the drive before the system boots up completely.

As with any of the above procedures, call the NCF install support staff if assistance is needed with these procedures.

B.1.6 Operating System: Rescue Procedure

The purpose of this procedure is to get a usable shell on the system and mount the file system mounted so that further rescue tasks can be performed as required in the workarounds above.

1. Put the Rescue CD into the CD (or DVD) drive of the failed machine and reboot. By default the machine should boot from CD and the Redhat logo and a `boot` prompt displays on the screen. If the system still tries to boot from the hard drive, contact the NCF about how to boot from CD.
2. When the `boot` prompt displays, type `linux rescue` and press **Enter**. This boots the system into rescue mode instead of installation mode.
3. Once inside rescue mode, the rescue process asks about which language to use during the rescue process. By default, English should be chosen, press **Enter** to continue.
4. The rescue process then asks for the keyboard type being used. By default, US should be selected, press **Enter** to continue.
5. The prompt, *Do you want to start the network interface on this system?* displays. By default, `Yes` is highlighted. However, choosing `Yes` may crash the system, so press the right arrow key (`→`) to highlight **No**, and press **Enter** to continue.
6. The prompt, *The rescue environment will now attempt to find your Linux installation and mount it under the directory /mnt/sysimage ...* displays and asks if the user wants to continue, mount the file system as read-only, or skip this step. By default **Continue** should be highlighted. Press **Enter** to continue.
7. The rescue process tries to find partitions and mount them properly. Once successful, the message, *Your system has been mounted under /mnt/sysimage* displays. Press **Enter** to get a shell. If it cannot find the proper partitions containing Red Hat Enterprise Linux, usually it is due to disk failure. Contact NCF for assistance if this occurs.
8. A running shell should now be on the machine. Consult the above workarounds to determine what needs to occur on this system to proceed.
9. Once the fixes are completed, type **Exit** and press **Enter**.

ATTACHMENT C - List of LDAD and MSAS Files Modified During Installation

The following LDAD and MSAS files are modified during the installation of AWIPS Release OB7.1:

| | |
|----------------------------------|----------------------------------|
| ldad/data/environs | ldad/bin/runPerlCmd.pl |
| ldad/data/fileAgeTest.pl | ldad/bin/sendLDADnotification.pl |
| ldad/Linux_environs | ldad/bin/startLDAD.csh |
| ldad/bin/breakLogLDAD.px2 | ldad/bin/station_localization.pl |
| ldad/bin/cronScheduler.pl | breakLogLDAD |
| ldad/bin/distProduct.pl | breakLogLDAD.ls |
| ldad/bin/download_dos | breakLogLDAD.px2 |
| ldad/bin/ldadEnvirons.pl | calculateNumObs |
| ldad/bin/LdadUtils.pl | callSite.ksh |
| ldad/bin/localizeLDAD.pl | campbell |
| ldad/bin/LocalizeWWW.pl | check_reply |
| ldad/bin/MakeLDAPage | cleanMsg |
| ldad/bin/MakePROCpage | CO_serv |
| ldad/bin/map_localization.pl | createLdadJavaA.install |
| ldad/bin/mergeCampbellGage.pl | createSessList.ksh |
| ldad/bin/moveRaws.pl | cronScheduler.pl |
| ldad/bin/moveSCHLNETproduct.pl | cshrc_as.csh |
| ldad/bin/pollForData.pl | distProduct.pl |
| ldad/bin/PostConfigure.pl | download_dos |
| ldad/bin/preprocessALERT.pl | download_dos.sh |
| ldad/bin/preprocessCAMPBELL.pl | externalLDAD.install |
| ldad/bin/preprocessCDOT.pl | extractLdadTables.sh |
| ldad/bin/preprocessDTMF.pl | installLDAD.csh |
| ldad/bin/preprocessIFLOWS.pl | internalLDAD.install |
| ldad/bin/preprocessLARC.pl | ldad.crontab |
| ldad/bin/preProcessLDAD.pl | ldad.crontab.ls |
| ldad/bin/preprocessmesonet.pl | ldad.crontab.px2 |
| ldad/bin/preprocessROSA.pl | ldadEnvirons.pl |
| ldad/bin/preprocessRRS.pl | ldadjavaA.install |
| ldad/bin/preprocessShefAlert.pl | ldadroot_purge |
| ldad/bin/preprocessSUA.pl | ldadSysinstall.sh |
| ldad/bin/preprocessSUTRON.pl | LdadUtils.pl |
| ldad/bin/preProcessTextDB_FSL.pl | listener |
| ldad/bin/preProcessWAN_NWWS.pl | localizeIFPdomain.csh |

| | |
|-------------------------|-------------------------------|
| localizeLDAD.pl | sendLDADnotification.pl |
| LocalizeLDAD.sh | SiftOpts.html |
| LocalizeWWW.pl | SiftOpts.pm |
| MakeLDAPage | Sift.pm |
| MakePROCpage | Sifts.html |
| map_localization.pl | startLDAD.csh |
| mergeCampbellGage.pl | startLDADdecoder.csh |
| mkdir_external.csh | startLDADexternal.csh |
| mkdir_internal_data.csh | startLDADexternalProcesses.sh |
| moveRaws.pl | startListener.csh |
| moveSCHLNETproduct.pl | startScour.sh |
| newLDADdataNotification | startWatchDogExternal.csh |
| pollForData.pl | startWatchDogProcesses.csh |
| PostConfigure.pl | startWatchDogProcesses.sh |
| post.install_ldad.sh | station_localization.pl |
| preprocessALERT.pl | StopLDAD.csh |
| preprocessCAMPBELL.pl | stopLDADexternal.sh |
| preprocessCDOT.pl | stopLDAD.sh |
| preprocessDTMF.pl | stopLDADStandAlone.csh |
| preprocessIFLOWS.pl | stopscript |
| preprocessLARC.pl | stopWatchDogExternal.sh |
| preProcessLDAD.pl | stopWatchDogProcesses.sh |
| preprocessmesonet.pl | storeInDB.expect |
| preprocessROSA.pl | suaReceiver |
| preprocessRRS.pl | sutron |
| preprocessShefAlert.pl | sysUtil.pm |
| preprocessSUA.pl | tell_co |
| preprocessSUTRON.pl | testALERT.pl |
| preProcessTextDB_FSL.pl | testIFLOWS.pl |
| preProcessWAN_NWWS.pl | testLARC.pl |
| readenv.csh | testMESONET.pl |
| readenv.sh | textdbNotify.pl |
| record | tmain |
| relocalizeForLDAD.sh | watchDogExternal.sh |
| ROSA_Acq | watchDogInternal.sh |
| runPerlCmd.pl | xypl_xxx.was |

xyplexConfig.exp
xyplexConfigFile.template
xyplexConfigModems.exp
xyplexConfig.template
xyplexProcs.exp
xyplexReadConfigFile.exp
xyplex.readme

ATTACHMENT D - Nationally Managed Shapefiles and National Data Files

National Data Files downloaded from the `pub/ndm/OB71` directory on the NOAA1 Server:

```
dataInfo.manual  
depictInfo.manual  
productButtonInfo.txt  
moveob7files.sh
```

Nationally Managed Shapefiles downloaded from the `pub/maps/ob7.1` directory on the NOAA1 Server:

```
c_16mr06.dbf  
c_16mr06.shp.Z  
c_16mr06.shx  
cf28fe06.dbf  
cf28fe06.shp  
cf28fe06.shx  
ci15au06.dbf  
ci15au06.shp  
ci15au06.shx  
cm28fe06.dbf  
cm28fe06.shp  
cm28fe06.shx  
fz24my06.dbf  
fz24my06.shp  
fz24my06.shx  
mt24ap06.dbf  
mt24ap06.shp.Z  
mt24ap06.shx  
mz10ja06.dbf  
mz10ja06.shp.Z  
mz10ja06.shx  
tz02jn06.dbf  
tz02jn06.shp.Z  
tz02jn06.shx  
w_28fe06.dbf  
w_28fe06.shp.Z  
w_28fe06.shx  
w808mr06.dbf  
w808mr06.shp.Z  
w808mr06.shx  
wt24ap06.dbf  
wt24ap06.shp.Z  
wt24ap06.shx  
z_16mr06.dbf  
z_16mr06.shp.Z  
z_16mr06.shx
```


ATTACHMENT E - WarnGen Template Changes

The following WarnGen Templates are modified during the installation of the AWIPS Release OB7.1:

| | |
|------------------------------|------------------------------------|
| wwa_ffw.preWWA | one line change from OB6.1 version |
| wwa_ffw_svr.preWWA | one line change from OB6.1 version |
| wwa_fflood_sta_county.preWWA | no change from OB6.1 version |
| wwa_fflood_sta.preWWA | no change from OB6.1 version |
| wwa_flood_adv_sta.preWWA | no change from OB6.1 version |
| wwa_flood_sta.preWWA | no change from OB6.1 version |
| wwa_svrwx_sta_county.preWWA | no change from OB6.1 version |
| wwa_tor.preWWA | two line change from OB6.1 version |

ATTACHMENT F - Freeware and COTS Changes

The following versions of Freeware and COTS Software are available in AWIPS Release OB7.1

| Name | OB6 Version | OB7.1 Version |
|----------------------|-----------------------------|-----------------------------------|
| a2ps | 4.12 | 4.13b |
| Acrobat | 7 | 7 |
| apache (httpd) | 1.3.29 | 2.0.52 |
| apache-ant | 1.6.1 | deleted in OB7 |
| binutils | 2.14.90.04 | 2.15.92 |
| blt | 2.4z | 2.4z |
| BWidget | 1.4.1 | 1.4.1 |
| bzip2 | 1.0.2 | 1.0.2 |
| expect | 5.32 | 5.42 |
| fortran | Portland Group 4.1 | Portland Group 4.1 |
| fping | 2.4.b2 | 2.4.b2 |
| freeway | 2.10-0 | 2.10-0 |
| gcc | 3.2.3 (native) | 3.4.4 |
| gd | 2.0.1 | 2.0.28 |
| gdome2 | 0.8.1 | 0.8.1 |
| GRIB2 | 1.67 | 1.67 |
| ImageMagick | 5.3.9 | 6.0.7 |
| ispell | 3.1.20 | 3.1.20 |
| j2re | 1.4.2_02 | 5 (numbering change) |
| JClass (java add-on) | 6.2 | 6.2 |
| j2sdk | 1.4.2_05 | 5 (numbering change) |
| jasper | 1.700.5 | 1.700.5 |
| java | 1.4.2 | 5 (numbering change) |
| java-sdk | 1.4.2 | 5 (numbering change) |
| ldm | 5.1.2 | 5.1.2 |
| libpng | 1.2.7 | 1.2.7 |
| linux | rhel3u4 (2.4.x) | rhel4u2 (2.6.x) |
| openmotif | 2.1.30 (deprecated) | 2.1.30, 2.2.3 |
| NCEP | 5.7.2 | 5.7.2 |
| netcdf | 3.5.1 | 3.6.0p1 |
| netpbm | (no version ID) | 10.25 |
| netscape | 4.78 (for chat client only) | (retired -- using native browser) |
| openssh | 3.6.1p1 | 3.9p1-8 |
| openssl | 0.9.7d | 0.9.7a-43 |
| perl | 5.8.5 | 5.8.5 |
| pgadmin III | (new in OB7) | 1.2.0 |

| Name | OB6 Version | OB7.1 Version |
|------------|-------------|---------------|
| plotutils | 2.4.1 | plotutils |
| postgresql | 7.4.7 | 7.4.8 |
| python | 2.3.4 | 2.4.1 |
| snack | 2.1.1 | 2.1.1 |
| swig | 1.3.21 | 1.3.21 |
| tcltk | 8.4.7 | 8.4.11 |
| Tktable | 2.8 | 2.8 |
| udunits | 1.11.7 | 1.11.7 |
| zlib | 1.2.1 | 1.2.1 |
| isqltcl | 4.0.d | 4.0.d |

Python Add-Ons

| Name | OB6 Version | OB7 Version |
|--------------------|-------------|-------------|
| Numeric Python | 23.6 | 24 |
| Scientific Python | 2.4.9 | 2.4.9 |
| Python Megawidgets | 1.2 | 1.2 |
| Python Biggles | 1.6.4 | 1.6.4 |

Perl Add-Ons

| Name | OB6 Version | OB7 Version |
|---------------|-------------------|-------------|
| AppConfig | 1.56 | 1.56 |
| ChartDirector | 3.04 | 4.0 |
| DBD-Pg | 1.32 | 1.43 |
| DBI | 1.43 | 1.4.8 |
| Digest::MD5 | 3.04 | 2.33 |
| HTML::Parser | 1.31 | 3.35 |
| libwww-perl | 1.43 | 5.79 |
| netcdf | 2.12 | 2.14 |
| SignalHandler | (new in OB7) | 2.34 |
| Test-Simple | 0.47 | 0.60 |
| tk | 800.025 | 800.025 |
| XML-Generator | 0.99 | 0.99 |
| XML-Parser | (was w/ OHD code) | 2.34 |
| XML-Simple | 2.12 | 2.14 |

ATTACHMENT G - Sample EMRS Report

https://ops13web.nws.noaa.gov - A26 Detail Form - ESCM2, SILVER SPRING, MD :: JOHN MERHI - Microsoft Internet Explorer

New A26 Commit A26 Place on Hold Cgpy A26 Delete A26 Detail Report Document Summary Create USOB Help

GENERAL INFORMATION

NEW RECORD WFO* DVN Document No.* DVN61012001

1. Open Date 10/10/2006 Open Time 08:00 2. Op Initials WSH 3. Response Priority
 Immediate Low
 Routine Not Applicable

4. Close Date 10/12/2006 Close Time 14:00

5. Maintenance Description 481 characters left AWIPS
 AWIPS Release OB7.1

EQUIPMENT INFORMATION

6. Station ID* DVN 7. Equipment Code* AWIPS 8. Serial Number 001 9. TM M 10. AT M 11. How Mal 999

Alert: Time Remaining: (For Block 12 use only)

13. PARTS USAGE and CONFIGURATION MANAGEMENT REPORTING

| ASN | Vendor Part No. (New Part) | Serial Number (Old Part) | Serial Number (New Part) | |
|-----|----------------------------|--------------------------|--------------------------|------------|
| | | | | New Row |
| | | | | Delete Row |

14. WORKLOAD INFORMATION

| a. Routine | b. Non-Routine | c. Travel | d. Misc | e. Overtime |
|---------------|----------------|---------------|---------------|---------------|
| Hours Minutes | Hours Minutes | Hours Minutes | Hours Minutes | Hours Minutes |
| | | | 16 0 | |

MISCELLANEOUS INFORMATION

15. Maintenance Comments 665 characters left
 Installed AWIPS Release OB7.1, I.A.W. AWIPS Software Installation Instruction Note 64

16. Tech Initials WSO

17. SPECIAL PURPOSE REPORTING INFORMATION

a. Mod No. S64 b. Mod Act/Deact Date 10/12/2006 c. Block C d. Trouble Ticket No. e. USOS Outage Doc No. Expand

Commit A26 Place on Hold Cgpy A26 New A26 Cancel

Done Internet