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Maintenance, Logistics and Facilities
Systems/Equipment Maintenance, NWSPD 30-21

AWIPS MAINTENANCE

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Signed _____   6/21/2016

David Michaud,   Date
   Director, Office of Central Processing (OCP)

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1 Introduction

This instruction establishes specific equipment maintenance, software installation and local applications development and implementation procedures for AWIPS equipment and software. These procedures are documented through the use of established technical documentation for Advanced Weather Interactive Processing System (AWIPS), Engineering Handbook 13 (e.g., technical manuals, maintenance notes, modification notes, information notes, system administration notes, software notes). This instruction also ensures standardization of implementation of local formatters and continuity of operations in the event of the failure of a local formatter.

2 Procedures

Procedures stated in National Weather Service Instruction (NWSI) 30-2101, *Systems Maintenance Management*, govern operational NWS system, equipment and software installation and maintenance activities. NWS field personnel maintain and support AWIPS equipment and software as described herein. AWIPS equipment maintenance and software installation are accomplished following guidance in authorized technical manuals, modification, maintenance information, and system administration notes as defined in Engineering Handbook 13: AWIPS (EHB-13). Maintenance and software installation reporting follows instructions contained in NWSI 30-2104, *Maintenance Data Documentation*. System outage reporting follow instructions contained in NWSI 30-2112, *Reporting Systems, Equipment and Communication Outages*.

3 Definition

The AWIPS baseline consists of hardware and software deployed by the AWIPS program. The AWIPS baseline is under AWIPS configuration management control, meaning modifications to, additions or deletions of system components, hardware or software, are documented, integrated, and tested for compliance with new or previously established baseline requirements. The AWIPS program supports the baseline system by providing Network Control Facility (NCF) monitoring and telephone assistance, root cause analysis, and resolution of system problems. The AWIPS baseline includes the Interactive Forecast Preparation System (IFPS) application. IFPS contains several components including the Graphical Forecast Editor Suite (GFESuite) and text formatters. The IFPS formatters are a part of the AWIPS baseline.

Within the AWIPS GFEsuite, there are text formatter templates. Local and regional headquarters field personnel use the GFESuite Smart Tools to adapt the text formatter templates to local site needs. However, once adaptations are applied, the resulting product is considered a local formatter. A local formatter is a local application that is not a part of the AWIPS baseline. Other than defined in this policy and associated implementation guideline, the *Local Application Development Policy* defines policy, guidelines, and responsibilities concerning local application development of which the writing of local formatters is a subset. Field and regional headquarters personnel will also have the capability of writing new formatters in the future.

4   Organization

Maintenance services for AWIPS equipment are focused at the local level with augmenting capabilities at the regional and national levels.

5   Responsibilities

Organizational responsibilities are presented in a bottoms-up approach because of the field focus of this document.

5.1   Field Office

Field staff is responsible for ensuring appropriate entries into the Engineering Management Reporting System (EMRS) as prescribed in NWSI 30-2104. Concurrent outages are handled following the instructions in NWSI 30-2101, Section 5.2, *Maintenance Priorities*, and are reported consistent with NWSI 30-2112, *Reporting Systems, Equipment and Communication Outages*.

5.1.1   Local Application(s) Focal Points/Formatter Developers

These developers are responsible for:

- Developing, modifying and writing local formatters and applications
- Documenting locally developed formatters and applications as defined in Engineering Handbook 13, Section 3.4, *Applications Installation Instructions and Lessons Learned*
- Configuration management of local formatters and applications
- Creating back-ups
- Configuring baseline formatters in the event of a formatter failure
- Communicating the correct support profile to forecasters

5.1.2   Electronics Systems Analyst (ESA)

Serves as office leader for IT-related systems operation and communications projects for their office, in addition to overseeing the office's equipment maintenance program. In this capacity, the ESA serves as the single point of contact for coordinating regional and national IT projects of a system, networking or telecommunications nature. This would include things such as installation or modification of IT systems, operating systems installation and configuration, baseline software loads for systems such as AWIPS, NEXRAD, ASOS, etc., network systems administration, performance monitoring, tuning and corrective actions, etc. For these projects and initiatives, the ESA will be responsible to lead and coordinate requirements analysis, resource planning, scheduling, technical work and other required activities with the office management team, Information Technology Officers (ITO) and appropriate office focal points, and for keeping appropriate regional program leaders informed on progress towards objectives and schedules.

5.1.3 Information Technology Officers (ITO)

Serves as office leader for operational software and IT services projects for their office. This is in addition to current responsibilities in local IT development and support work. In this capacity, the ITO will serve as the single point of contact for coordinating regional and national IT projects and initiatives of an operational or service nature. This would include things such as changes in Web services, management, financial and office automation applications, AWIPS applications and AWIPS operational capabilities. For these projects and initiatives, the ITO will be responsible to lead and coordinate requirements analysis, resource planning, scheduling, technical work or other required activities with the office management team, ESA and appropriate office focal points, and for keeping appropriate regional program leaders informed on progress towards objectives and schedules.

5.1.4 Electronics Technicians

The site electronics staff is responsible for restoring AWIPS equipment to operational status, returning defective components, ordering replacement spares, and reporting on maintenance services provided. Work must be performed in conformance to priorities established by the ESA or meteorologist-in-charge.

5.2 National Logistics Support Center (NLSC)/National Reconditioning Center (NRC)

The NLSC and NRC are primarily responsible for AWIPS baseline hardware maintenance, logistics, and repair management. NRC provides incoming quality control on new baseline hardware and spares, coordinates with vendors to have failed units under warranty repaired, and performs hardware diagnostics to ensure the vendor properly repaired failed units. The NLSC is the central supply point for all AWIPS line replaceable units (LRUs). The NLSC is responsible for storing spare AWIPS baseline systems, shipping spares to NWS field sites to replace failed assemblies, and receiving failed units from field sites.

5.3 Regional Headquarters (RHQ)

RHQ coordinates resources for the AWIPS equipment as needed to support non-standard (e.g., emergency) service requirements. Additionally, the RHQ is responsible for coordinating alpha, beta, and baseline software installations, monitoring requirements for local formatters, collecting and consolidating documented software deficiencies, ensuring site compliance with local formatter policies and instructions, coordinating implementation of baseline formatters, and facilitating resolution of software discrepancies.

5.4 NWS Office of Planning and Programming for Service Delivery (OPPSD)

OPPSD support for systems/equipment is distributed among several organizations.

5.4.1 Office of Observation (OBS) Surface / Upper Air Division, Service Branch (SUAD/SB)

SUAD/SB is responsible for managing the AWIPS configuration baseline, maintaining AWIPS baseline documentation in the Technical Reference Library (TRL), and collecting AWIPS maintenance data by way of the Engineering Management Reporting System (EMRS).

5.4.2   Office of Central Processing (OCP)

OCP is responsible for local formatter policy and guidance development, documentation, and configuration management. OCP is also responsible for schedules, planning, development, integration and deployment coordination for all IFPS builds and will:

- Site Support Team (SST) support to the NWS field for baseline software, infrastructure and maintenance release software installation instructions, and beta test management

- Operations and Maintenance Contracting Officer's Technical Representative services for the AWIPS prime contract

- Technical field and regional liaisons for AWIPS operations support

- Monitor and manage AWIPS performance

- Manage and execute software integration and testing performance

- Manage and support AWIPS software maintenance including corrective, adaptive, and minor enhancements

- Manage and execute AWIPS software development including implementation of all new functionality

- Local AWIPS Model Output Statistics Program (LAMP), refining operational AWIPS radar mosaic products, developing a National Digital Forecast Database (NDFD), and other AWIPS software

5.4.2.1   Office of Central Field Support and Infrastructure Team (FSIT)

FSIT is responsible for assigned equipment modification/retrofit design. FSIT is also responsible for generating, coordinating, and providing modification, maintenance, and software installation and administration, processing kits for field use, analyzing maintenance data and trends, and documentation

5.4.3   Office of Planning and Programming for Service Delivery - Engineering Standards Division (OPPSD/ES)

OPPSD/ES is responsible for schedules, testing, development, integration and coordination for AWIPS test beds. OPPSD/ES will:

- Manage and execute software integration and testing on AWIPS test beds and development platforms.

- Make recommendations on the infusion of new technology into the hardware and software baselines

- Define, design and manage the implementation of infrastructure evolution including the software, hardware and communications architectures

- Manage and maintain in-house infrastructure for AWIPS test beds and development platforms

5.4.4   Network Control Facility (NCF)

The NCF monitors and controls AWIPS-wide operations (hardware, software, and communications) at all sites. The NCF authorizes, schedules, and arranges the dispatching of hardware maintenance providers. Through remote monitoring and control capabilities, the NCF

can assist AWIPS sites in performing system administration tasks. The NCF will coordinate and assist the Meteorological Development Laboratory (MDL) with troubleshooting and resolving problems with baseline formatters. The NCF will perform a system administration activity only after coordinating with the site.

5.5   Site Support Team (SST)

The SST assists NWS field offices in diagnosing and resolving troubles with AWIPS baseline software. AWIPS baseline software applications are developed by teams of developers from the Global Systems Division (GSD), the Office of Central Processing (OCP), and the National Water Center (NWC). The AWIPS sites access baseline software support through the NCF. The NCF refers field reported trouble tickets regarding Government-developed baseline software, which NCF staff is unable to resolve, to the SST for resolution.

5.6   National Water Center (NWC)

NWC is responsible for the development, maintenance, and configuration management of baseline hydrologic formatters. NWC is also responsible for development of the NWS River Forecast System (NWSRFS), the WFO Hydrologic Forecast System (WHFS), and other AWIPS baseline software.

5.7   Global Systems Division (GSD)

GSD is responsible for the development of the Graphical Format Editor (GFE) text product infrastructure, migration of UNIX to Linux, local formatter templates, and correcting deficiencies in both, including maintenance of associated documentation.

6   Maintenance

6.1   Hardware Maintenance

The AWIPS availability parameters encompass the entire AWIPS including NCF, Weather Forecast Office (WFO), and River Forecast Center (RFC) sites. Availability is the ratio of a system's components up-time to total-time, consisting of both up-time and down-time. The NCF is notified through electronic monitoring of an AWIPS hardware failure. The NCF invokes the on-site backup equipment, opens a trouble ticket, troubleshoots, and in the event of a hardware failure, requests the site to replace the equipment through the consolidated logistics support (CLS) system.

6.2   Software Maintenance

6.2.1   Commercial-Off-The-Shelf (COTS) Software

NCF restores the site by using existing recovery procedures. When these procedures fail to restore a site, and restoration requires knowledge beyond that of the NCF staff, developers at the prime COTS supplier will assist in finding a solution.

6.2.2   Government Furnished Software

The NCF restores the site by using existing recovery procedures. When these procedures fail to restore a site and restoration requires knowledge beyond those of the NCF staff, the NCF will turn the problem over to the SST. Government furnished software and government locally-developed application code problem areas are escalated to the SST.

6.2.3   Locally Developed Software

Local formatters will be developed and installed following Engineering Handbook 13, Section 3.4. When a problem is traced to locally developed software, NCF will refer the problem to SST. SST, with site and NWS staff assistance, will work with the site to solve the problem. If the need arises, NCF will restore the site to its baseline configuration (last known good AWIPS software version installed at the site).

7   Training

7.1   Staff Development

Overall staff development and training for the NWS electronics community is managed following Office of the Chief Learning Officer (OCLO) guidelines.

7.2   On-site User Training

Occasionally, on-site user training may be provided for WFO and/or RFC operational personnel. Topics span special aspects of AWIPS operations including significant hands-on experience with the site's AWIPS.

8   Supply Support

8.1   Field Supply Support

Site responsibilities are limited to providing common-use consumables (e.g., printer cartridges, backup tapes, computer paper, cleaning materials) required for day-to-day site operations.

8.2   Preservation, Packing, and Packaging

AWIPS-operating sites are required to pack, and/or package AWIPS spare parts for shipment to NLSC.

8.3   Storage

NLSC is responsible for storing AWIPS spares in an environmentally suitable facility. Field site capabilities are sufficient to store manuals, drawings, and software libraries.

8.4   Transportation

Requirements for NWS-arranged or managed transportation are the same as for other NWS supported equipment.

9   Documentation

9.1   Maintenance Reporting

Field personnel responsible for reporting maintenance activities and changes to baseline AWIPS hardware and software components and will accurately document the time and nature of the activity in the EMRS following instructions in NWSI 30-2104.

9.2   Maintenance and Technical Documents

Maintenance of AWIPS equipment is accomplished following authorized guidance (e.g., technical manuals, modification notes, maintenance notes). Centralized Web access to EHB-13 (i.e., maintenance procedures, technical documentation, modification and maintenance notes) is provided at: http://www.ops1.nws.noaa.gov/EHBS.HTM.