NWSTC

CHPS Job Sheets

A Supplemental Resource for the CHPS Basic Configuration Course

Table of Contents

Using the Configuration Manager

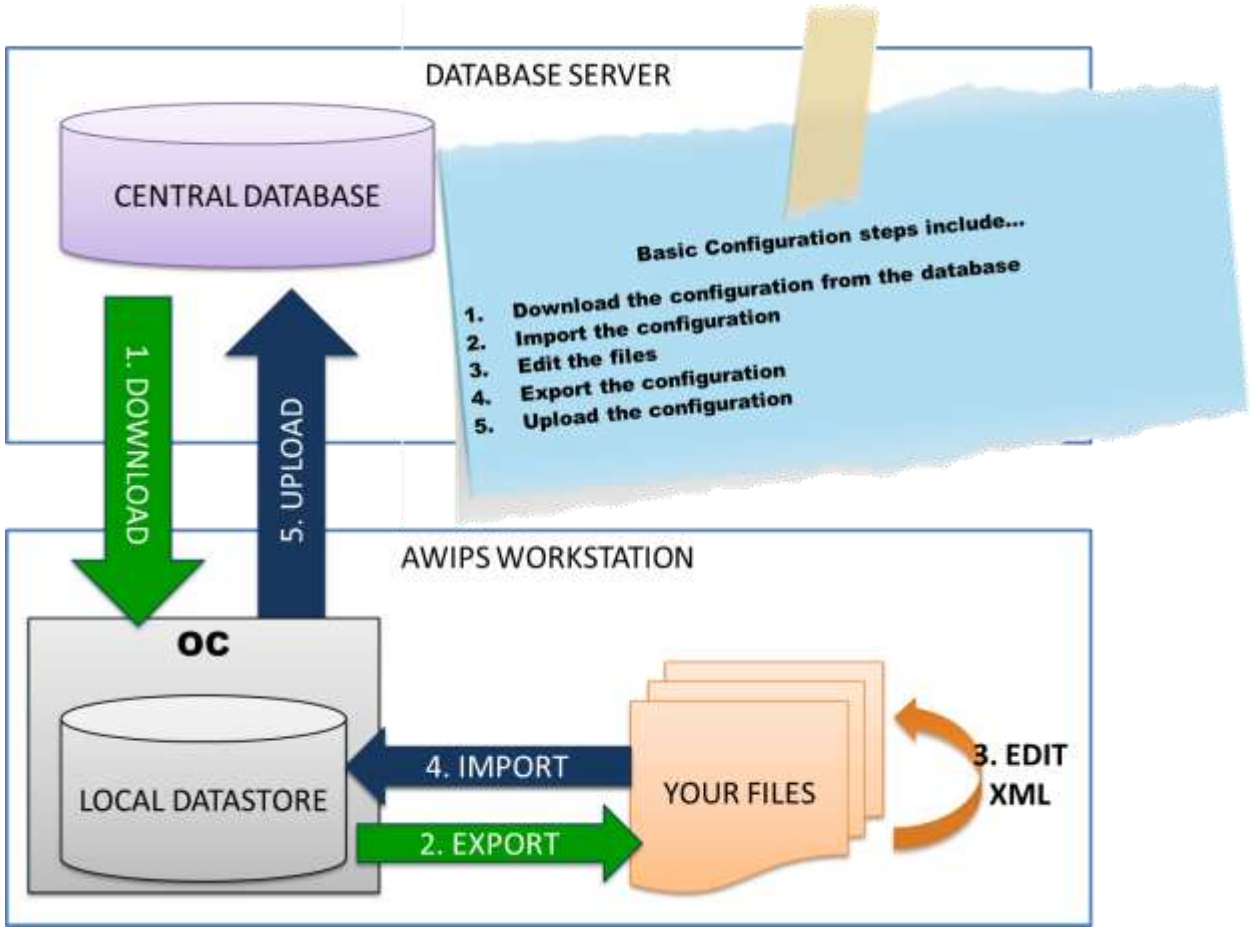
Objective: Use the Configuration Manager to acquire and submit files. Remember, test the configuration on a Stand Alone system before uploading to the live system.

STEP 1 Launch the Configuration Manager

Step	Action	Notes
1	Open a terminal window on an AWIPS workstation as user "fews".	
2	Navigate to the OC directory. **cd /awips/chps_share/oc/fews**	
3	Type the following command to launch the Configuration Manager. **./bin/fews.sh xxrfc_oc cm** &	Where **xxrfc** is the ID for your office.

STEP 2 Connect to the Configuration Manager and Acquire Files

Step	Action	Notes
1	Click "File" in the top navigation.	You must log into the **OC** in order to connect.
2	Select "Login".	A dialog box appears.
3	Select a Master Controller.	
4	Click the "OK" button.	



STEP 3 Editing Files in XML Editor

Step	Action	Notes
1	After the file download completes, click one of the files from the "tree".	You must be connected to the database.
2	Click the "Export" button.	Exports the file to the export_config directory.
3	Navigate to the export_config directory. **cd /awips/chps_share/oc/fews/xxrfc_oc/export_config**	
4	Locate the file and open an XML editor.	
5	Make the required changes and save the file.	

STEP 4 Submitting Files to the Configuration Manager

Step	Action	Notes
1	From the "Management" tab, select a configuration to import.	You must be connected to the database. Use the instructions above to connect to the MC.
2	Click the "Import" button.	Starts the "editor" configured for the selected file.
3	From the dialog box, select a file to import.	
4	Click the "Open" button.	
5	In the "Import Options" GUI, click in the "Select" column.	
6	Click "Use a single description for all imported files" and enter a description in the data entry field.	
7	Click the "OK" button.	
8	Select a file from the file tree on the center of the display.	
9	Click the "Set Active" button.	
10	Select the configuration(s) from the file tree on the Management tab.	
11	Click the "Upload" button.	You will be prompted to validate the file(s) or continue without validating (not recommended).
12	Type a unique description for the upload.	Description appears in the comments in the Version Management.

STEP 5 Verify the Upload

Step	Action	Notes
1	Click the file you just uploaded on the "tree".	
2	Check to make sure the ID changed from a local ID to a Master Controller ID.	Check to ensure the name includes "CM".

Adding Locations and Location Sets

Objective: Add a gage and catchment to the system (allows time series and operations to be tied to these locations). Before starting this procedure, **close all CHPS applications.**

STEP 1 Add Locations to the Locations.xml

Step	Action	Notes
1	Open a terminal window on an AWIPS workstation as user "fews".	
	Navigate to the **RegionConfigFiles** directory. **cd /awips/chps_share/sa/xxrfc/Config/RegionConfigFiles**	Where **xxrfc** is your office ID. Your **/Config** directory may not be in the SA directory.
2	Open the **Locations.xml** file using an XML editor.	
3	Add the new location(s) to the list of locations in the XML file.	Include the ID, Name, Description, Shortname, x, y, and z coordinates.
4	Save the **Locations.xml** file.	

STEP 2 Add Locations to LocationSets.xml

Step	Action	Notes
1	Navigate to the**/RegionConfigFiles** directory.	
	Open the **LocationSets.xml** file. The structure for LocationSets is: Catchments_<Forecast group> Gages_<Forecast group>	
2	Create new LocationSets for the new catchment. Add the name for the location in this set.	Catchments_<Forecast group>
3	Create new LocationSets for the new gaging location.	Gages_ <Forecast group>
4	Add the 8-character location ID as the single location in this set.	
5	Add references to these two location sets in the higher-level location sets.	Location sets are **Gages** and **Catchments**.
6	Save the **LocationSets.xml** file.	

STEP 3 Check New Locations

Step	Action
1	Open an instance of the SA IFD.
2	Select the **ImportSHEF** and **ImportOFSDE** filters at the regional level and check if you see the new locations on the map and in the locations list box.

Note: Once you test your changes in the SA, do not forget to upload the files to the database so you can use the changes on the OC.

Reducing Decimal Values Stored in Database

Objective: Reduce the decimal values of data stored in the database.

Note: This job sheet will not change the values shown in the display. Refer to the Reducing Displayed Decimal Values job sheet for detailed instructions.

STEP 1 Navigate to Parameters.xml

Step	Action	Notes
1	Log into an AWIPS workstation as user "fews".	
2	Navigate to the **RegionConfigFiles** directory: **cd /awips/chps_share/sa/<user>/xxrfc/Config/RegionConfigFiles**	Where **xxrfc** is the ID for your office. Your base configuration files may be in a different location.

STEP 2 Edit Parameters.xml

Step	Action	Notes
1	Open the **Parameters.xml** file using your preferred XML editor.	
2	Scroll through the parameter groups and change the description <valueResolution> to the desired value.	
3	Once you have changed all of the entries you wish to edit, save and close the file.	

STEP 3 Upload the Changes to the Database

Step	Action	Notes
1	When you are satisfied with your changes, upload the file to the Central Database using the Configuration Manager.	
2	Verify the decimal value has been reduced by using DbVis.	

For more information on the Configuration Manager, use the Configuration Manager job sheet. For more information on DbVis, see the CHPS System Manager training.

Reducing Displayed Decimal Values

Objective: Reduce the decimal values display in the IFD.

Note: This job sheet will not change the values that are stored in the database. Refer to the Decimal Values Stored in the Database job sheet for detailed instructions.

STEP 1 Navigate to TimeSeriesDisplayConfig.xml

Step	Action	Notes
1	Open a terminal window on an AWIPS workstation as user "fews".	
2	Navigate to the **SystemConfigFiles** directory: **cd /awips/chps_share/sa/<user>/xxrfc/Config/SystemConfigFiles**	Where **xxrfc** is the ID for your office. Your base configuration files may be in a different location.

STEP 2 Edit TimeSeriesDisplayConfig.xml

Step	Action	Notes
1	Open the **TimeSeriesDisplayConfig.xml** file using your preferred XML editor.	
2	Scroll through the parameter groups and change the description <precision> to the desired value.	Note the <scaleUnit> when selecting precision value.
3	Once you have changed all of the entries you wish to edit, save and close the file.	

STEP 3 Upload the Changes to the Database

Step	Action	Notes
1	Verify the change is observed by opening an instance of the Stand Alone.	Test in the SA first, then move to the live system.
2	When you are satisfied with your changes, upload the file to the Central Database using the Configuration Manager.	

Changing Expiry Times Using XML Editor

Objective: Change expiry times for processes that generate data to be saved in the database. For this job sheet, we will use a workflow as an example.

STEP 1 Navigate to the Workflow File

Step	Action	Notes
1	Open a terminal window on an AWIPS workstation as user "fews".	
2	Navigate to the XML file you wish to edit. For example, navigate to the **WorkflowDescriptors.xml** file in the **RegionConfigFiles** directory by using the following command: **cd /awips/chps_share/sa/<user>/xxrfc/Config**	Where **xxrfc** is the ID for your office. Your base configuration files may be in a different location.

STEP 2 Edit the Workflow File

Step	Action	Notes
1	Open the **WorkflowDescriptors.xml** file using your preferred XML editor.	
2	Scroll down to the workflow you wish to change. For example, the <location id>_Forecast workflow.	
3	Change the ExpiryTime using days, hours, or minutes as the unit and an integer as the multiplier.	The default ExpiryTime is 30 days.
4	Save and close the file.	

STEP 3 Register the Change in the Database

Step	Action	Notes
1	Navigate to the OC directory: **cd /awips/chps_share/oc/fews**	You must be user fews to launch the configuration manager.
2	Launch the Configuration Manager: **./bin/fews.sh xxrfc_oc cm &**	Where **xxrfc** is the ID for your office.
3	Click the "Download" button on the panel.	Downloads the current configuration from the Central Database.
4	Select the **WorkflowDescriptors.xml** file and select the import button.	
5	Navigate to your updated file and click "Save".	
6	Validate the changes and click the "Upload" button.	Sends the new file to the Central Database

For instructions on using the Configuration Manager, see the Using the Configuration Manager job sheet.

Note: You can verify the change by running the workflow and then using DbVis to check the expiry time registered in the Central Database.

Changing Expiry Times for Scheduled Tasks

Objective: Change existing expiry time of a selected forecast task.

STEP 1 Open the Administration Interface (AI)

Step	Action	Notes
1	Open a Firefox web browser.	
2	In the address bar, type the URL for the Tomcat Manager of the MC you want to log into. Select the path to the MC from the MC Column. **OR** Enter the Admin Interface's IP address for the MC to which you want to connect.	
3	Enter the username and password in the dialog box.	

STEP 2 Select a Workflow to Edit

Step	Action	Notes
1	Click the "Forecast Tasks" link.	
2	Click the "Scheduled Tasks" link.	
3	Find the forecast tasks you wish to change.	Example: ImportGrids
4	Click the "Edit" link located in the Actions column.	

STEP 3 Change the Expiry Time

Step	Action	Notes
1	Scroll down to the box labeled "Expiry Time".	
2	Type the desired integer in the box, using the drop down menu to the right to change units (if necessary).	
3	When you are satisfied, scroll to the bottom of the page and click the "Submit" button.	

Note: This procedure is used to change the expiry times for data created by the forecast tasks scheduled in AI. To change expiry times for data related to forecast workflows, you will need to edit the configuration file.

Creating a Conditional Transformation

Objective: Create a transformation module to trigger a transformation based on condition.

STEP 1 Create the Module Instance

Step	Action	Notes
1	Log on to an AWIPS workstation as user "fews".	
2	Navigate to the **ModuleConfigFiles** directory: **cd /awips/chps_share/sa/xxrfc/Config/ModuleConfigFiles**	Where **xxrfc** is the ID for your office. Your base configuration files may be in a different location.
3	Navigate to the appropriate forecast group. For example: **cd preprocessing**	
4	Open the appropriate file using an XML editor. For example: **XXRFC_QPF_TS_PreProcessing_Forecast.xml**	
5	Add the transformation module to the file. You may need to set the moduleInstanceId as well. Use the example below as a template:	

Period Transformation	Range Transformation
<transformation id = "name"> <periodTransformation> <period> <season> <startMonthDay>--10-01 </startMonthDay> <endMonthDay>--03-31 </endMonthDay> </season> </period>	<transformation id = "name"> <rangeTransformation> <range> <limitVariableID>name_10min</ limitVariableID > <lowerLimit>-9999</ lowerLimit > <upperLimit>0.0001</ upperLimit > </range>

6	When finished, save and close the file.	

STEP 2 Register the Module

Step	Action	Notes
1	Navigate to the **RegionConfigFiles** directory: **cd /awips/chps_share/sa/xxrfc/Config/RegionConfigFiles**	
2	Open the **ModuleInstanceDescriptors.xml** file using an XML editor.	
3	Add the transformation instance to the file. Use the other instances as an example. The format is: <moduleInstanceDescriptor id= "*module instance name*"> <moduleId>TransformationModule</moduleId> </moduleInstanceDescriptor>	
4	When finished, save and close the file.	

STEP 3 Add the Module to the Workflow

Step	Action	Notes
1	Navigate to the **WorkflowFiles** directory: **cd /awips/chps_share/sa/xxrfc/Config/WorkflowFiles**	
2	Navigate to the appropriate forecast group. For example: **PreProcessing_and_System**	
3	Open the appropriate XML file for your module. For example: **Preprocess_ALLQPF.xml**	
4	Enter the module instance using the following example as a format: <activity> <runIndependent>**false**</runIndependent> <moduleInstanceId>**RRS_PreProcessing_Inst_QIN**</moduleInstanceId> </activity>	Substitute the bold text for the behavior and instance for your workflow.
5	Save and close the file.	

Note: Run this workflow on the SA to ensure it works and make adjustments if needed. Once you are satisfied with the workflow, upload the configuration changes to the Central Database.

Creating a New Workflow

Objective: Establish a segment level workflow definition to an existing forecast group.
Note: Your base configuration files may be in another location.

STEP 1 Create and Edit Copies of Segment Workflows Files

Step	Action	Notes
1	Open a terminal on an AWIPS workstation and log on as user "fews".	
2	Navigate to the **WorkflowFiles** directory. **cd /awips/chps_share/sa/xxrfc/Config/WorkflowFiles**	Where **xxrfc** is your office ID.
3	Navigate to the directory for the new workflow. For example: **nile**	
4	Create a new xml file or copy a similar existing workflow file. For example: **cp ABEC2_Flow_Forecast.xml <filename>.xml .** **or** **vi filename.xml**	Substitute <filename> with the name of the new workflow file, following the naming convention of the copied file.
5	Enter the components of the file or change the existing code. Use the format: <activity> <runIndependent>**false**</runIndependent> <moduleInstanceId>**STAGEQ_TSMN3_QINE_Forecast**</moduleInstanceId> </activity>	Substitute TSMN3 with the 5-character id of the segment. Files needed for a new segment can include: Id_Forecast Id_Flow_Forecast Id_Flow_UpdateStates
6	When finished editing the file(s) needed, save and close.	

STEP 2 Register the Workflow(s)

Step	Action	Notes
1	Navigate to the **RegionConfigFiles** directory: **cd /awips/chps_share/sa/xxrfc/Config/RegionConfigFiles**	Where **xxrfc** is your office ID.
2	Open the **WorkflowDescriptors.xml** file using an XML editor.	
3	Enter the information about the workflow you created in the step above. Parameters to define include: workflowDescriptorId name forecast allowApprove visible description runExpiryTime	
4	When finished, save and close the file.	

STEP 3 Inspect the Results

Step	Action
1	Restart the CHPS GUI.
2	Open the Workflow Navigator.
3	Use the Workflow Navigator to explore the structure of the new workflow.

Note: You must upload your changed documents to the Central Database via the Configuration Manager before moving on to Step 4.

STEP 4 Map the Workflow

Step	Action	Notes
1	Open a Firefox browsing session and log into the Admin Interface.	
2	Click the “Workflows and FSSs” link in the left menu.	
3	Select the “Workflows” sub link and verify that your new workflow is in the list.	
4	Select the “Workflow FSS Mappings” link and map the workflow to an FSS option.	

Creating a Conditional Workflow

Objective: Create a conditional workflow to run when triggered.
Note: Your base configuration files may be in another location.

STEP 1 Create a Workflow

Step	Action	Notes
1	Log on to an AWIPS workstation as user "fews".	
2	Navigate to the **WorkflowFiles** directory: **cd /awips/chps_share/sa/xxrfc/Config/WorkflowFiles**	Where **xxrfc** is the ID at your office.
3	Choose the forecast group associated with your new workflow: **cd <forecastgroup>**	
4	Copy an existing workflow and rename the file. **cp ABEC2_Flow_Forecast.xml <filename>.xml .**	
5	Open the file with an XML editor.	
6	Enter the information for the workflow as if you were creating a regular workflow. Parameters to define include: runIndependent moduleInstanceId workflowId fallbackActivity ensemble	
7	When finished, save and close the file.	

STEP 2 Register the Workflow

Step	Action	Notes
1	Navigate to the **RegionConfigFiles** directory: **cd /awips/chps_share/sa/xxrfc/Config/RegionConfigFiles**	
2	Open the **WorkflowDescriptors.xml** file using an XML editor.	
3	Enter the information about the workflow you created in the step above. Parameters to define include: workflowDescriptorId name forecast allowApprove visible description runExpiryTime	
4	When finished, save and close the file.	

STEP 3 Activate the Workflow Trigger

Step	Action	Notes
1	Navigate to the **RegionConfigFiles** directory: **cd /awips/chps_share/sa/xxrfc/Config/RegionConfigFiles**	
2	Open the **WorkflowLoopRunner.xml** file using an XML editor.	You may have to create this file.
3	Enter the following parameters for the new workflow: triggerOptions stepValueTrigger timeSeriesSet moduleInstanceId valueType parameterId locationId timeSeriesType timeStep relativeViewPeriod readWriteMode stepValueOption stepSize (unit, multiplier) relativeRunWindow (unit, start, end)	
4	When finished, save and close the file.	

Note: You must upload your changed documents to the Central Database via the Configuration Manager before moving on to Step 4.

STEP 4 Map the Workflow

Step	Action	Notes
1	Open a Firefox browsing session and log into the Admin Interface.	
2	Click the “Workflows and FSSs” link in the left menu.	
3	Select the “Workflows” sub link and verify that your new workflow is in the list.	
4	Select the “Workflow FSS Mappings” link and map the workflow to an FSS option.	

Note: If you have to create a new **WorkflowLoopRunner.xml** file, use the schema located at http://fews.wldelft.nl/schemas/version1.0/workflowLoopRunner.xsd

Designing Workflows Checklist

Objective: Use this checklist to help you structure modules and workflows so the workflows are more efficient.

Workflow Edits

	Action	Directory	Files
☐	Remove any unnecessary data processing steps.	/WorkflowFiles/Preprocessing_and_System	ImportScalars.xml ImportGrids.xml
☐	Reduce the number of module instances or remove unnecessary data processing steps.	/WorkflowFiles/Preprocessing_and_System	Preprocessing.xml
☐	Reduce preprocessing steps at the segment level.	/WorkflowFiles/<segment_name>	_Forecast.xml
☐	Remove unneeded preprocessing steps in update states.	/WorkflowFiles/<segment_name>	_UpdateStates.xml

Module Edits

Module edits can be generalized by three words: **remove**, **combine**, and **temporary**. Keep the following statements in mind as you go through the list of modules. Add notes to the "Notes" column on the checklist.

- Remove any unused module instances.
- Combine module instances, if possible.
- Set instances where the product is not displayed or exported as "Temporary".

Here are the directories and files where you will be making the changes:

Directory	Files
/Config/WorkflowFiles/PreProcessing_and_System	the workflow file
/Config/RegionConfigFiles/	ModuleInstanceDescriptors.xml
/Config/RegionConfigFiles/	ModuleInstanceSets.xml
/Config/SystemConfigFiles/	DisplayGroups.xml/Filters.xml
/Config/RegionConfigFiles/	ThresholdValueSets.xml

Fill out the following checklist as you look for efficiencies in your configuration.

	Module	Notes
☐	SETTS	
☐	SETTS	
☐	SETTS	
☐	ADDSUB	
☐	DELTATS	
☐	STAGEQ	
☐	CHANGET	
☐	MEANQ	
☐	WEIGHTS	

Debugging Using Logfiles

Objective: Use the log files to find clues about the errors in your configuration.

Method/ Technique	Steps
Clear messages from log panel	1. Right click in the white space in the "Logs" panel (a drop down menu appears). 2. Select "Clear messages" from the drop down menu.
Acknowledge all errors	1. With the cursor in the "Logs" section of the window, press the F12 key. 2. Select "I" to acknowledge all errors in the database.
Search errors in System Monitor	1. Click the System Monitor icon.  2. From the "log level" pull down menu, select ERROR. 3. Click the Refresh button.
Search for errors in the log panel	1. Put the cursor in the Logs panel. 2. Type "error" to search for errors. 3. Use the arrow keys to tab through errors.
Convert data from binary to XML	1. With the cursor over the Manual Forecast or Forecast Tree windows, press the F12 key. 2. Click the second to last option on the list (Convert *.FI and *.BIN to xml). 3. In the dialog box, navigate to **/tmp** and select the directory of interest. 4. Click the "Open" button to convert all binary content to xml.
Set workflow to debug mode	1. Highlight the workflow you want to debug. 2. Press the F12 key. 3. Select "Select modules to log debug messages in the next run…" 4. Check the box next to modules you want to debug.

Setting Logs to Debug Mode

Objective: Configure the Log4jConfig.xml file to generate debug level log messages.

Caveat: Debug level log messages are verbose and can fill up the log space quickly.

STEP 1 Navigate to Log4jConfig.xml

Step	Action	Notes
1	Log into an AWIPS workstation as user "fews".	
2	Navigate to the **Log4jConfig.xml** file: **cd /awips/chps_share/oc/xxrfc/**	Where **xxrfc** is the ID for your office.

STEP 2 Edit Configuration File

Step	Action	Notes
1	Open the **Log4jConfig.xml** file using your preferred XML editor.	It is recommended to use an XML editor rather than text editor so you can validate your changes.
2	Scroll down to the root node and find the following line: <priority value = "INFO">	
3	Change the priority value as follows: <priority value= "DEBUG">	
4	Save your changes and close the file.	

STEP 3 Revert to Info Level Messages

Step	Action	Notes
1	Open the **Log4jConfig.xml** file using your preferred XML editor.	
2	Scroll down to the root node and find the following line: <priority value = "DEBUG">	
3	Change the priority value as follows: <priority value= "INFO">	
4	Save your changes and close the file.	

Changing Log Message Appearance in IFD

Objective: When using Debug mode, the Log Messages panel in the IFD will fill up quickly and make the window hard to read. Configure the Log4j additivity to correct the issue.

STEP 1 Navigate to Log4jConfig.xml

Step	Action	Notes
1	Log into an AWIPS workstation as user "fews".	
2	Navigate to the **Log4jConfig.xml** file: **cd /awips/chps_share/oc/xxrfc/**	Where **xxrfc** is the ID for your office.

STEP 2 Edit Configuration File

Step	Action	Notes
1	Open the **Log4jConfig.xml** file using your preferred XML editor.	Recommendation: use an XML editor.
2	Scroll down to the following line: <category name= "nl.wldelft.fews.system.synch" additivity= "true">	Several categories are similar; select "synch".
3	Change the additivity section of the code: additivity = "**false**">	
4	Save your changes and close the file.	

Using the Workflow Navigator

Objective: Use the Workflow Navigator to gain insight into the workflows and view associated graphs.

STEP 1 Investigate the Forecast Group's Workflow Structure

Step	Action	Notes
1	Log into an AWIPS workstation and open a terminal.	Any user can perform these steps.
2	Launch FEWS **cd /awips/chps_share/oc/user** **./bin/fews.sh xxrfc_oc &**	
3	From the Tools menu, select Workflow Navigator.	
4	Once loaded, open the tree view and select a workflow. Consider the following: • How many sub-workflows are there? • Can you follow the arrows indicating time series going in and out of the various steps in the workflow? • What kind of modules are used in a processing step? • What kind of modules are used in a segment forecast?	

STEP 2 Compare Structure to Existing Workflow

Step	Action	Notes
1	Select an existing workflow.	
2	What differences do you notice compared to the forecast workflow of concern?	

STEP 3 Search a Workflow

Step	Action	Notes
1	Close the top folder, but stay in the tree.	
2	Type the 5-character ID of a site.	
3	Count the number of workflows associated with the site ID.	Press the arrow down to count workflow.

STEP 4 View Stage Time Series

Step	Action	Notes
1	Go to the top of the tree and use a wildcard (*) to search *STG.	
2	Right click to view the time series imported.	

STEP 5 Find Workflows Using Time Series STG

Step	Action	Notes
1	Right click "find".	
2	Which workflows use the imported River stage Observation time series?	

Reporting Problems on FogBugz

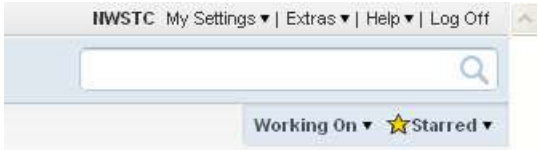
Objective: Report issues on the FogBugz web site, providing as much pertinent information as possible.

STEP 1 Log On to the FogBugz Website

Step	Action	Notes
1	From an internet browser, go to **Schuylkill.nws.noaa.gov:7069**	If the page does not load, send it again.
2	Log in using the RFC username and password. 	Box is in the upper right corner.

STEP 2 Search for Relevant Cases

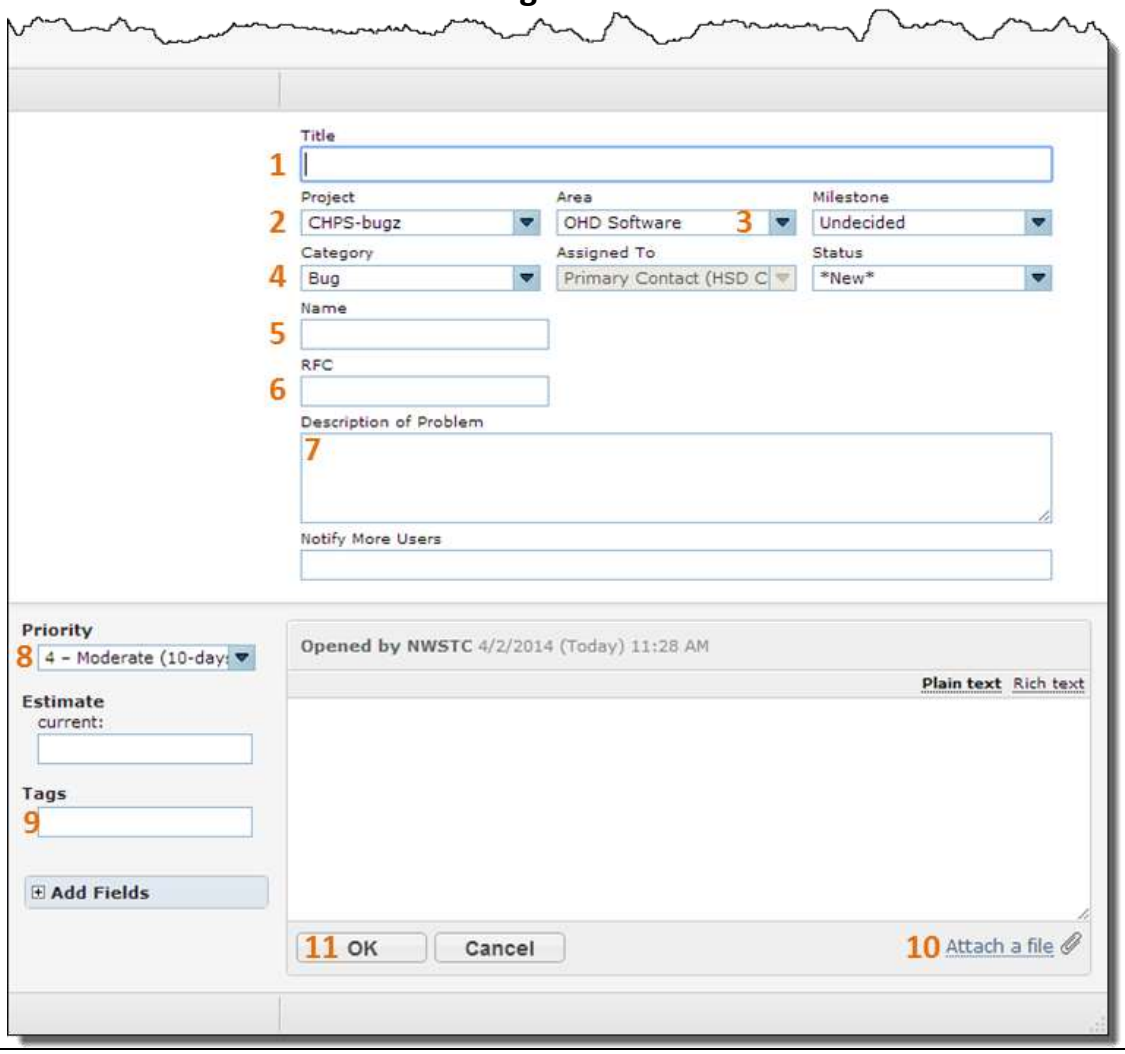
Note: In Internet Explorer, the search function only works in Compatibility mode.

Step	Action	Notes
1	Type a keyword associated with the topic/problem in the upper right search box. 	Documents will be listed first, then cases.
2	If a case is located, look through the status to see if it is still in progress or has been solved. Also, check the notes in the case.	
3	Track the progress of cases similar to the problems at your RFC by clicking the **Subscribe** button on the left side. 	
4	If the search yields no similar cases, add a case.	

STEP 3 Submit a New Case

Step	Action	Notes
1	Click **New Case** on the top navigation bar.	
2	Name the case the main topic of the problem.	Labeled **1** on Figure 11.
3	Select **CHPS-bugz** in the **Project** drop down menu.	Labeled **2** on Figure 11.
4	Select the area relating to the issue.	Labeled **3** on Figure 11.
5	Choose a category.	Labeled **4** on Figure 11.
6	Enter your name.	Labeled **5** on Figure 11.
7	Enter your RFC ID.	Labeled **6** on Figure 11.
8	Describe the issue, in depth. Make sure to note where, when, how, what directories or files are involved, and its impact.	Labeled **7** on Figure 11.
9	Set a priority.	Labeled **8** on Figure 11.
10	Make sure to include tags for easier searching.	Labeled **9** on Figure 11.
11	Change the priority, add more users, and attach a file.	Labeled **10** on Figure 11.
12	Click **OK**.	Labeled **11** on Figure 11.

Figure 11



XML File Definitions and Locations

The following list contains the subdirectories of the **/Config** directory. The file listing below may not match your RFC's **/Config** directory because some files are optional and others may be RFC specific.

CoefficientSetsFiles directory contains coefficient sets used for the transformation module.

Files	Contents
Flood_Coefficients.xml	Location ID, flood stage, and flood flow for all locations in the HSA
SACSMA_Coefficients.xml	Definition of the maximum values allowable for SACSMA parameters
Ratings.xml	Rating curves for specified locations used for STAGEQ modules

ColdStateFiles holds all cold state files for each segment in the RFC forecast area broken down into segment subdirectories.

Files	Contents
Model_Segment_ UpdateStates Default.zip	Subdirectory for each segment with state information for a particular model

DisplayConfigFiles defines layout of user displays, including What-if scenarios, Grid Display, etc.

Files	Contents
ManualForecastDisplay.xml	Definitions for the state times (e.g., warm state or cold state)
SpatialDisplay.xml	Time series display definitions
SystemMonitorDisplay.xml	Defines the appearance of the system monitor display window
TaskRunDialog.xml	Defines the appearance of the interactive forecast display blocks
WhatIfScenarioFilters.xml	Configuration of time series what-if scenarios may be applied to input data

IconFiles

Files	Contents
Various gifs	Icons used in the displays and button bar for different location types, such as reservoir, gage, etc.

IdMapFiles

Files	Contents
IdExport*module*.xml	File maps internal locations and parameters to locations and parameters as exported to specific module/model (e.g., SACSMA, SNOW17, and LAGK)
IdImport*module*.xml	File maps internal locations and parameters to locations and parameters as exported to specific module/model (e.g., SACSMA, SNOW17, and LAGK)
Id*datatype*.xml	File maps external locations, parameters, and qualifiers from imported datatype message to internal CHPS locations, parameters, and qualifiers (e.g., SHEF, PIXML)

MapLayerFiles

Files	Contents
Rfc_current_basin.shp	Shapefile containing the geometric extent of the polygons used in map displays and spatial interpolation
Rfc_current_basin.shx	Shapefile index referencing the geometric extent and the attributes table used in map displays and spatial interpolation
Rfc_current_basin.dbf	Shapefile attributes table

ModuleConfigFiles

Contents
All the registered module instance files for the CHPS system. Separated into segment and preprocessing subdirectories.

Segment subdirectory

Files	Contents
Module_Segment_operation_Forecast.xml	Module instance definitions for a specific segment
Module_Segment_operation_UpdateStates.xml	Latest warm state updates to the time series data in the module instance

Preprocessing directory

Files	Contents
Forecastgroup_module_Forecast.xml	Definition of the module instance for a specific segment
ForecastGroup_Module_UpdateStates.xml	Definition of the latest warm state updates for time series data in the module instance
Module_PreProcessing_parameter.xml	Handles preprocessing of data for module instance
SetTimes_Forecast.xml	Handles time attributes for forecast runs
SetTimes_LastObserved.xml	Handles time attributes for previous runs

ModuleParFiles

Files	Contents
Model_segment_UpdateStates.xml	External module parameters, separated into subdirectories for each segment

ModuleDataSetFiles subdirectory

Files	Contents
RFC_ColdStates.zip	Zip file holding all ColdState.zip files for all segments and models
CHPS_OHDModels.zip	Updates OHD-binaries by running the Update_models workflow

ReportTemplateFiles subdirectory

Defines HTML template files used in creating HTML reports for use on the web server

RootConfigFiles directory defines the behavior of CHPS on the local machine (not synchronized or available in the database (must be installed locally with system)).

Files	Contents
clientConfig.xml	Client type (OC or SA) definition.
oc_synchConfig.xml	Specification of JMS connections to MC(s) (DO NOT EDIT!).
synchChannels.xml	Displays channels used by an OC and download of configurations.
synchProfiles.xml	Provides fine-tuned control over database synchronization.

RegionConfigFiles – defines regional configuration, including all locations, parameters, etc.

Files	Notes
ColdModuleInstanceStateGroups.xml	Contains data for configuring the cold module instance state groups.
Filters.xml	Contains the definitions of filters in the main map display.
Grids.xml	Contains grid definitions (both regular and irregular).
LocationSets.xml	Groups locations into various sets (e.g., gages, catchments, reservoirs).
Locations.xml	Lists all locations in RFC configuration.
ModifierTypes.xml	Defines which modifiers are available for time series data and parameters.
ModuleConfigProperties.xml	Defines several module strings.
ModuleInstanceDescriptors.xml	Each module instance configured in CHPS must be registered in this configuration file so it is recognized by CHPS.
ModuleInstanceSets.xml	Groups modules together into various sets, easier for processing.
Parameters.xml	Contains all the definitions of all parameters used in CHPS including the list of supported parameters.
Polygons.xml	All geographic properties of polygons are defined in this file, which commonly refers to a shape file.
Qualifiers.xml	Contains definitions of all of the qualifiers applied to parameters used.
Thresholds.xml	Definitions of (unique) thresholds and details for each station in each river basin.
ThresholdValueSets.xml	The grouping of the (selected) thresholds.
ThresholdWarningLevels.xml	Time series (location/parameter) and actual levels information.
TimeSteps.xml	Defines the time step attributes.
Topology.xml	Configuration files for the topology panel and display.
UnitConversionsDescriptors.xml	Defines the unitConversionsDescriptor id.
ValidationRuleSets.xml	Contains definitions of all validation rules. Validation rules allow quality checking of all scalar time series data.
WorkflowDescriptors.xml	Each configured workflow must be registered in this file so CHPS recognizes the workflow.

SystemConfigFiles defines system configuration items including the plug-ins available to the system, definitions, etc.

Files	Contents
DisplayDescriptors.xml	Registers display plug-ins called from the GUI.
DisplayGroups.xml	Defines what plots are connected to each segment as well as the display of those plots.
DisplayInstanceDescriptors.xml	Defines the displays used in CHPS.
Explorer.xml	Defines the main display and configures the system settings.
LocationIcons.xml	Defines the location icons to be used for each site.
ModuleDescriptors.xml	Registers module plug-ins that can be used in workflows.
TimeSeriesDisplayConfig.xml	Layouts of the time series display.

UnitConversionsFiles defines unit conversions between external sources and units used in CHPS.

Files	Notes
displayEnglishUnits.xml	Contains unit conversions from metric and English units.
ExportSHEF.xml	Defines unit conversions for exports from metric units and English units.
ImportEnglishUnits.xml	Defines unit conversions for imports between English units and metric units.
ImportSHEF.xml	Defines unit conversions for imports between English units and metric units.

WorkflowFiles directory

Contains all workflows within an RFC area of responsibility. Subdirectories include “System and preprocessing” and “Forecast groups”.

System and Preprocessing subdirectory

Files	Notes
Amalgamate.xml	Workflow that merges time series data as new data becomes available.
ImportGrids.xml	Workflow activities to import gridded data.
ImportRating.xml	Workflow activities to import ratings.
ImportScalars.xml	Contains workflow activities involving importing scalar data.
Preprocess.xml	Contains workflow activities involving RRS preprocessing for the RFC.
RFC_Forecast.xml	Contains overall workflow activities for the RFC at the system level.
RFC_PreProcessing_Forecast.xml	Contains workflow activities handling preprocessing for the RFC.
RFC_PreProcessing_UpdateStates.xml	Contains workflow activities handling the preprocessing involving update states for the RFC.
RFC_UpdateStates.xml	Contains workflow activities for the RFC involving update states.
RollingBarrel.xml	Contains the workflow to get rid of expired data.

Forecast Group Subdirectory

Files	Notes
ForecastGroup_Forecast.xml	Forecast group level workflow activities
ForecastGroup_UpdateStates.xml	Forecast group update states
ForecastGroup_PreProcessing_Forecast.xml	Forecast group preprocessing activities
ForecastGroup_PreProcessing_UpdateStates.xml	Forecast group update states preprocessing activities
Segment_Forecast.xml	Segment level workflow activities
Segment_Flow_Forecast.xml	Segment level forecast activities
Segment_UpdateStates.xml	Segment level update states activities

NWSTC

CHPS Exercises

Optional Exercises for the CHPS Display Configuration Course

Exercise Table of Contents

Adding Locations and Location Sets

Objective: Use the Adding a Location and a Location Set job sheet to add the following practice data.

Scenario:

Your office receives two new gage sites and you have begun the process of adding the gages into your CHPS system. Now you are ready to add the information to the Locations.xml and LocationSets.xml files.

Id	Name	Description	Shortname	X	Y	Z
BIAB1	Beaver Island Airport	Beaver Island	BIAB1	-85.554	45.72	0
JORB1	Jordan River	Beaver Island	JORB1	-85.536	45.6452	0

Assumptions:

You already have completely preliminary steps involved in adding a new site.

Instructions:

1. Add locations to **Locations.xml**.
2. Add locations to **LocationSets.xml**.
3. Check new locations.
4. Test your changes in the Stand Alone.
5. Upload to the database.

Further Evaluation:

Use data relevant to your RFC instead of the practice data.

Adding a Transformation Module

Objective: Add a transformation module and then a display to visualize the data.

Scenario:

Correct the flow values at BIAB1 to 6-hour QIN time series using the ADJUST-Q transformation module.

Instructions:

1. Create an ADJUST-Q transformation module.
2. Create the module parameter file for the ADJUST-Q module.
3. Register the module instance and link to the transformation module.
4. Update the BIAB1 workflow.
5. Add an ADJUST-Q display to the time series display for BIAB1.
6. Inspect the results.

Further Evaluation:

Use data relevant to your RFC rather than the practice information in this exercise. Is there any data that could use a transformation module instance?

Conditional Workflows

Objective: The following exercise is an example of how conditional workflows can be effective in an RFC.

Scenario:

Your forecast area has seen a lot of rain in the past few days and overland flooding has started to occur. You want to switch some of your forecast area from a routing model to an overland flooding model.

Assumptions:

CHPS is configured to run a routing model. Also, CHPS is configured to run an overland flooding model, but no conditional workflows exist.

Create Overland Flooding Workflow

1. Select the areas you wish to use the overland flooding model run. Create an xml file outlining the workflow options and areas included in the workflow. This file should be placed in the WorkflowFiles directory.
2. Register workflowDescriptor ID from the file you created in Step 1 in the WorkflowDescriptors.xml file in the RegionConfigFiles directory.

Create WorkflowLoopRunner.xml File

3. Use the workflowLoopRunner.xsd schema to determine which method will trigger your workflow. Then create a WorkflowLoopRunner.xml (if not already in your configuration) that outlines the following:

- Trigger option
- Trigger timeseries
- Relative view period
- Value option
- Value
- Relative run window

Map the workflow using the Administration Interface!

Further Evaluation:

Are there similar situations at your RFC in which conditional workflows could make forecasting easier? Work with your RFC team members to come up with a few scenarios in which a conditional workflow will be more effective.