

LESSON 1 INTRODUCTION

As a CHPS Configuration Focal Point, you have more control over the appearance and behavior of CHPS displays than other users. Knowing how XML is used in CHPS can help you with this task.

This lesson defines the configuration boundaries for users and reviews the use of XML.

By the end of this lesson, you should be able to:

- Differentiate between focal point configuration tasks and user-configurable options.
- Describe several attributes of XML.
- List the basic steps in the configuration process.
- List common configuration subdirectories.

1.2 DEFINE ROLES

CHPS contains two types of Interactive Forecast Display (IFD) GUI options:

- Configuration options handled through numerous **configuration files**
- **User-customizable** windows and panels

As a focal point, it is important to recognize the difference between these two types of customization.

Note: The purpose of this course is to demonstrate **how** these types of changes can be made. Covering all of the available IFD GUI windows and panels and their configurable options is beyond the scope of this training.

User Customizable Example

One of the forecasters wants the Topology (an “at a glance” view of the river system in your RFC’s area of responsibility) undocked, and the Forecaster panel on the left side of the Spatial Display.

Users may inquire about making preference changes to the setup/layout of the main GUI, believing this to be a configuration issue. The **user** can complete **most** of these changes within the main GUI and save them for future use.

Configuration Example

On the image on the right, the lines defining the basin are wider than the ones for the rivers. This helps the forecaster differentiate between the two more easily, even though the lines are the same color. Changing this cannot be done through the IFD.

As a Focal Point, you have a greater level of control over how windows and panels within the IFD GUI behave and display data. All changes to the GUI covered in this lesson require modifying configuration files located in **/Config** directory.

Use the job sheet below to save an IFD layout.

Job Sheet: [Saving a Display Layout](#)



1.3 XML REVIEW

Recall from the Basic Configuration course, CHPS uses XML to structure the configuration files of the system. Here is a quick review:

- XML stands for eXtensible Markup Language. Extensible means the language is extendable.
- XML carries data; it structures, stores, and transports information.
- The XML language (itself) has no predefined tags; however, each XML configuration in CHPS adheres to a XSD schema.
- XML Schema Definition (XSD) language is the current standard schema language for all XML documents and data.

Note: If you need a refresher, please review the material in the Basic Configuration Course before continuing this training. It is imperative the CHPS Focal Points have a strong comprehension of XML before manipulating configuration files.

1.4 XML SELF-CHECK

This lesson is an interactive quiz. Please see Lesson 1.4 before moving on to the next page.

1.5 CONFIG PROCESS

Configuration needs to be a familiar process to you as a focal point. Recall from Basic Configuration, the process involves several key components:

- Central Database
- AWIPS Workstation
- OC local datastore
- Configuration Manager

Use the **Configuration Manager** to ensure a connection from your file system to the Central Database.

Configuration Process

1. Download the most recent configuration from the Central Database.
2. Export the configuration file you wish to edit to the OC local datastore on your AWIPS workstation.
3. Edit the configuration file using an XML editor or a text editor.
4. Import your configuration file back into the Configuration Manager.
5. Validate the configuration.
6. Upload the configuration to the Central Database.

1.6 CONFIGURATION DIRECTORIES

As with configuration of other CHPS components, configuration of the Interactive Forecast Display (IFD) involves multiple files.

The number of directories is reduced considerably compared with workflow and module configuration files; however, it is a good idea to become familiar with the location of some of the subdirectories.

Reminder: The location of the CHPS **/Config** directory may vary depending on the RFC, but the subdirectories are standard among all River Forecast Centers.

Commonly Used Subdirectories

Some of the subdirectories commonly used when configuring the IFD include:

DisplayConfigFiles: Defines layout of user display, including What-if scenarios, Grid Display, etc.

IconFiles: Defines icons used in the displays and button bars

MapLayerFiles: Contains the shapefile configuration files

RegionConfigFiles: Contains thresholds and topology files as well as polygon files

SystemConfigFile: Contains one of the main configuration files for editing the IFD panels, **Explorer.xml**

Explorer.xml is referenced many times in this course, so make a note of its location!

Reference: [CHPS XML File Definitions and Locations](#)

LESSON 2 IFD OVERVIEW

CHPS has a multitude of configurable options for the Interactive Forecast Display (IFD). It is within your power as a CHPS Focal Point to unlock its potential.

This lesson describes the configurable components of the Interactive Forecast Display (IFD).

By the end of this lesson, you should be able to:

- Describe the CHPS IFD.
- Enable CHPS IFD panels.
- List configurable options.

2.2. INTERACTIVE FORECAST DISPLAY

The **Interactive Forecast Display (IFD)**, also called the CHPS Explorer display, is the interface used by forecasters to run tasks and workflows on the Operator Client.

The IFD includes many elements. Elements visible by default when the system is started include current time, time of last refresh, status of the system, mouse coordinates, user name, and log message search panel.

Purpose of IFD

The IFD is a “first look” for forecasters to:

- compare forecast and observed data,
- create modifications to the data (as needed), and
- run and approve the forecast.

All of these are accomplished by clicking various tabs along the bottom and sides of the window.

2.3 LAUNCHING IFD PANELS

The CHPS IFD contains many types of panels.

Some of the CHPS IFD panels automatically appear when the IFD is launched.

Other panels are opened by selecting them from the Tools menu.

Repositioning Panels

Users can move panels, already configured to appear in the IFD, to other positions on the display. Moving already configured panels and repositioning them in the IFD are generally at the discretion of the user.

For instance, a forecaster might want Forecaster Notes, a panel discussed in [Lesson 7](#), at the bottom of the display. Some of the panels have additional, configurable options.

Some of the panels have additional, configurable options. We will talk more about some of those options later in this course.

Spread the Word! Tell the users about the available user-customizable features. Remind them many of the changes do not require configuration changes.

Job Sheet: [Saving a Display Layout](#)

2.4 COMMON IFD PANELS/TABS

The following presentation describes several of the more commonly used IFD panels and tabs.

Spatial Data Tab – The Spatial Display overlays time series data with a map background.

Plots Tab – The Plots tab displays observed and forecast hydrograph plots. Change display characteristics, enable editing, and edit data in this tab. Editing options include: click and drag points on the graph, edit in a table view, or interpolate between points using either a linear or quadratic interpolation function.

Topology Tab – The Topology tab provides a schematic of the river basin. Use this to see the connectivity between river sub basins. Not seeing any of the nodes when you click the “Topology” tab? Use the scroll bars – the site may have a large number of segments.

Forecaster Notes Panel – The Forecaster Notes panel provide an area to log notes relevant to the forecast, such as unusual gage readings.

Logs Panel – The Logs panel contains information on the health of CHPS and the status of tasks and workflows. The level of detail for messages in this window is configurable. Ask the CHPS Configuration Focal Point if you want more or less detail in this panel.

Graphics Generator Tab – The Graphics Generator tab provides an interface for creating templates to format output in graphic, tabular, or XML format.

2.5 CONFIGURABLE OPTIONS

The potential configuration changes available for the IFD are numerous. Discussing each of them is beyond the scope of this course. This lesson addresses some of the common types.

Adjust the **Explorer.xml** file, located in the **SystemConfigFiles** directory, to configure many of the configuration options, including the ones listed in the table above.

Configurable options are in two general categories - appearance and behavior.

Appearance

Here are a few questions to ask yourself when changing appearance aspects of the CHPS IFD:

- Would features be easier to see if the background were a different color?
- Would additional shapefiles be helpful?
- Do the line colors and thickness on the map and time series need adjusting?

Additional configurable options include the display's date/time format (YYYYMMDD, DDMMYYYY, etc.), time zone, and geodatum (coordinate system in which the grid is defined).

Behavior

Many of the behavior aspects control what the forecasters can customize.

- Which panels are dockable? If a forecaster cannot undock a window, check the configuration. The option may not be set to "true".
- What panels are visible? Is there a panel, such as Graphics Generator, that would be helpful at your office?
- Are the zoom levels appropriate? Having a zoom level set to CONUS will lead to a lot of frustration because forecasters will have to zoom into their area of concern.

Program Management Suggestion: Highlight a river basin or a forecast group within your RFC's area by specifying a zoom level. See the job sheet below for instructions.

Job Sheet: [Creating a Zoom Extent](#)

2.6 CONFIGURATION FILES

Configuration files associated with the CHPS displays are located in the `/Config` directory, generally in the `SystemConfigFiles`, `DisplayConfigFiles`, and `RegionConfigFiles` subdirectories.

In order to change display settings (or configurations) you may need to locate and edit these files. Do so by editing either attributes or data within the XML file.

Attributes - Remember, attributes are descriptive elements appearing within an opening tag. If you wanted to change the type of data used to “grid”, locate the tag and change the value to “grid”.

Data - Data appears between an opening and closing tag.

File Backup

Make a backup copy of the xml file before editing! Here is an example of a command for copying the `Explorer.xml` file.

```
cp Explorer.xml Explorer_previous.xml .
```

This command copies the `Explorer.xml` file, renames it `Explorer_previous.xml` and saves it to the same directory.

Note: The rest of this course describes additional edits that serve as examples of the types of configurations available. Please remember, this course does not cover all possible changes.

LESSON 3 SPATIAL DISPLAY

Viewing data spatially provides a broader perspective than looking at individual time series. As the focal point, you can configure the Spatial Display to provide this function for all the users at your RFC.

This lesson provides information on configuring the Spatial Display.

By the end of this lesson, you should be able to:

- Describe the Spatial Display.
- List examples of configuration options.
- Configure Spatial Display functions.

3.2 SPATIAL DISPLAY

The **Spatial Display** is a powerful tool to display observed, simulated, or historical data on a map background over a specified period.

The Spatial Display window shows time series data of any type: scalar, polygon, or grid depicted on a map background.

Example of Spatial Display Uses

The Spatial Display has many uses, including:

- depicting Flash Flood Guidance (FFG) values
- showing values for Water Supply Forecasts
- plotting forecast temperature and wind data help with timing of snow melt
- highlighting areas where the soil moisture values are not consistent with neighbors, an indicator of errors in the water stored in the model's "buckets"

3.3 SPATIAL DISPLAY OPTIONS

As with the IFD in general, the Spatial Display has several customizable options.

This lesson cannot cover every possible option. A few of those options are listed below.

Most of the Spatial Display configuration changes are made in the **SpatialDisplay.xml** file located in the **DisplayConfigFiles** directory.

Focal points have many options for changing the appearance and behavior of the Spatial Display. Many are the same as the Interactive Forecast Display (IFD) options, such as background color, line width, and creating zoom extents.

The Spatial Display does offer a different way of looking at data. Consider the following when configuring the Spatial Display:

Class Breaks - Is there a critical threshold in a spatial field (such as temperature or wind speed) in your office's area of responsibility? Consider specifying class breaks for that data.

Location Groups - Would creating a group of locations help forecasters locate sites with similar parameters more easily? For instance, sites included in the Water Supply Forecasts.

Contours - Think about contouring some fields, especially ones in which you are looking for outliers. For example, tightly packed contours in a temperature field can identify a site with a potentially invalid observation.

Looping - Loop the data to identify patterns (such as diurnal) to the information you are plotting.

Cross Section - Extract cross sections by taking spatial data back to what is happening at a given point to provide another perspective for data analysis.

Parameter Groups - Can you set up a common layout for parameter groups and plot groups so all forecasters can find data they need for forecasting?

3.4 SPATIAL DISPLAY CONFIGURATION

Once you decide to customize your Spatial Display, it is important to become familiar with the **SpatialDisplay.xml** file.

Reminder: The Spatial Display panel is configured via the **SpatialDisplay.xml** file located in **DisplayConfigFiles** directory.

From the **<defaults>** section in the **SpatialDisplay.xml** file, you can...

- set a default layout for parameter groups and plot groups
- set the background map and extent
- specify class breaks
- configure background maps for all grid plot groups
- add or configure shapefiles

From the **<gridPlotGroup>** section in the **SpatialDisplay.xml** file, you can...

- set the hierarchical (nested) structure of the grid plot groups and individual grid plots
- configure the grid plot layout settings
- set the time series data displays
- specify class breaks and color settings

Job Sheet: [Adding a New Background Map](#)

LESSON 4 TIME SERIES DISPLAY

Forecasters spend a considerable amount of time viewing and manipulating time series data in order to produce forecasts. Changing the options for displaying the data and the graphs themselves will make forecasting easier.

This lesson provides information on configuring the Time Series Display.

By the end of this lesson, you should be able to:

- Describe the Time Series Display.
- List Time Series uses.
- List examples of basic configuration options.
- Configure basic Time Series functions.
- List examples of advanced Time Series options.

4.2 TIME SERIES DISPLAY

The most commonly used display in CHPS is the Time Series Display. RFC forecasters use the interface to display and edit hydrographs (hydrologic data in time series format).

Functions

The Time Series Display represents dynamic or historic data in graphical form.

Forecasters can view and edit data through this interface.

When the forecast is being edited, forecast and observed temperature, precipitation, stage, and pool elevation are typically displayed.

Data can be point data or gridded data (not spatial) and can be in any time step, although, six hour time steps are still the most common.

Display Features

Some configurable features include:

- Pre-configured displays
- Thresholds, such as bankfull and flood stage
- Color and line weight

Reminder: The Time Series Display has many functions. Covering all of the available options is beyond the scope of this training.

4.3 TIME SERIES OPTIONS

In your role as a focal point, you need to coordinate with the management team at your office to determine some of the settings in the general display configuration.

This lesson discusses some common types of configuration changes.

Edit the **TimeSeriesDisplayConfig.xml** file, located in the **SystemConfigFiles** directory to make changes to the appearance of the Time Series display.

This files contains **global** settings for the time series display such as **value**, **label**, and perhaps most importantly, **editor permission**.

Configurable Options

Like the configurable options in the Interactive Forecast Display (IFD), you need to consider the following when making configuration changes:

Color - Configuration options for color include the background of the display, markers, and lines.

- Would changing the color of the traces or the markers help forecast operations?
- Are the colors visible on the background? If not, consider changing them.

Size and Weight - The size of the markers and the weight (thickness) of the lines are important, too.

- Are the markers big enough to be seen without obscuring other information?
- Are the lines thick enough for the purpose? Are they necessary at all?

Water Cooler Break! Given the large number of configuration options, take a few minutes to explore your office's **TimeSeriesDisplayConfig.xml** file. See if you can find some of the options shown in this lesson.

Reference: For more details on configuring Time Series Displays, please refer to the [Deltares wiki](#).

4.4 TIME SERIES CONFIGURATION

The previous page introduced a few options for customizing the Time Series display.

Here are some specific configuration changes with a sample of the corresponding XML code.

Default View Period - The **Default View Period** defines the time span of data shown in the time series (unless overruled by the user).

Time Markers - **Time Marker** settings include setting such as **system time**, **display time**, **threshold**, and **forecast confidence**.

Parameter Display - The **Parameter Display** defines a **preferred** default color, line width, and marker style.

Note: If a graph contains two traces of the same parameter (stage, for instance), the first stage trace listed in **DisplayGroups.xml** will use the preferred color in **TimeSeriesDisplayConfig.xml** and the second one listed will use the next color in the color palette.

Multiple Files

As mentioned on the previous page, multiple files can be edited to change the look of the Time Series Display.

All of the examples on this page are from **TimeSeriesDisplayConfig.xml**, the primary file for the layout of the display.

The other files governing the Time Series Display are:

DisplayGroups.xml found in the **SystemConfigFiles** directory

HistoricalEvents.xml located in the **RegionConfigFiles** directory

Thresholds.xml and **ThresholdValueSets.xml** found in the **RegionConfigFiles** directory

4.5 DISPLAY GROUPS

Before moving on to specific display types, think for a minute about the way the forecast and data point information is organized.

Display Groups
Display Groups – Display groups provide a logical structure for the forecast and data points needed to produce forecasts.
Display Group Structure – A Display Group forms one of the main nodes in the tree view and may contain multiple displays. Each of these “branches” from the “tree” represents a set of time series data. The display group attribute can be nested. Display Groups are the root element for each display group. A Display Group defines the groups of plots, known as “branches”. The configurable attributes include description, display, and display group.
DisplayGroups.xml Organize the Display Groups in the DisplayGroups.xml file located in the SystemConfigFiles directory. The file contains all of the time series plots for the entire RFC. A Display Group defines the groups of plots to be viewed. Configurable attributes can be nested.
Optimization Some offices choose to define reusable subplots, called templates, using <plot id> elements. These templates are useful because you only have to make a change once, and the change appears on all of the plots. These optional plot ids appear before the displayGroup names in the XML.
Comment Lines Comment lines separate the segments and plot ids in the document. Comments also help programmers identify the purpose of the XML code. You can also comment out entire Display Groups only used seasonally.

Use the job sheet to add a preconfigured display group to the Time Series Display.

Job Sheet: [Adding a Preconfigured Display](#)

4.6 HISTORICAL TIME SERIES

One of the options mentioned on the previous pages was historical events.

Historical events can be a useful comparison tool for a forecaster. The historical events are configured as time series referenced by a location.

From the Time Series Display, the forecaster selects an historical event from a drop down menu. When selected, the historical event appears in the Time Series Display as a subplot.

Note: The Historical Event display option is only enabled if the corresponding location and parameter are selected in Time Series Display.

Set Up

The historical information is mapped in the **HistoricalEvents.xml** located in the **RegionConfigFiles** directory. If a file does not already exist, create one using the historicalEvents.xsd schema.

If writing to a new file, remember to define the location ID and the parameter ID so the historical event shows up with the correct time series.

Suggestion: If you have a large number of historical events or a large area, break down the historical events into separate files by region.

For example, instead of having one **HistoricalEvents.xml** file, create **HistoricalEvents_North.xml** and **HistoricalEvents_South.xml** files.

The information in the **HistoricalEvents.xml** file can also be listed as an historical event set.

Reference: [Deltares Wiki – Historical Events](#)

4.7 THRESHOLDS

Adding thresholds to a Time Series Display is another option mentioned previously in the course.

Thresholds and ThresholdValue Sets

Time Series Display

The Time Series Display allows hydrologic forecasters to check the time series against thresholds.

When a threshold crossing occurs, a log message is generated and the location icon is updated in the CHPS IFD. The log message can be viewed in the system monitor and in reports.

Define thresholds, assign value to thresholds, and attribute icons to threshold using three files in the RegionConfigFiles directory.

Threshold **types** such as action, flood, and flood warning are defined in the Thresholds.xml file.

Threshold **values** for specific segments are defined in the ThresholdValueSets.xml file.

Threshold **icons** are defined in the ThresholdWarningLevels.xml file.

Water Cooler Break! Call a WFO in your HSA and make sure the thresholds you have defined match what the WFO has.

LESSON 5 GRAPHICS GENERATOR

Editing XML files to create graphics for the Internet used to be a time-consuming process. Use the Graphics Generator instead and save time!

This lesson provides details on configuring the Graphics Generator Display.

By the end of this lesson, you should be able to:

- Identify the purpose of Graphics Generator.
- Describe the Graphics Generator Display.
- List requirements to make Graphics Generator work.
- Configure Graphics Generator.
- Define the purpose of Pi-Service in Graphics Generator.

5.2 PURPOSE OF GRAPHICS GENERATOR

Graphics Generator, a panel in the IFD, was developed to mimic the graphic-producing functionality of the Extended Streamflow Prediction Analysis and Display Program (ESPADP).

Before Graphics Generator

Any data in time series format can be ported to a graphic and converted to XML or tabular format and displayed/graphed.

Unfortunately, creating graphics required interaction with XML, specifically the **DisplayGroups.xml**.

How much interaction with XML? As an example, the **DisplayGroups.xml** for ABRFC is over 100,000 lines of code!

Graphics Generator - Graphics Generator is not part of the original CHPS package. Graphics Generator can be configured to use as a CHPS IFD panel.

Once Graphics Generator is configured, allows the user to output time series data to tables, graphics, or XML format without editing configuration files.

This lesson is an introduction to Graphic Generator's capabilities. We will also discuss the basic steps for adding the panel to the IFD.

5.3 GRAPHICS GENERATOR INTERFACE

The Graphics Generator interface allows users to create, edit, and save templates to produce output.

Interface

The interface has two options for selecting products:

1. select a product from the left side of the interface, or
2. choose a product based on the active segment in the forecast process.

Note: The panes within Graphics Generator cannot be moved.

Graphics Output

Users can interactively build graphics, perform statistical analysis on the data, and change the appearance of the data.

The graphics output could be used for the Advanced Hydrologic Prediction Service (AHPS) pages.

Graphics Generator can produce any type of output, as long as:

1. the data is in time series format,
2. the user created a template to format the information, and
3. there is a plug-in to create it.

Note: This module does not contain instructions on how to create and save templates.

Reference: [Graphics Generator Getting Started Guide](#)

5.4 GRAPHICS GENERATOR REQUIREMENTS

Graphics Generator has many advantages over creating maps by manipulating XML. Before you can set up Graphics Generator to work within your CHPS IFD, there are a few requirements.

General Requirements

Plugins - add required FEWS plugins for the display – ConfiguredQuery, PiTimeSeries, Segment TimeSeries, and SelectTimeSeries plugins. A majority of the requirements involve Pi-service. Pi-service is one of the required plugins, and **must** be running in order for Graphics Generator to function.

Configuration edit - change the display token in **Explorer.xml** for Graphics Generator to “true” from “false”.

Required Files

Files to provide the id mapping for the import and export processes in Graphics Generator Pi-Service are required.

The files are logically named. The **IdExportPiService.xml** file provides the ID mapping for the export process.

The **IdImportPiService.xml** file provides import process in Graphics Generator Pi-Service.

The **IdExportPiService.xml** and **IdImportPiService.xml** files are located in the **IdMapFiles** directory.

Pi-Service Directory

Verify you have a **PiServiceConfigFiles** directory under **/Config**. If the directory does not exist, create one.

Note: Details on editing the code within these files is beyond the scope of this course.

The following files need to be in this directory:

- **HEFSGraphGen.xml** – defines the queries Graphics Generator uses to create HEFS products, such as ensemble graphics.
- **GraphGen.xml** – defines the queries Graphics Generator uses to create AHPS products, such as long-range hydrologic forecasts.

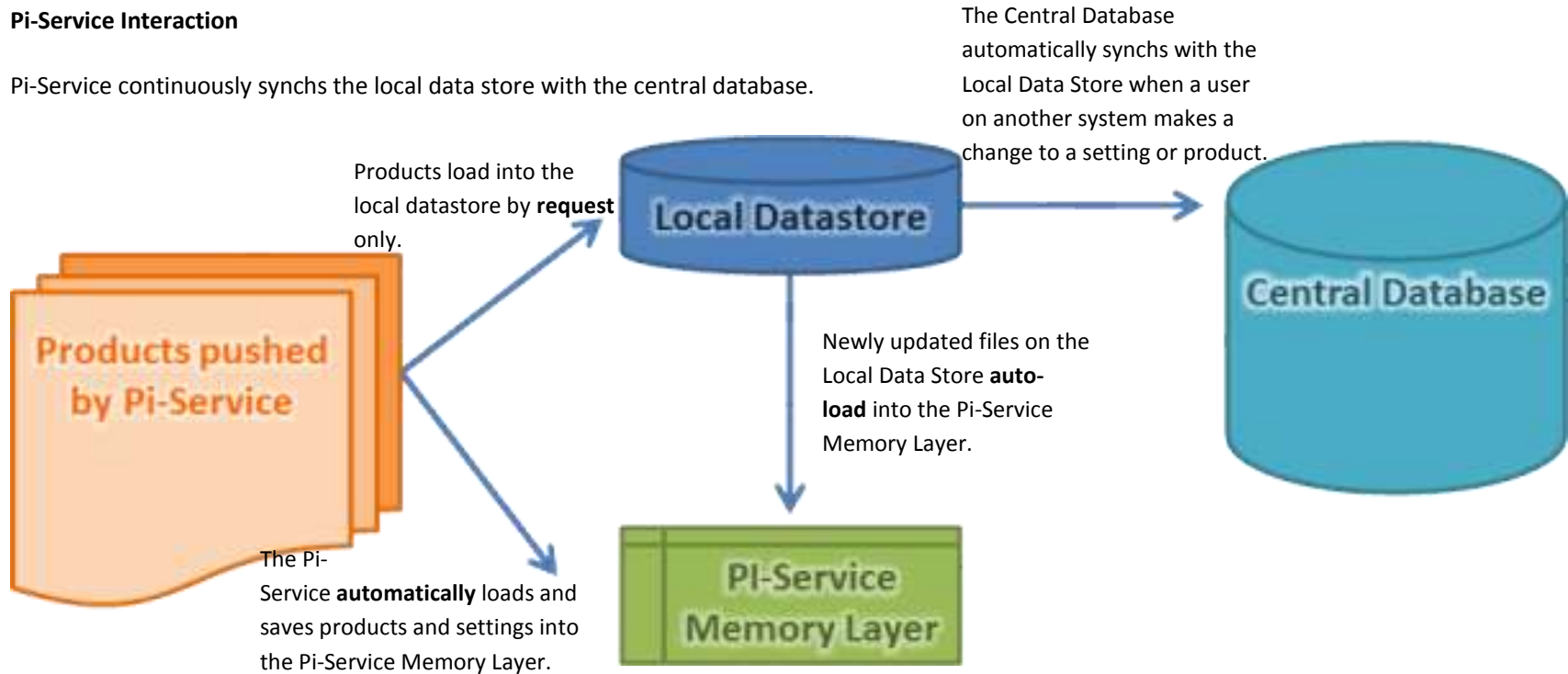
5.5 PI-SERVICE IN GRAPHICS GENERATOR

You **must** have Pi-Service running in order to use Graphics Generator.

[Click here for a refresher on Pi-Service and a link to a job sheet on setting up Pi-Service.](#)

Pi-Service Interaction

Pi-Service continuously synchs the local data store with the central database.



Purpose of Pi-Service Memory Layer

The Pi-Service Memory Layer maintains a memory of the active settings and any unsaved changes made to a currently edited product.

If the local data store is changed, the settings and changes are not lost; the user is given the option to keep the settings and changes.

5.6 GRAPHICS GENERATOR CONFIGURATION

Configuration of Graphics Generator involves editing several files in addition to ensuring Pi-Service is operational.

Graphics Generator Configuration
<p>Important! Make backup copies of Filters.xml, LocationSets.xml, ThresholdValueSets.xml, and ModuleInstanceSets.xml before making any edits to the files!</p> <p>Here is an example of a command for copying the Filters.xml file.</p> <p>cp Filters.xml Filters_previous.xml .</p> <p>This command copies the Filters.xml file, renames it Filters_previous.xml and saves it to the same directory.</p> <p>Directory Note</p> <p>All of the files mentioned in this presentation are located in the RegionConfigFiles directory.</p>
<p>Filters.xml</p> <p>Graphics Generator uses the Filters.xml file to find location information for use with Pi-Service.</p> <p>You must add a filter to Filters.xml in order for Pi-Service to work.</p> <p>Suggestion: Add comments to your XML files to document configuration changes.</p>
<p>LocationSets.xml</p> <p>The Pi-Service queries need to know which location sets will be used. You must edit the LocationSets.xml to specify this.</p> <p>The location set should already be defined if your office has configured MEFP (Meteorological Ensemble Forecast Processor).</p>
<p>ModuleInstanceSets.xml</p> <p>The ModuleInstanceSets.xml specifies the module instance sets used in the Pi-Service queries.</p> <p>Provide a unique moduleInstanceSet id, a name, and the moduleInstance id.</p> <p>Comments in the code help you recall what is occurring, but are invaluable if a new Configuration Focal Point needs to edit the files.</p>
<p>ThresholdValueSets.xml</p> <p>The edits to ThresholdValueSets.xml are necessary to add floo thresholds (minor, moderate, major, etc.) to the Advance Hydrologic Prediction Service (AHPS) products.</p>

[Job Sheet: Configuring Graphics Generator](#)

LESSON 6 OTHER DISPLAYS

As the CHPS Configuration Focal Point, you might find a few other displays are useful at your office. Take time to learn what the other displays are and how they function.

This lesson provides details on configuring other types of CHPS displays.

By the end of this lesson, you should be able to:

- Describe the Topology node.
- Configure the Topology node.
- Describe the Forecaster Notes panel.
- Configure the Forecaster Notes panel.
- List other configuration considerations.

6.2 OTHER DISPLAYS

Throughout this course, we have discussed some of the more commonly used panels and displays in the CHPS IFD. Numerous ways exist to use and configure the displays.

These displays are not the only ones available in CHPS. We could go on for several more lessons if we tried to talk about them all and how to configure them in different ways. Instead, this lesson will discuss two more common panels:

- Topology
- Forecaster Notes

Explore! Many of the panels can be activated by simply editing the **Explorer.xml** file found in the **SystemConfigFiles** directory. Once you enable the panels, you can explore their functions and determine whether they could be useful in your RFC. Remember, always test changes on a Stand Alone instance of CHPS!

6.3 TOPOLOGY PANEL

Topology is an “at a glance” view of the river system in your RFC’s area of responsibility.

The CHPS IFD allows forecasters to run forecasts basin by basin using the topology accessible through the Topology panel.

Layout - The Topology panel is a block diagram depicting the connections between individual nodes. The topology is defined by the **individual nodes** (station locations) and their **connectivity**. Topology is also displayed in a tree format in the forecast panel.

Behavior - When a forecaster clicks one of the nodes (the boxes with the forecast or data point name on it), the time series plots available for the location appear on the right of the IFD.

6.4 TOPOLOGY CONFIGURATION

Configuration of the Topology panel is handled in a couple of different files.

As CHPS Configuration Focal Point, you may be required to edit all of these files at some point to customize the Topology panel for optimal use.

Connectivity between the nodes is configured in the **Topology.xml** file, located in the **RegionConfigFiles** directory.

Configurable Options

The topology display has many configurable options.

One option controls the text for each node. Another option is changing the zoom extent of the map when a forecaster clicks a branch on the topology.

Option Types

Keep in mind there are different option types, including:

Global – changes affecting the entire panel.

Groupnodes – changes affecting a group of nodes.

Leaf Node – changes affecting only one node of the topology tree.

Remember: if your office adds new forecast points, be sure the node IDs for the new locations to display groups in the **DisplayGroups.xml** file, located in **SystemConfigFiles** directory!

Use the job sheet below for detailed instructions on adding a new location to the Topology.

Job Sheet: [Adding a New Location to the Topology](#)

Reference: [Topology information from the Deltares wiki](#)

6.5 FORECASTER NOTES

Communication is essential for forecast consistency between shifts.

Rather than keeping paper notes or sending emails, the CHPS IFD has an option for inserting a free text area called the **Forecaster Notes** panel.

Forecaster Notes Activation

The Forecaster Notes panel is part of the baseline configuration of CHPS, but must be activated to use.

Once configured, the forecaster notes panel can be moved within the IFD like any other panel.

Using Forecaster Notes

Use the forecast panel to make notes such as releases from reservoirs or suspicions about gage output and publish them for other forecasters to view.

The layout is similar to a log message with newer messages appearing at the top of the panel.

Collaborate! Talk with other members of your RFC about initiation of standard procedures for using the Forecaster Notes panel.

6.6 FORECASTER NOTES CONFIGURATION

Most of the configuration work for Forecaster Notes has been done for you.

The only step left is to turn on the panel in order to make it available for the users.

Edit the **Explorer.xml** file in the **SystemConfigFiles** directory to activate the Forecaster Notes panel.

The Forecaster Notes panel is listed as an “explorer task” in the code.

In the XML file, you have the option of making the forecaster notes a toolbar task or menu bar task or both.

Use standard editing procedures and change either option from “false” to “true”.

Remember: Set the tokens to “true” to display the Forecaster Notes as a menu bar item or as a tool bar item.

6.7 CONSIDERATIONS

The panels discussed in this lesson are just a few other common panels used in the CHPS IFD. Each RFC handles day-to-day operations differently. What may benefit one RFC may not benefit another. As the CHPS Configuration Focal Point, it is recommended you do the following:

Start a Think Tank	Have a brainstorming session with the members of your RFC. What options would make their lives easier? Consider adding a map layer to the IFD map display or adding buttons to the AWIPS start menu for commonly used applications instead of launching via command line. Would any of the inactive Explorer tasks benefit the forecasters?
Create an Action Item List	Keep a log of the items discussed while brainstorming. Create a task completion timeline and delegate the tasks, if needed. When making configuration changes, check to see if the configuration file already exists in the base configuration directories.
Request Enhancements	Some of the user suggestions may not be actionable at this time. Log on to FogBugz and create an enhancement case for items your RFC feels are needed but not part of the current software. Submitting enhancements will give the programmers ideas for enhancing CHPS.

COURSE SUMMARY

Introduction

CHPS users can move IFD panels and save the layout for future use. Other changes, such as changing the map color, requires a change by the Configuration Focal Point.

CHPS uses XML to structure the configuration files in the system.

The steps in the configuration process are:

1. Download the most recent configuration from the database.
2. Export the configuration to the OC.
3. Edit the files using an XML or text editor.
4. Import the configuration in the Configuration Manager.
5. Validate the configuration.
6. Upload the configuration into the Central Database.

Commonly Used Subdirectories

Some of the subdirectories commonly used when configuring the IFD include:

DisplayConfigFiles: Defines layout of user display, including What-if scenarios, Grid Display, etc.

IconFiles: Icons used in the displays and button bars.

MapLayerFiles: Contains the shapefile configuration files.

RegionConfigFiles: Contains thresholds and topology files as well as polygon files.

SystemConfigFile: Contains one of the main configuration files for editing the IFD panels, **Explorer.xml**.

IFD Overview

The IFD is a “first look” for forecasters to: compare forecast and observed data, create modifications to the data (as needed), and run and approve the forecast.

Some CHPS panels are enabled by selecting them from the Tools menu, and others are configured to appear when the IFD is launched.

Configurable options are generally in two categories, appearance (color, line width, etc.) and behavior (panel visibility, docking, etc.).

Spatial Display

Forecasters use the Spatial Display to view observed, historical, or simulated data on a map background.

Some options for the Spatial Display include creating contoured displays, looping the image, and creating location groups.

Most of the Spatial Display configuration changes are made in the **SpatialDisplay.xml** file located in the **DisplayConfigFiles** directory.

Time Series Display

The Time Series Display is an interface where forecasters can view and edit hydrographs.

Some configurable options include changing the line weight and color, and editing the color of the markers.

Edit the **TimeSeriesDisplayConfig.xml** file located in the **SystemConfigFiles** directory to make changes to the appearance of the Time Series Display.

Some more advanced options for the Time Series Display include setting up historical time series, and configuring thresholds for the data. Display Groups provide a logical structure for the forecast and data points needed to produce forecasts.

Graphics Generator

GraphGen, a panel in the IFD, was developed to mimic the functionality of the Extended Streamflow Prediction Analysis and Display Program (ESPADP) and create ensemble graphics.

The GraphGen interface has four stationary panels, which allow the user to manage, create, view or select products.

GraphGen requires Pi-Service, several additional configuration files, and four plugins to create products.

Configuration changes to existing files in the **RegionConfigFiles** directory are needed, too. **Filters.xml**, **LocationSets.xml**, **ModuleInstanceSets.xml**, and **ThresholdValueSets.xml**.

Pi-Service must be functional for GraphGen to work because Pi-Service synchs the Local Data Store with the Central Database all of the time.

Other Displays

Topology is an “at a glance” view of the river system in your RFC’s area of responsibility.

Connectivity between the nodes is configured in the **Topology.xml** file, located in the **RegionConfigFiles** directory.

The Forecaster Notes panel is an option for a free text area within the IFD.

Edit the **Explorer.xml** file, located in the **SystemConfigFiles** directory to activate the Forecaster Notes panel.

Configuration considerations - start a think tank to come up configuration changes that would help your RFC, keep a log of what was discussed and implemented, and create enhancement cases on FogBugz for the items requiring software enhancements.

Congratulations. You reached the end of the course material!