

WxCODER II

A Web-based data entry system for observers



Web Xmitted Cooperative Observer Data Encoded Report

Version 1.0

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Cooperative observer data has traditionally been collected and transmitted to the National Weather Service by telephone. While the method has been effective, it not only requires significant time but also fails to take advantage of more sophisticated methods of data entry and transmission generally available through use of the Internet.

In 1999 WFO Chicago took a significant step in opening the use of the Internet to cooperative observers across the central United States. The result of the effort was the introduction of an Internet-enabled data entry system called WxCoder (*Web Xmitted Cooperative Observer Data Encoded Report*). Though an advancement, WxCoder only made the first step. Entry forms were cumbersome, error feedback was confusing, and data retrieval was non-existent..

WxCoder II is a major and substantial enhancement to previous methods of data entry for observers. While addressing the shortcomings of its predecessors, WxCoder II breaks new ground with the introduction of a multi-function database. By combining the power of relational database technology with the Internet, WxCoder II provides information services that neither can deliver alone. Major improvements are provided for both the observer and the NWS; significant new features for both are added.

For the coop observer, WxCoder II provides substantial improvements in data entry. The entry form is clean and concise. Through the use of the WxCoder database and dynamic content technology, data entry now occurs through a one-page, customized form – no need for the observer to muddle through pages of non-pertinent entry blanks. Persistent, site-specific data is automatically presented on the form; no need for repetitious, daily entry.

For the NWS, the introduction of the WxCoder database is a major enhancement to coop observer data collection, processing, analysis, and presentation. The collected data no longer serves one purpose. It is available for multiple uses – automatically generating summaries and reports, direct forwarding to NCDC.

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WxCODER PROGRAM AND INSTALLATION GUIDE



Application Architecture

WxCoder is a Web-based data entry system for National Weather Service observers. Its architecture and implementation are driven by two design considerations: a friendly, multi-featured interface and the need to maintain ‘state’ through a user’s session.

The requirement for a friendly user interface is easily met by implementing the interface using HTML/DHTML forms, CSS style sheets and JavaScript. The need for features such as customized forms and historic data retrieval requires the use of a database to store information relevant to each user.

A more difficult feature to incorporate is the need to maintain ‘state.’ It is not uncommon for an application such as WxCoder to span several pages that are logically grouped and considered part of a larger unit, defined as a *session*. Unfortunately, the HTTP protocol used in Web-based applications is not well suited for session management; it’s a stateless protocol that makes no provision for allowing a Web server to associate one request with any other request. WxCoder requires maintaining state to help identify the user as he proceeds from page to page and to ‘remember’ data entered or actions requested. Of the methods available for maintaining state, a backend database is the best approach for WxCoder. In this scheme, the client announces itself to the server on each request using an identifier (session ID). The server associates the identifier with the appropriate state information that it maintains for each client in the database.

The architecture solution for the WxCoder application is built using a three tier approach: a client browser at the front, a middle tier web server(s), and a backend database server (Figure 1).

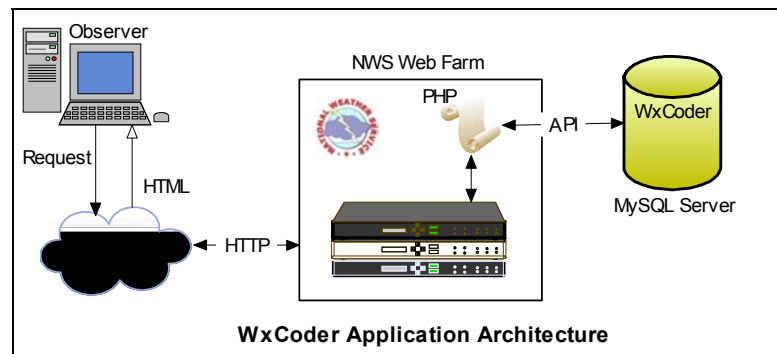


Figure 1

The front end comprises the human interface to WxCoder – normal Web pages. It is implemented through HTML/DHTML forms using CSS style sheets and JavaScript support.

The middle tier consists of Apache running on a web server or in a web farm. A PHP module running as a plug-in performs the processing done in the middle tier and includes support for interacting with the MySQL database backend (additional plug-ins provide support for generating PDF files and graphics). PHP scripting provides the flexibility needed for page customization; pages are generated as requested and to specifications required for the specific client being serviced. PHP scripts process form input, generate SQL queries, process query results, and generate HTML documents for return to the client via the Internet.

The backend tier consists of the database server, not necessarily running on the same server as Apache or even in the same web farm. MySQL is used for this application providing a high performance, flexible database.

All software used to generate and support the WxCoder application is open source with one exception -- a commercially licensed PDF-generating software package.

Application Flow

Though the user's initial encounter with WxCoder is generally considered to be the appearance of the login page, WxCoder begins its internal housekeeping before it generates the page. Upon receiving a request for the login page, WxCoder generates initial state information consisting of a session ID (a 32-character string of alphanumeric characters), a session expiration time (5 minutes into the future), and an initial set of session data (the preferred language, determined by the URL used to get to the login page) and stores it in its MySQL database in table *wxsamSessions*. The HTML page is then generated and returned along with the session ID as an in-memory cookie.

Upon presentation of the login page (Figure 9, Appendix C), the user is asked to enter his username and user identifier. The page is returned to the web server with the data attached as an HTTP POST request. The receiving script reads the username and user identifier and constructs a SQL query used to determine if a user exists that corresponds to the information passed. If no user exists who matches the unique combination of username and user identifier, an error message is returned along with the login page allowing another attempt at successful login. If the username exists but the user identifier does not match the one stored in the database for the user, the login page is returned with an error messages noting the problem; two more attempts at successful login are allowed before the user account corresponding to username is locked and unavailable.

WxCoder grants access to its pages based on a system of user rights – rights that are dependent on the class of user and are assigned when a new user account is established. WxCoder currently defines nine classes of users: guest, cooperative observer, marine observer, WFO-lite user, WFO user, NWS regional user, NWS national user, support/maintenance user, and superuser. Based on the username and user identifier, WxCoder 'knows' which class of user has logged in and generates an appropriate page to return to the user. If a user attempts to access a page to which he does not have rights, he will be denied access and a *no-rights* page will be returned.

The nine classes of users noted above can be divided into two general classes – observers and administrative users. These two classes define the two broad interfaces presented by WxCoder after login – the user interface and the administrative interface. Further determination on the pages presented is made based on the actual class of user.

The discussion below describes the application flow (Figure 2) for an observer user. The same principles outlined below apply to administrative users though the actual pages displayed and functions performed are different.

Application Flow: User Interface

Having successfully logged in, an observer class user is presented with a data entry page (Figure 10, Appendix C) – the default page presented on login for an observer. Because WxCoder knows both who the observer is and what site is associated with him through entries in the database, it customizes the page presented through those and other database entries. Customizations include pre-filled entries for site name

and ID, date and time of observation, type of observation. The form is generated to include only those data elements (with information retrieved from the 'forms' series of tables in the database) observed by the user.

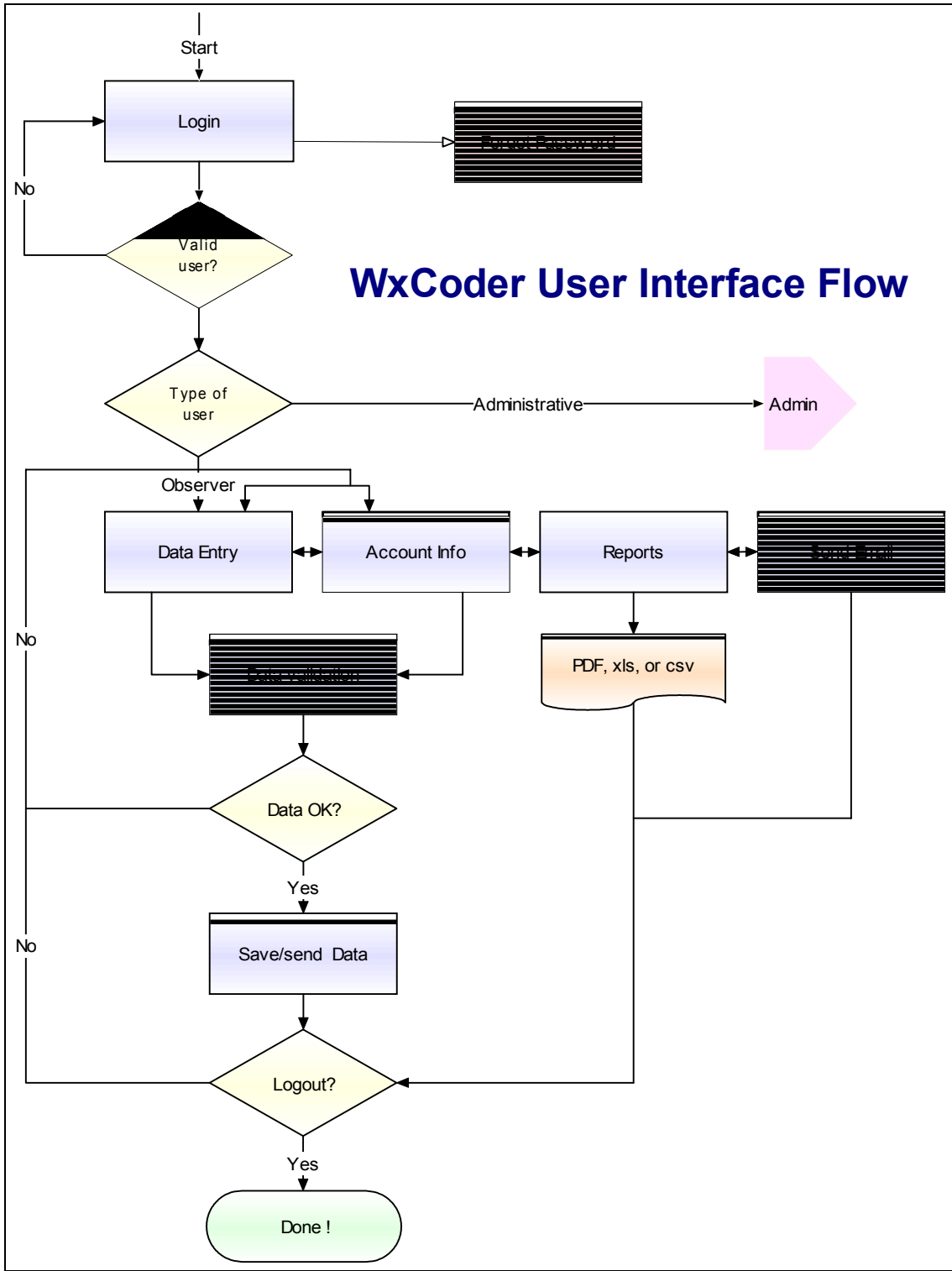


Figure 2

Further customizations include information/links on the page related to the observer's local NWS office/contact. This is accomplished in the PHP files *dataEntryCoop.php* and *dataEntryMarine.php* as appropriate.

With many portions of WxCoder's pages being common (page header/footer, menus, general page layout.), it would be burdensome and time-consuming to maintain these features on every page. Instead WxCoder pages are generated using templates. The use of templates separates the commonly used portions of a page from the rest of the page code. For those portions of a page that only need minor changes, templates also support the use of variables. At runtime, the page's template is retrieved, template variables are replaced with either plain text (HTML) or the output of other templates, and the page is generated. The PHP package **FastTemplate** is used to implement this feature.

When the user submits the data entry page, data validation begins (file *validateDataCoop.php*). The data is first read from the HTTP POST variables returned to the server and stored in an arrayed session variable. Data quality checks (Table 1) are then performed on the data.

- blank form
- ob entry no earlier than 30 minutes before nominal observation time (*regular observation only*)
- invalid characters
- correct number of digits in each field
- data within valid range (WFO settable)
- precipitation entered, if required
- cross checks between data
 - must report precipitation with snowfall (*reg ob only*)
 - must report snow depth with snowfall (*reg ob only*)
 - must report snow depth with snow core (*reg ob only*)
 - don't report snow core with snow depth less than 2 in
 - must report snow core if is on/after last Monday in January
 - must report precipitation type, if reporting, with precipitation
 - must report frozen precipitation type, if reporting precipitation type, with snowfall
 - min temperature must be \leq max temperature (air and soil temperatures)
 - temperature at observation must be \leq max temperature
 - max temperature must be \geq yesterday's temperature at observation and min temperature must be \leq yesterday's temperature at observation

Table 1

If no errors are encountered, the data are encoded in SHEF and stored in the WxCoder database. A 'success' message (Figure 12, Appendix C) is returned to the user along with a summary of the observation just entered. At this point the users may logout or choose another Wxcoder function (including entering data again). If an error(s) is encountered, the data entry page is returned to the user with his data still in the entry boxes and a message(s) noting the error encountered (Figure 11, Appendix C). The errors must be corrected before WxCoder will accept the observation.

WxCoder to AWIPS Data Transmission

WxCoder accommodates two methods of transmitting its collected data to AWIPS – through LDAD and by direct ftp. Transmitting through LDAD is the method currently in use.

Transmission through LDAD

Wxcoder transmits its data to AWIPS by appending its output to files in a pre-defined directory (defined in *_congif.php*) on the web server. The specific file appended to mimics the AFOS PIL specified at the time the site was established (e.g., data to be stored using AFOS PIL *CHIRR3CHI* is appended to file *COOPCHIRR3CHI* on the web server). At this point WxCoder no longer controls the flow of data.

A shell script, running at regular intervals as a cron job on the web server, reads the files in the pre-defined directory. If a file contains data (i.e., is not zero length), it is sent by ftp to one of four Central Region LDAD sites: Central Region Headquarters, WFO Bismarck, WFO Sioux Falls, or WFO Milwaukee. (Files that are successfully read are 'zeroed out'.) Upon being received by LDAD, entry into AWIPS is controlled by LDAD's AFOS2AWIPS.txt (A2A) file. This file contains a listing of acceptable AFOS PILs (9-character product identifiers) and WMO headers that AWIPS recognizes as valid products. ***It is critical that the receiving LDAD site's A2A file be complete and correct to insure transmission through this link.***

When successfully transmitted, a site's observation will appear in AWIPS with the appropriate AFOS identifier.



This section of the manual provides information necessary for successful installation and update of WxCoder on the servers in a web farm.

Web Farm Requirements

WxCoder II is designed to run in a Linux-based web farm. Though hardware is generally not an extra consideration in the installation or operation of its software, WxCoder requires the following minimum software configuration to operate.

- The web servers in the farm must be running Apache v1.3 and PHP v4.1.2
- Two database servers are needed (main and redundant) each running MySQL v3.23.56
- A licensed version of the software package PDFLib v5.0 (<http://www.pdflib.com/>) must be active on one of the servers in the farm to support downloadable Acrobat forms generation

Later versions of the software noted above (particularly PHP and MySQL) will be supported in WxCoder code as they become available and are installed.

Initial Software Installation

The following steps are necessary for a successful initial installation of WxCoder's program files on the servers in the web farm.

1. Download the latest version of Wxcoder. It is available by ftp in the file *wxcoder.tar.gz* at <ftp://taz.crh.noaa.gov/wxcoder/install/wxcoder.tar.gz>. Place it in Apache's 'DocumentRoot' directory (see Apache's httpd.conf for the specific location).
2. 'untar' *wxcoder.tar.gz*
tar -xvf wxcoder.tar.gz
3. Set file permissions for WxCoder's directories
cd DocumentRoot
chown -R wxcoder wxcoder
chmod -R 777 wxcoder
4. WxCoder is now installed and awaiting the installation of its database

It will be necessary to create WxCoder's database using the files *wxcoder.sql*, *wxcoderData.sql*, and *wxcoderDataSync.sql*, as needed. The files are available by ftp at <ftp://taz.crh.noaa.gov/wxcoder/install/wxcoder.sql>, etc. Place the files in the /tmp directory of the server holding the MySQL server.

1. Create the database
 - a. **% mysql -u root -p </tmp/wxcoder.sql** (*% indicates the shell prompt*)
 - b. You will be prompted for "root's" password; after it is entered the database will be created using the contents of *wxcoder.sql*
2. Populate the database using the command
% mysql -u root -p </tmp/wxcoderData.sql

3. Configure WxCoder global database parameters
 - a. Several global database parameters in WxCoder's php configuration file need to be defined. Go to *DocumentRoot/wxcoder/include* and open *_config.php* in a text editor. Comments included in the file contain helpful notes about completing the defines. The following variables have been defined for the default installation; you may change them as appropriate.


```

$dbNAME           // MySQL WxCoder II database name
$dbHOSTNAME[0]   // 'read' database server name/IP address
$dbHOSTNAME[1]   // 'write' database server name/IP address
$dbHOSTNAME[2]   // backup write database server name/IP address
$dbUSERNAME      // username for connection to the databases
$dbPASSWORD      // database password

$xmtLDAD         // full filepath for output files for LDAD transmission
$xmtFTP         // DNS name/IP address of ftp sever for transmission
$xmtFTPusername // username for connection to server above
$xmtFTPpassword // password to complete connection to ftp server
$pdfHOSTHANE    // server name/IP address of PDF-generating server
          
```
 - b. The WxCoder database is now be configured (and loaded) for use

Update Software Installation

The following steps are necessary for successfully updating WxCoder's program files on the servers in the web farm.

1. Download the latest updates to WxCoder. They are available by ftp in the file *wxcodeUpdater.tar.gz* at <ftp://taz.crh.noaa.gov/wxcoder/install/wxcoderUpdate.tar.gz>.
2. 'untar' *wxcoderUpdate.tar.gz*

```
tar -xvf wxcoderUpdate.tar.gz
```

It will be necessary to update WxCoder's database using the file *wxcoderUpdate.sql*, which is available by ftp at <ftp://taz.crh.noaa.gov/wxcoder/install/wxcoderUpdate.sql>. Place the files in the /tmp directory of the server holding the MySQL server.

1. Commit the updates to the database by executing the following command


```
% mysql -u root -p </tmp/wxcoderUpdate.sql
```

THE WxCODER USERS GUIDE



Introduction

If you have access to the Internet, you can now send your observation to the National Weather Service using a Web-based data entry form. It's easy, accurate and fast!

Here's how WxCoder works...

- Connect to the Internet using your cable, DSL or dial-up connection and surf to the WxCoder login page
- After entering your username and user identifier, you are presented with a data entry page that is customized for your observing location. All routine data (e.g., station location, date/time of your observation) are pre-entered for you; all you need to do is enter your observed data
- After a check for errors, WxCoder stores your observation in its database and sends it on to the National Weather Service. That's it!

WxCoder provides many features and advantages over telephoning your reports in or using the ROSA system.


- WxCoder provides a friendly, intuitive interface for entering your observation
- WxCoder provides context-sensitive help for all your data entries
- WxCoder performs data format/quality checks to insure your data is sent correctly and completely
- WxCoder allows you to retrieve and download your data from its database as an Acrobat file or an Excel spreadsheet
- WxCoder allows you to update your station information (e.g., user identifier, email address) without having to notify the National Weather Service
- WxCoder provides email access to the cooperative program manager at your local National Weather Service office

WxCoder Operation

Obtaining a WxCoder account

To use WxCoder you must have a WxCoder account. Your account will be established by the person you normally contact at your local NWS office. Your account enables WxCoder to identify you when you login, to customize the information on the pages it presents to you, and to provide access to WxCoder's other features.

To establish an account you will need to provide your NWS contact with the username you want to use to login into WxCoder. You will also need to provide an email address.

 *Your email address is a valid username.*

The username you choose must be between 3 and 255 characters in length. It can contain any combination of upper and lower case letters, numbers, the 'at' sign (@), and the period. Your username must be unique within WxCoder. If the username you have


chosen already exist in WxCoder, you will have to choose a different one. At the present time WxCoder does not allow you to change your username once your account has been established.

The email address you provide to your local NWS contact is used to send you a welcoming message that includes a ‘user identifier.’ Your user identifier is needed along with your username to complete the login process. Your user identifier will be generated at random by WxCoder. It will consist of a random set of upper and lower case letters and numbers. After you first login to WxCoder, you may change your identifier to one that is easier for you to remember or that matches passwords you use with other Internet accounts.

Hardware/software requirements

WxCoder has no special hardware requirements. WxCoder uses your normal cable, DSL or dial-up Internet connection.

Because it uses ‘advanced’ features to generate its pages, WxCoder must be used with recent versions of the common browsers. In general, any browser that supports DHTML can run/display WxCoder. In particular, WxCoder runs best on Internet Explorer version 5.5 or later or Netscape version 7.0 or later. It is best viewed at a screen resolution of 800 x 600 or higher.

 *It is a common, but erroneous, belief that cookies can be dangerous. In fact, they pose no threat to you. As documented, they will not format your disk or send back information about you or your system*

WxCoder uses a ‘cookie’ to save information that makes it easy to move from page to page and remember what you had done on previous pages. Cookies must be enabled on your browser to be able to use WxCoder. The cookie is not written to your computer’s hard drive but rather is kept in its memory. When you logout, the cookie is deleted from your computer’s memory and no trace of your WxCoder session is kept.


WxCoder also uses JavaScript to enable some of its features. Like cookies, JavaScript must be enabled within your browser to be able to use WxCoder.

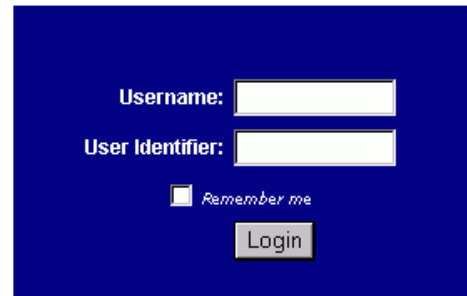
If either cookies or JavaScript are disabled on your computer, WxCoder will send a special message page. The page includes information about cookies or JavaScript along with instructions on how to enable either/both for WxCoder operation.

Logging in

To log in to WxCoder, point your browser to the address provided in your welcoming email. You will be presented with WxCoder’s login page. Enter your username and user identifier in the appropriate boxes and click the *Login* button (Figure 3). Both your username and user identifier are case-sensitive – be sure to use upper and lower case letters as they were provided in your welcoming email. For example, if your username is *smith*, entries such as *SMITH* or *Smith* will fail and your login will be unsuccessful.

If your login is successful, WxCoder will present a data entry page customized for your site. If unsuccessful, WxCoder will display an error message above the login box explaining the problem encountered;

 *You can advance from the username to user identifier entry box by using the ENTER key. Striking ENTER again after entering you user identifier will complete the logon process.*



This is a protected area. Please enter your user name and identifier (both are case-sensitive) then click the 'Login' button.

[I forgot my user identifier!](#)


Figure 3

you will be asked to try again.

WxCoder only allows four attempts at login before it locks your account. Locking the account means that no further access to the account will be granted until your local NWS contact is notified of the problem and takes the steps necessary to unlock the account. If you find your account locked and you have not caused that to happen, please notify your NWS office immediately -- there may have been an unauthorized access to your WxCoder account.

If you forget your user identifier, click on **I forgot my user identifier!** near the bottom of the page. You will be taken to a page which asks you to enter your username. WxCoder will lookup your user identifier and send it to your email address on record immediately.

Although there is no requirement to complete your WxCoder session in a set period of time, a WxCoder session will 'time out' in five minutes. If there is no input from you within that time, WxCoder will automatically log you off. When you try to proceed with some task, you will be returned to the login page with a note that **Your session has timed out! You must login again!** You will be required to log back in. Any data or information that was not submitted/saved will be lost.

 ***It is suggested that you do not use the Remember Me feature if you are using a public access computer.***

WxCoder implements a *Remember Me* feature on its login page. If the appropriate box on the login page is checked, WxCoder will store your username and user identifier in a 'cookie' on your computer's hard disk. If you choose the *Remember Me* option, anyone who uses your computer and surfs to the WxCoder login page can gain access to WxCoder and your account information. If this is of concern, you should ensure that the *Remember Me* box is unchecked.

The WxCoder menu bar

Near the top of each WxCoder page is a menu bar (Figure 4) that allows you to navigate to WxCoder's various features. The selections on the menu bar include *Enter your observation*, *Reports*, *Your WxCoder account*, *Contact Us*, and *Help*. Clicking on any of the menu bar entries will immediately take you to the appropriate WxCoder page. (**Note:** *Any information entered on a page that has not been submitted/saved will be lost.*)



Figure 4

The function of each menu bar entry is

- *Enter your observation*: Selecting this option takes you to the data entry page; you are taken to this page by default upon login
- *Reports*: Selecting this options takes you to the WxCoder page that allows you to download your data for past days/months; your data is available as an Acrobat version of the paper form you may be used to filling out or as Excel spreadsheet data
- *Your WxCoder account*: This page allows you to change information associated with your WxCoder account; this is where you go to change your user identifier and/or your email address
- *Contact Us*: Clicking this menu bar option opens your computer's email client and allows you to send an email to your local NWS contact; the 'to' portion of the email will be pre-filled with the correct address
- *Help*: This menu bar option opens a help window that describes the general features of WxCoder and the functions available by selecting the options on the menu bar.

Entering your data

By default, WxCoder takes you to your data entry page upon login. The page is generated and customized for your observation site.

The top portion of the page contains information about your observation. WxCoder ‘knows’ what site you are reporting from when you login and builds the page to include that information. WxCoder fills in and selects the date/time of your observation and the type of observation based on your regular reporting time and its best guess as to what observation you might be entering. You may change WxCoder’s choices by entering/selecting the information that describes your observation in the appropriate entry boxes.

If your observation is a correction (specified by selecting ‘correction to previous ob’ in the *Type of observation* box), WxCoder will present a dialog box (Figure 5) that offers to retrieve your ‘wrong’ observation from its database and fill in the data entry form for you – no need to re-enter all your data.

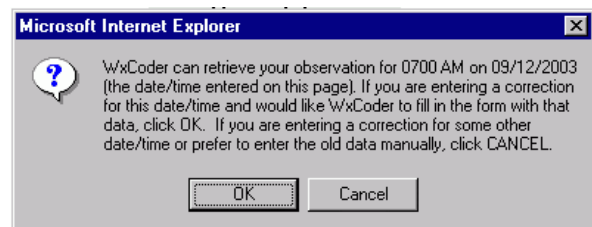



Figure 5

Enter your observational data in the appropriate entry boxes in the *Enter your data* section of the form. Some elements (e.g., surface frost) may require a selection from a dropdown box; others (e.g., calendar day weather) will require that you make choices by clicking the appropriate checkboxes.

WxCoder provides context-sensitive help for each data element you enter. The help feature can be invoked by clicking the question mark glyph to the right of the entry box. In response to your request, WxCoder will open a popup window that contains information about the data element you are entering. Click the *Close Window* button to dismiss the popup.

 You may find this a convenient way to request supplies or note any difficulties you are having with your station or observations.

WxCoder provides you with the opportunity to send an email to your local NWS contact by checking the *I'd like to send an email to the program manager* box near the bottom of the form. When checked, the box will open a text area where you may enter a message. The message will be sent right after WxCoder transmits your observation. The message will not be sent as part of your observation.

When you have completed your data entry, click the *Submit Data* button. Before storing your observation in its database or transmitting it, WxCoder will check it for errors -- does the entry contain valid characters, does the data fall in a valid range, is the data consistent with other entries on the form. If WxCoder finds an error, your data entry page will be returned with all its data. The errors encountered will be noted at the top of the data entry portion of the form along with a small warning glyph next to the questionable entry. You must correct the errors and resubmit your data to proceed.

If your data pass WxCoder’s data validation, your observation will be stored in the WxCoder database and transmitted to your local National Weather Service office. A ‘success’ page that contains a summary of your observation will be displayed.

Managing your WxCoder account information

Selecting *Your WxCoder account* from the menu bar takes you to a page that allows you to add, update, and delete information about your WxCoder account. The only data on the page that is required are your username and email address. All the other information is optional; you may include as much or as little as you wish WxCoder to keep.

You are encouraged to keep your name and address complete and current. Your local NWS contact can use the entries here as a source when sending you information and supplies through the US mail that may be needed at your site.

Changing your user identifier

Although WxCoder generates a user identifier for your first login, you may change it at any time. Simply enter your new user identifier in the *New user identifier* entry box on the account page. You must verify the user identifier by entering it again in the *Confirm user identifier* entry box. When you are finished with changes/updates to your account on this page, click *Submit*. All changes are effective immediately. You may use your new user identifier the next time you login.

Retrieving your data

WxCoder allows you to retrieve your past data for downloading from its database. You may receive the data as an Acrobat version of the paper form you may be used to filling out (e.g., WS Form B-91, *Record of River and Climatological Observations*) or as an Excel spreadsheet data.

Contacting the National Weather Service

You may send an email to your local National Weather Service office contact by clicking *Contact Us* on the WxCoder menu bar. Clicking this menu bar option opens your computer's email client and allows you to send an email to your local NWS contact; the 'to' portion of the email will be pre-filled with the correct address.

You may also send an email to your local NWS contact by checking the box near the bottom of the data entry page. When checked, a text edit area will open that allows you to enter your message. The message will be sent right after WxCoder transmits your observation.

The logout page

When you logout you will be taken to this page. Your local NWS office may post an informational or instructional message here.

You are encouraged to logout of WxCoder. Logging out removes the in-memory cookie WxCoder used to help you move easily from page to page as well as performing internal cleanup in the WxCoder database.

Frequently Asked Questions

Q: *All I get is 'garbage' (or the page is blank) when I go to the WxCoder login page.*

A: Because it uses 'advanced' web page features to generate its pages, WxCoder must be used with recent versions of the common browsers. In general, any browser that supports DHTML can run/display WxCoder. In particular, WxCoder runs best on

Internet Explorer version 5.5 or later or Netscape version 7.0 or later. WxCoder does not support Netscape version 4.7.

Q: *How do I change my user identifier?*

A: To change your user identifier you must first logon to WxCoder using your 'old' user identifier. Once logged in, you will automatically be taken to the data entry page by default. Click on *Your WxCoder account* in the menu bar near the top of the page. You will be taken to the account page. Enter your new user identifier in the *New user identifier* entry box on the account page. You must verify the user identifier by entering it again in the *Confirm user identifier* entry box. When you are finished, click *Submit*. All changes are effective immediately. You may use your new user identifier at your next login.

Q: *What if I forget my user identifier?*

A: If you forget your user identifier, go to the WxCoder login page. Near the bottom of the page you will see the phrase **I forgot my user identifier!** Click on it. You will be taken to a page which asks you to enter your username. WxCoder will lookup your user identifier and send it to your email address on record immediately.

Q: *What does it mean when WxCoder says **Your account is locked!***

A: WxCoder limits the number of times anyone can unsuccessfully attempt to access an account. Locking the account means that no further access to the account will be granted until your local NWS contact is notified of the problem and takes the steps necessary to unlock the account. You will receive an email then when the account is unlocked.

WxCODER ADMINISTRATIVE USERS GUIDE



WxCoder provides a convenient web-based data entry method for cooperative observers based on user accounts. As in all such systems, setup and maintenance of those accounts become administrative tasks. WxCoder provides a second user interface in addition to its observer interface to handle those tasks.

WxCoder's administrative interface is based on user rights – rights granted that are dependent on the type of administrative functions that need to be performed for the class of user. WxCoder grants distinct administrative rights to a WFO, a NWS region, a NWS national user, and the superuser. As rights increase from WFO to superuser, the functions available generally become a superset of those available at a lower rights level. WxCoder 'knows' about the administrative rights appropriate for a user at login. The menu and features available in WxCoder are determined by the rights granted to the user when his account is established.

In maintaining its database, WxCoder makes a distinction between a user and a site. A site is the place where data is taken. The data elements observed along with site-specific information (e.g., time and frequency of observation, location information, etc.) are associated with the site. An observer is assigned to a site. Information about the observer is not information about the site and vice versa. This is a subtle distinction but one that is critical to the way WxCoder handles information. Thus, for example, you may have a site with no observer but you cannot have an observer without a site. This distinction between observer and site information is carried forward to the distinct WxCoder functions available to the administrative user.

Since its inception WxCoder has been expanded to be a data entry system for any type of observation. The processing and transmission of data is the same whether an observer is entering cooperative observer data, marine data, or spotter information. Currently, WxCoder supports data entry for both cooperative observer data and marine data (i.e., Coast Guard reports). Several administrative functions require that you specify the type of site you are administering.

WFO Administrative Operation

Logging in

To log in to a WxCoder WFO administrative account, point your browser to the address provided in your welcoming email. You will be presented with WxCoder's login page. Enter your username and user identifier in the appropriate boxes and click the *Login* button (Figure 3 above). Both your username and user identifier are case-sensitive – be sure to use upper and lower case letters as they were provided in your welcoming email. For example, if your username is *smith*, entries such as *SMITH* or *Smith* will fail and your login will be unsuccessful.

If your login is successful, WxCoder will present its initial administrative page with a menu along the left edge of the page. If unsuccessful, WxCoder will display an error

message above the login area of the page explaining the problem encountered and you will be asked to try again.

WxCoder only allows a user four attempts at login before it locks the account. Locking the account means that no further access to the account will be granted until your next higher rights contact (e.g., a WFO contacts a region) is notified of the problem and takes the steps necessary to unlock the account.

If you forget your user identifier, click on **I forgot my user identifier!** near the bottom of the page. You will be taken to a page which asks you to enter your username. WxCoder will lookup your user identifier and send it to your email address on record immediately.

A WxCoder session times out in five minutes. If there is no input from you within that time, WxCoder will automatically log you off. When you try to proceed with some task, you will be returned to the login page with a note that **Your session has timed out! You must login again!** You will be required to log back in. Any data or information that was not submitted/saved will be lost.

The WxCoder administrative menu

Along the left edge of each WxCoder administrative page is a menu (Figure 6) that allows you to navigate to WxCoder's various features. In general, the functions may be divided into three categories:

- *User Management*: functions related to maintaining a user/observer's WxCoder account information
- *Site Management*: functions related to maintaining the users/observer's site information
- *WxCoder Options*: functions related to the way WxCoder works for you

Within each category WxCoder lists the functions which may be performed. Click on the desired function and WxCoder will take you to the appropriate page.

The following sections detail the operations associated with each of the menu selections.

User Management

Add a new user and site

This menu option provides the interface for the primary method of 'signing up' a new WxCoder user. In order to use this option effectively, you will want to have the new user's username (you may have asked for this when making contact with the observer about using WxCoder) and email address.

Upon clicking the menu option, you will be taken to a page that presents several entry boxes for information such as name, address, etc., in addition to username and email address. Only username and email address are required entries. All other entries are for your/the user's use (the user has access to this same page from his menu).

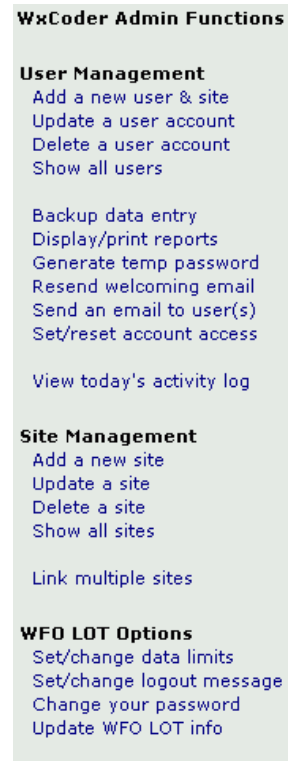



Figure 6

 WxCoder may obtain the capability to send bulk US mail; the optional entries on this page could be useful for such a purpose.

The last item on the page requests that you select whether the new user will be assigned to a new site (signing up a user and initializing site information) or just assigning this user to a pre-existing site. If you select the latter, WxCoder will store the user information in its database and send a welcoming email (Figure 7) to the user that contains his username and user identifier. If you are also initializing a new site, WxCoder will take you to a page appropriate for that function.

The section *Add a new site* under **Site Management** below details the information needed to establish the site associated with the new user.

Update a user account

To add, change or delete information about a user's account, choose this menu selection. You will be asked to enter either the user's username or the associated site's ID. WxCoder will retrieve the user's account information and present it on the next page. After having made any necessary changes, click *Submit*. The changes will be posted to the WxCoder database. An email will be sent to the user notifying him that changes have been made to his account information.

Delete a user account

If you would like to delete a user account from the WxCoder database, make this menu selection. You must enter the user's username or the associated site's site ID. WxCoder will ask you to confirm your desire to delete the user account before committing the deletion to the database.

Deleting a user account does not automatically delete the site associated with the user from the WxCoder database. To delete both the user and the site, check the *Delete both user and site* box.

Show all users

To obtain a list of all users under your office's supervision, click this menu entry. You will be presented with a listing for each user that includes username, name, associated site ID, and indication whether the account is locked.

To the right of the user information are three buttons that provide quick access to user details (a popup window that lists user, account, and site information), the user account update page, and user deletion (with confirmation).

The listing is initially presented in ascending alphabetical order sorted by username (note the arrow in the listing header). WxCoder allows ascending/descending sorts on any column. Simply click on the column heading to obtain a sort based on that column. To reverse-sort the column, click on the column again.

Backup data entry

To be implemented.

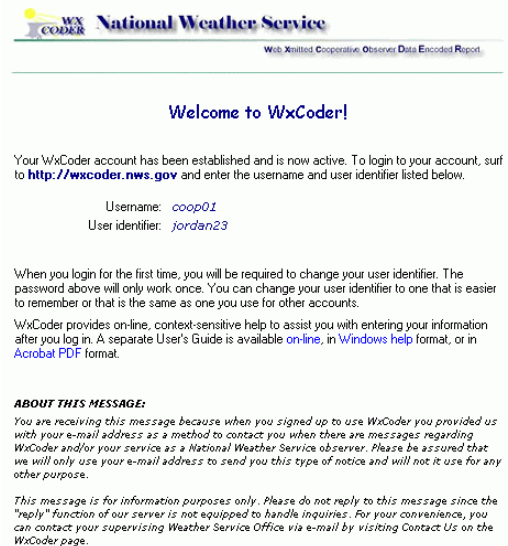



Figure 7

Display/print reports

When you select this option WxCoder will display a list of reports that it can produce for you. Select the report you would like WxCoder to generate and click *Next*.

 *Your may select more than one station by holding down the Ctrl key while clicking your selections with the mouse.*

Daily activity log: *a log showing all reports received over a selected time period*

WxCoder will display a page that allows you to select the station(s) you would like the report to display along with the time period to be covered by the report. After you have made your selections WxCoder will query its database and generate and display its report. The report will include the site ID and the time the observation was entered. When the time period of the reports spans multiple days, the report will be sorted by site ID and within each site by date. A *display ob* button on the right will open a popup window when clicked that displays the encoded observation as it is stored in the database.

Clicking Printable version will open a popup window that does not have the main window's header and menu. This window will be sent to your printer when *Print* is clicked.

User paper forms: *copies of user paper forms (e.g., B-91)*

To be implemented.

Monthly totals/averages: *a report totaling temp and precip for the month for all sites*


To be implemented.

View system log: *the system log showing all WxCoder transactions*

To be implemented

Generate temp user identifier


There may be instances when the user cannot access his account because he not only forgot his user identifier but he may not be able to receive the user identifier through the "I forgot my user identifier" feature. Click this menu options to remedy the situation.

 *The temporary user identifier is only good for one login.*

WxCoder can generate a temporary user identifier after you enter the user's username or associated site ID in the box provided and click *Generate Temp User Identifier*. You may give the user identifier to the observer however you wish (e.g., telephone, email). Upon login the user will be immediately required to change his user identifier.

Send an email to user(s)

You can send an email to one, some, or all of the users under your office's supervision by selecting this menu option.

 *To select more than one site, click each site while holding down the CTRL key.*

When the page is presented, the default 'To' address for the message is selected to be all observers under your office's supervision. You may choose to select only one observer or a combination of some but not all observers instead. The default 'From' address is taken from your WxCoder WFO information; you may change it as appropriate. Fill in the 'subject' line.

WxCoder allows you to include an attached file with your email. You must specify the full path and name of the file to be 'attached.' Click on the *Browse* button to the right of the 'Attachment' box to select the file using a normal Windows file dialog if you are uncertain of the files correct pathname or location.

You may type your message in the box provided on the page. The *Clear Message* button will clear all the text from the entry box and allow you to start over.

When you click *Send*, WxCoder will email your messages to the observers specified. The message will be sent as text (non-HTML).

Set/reset account access

WxCoder only allows a user four attempts at login before it locks the account. Locking the account means that no further access to the account will be granted until the local NWS contact is notified of the problem and takes the steps necessary to unlock the account. This page permits accounts to be both unlocked and locked.

You will be requested to enter the username or site ID of the account whose access you wish to change. Then you can select the function to perform – mark the account inactive or clear the account lockout. Clicking the *Set/Reset Access* button makes the requested change in the WxCoder database. An email is sent to the observer informing him of the change.

View today's activity log

This option is a one-click shortcut for viewing the day's activity log. It is comparable to selecting the three-step sequence *Display/print reports* | *Daily Activity Log* | *Display Log*. The result of choosing this menu item is the same as described above under *Display/print reports*.

Site Management

Add a new site

This menu option provides the interface for initializing information about an observing site.

After clicking this menu option, you will be asked to select the type of site you are adding. You will then be presented with a page appropriate to establish information for the site. You will need to enter identifying information for the site, information about the observation made at the site, and the types of data observed at the site.

Site Information section

You must enter a unique site ID for the new site. The name of the site and the state the site is located in are also required. Other information in this section is optional. You may find it useful for future reference purposes to complete the remaining entry boxes in this section.

Observation Information section

This section allows you to enter information about the type of regular observation taken at the site and the normal time it is taken (required). Change the time zone and daylight time information as appropriate.

Elements Observed section


Select the data elements observed from the list provided in the Elements Observed section of the form by checking the appropriate boxes. Entries for soil temperature depths require additional information about the depth(s) at which the temperature is observed. If the temperature is observed at only a single depth, enter the depth. If soil temperature is observed at multiple depths, enter all the depths in the text box separating them using an ampersand ('&'). For example, if temperatures are observed at 4 and 8 inches, enter **4&8**.

Transmission Info section

Finally, be sure to enter the AFOS PIL you want this site's observation to be transmitted under. You may change it from the default for your office but be aware that the PIL must be valid – in use in AWIPS – in order for the data to be successfully transmitted from WxCoder to AWIPS.

Update a site

To add, change or delete information about a site, choose this menu selection. You will be asked to enter the site's ID. WxCoder will retrieve the site's information and present it on the next page. After having made any necessary changes, click *Submit*. The changes will be posted to the WxCoder database.

 *Deleting a site automatically deletes the user account associated with the site from the WxCoder database.*

Delete a site

If you would like to delete a site from the WxCoder database, choose this menu selection. You must enter the site's site ID on the page presented. WxCoder will ask you to confirm your desire to delete the site before committing the deletion to the database.

Show all sites

To obtain a list of all sites under your office's supervision, click this menu entry. You will be presented with a listing for each site that includes the site ID, site name, and associated username.

To the right of the site information are three buttons that provide quick access to site details (a popup window that lists site and associated user information), the site account update page, and user deletion (with confirmation).

The listing is initially presented in ascending alphabetical order sorted by username (note the arrow in the listing header). WxCoder allows ascending/descending sorts on any column. Simply click on the column heading to obtain a sort based on that column. To reverse-sort the column, click on the column again.

Link multiple sites

Linking multiple sites allows one user to enter observations for several sites. With sites linked to one user account, the user can enter data in a near-seamless, one login process -- no logging on/off to enter each site's data.

To establish multiple site linking, you must have previously established a user account/site pair (generally by selecting the *Add a new user & site* from the admin menu). With the master account/site pair established, you can then initialize information about each additional site using the *Add a site* menu option (if it is not already setup in WxCoder). So you now have a master user/site account and one or more sites without a user assigned to them. Finally, by coming to this page and entering the username and site IDs (separated by commas, e.g. LOT, MDWI2) for all the linked accounts in the spaces below.

To unlink a site from a master username, reenter the site IDs of only those sites that you wish to remain linked. You cannot unlink all sites; there must always be at least one site associated with a user account.

WxCoder Options

Set/change data limits

When a user enters an observation, WxCoder will perform a check to insure that each datum is within a valid range. You may set the range of the parameters to

values appropriate for your portion of the country and/or your area's climatology on this page.

All values entered must be whole numbers; negative values are permissible. Where only a max value is settable, the min value is zero by default. Any blank values will revert to the WxCoder default.

Set/change logout message

WxCoder allows a degree of local customization to the pages the users view. This gives WxCoder a local flavor while at the same time allowing the uniformity necessary in a national program. Among the customizations that you may specify are the small 'bug' that appears at the bottom of each user page and the message that appears when a user logs out.

The logout message is specified on this page. The text box allows entry of a message tailored to your site and your observers when the user logs out of WxCoder. The message may contain plain text, HTML, or a combination of the two.

If your message is HTML, you may include up to three images in the message. With your HTML complete, list the path to each image in the appropriate boxes on the page. You may click the 'Browse' button to search for and select the images.

Clicking the *Preview* button allows you to see your message as it will appear on the logout page before it is committed to WxCoder. This is particularly helpful if your message is in HTML.

When you are satisfied with your message, click *Save* to place it on the WxCoder server.

To delete your current logout message, choose the *Set/change logout message* menu option. Your message will be displayed in the text box. Click *Clear* to clear the text in the box, then *Save* to save the blank logout message. When you have no logout message stored on the server, WxCoder will use its own default logout message.

Change your user identifier

Although WxCoder generates a user identifier for your first login, you may change it at any time. Simply enter your old user identifier and new user id in the appropriate entry boxes on the page. You must verify the user identifier by entering it again in the *Confirm new user identifier* entry box. When you are finished making the change, click *Change User Identifier*. The change is effective immediately. You may use your new user identifier the next time you login.

Update WFO info

This page allows you to update information about your office.

Site Information section

The name entry in this section is used by WxCoder whenever it needs to identify your office to the user. (e.g., in the *label I'd like to send an email to the program manager at NWS...*).

Product Transmission Information section

Enter the CCC, NNN, and XXX of the AFOS PIL you want WxCoder to use when it transmits its data to AWIPS for your observers. Be aware that the PIL must be valid – in use in AWIPS – in order for the observer's data to be successfully transmitted from WxCoder to AWIPS.

Email Addresses section

There are times when WxCoder will send an email to observers -- with a user identifier when they are 'signed up', in a mass mailing. The 'from' address entry should reflect the address you want to appear in the "from" portion of the email that is sent. Keep in mind that this address may be used by the observer to send you a reply or comment from the original email.

WxCoder allows the observer to email comments along with their observation. You may list the addresses you would like to receive these emails. You can specify the routing for the email:

- to: - this is the main recipient of the email
- cc: - send a copy of the email to this recipient
- bcc: - send a blind copy of the email to this recipient (the recipient is not listed in the email header)

You can enter multiple to, cc, and bcc addresses for messages sent by the observer. Separate each address with a comma, e.g.,
john.doe@noaa.gov,jane.doe@hotmail.com.

Regional Administrative Operation

Most of the features described above for a WFO administrative account are available to a regional administrative user. The functions generally operate in the same manner as those described for a WFO user. The primary enhancement to WFO operations is the addition of operations to manage WFO accounts. These functions are detailed below.

WFO Site Management

Initialize a WFO site

This menu option provides the interface for initializing information about a WFO account. The page presented is divided into three sections that require input.

Select a WFO section

Using the dropdown combo box, select the identifier for the WFO you are initializing. You will only be able to select WFOs in your region. The WFO's name will be automatically filled in below your selection.

Login Information section

This section describes the login information that will be assigned to the WFO. The username is standardized; it is the characters 'wfo' followed by the specific WFO's identifier (all in lower case). The WFO's user identifier will be generated automatically by WxCoder. Upon successful completion of the initialization process, WxCoder will automatically send a welcoming email to the WFO that contains both the username and user. The email will be sent to the 'from' address as noted below.

Email Addresses section

Messages Sent From WxCoder: There are times when WxCoder will send an email to observers (e.g., with a user identifier when they are entered into the database, in a mass mailing). This entry should reflect the address you want to appear in the "from" portion of the email that is sent. Keep in mind that this address may be used by the observer to send a reply or comment from the original email.

Messages Sent To WxCoder: WxCoder allows the observer to email comments along with their observation. You may list the addresses you would like to receive these emails. You can specify the routing for the email

- to: - this is the main recipient of the email
- cc: - send a copy of the email to this recipient
- bcc: - send a blind copy of the email to this recipient (the recipient is not listed in the email header)

You may enter multiple to, cc, and bcc addresses for messages sent by the observer. Separate each address with a comma, e.g.,
john.doe@noaa.gov,jane.doe@hotmail.com

Update a WFO site

To add, change or delete information about a WFO, choose this menu selection. You will be asked to enter the WFO's ID. WxCoder will retrieve the WFO's information and present it on the next page. This page allows you to change email addresses, point of contact, etc. After having made any necessary changes, click *Submit*. The changes will be posted to the WxCoder database.

Delete a WFO site

If you would like to delete a WFO from the WxCoder database, choose this menu selection. You must enter the WFO's ID on the page presented. WxCoder will ask you to confirm your desire to delete the WFO before committing the deletion to the database.

Show all WFO sites

To obtain a list of all WFOs in your region, click this menu entry. You will be presented with a listing for each WFO that includes the WFO's ID, its name, and the associated WxCoder 'point of contact.'

To the right of the site information are three buttons that provide quick access to WFO details (a popup window that lists WFO information), the WFO account update page, and WFO deletion (with confirmation).

The listing is initially presented in ascending alphabetical order sorted by WFO (note the arrow in the listing header). WxCoder allows ascending/descending sorts on any column. Simply click on the column heading to obtain a sort based on that column. To reverse-sort the column, click on the column again

Superuser Administrative Operation

All of the features described above for a WFO administrative account are available to the superuser.

Technical information and support features

Technical information/support interfaces were developed in WxCoder to allow system-wide monitoring of several significant operational parameters. For WFO, regional, and national users, WxCoder provides access to information through the left-margin menu presented at login. At a higher level, WxCoder provides detailed information about the receipt and transmission of observations through its maintenance (<http://www.crh.noaa.gov/wxcoder/include/maintStatus.php>) page.

The first portion of the page details the time of receipt, sender ID, and transmission ID of the last observation received along side the transmission time, sender ID, and

transmission ID of the last observation posted to the server directory for ‘pick-up” and forwarding to AWIPS through LDAD. The transmission times are color-coded for a quick-glance status – green meaning ‘normal’ transmission (within 5 minutes of receipt); orange indicating a possible transmission problem (no transmission within 5 minutes of receipt); red indicating a definite transmission problem (no transmission within 10 minutes of receipt).

The second portion of the page details the number of observations entered through WxCoder for the current UTC calendar day listed by NWS region.

The graphic in the third portion of the page shows the number of observations entered through WxCoder by hour for the past 30 hours (Figure 8).

30 Hour transmission load...

The graphic below displays the number of observations transmitted by WxCoder during the past 30 hours by hour.

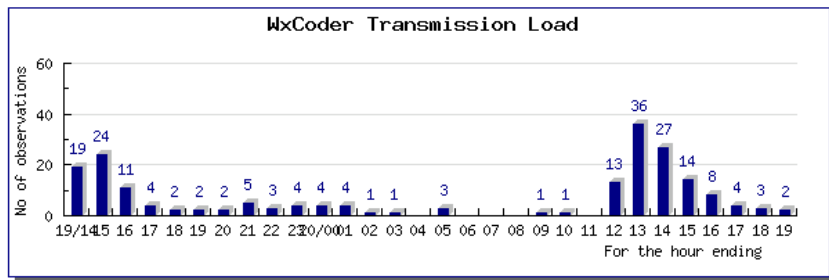


Figure 8

Administrative FAQ

Q: *What if I forget my user identifier?*

A: If you forget your user identifier, go to the WxCoder login page. Near the bottom of the page you will see the phrase **I forgot my user identifier!** Click on it. You will be taken to a page which asks you to enter your username. WxCoder will lookup your user identifier and send it to your email address on record immediately.



This section provides solutions/answers for some of most common discrepancies encountered in the operation of WxCoder.

When an observer attempts to access the WxCoder login page, he encounters a screen that reads **WxCoder is currently unavailable!** (*The database server is 'down'*).

WxCoder must have access to its database at the very instant the user reaches the login page (to create and store a session ID). If WxCoder cannot make a connection to its database, the message above is returned to the observer.

The most common reason that WxCoder cannot connect to its database is that the MySQL database server is 'down.' The remedy for this error is to restart the database server. The following command sequence will serve to restart the MySQL server.

An observer using **Netscape 4.7** (the standard NWS browser) reports that he cannot access WxCoder or that the pages cannot be read.

WxCoder implements several DHTML features that are not supported by old versions of the Netscape browser. In particular, Netscape v4.7 is not supported. WxCoder will support browsers that implement DHTML. For the most common browsers, WxCoder supports Internet Explorer v5.5 or greater and Netscape v7.0 or greater.



```
CREATE TABLE `codesMet` (  
  `codeID` varchar(8) NOT NULL default '0',  
  `code` varchar(8) NOT NULL default "",  
  `value` varchar(8) NOT NULL default "",  
  `graphic` blob,  
  `decode` varchar(32) NOT NULL default "",  
  `longDecode` varchar(255) default NULL  
) TYPE=MyISAM COMMENT='meteorological codes, values, decodes';
```

```
CREATE TABLE `codesNames` (  
  `code` varchar(8) NOT NULL default '0',  
  `name` varchar(16) NOT NULL default ""  
) TYPE=MyISAM COMMENT='codes vs names';
```

```
CREATE TABLE `dataCoop` (  
  `dataID` int(10) unsigned NOT NULL auto_increment,  
  `siteID` varchar(16) NOT NULL default '0',  
  `date` date NOT NULL default '0000-00-00',  
  `time` varchar(6) NOT NULL default "",  
  `datetime` varchar(14) NOT NULL default "",  
  `type` varchar(16) NOT NULL default "",  
  `units` enum('english','metric') NOT NULL default 'english',  
  `AF` varchar(16) default NULL,  
  `AM` varchar(16) default NULL,  
  `EP` varchar(16) default NULL,  
  `GD` varchar(16) default NULL,  
  `GT` varchar(16) default NULL,  
  `HP` varchar(16) default NULL,  
  `HG` varchar(16) default NULL,  
  `HI` varchar(32) default NULL,  
  `HS` varchar(32) default NULL,  
  `HT` varchar(16) default NULL,  
  `IC` varchar(16) default NULL,  
  `IT` varchar(16) default NULL,  
  `PP` varchar(16) default NULL,  
  `PPM` varchar(16) default NULL,  
  `PPW` varchar(16) default NULL,  
  `PT` varchar(16) default NULL,  
  `QI` varchar(16) default NULL,  
  `QT` varchar(16) default NULL,  
  `RT` varchar(16) default NULL,  
  `SD` varchar(16) default NULL,  
  `SF` varchar(16) default NULL,  
  `SI` varchar(16) default NULL,  
  `SW` varchar(16) default NULL,  
  `TA` varchar(16) default NULL,
```



```

`TBIRZN` varchar(32) default NULL,
`TBIRZX` varchar(32) default NULL,
`TN` varchar(16) default NULL,
`TPIRZN` varchar(16) default NULL,
`TPIRZX` varchar(16) default NULL,
`TSIRZN` varchar(32) default NULL,
`TSIRZX` varchar(32) default NULL,
`TVIRZN` varchar(32) default NULL,
`TVIRZX` varchar(32) default NULL,
`TX` varchar(16) default NULL,
`UD` varchar(16) default NULL,
`UG` varchar(16) default NULL,
`ULD` varchar(16) default NULL,
`UP` varchar(16) default NULL,
`UR` varchar(16) default NULL,
`US` varchar(16) default NULL,
`XR` varchar(16) default NULL,
`XRIRZN` varchar(16) default NULL,
`XRIRZX` varchar(16) default NULL,
`XW` varchar(16) default NULL,
`XWD` varchar(32) default NULL,
`ZC` text,
`ZR` text,
`coded` varchar(255) default NULL,
`entered` varchar(14) default NULL,
`entryID` smallint(5) unsigned NOT NULL default '1',
`xmitted` varchar(14) default NULL,
PRIMARY KEY (`dataID`),
UNIQUE KEY `OneOb` (`siteID`,`datetime`,`type`)
) TYPE=MyISAM COMMENT='storage for coop observer data';

```

```

CREATE TABLE `dataMarine` (
  `dataID` int(10) unsigned NOT NULL auto_increment,
  `siteID` varchar(64) NOT NULL default "",
  `date` date NOT NULL default '0000-00-00',
  `time` time NOT NULL default '00:00:00',
  `type` varchar(16) NOT NULL default "",
  `entered` timestamp(14) NOT NULL,
  `submitID` smallint(5) unsigned NOT NULL default '0',
  PRIMARY KEY (`dataID`)
) TYPE=MyISAM COMMENT='storage for marine observer data';

```

```

CREATE TABLE `email` (
  `emailID` smallint(5) unsigned NOT NULL auto_increment,
  `wfoID` varchar(16) NOT NULL default "",
  `fromm` varchar(255) NOT NULL default "",
  `too` varchar(255) NOT NULL default "",
  `cc` varchar(255) default NULL,
  `bcc` varchar(255) default NULL,
  PRIMARY KEY (`emailID`),
  UNIQUE KEY `wfoID` (`wfoID`)
) TYPE=MyISAM COMMENT='WFO email addresses';

```

```

CREATE TABLE `emailText` (
  `subjectID` varchar(32) NOT NULL default "",
  `language` enum('en','es') NOT NULL default 'en',
  `subject` varchar(128) NOT NULL default "",
  `text` text NOT NULL,
  `html` text,
  PRIMARY KEY (`subjectID`,`language`)
) TYPE=MyISAM COMMENT='standard text for email sent from WxCoder (multi-language)';

```

```

CREATE TABLE `entryThrough` (
  `entryID` smallint(5) unsigned NOT NULL default '0',
  `method` varchar(64) NOT NULL default "",
  PRIMARY KEY (`entryID`)
) TYPE=MyISAM COMMENT="source of observation posted to WxCoder's data tables";

```

```

CREATE TABLE `formControls` (
  `controlID` smallint(5) unsigned NOT NULL auto_increment,
  `type` varchar(16) NOT NULL default "",
  PRIMARY KEY (`controlID`)
) TYPE=MyISAM COMMENT='HTML controls that may placed on entry forms';

```

```

CREATE TABLE `formGroupings` (
  `groupingID` tinyint(3) unsigned NOT NULL auto_increment,
  `type` varchar(16) NOT NULL default "",
  `grouping` varchar(128) NOT NULL default "",
  `elements` varchar(255) NOT NULL default "",
  `es` varchar(132) default NULL,
  `fr` varchar(132) default NULL,
  PRIMARY KEY (`groupingID`)
) TYPE=MyISAM COMMENT='obElement groupings for placement on entry forms';

```

```

CREATE TABLE `formObElementDescriptions` (
  `elementID` varchar(16) NOT NULL default "",
  `obTypeID` tinyint(3) unsigned NOT NULL default '0',
  `en` varchar(64) NOT NULL default "",
  `es` varchar(64) default NULL,
  `fr` varchar(64) default NULL,
  PRIMARY KEY (`elementID`)
) TYPE=MyISAM COMMENT="descriptions for an entry form's observational elements";

```

```

CREATE TABLE `formObElements` (
  `elementID` varchar(16) NOT NULL default "",
  `obTypeID` tinyint(3) unsigned NOT NULL default '0',
  `setableRange` enum('na','minmax','min','max') NOT NULL default 'na',
  `controlID` smallint(5) unsigned NOT NULL default '0',
  `controlInfo` varchar(64) NOT NULL default "",
  `controlUnits` varchar(32) NOT NULL default "",
  `controlUnitsMetric` varchar(32) NOT NULL default "",
  `units` varchar(32) NOT NULL default "",
  `unitsMetric` varchar(32) NOT NULL default "",
  `helpInfo` varchar(32) NOT NULL default "",

```

```
PRIMARY KEY (`elementID`)  
) TYPE=MyISAM COMMENT='observational elements that may be placed on entry forms';
```

```
CREATE TABLE `formOptions` (  
  `optionID` smallint(5) unsigned NOT NULL auto_increment,  
  `selectname` varchar(64) default NULL,  
  `text` varchar(64) default NULL,  
  `value` varchar(64) default NULL,  
  `exclude` tinyint(1) default '0',  
  PRIMARY KEY (`optionID`)  
) TYPE=MyISAM COMMENT='options that may be placed in form "select" controls';
```

```
CREATE TABLE `limits` (  
  `limitID` mediumint(8) unsigned NOT NULL auto_increment,  
  `wfoID` varchar(16) NOT NULL default "",  
  `obTypeID` tinyint(3) unsigned NOT NULL default '0',  
  `elementID` varchar(16) NOT NULL default "",  
  `min` varchar(16) NOT NULL default "",  
  `max` varchar(16) NOT NULL default "",  
  PRIMARY KEY (`limitID`)  
) TYPE=MyISAM COMMENT='WFO-specific range limits for obElements';
```

```
CREATE TABLE `log` (  
  `logID` int(10) unsigned NOT NULL auto_increment,  
  `sessionID` varchar(32) NOT NULL default "",  
  `datetime` timestamp(14) NOT NULL,  
  `siteID` varchar(16) NOT NULL default "",  
  `username` varchar(16) NOT NULL default "",  
  `action` varchar(255) NOT NULL default "",  
  `location` varchar(255) default NULL,  
  `extraInfo` varchar(255) default NULL,  
  `errDescription` varchar(255) default NULL,  
  PRIMARY KEY (`logID`),  
  KEY `errNo` (`logID`)  
) TYPE=MyISAM COMMENT='WxCoder's transaction log';
```

```
CREATE TABLE `obType` (  
  `obTypeID` tinyint(3) unsigned NOT NULL auto_increment,  
  `type` varchar(16) NOT NULL default "",  
  PRIMARY KEY (`obTypeID`)  
) TYPE=MyISAM COMMENT='observation types supported by WxCoder';
```

```
CREATE TABLE `region` (  
  `regionID` char(1) NOT NULL default "",  
  `name` varchar(128) NOT NULL default "",  
  `city` varchar(128) NOT NULL default "",  
  `stateID` char(2) NOT NULL default "",  
  `lon` varchar(16) NOT NULL default "",  
  `lat` varchar(16) NOT NULL default "",  
  `elev` varchar(16) NOT NULL default "",  
  `tzID` char(1) binary NOT NULL default "",
```

```
PRIMARY KEY (`regionID`)  
) TYPE=MyISAM COMMENT='NWS regional office information/definitions';
```

```
CREATE TABLE `sites` (  
  `siteID` varchar(16) NOT NULL default "",  
  `siteNumber` varchar(32) default NULL,  
  `name` varchar(128) NOT NULL default "",  
  `county` varchar(64) default NULL,  
  `state` char(2) NOT NULL default "",  
  `type` varchar(16) NOT NULL default "",  
  `obType` varchar(32) NOT NULL default "",  
  `obTime` varchar(16) NOT NULL default "",  
  `obTZ` char(1) NOT NULL default "",  
  `obElements` varchar(255) NOT NULL default "",  
  `obElementFlags` int(10) unsigned NOT NULL default '0',  
  `obUnits` enum('english','metric') NOT NULL default 'english',  
  `xmitID` varchar(32) NOT NULL default "",  
  `reports` set('B91','B17','B83a') default NULL,  
  `lon` varchar(16) default NULL,  
  `lat` varchar(16) default NULL,  
  `elev` varchar(16) default NULL,  
  `WFO` varchar(16) NOT NULL default "",  
  PRIMARY KEY (`siteID`),  
  KEY `WFO` (`WFO`)  
) TYPE=MyISAM COMMENT='WxCoder observation site information';
```

```
CREATE TABLE `sitesRiver` (  
  `siteID` varchar(16) NOT NULL default "",  
  `river` varchar(64) NOT NULL default "",  
  `gageType` enum('Staff','Wire weight','LARC') NOT NULL default 'Staff',  
  `gageZero` varchar(32) default NULL,  
  `floodStage` varchar(8) default NULL,  
  `normalPool` tinyint(3) unsigned default NULL,  
  `obTime` tinyint(3) unsigned NOT NULL default '0',  
  `wfoID` varchar(16) NOT NULL default "",  
  PRIMARY KEY (`siteID`)  
) TYPE=MyISAM COMMENT=' additional information for river observation sites';
```

```
CREATE TABLE `states` (  
  `stateID` char(2) NOT NULL default "",  
  `state` varchar(32) NOT NULL default "",  
  `FIPS` varchar(4) NOT NULL default "",  
  `zipCode` varchar(45) NOT NULL default "",  
  `areaCode` varchar(150) NOT NULL default "",  
  PRIMARY KEY (`stateID`)  
) TYPE=MyISAM COMMENT='US state information/definitions';
```

```
CREATE TABLE `tz` (  
  `tzID` char(1) binary NOT NULL default "",  
  `name` varchar(16) NOT NULL default "",  
  `timezone` varchar(8) NOT NULL default "",  
  `utcOffset` smallint(6) NOT NULL default '0',
```

```
PRIMARY KEY (`tzID`)  
) TYPE=MyISAM COMMENT='time zone information/definitions';
```

```
CREATE TABLE `users` (  
  `userID` varchar(32) NOT NULL default "",  
  `username` varchar(16) NOT NULL default "",  
  `fname` varchar(128) default NULL,  
  `lname` varchar(128) default NULL,  
  `company` varchar(128) default NULL,  
  `address1` varchar(128) default NULL,  
  `address2` varchar(128) default NULL,  
  `city` varchar(128) default NULL,  
  `state` char(2) default NULL,  
  `zip` varchar(10) default NULL,  
  `phone` varchar(16) default NULL,  
  `phoneExt` varchar(8) default NULL,  
  `email` varchar(128) default NULL,  
  `emailType` enum('text','HTML') default 'text',  
  `language` enum('en','es','fr') default 'en',  
  `updated` datetime NOT NULL default '0000-00-00 00:00:00',  
  PRIMARY KEY (`userID`),  
  UNIQUE KEY `username` (`username`)  
) TYPE=MyISAM COMMENT='WxCoder user information';
```

```
CREATE TABLE `usersAdmin` (  
  `userID` tinyint(3) unsigned NOT NULL auto_increment,  
  `wfoID` varchar(16) NOT NULL default "",  
  `fname` varchar(128) default NULL,  
  `lname` varchar(128) default NULL,  
  `position` varchar(32) default NULL,  
  `address1` varchar(128) default NULL,  
  `address2` varchar(128) default NULL,  
  `city` varchar(128) default NULL,  
  `state` char(2) default NULL,  
  `zip` varchar(10) default NULL,  
  `phone` varchar(16) default NULL,  
  `phoneExt` varchar(8) default NULL,  
  `fax` varchar(16) default NULL,  
  `email` varchar(128) default NULL,  
  `emailCC` varchar(255) default NULL,  
  PRIMARY KEY (`userID`)  
) TYPE=MyISAM COMMENT='WxCoder admin users information';
```

```
CREATE TABLE `wfo` (  
  `wfoID` varchar(16) NOT NULL default '0',  
  `name` varchar(128) NOT NULL default "",  
  `stateID` char(2) NOT NULL default "",  
  `lon` varchar(16) default NULL,  
  `lat` varchar(16) default NULL,  
  `elev` varchar(16) default NULL,  
  `tzID` char(1) binary NOT NULL default "",  
  `regionID` enum('A','C','E','P','S','W') NOT NULL default 'C',  
  PRIMARY KEY (`wfoID`)
```

```
) TYPE=MyISAM COMMENT='WFO information/definitions';
```

```
CREATE TABLE `wxsamPages` (  
  `pageID` smallint(5) unsigned NOT NULL auto_increment,  
  `url` varchar(128) NOT NULL default "",  
  `title` varchar(128) NOT NULL default "",  
  `allowProfiles` smallint(5) unsigned NOT NULL default '0',  
  PRIMARY KEY (`pageID`)  
) TYPE=MyISAM COMMENT='WxCoder Security & Administrative Manager: protected pages';
```

```
CREATE TABLE `wxsamProfiles` (  
  `profileID` smallint(5) unsigned NOT NULL default '0',  
  `siteType` varchar(64) NOT NULL default "",  
  PRIMARY KEY (`profileID`)  
) TYPE=MyISAM COMMENT='WxCoder Security & Administrative Manager: access profiles';
```

```
CREATE TABLE `wxsamSessions` (  
  `sessionID` varchar(32) NOT NULL default '0',  
  `expires` int(11) unsigned default NULL,  
  `data` text NOT NULL,  
  PRIMARY KEY (`sessionID`)  
) TYPE=MyISAM COMMENT='WxCoder Security & Administrative Manager: session data';
```

```
CREATE TABLE `wxsamSettings` (  
  `settingsID` smallint(5) unsigned NOT NULL auto_increment,  
  `setting` varchar(64) NOT NULL default "",  
  `value` varchar(128) NOT NULL default "",  
  PRIMARY KEY (`settingsID`)  
) TYPE=MyISAM COMMENT='WxCoder Security & Administrative Manager: system settings';
```

```
CREATE TABLE `wxsamUsers` (  
  `userID` varchar(32) NOT NULL default "",  
  `username` varchar(16) NOT NULL default "",  
  `password` varchar(16) NOT NULL default "",  
  `tempPassword` tinyint(1) unsigned NOT NULL default '0',  
  `siteID` varchar(128) NOT NULL default "",  
  `multipleSites` tinyint(1) unsigned NOT NULL default '0',  
  `rights` smallint(5) unsigned NOT NULL default '0',  
  `lockcount` tinyint(3) unsigned NOT NULL default '0',  
  `active` tinyint(3) unsigned NOT NULL default '0',  
  `created` datetime NOT NULL default '0000-00-00 00:00:00',  
  `lastAccessed` datetime NOT NULL default '2000-00-00 00:00:00',  
  PRIMARY KEY (`userID`),  
  UNIQUE KEY `username` (`username`)  
) TYPE=MyISAM COMMENT='WxCoder Security & Administrative Manager: user information';
```

```
CREATE TABLE `xmit` (  
  `xmitID` tinyint(3) unsigned NOT NULL auto_increment,  
  `method` enum('ftp','disk') NOT NULL default 'ftp',
```

```
`extraMethod` varchar(16) default NULL,  
`delay` tinyint(1) unsigned NOT NULL default '0',  
`ftpHost` varchar(64) default NULL,  
`ftpUserID` varchar(16) default NULL,  
`ftpPassword` varchar(16) default NULL,  
`remoteSiteDirectory` varchar(128) default NULL,  
PRIMARY KEY (`xmitID`)  
) TYPE=MyISAM COMMENT='data transmission information/definitions';
```

```
CREATE TABLE `xmitID` (  
  `wfoID` varchar(16) NOT NULL default '0',  
  `coop` varchar(16) NOT NULL default '',  
  `marine` varchar(16) default NULL,  
  PRIMARY KEY (`wfoID`)  
) TYPE=MyISAM COMMENT='AFOS-style IDs used for product transmission to AWIPS';
```



Appendix B: WxCoder Directories and Files

WxCoder uses a combination of about 225 files totaling approximately 1.5 MB to facilitate its operation. The files are stored in a directory structure as show below.

wxcoder
wxcoder/es
wxcoder/images
wxcoder/include
wxcoder/include/help
wxcoder/include/jpgraph
wxcoder/include/reports
wxcoder/include/templates
wxcoder/WFO and its subdirectories

/wxcoder

This is WxCoder's root directory. The files in this directory are those needed to access WxCoder's user and admin function at the topmost level. Many of the files serve only as a 'switchboard' to redirect the server to a more task-specific file located in the restricted /wxcoder/include directory.

The directory also holds files associated with WxCoder security and administrative features -- *_init.php* and *_restrict.php*. These files limit access to any file which 'include' them to registered WxCoder users.

filename	description
_init.php	a lite version of _restrict.php that establishes a db connection
_restrict.php	restricts access to a page that "includes" it; inits a session
account.php	facilitates operations necessary for user account maintenance
admin.php	'switchboard' to admin functions appropriate for admin user type
dataEntry.php	'switchboard' to data entry functions appropriate for observer
favicon.ico	icon for IE bookmarked 'Favorites'
forgot.php	generates "forgot my user identifier" page
help.php	generates all help pages
index.html	alias for login.php; redirects to login.php
login.html	alias for login.php; redirects to login.php
login.php	generates user login page
logout.php	generates user logout page
logoutAdmin.php	generates admin logout page
multipleSites.php	facilitates presentation of multiple sites for appropriate users
noCookies.php	informs user of requirement/technique to allow cookies
noRights.php	informs user of inadequate rights to view a page
noScripting.php	informs user of requirement/technique to allow Javascript
popup.php	generates popup windows
print.php	'switchboard' to print functions
reports.php	'switchboard' to report generating functions
success.php	generates 'successful operation' for all observer pages
tempPassword.php	facilitates use of one-time user identifier at login
unavailable.html	displayed when there is no connection to the WxCoder database

WxCoder.admin.js	reserved for future use
WxCoder.css	WxCoder style sheet
WxCoder.js	Javascript used by WxCoder pages
WxCoder.user.js	reserved for future use

/wxcoder/es

Though considerable text is placed on each of its pages, WxCoder needs no external sense of language to operate. As a result it can insert text in any appropriate language as part of its runtime customization. It only needs to know what the preference is for displaying its text at login. The files in this directory are login aliases that set the preferred language to Spanish.

filename	description
index.html	sets language to Spanish; redirect to login.php in root directory
login.html	sets language to Spanish; redirect to login.php in root directory
login.php	sets language to Spanish; redirect to login.php in root directory

/wxcoder/images

WxCoder's images are stored in this directory.

filename	description
banner0.jpg	general purpose WxCoder banner
banner1.jpg	user WxCoder banner with menu item 1 selected
banner2.jpg	user WxCoder banner with menu item 2 selected
banner3.jpg	user WxCoder banner with menu item 3 selected
banner4.jpg	user WxCoder banner with menu item 4 selected
banner5.jpg	user WxCoder banner with menu item 5 selected
banner6.jpg	user WxCoder banner with no menu items selected
bannerEmail.jpg	WxCoder banner to include in HTML email
bannerPopup0.jpg	WxCoder banner to include in popup windows
btnClose.gif	'Close Window' button for use in help popup windows
btnDelete.gif	'Delete' button
btnDetails.gif	'Details' button
btnDisplay.gif	'Display' button
btnUpdate.gif	'Update' button
bug.gif	default NWS 'bug'
bug.jpg	default NWS 'bug'
cookiesIE6.gif	how to enable cookies for IE6
cookiesNS6.gif	how to enable cookies for NS6
getAcrobat.gif	link-associated image for Adobe Acrobat site
help.jpg	link-associated image to open a help popup window
hr.jpg	horizontal rule
poweredByMySQL.png	MySQL logo
poweredByPHP.gif	PHP logo
scriptingIE5.gif	how to enable Javascript for IE5
scriptingNS6.gif	how to enable Javascript for NS6
sortASC.gif	link-associated image to sort a column in ascending order
sortDESC.gif	link-associated image to sort a column in descending order

top.jpg	link-associated image to return to the top of a page
underConstruction.gif	gif for pages with incomplete code
vrh.jpg	vertical rule
warn.gif	animated gif to highlight a data entry error
warn2.gif	Headline bullet for error messages
WxCoder.gif	large WxCoder logo
WxCoder.ico	WxCoder icon
WxCoder2.gif	small WxCoder logo

/wxcoder/include

The ‘meat’ of WxCoder is stored in this directory. The naming convention used for filenames is suggestive of the function performed by the code in each of the files.

Within the files listed below, the majority implement code used to support WxCoder administrative functions. At the top level, administrative switchboard functions generate a menu appropriate for the user. These functions are prefixed with *admin*; the remainder of the filename denotes the type of admin user menu functions implemented by the code. At the next level, administrative functions/files are broken into three broad categories – user management, site management, and options. Files supporting these functions will be prefixed with *user*, *site*, or *options*; the remainder of the filename describes the features/function implemented by the code contained in the file.

filename	description
_class.WxSAM.php	the WxCoder Security and Administrative Manager
_class.mysql.php	wrapper functions to the WxCoder MySQL database
_config.php	defines db connection params; inits a WxCoder session
_sessions.php	callback functions for PHP's session handler
about.php	generates WxCoder's 'about' page
adminMaintenance.php	'switchboard' to all maintenance user admin functions
adminNational.php	'switchboard' to all national user admin functions
adminRegion.php	'switchboard' to all regional user admin functions
adminSuccess.php	generates 'successful operation' for all admin pages
adminSuperuser.php	'switchboard' to all superuser admin functions
adminWFO.php	'switchboard' to all WFO admin functions
class.FastTemplate.php	FastTemplate template functions
class.cryptRC4.php	RC4 functions for user identifier encryption
class.csv.php	generates comma-separated data files for download
class.email.php	email functions using sendmail
class.fileUpload.php	admin user file uploading functions
class.vbMsgBox.php	class to generate VB-like message boxes
class.xls.php	class to generate Excel-compatible output
class.xlsDB.php	class to generate Excel-compatible output from database query
commonForms.php	common form-generation functions
dataEntryCoop.php	facilitates data entry operations for coop observers
dataEntryMarine.php	facilitates data entry operations for marine observers
dataEntrySpotter.php	facilitates data entry operations for spotters
defines.php	WxCoder program constants
encodeSHEF.php	encodes observations in SHEF
mainRegion.php	generates regional administrative menu
mainSuperuser.php	generates superuser administrative menu
mainWFO.php	generates WFO administrative menu
messages.en.php	WxCoder English language string definitions

messages.es.php	WxCoder Spanish language string definitions
messages.fr.php	WxCoder French language string definitions
optionsLimits.php	'switchboard' to setting data limits for appropriate user type
optionsLimitsCoop.php	facilitates setting data limits for coop sites
optionsLimitsMarine.php	facilitates setting data limits for marine sites
optionsLimitsNA.php	notifies that setting data limits is not available for this observer type
optionsMessage.php	'switchboard' to setting type-appropriate localized logout message
optionsMessage2.php	facilitates setting localized logout message for coop observers
optionsMessagePreview.php	facilitates preview popup of localized logout message
optionsPassword.php	facilitates resetting admin user identifier
optionsSettings.php	facilitates setting WxCoder global values
optionsUpdate.php	facilitates setting WFO information
optionsViewLog.php	facilitates viewing the system log
reportsCoop.php	'switchboard' to coop observer report generation
reportsCoopB91.php	Facilitates generation/download of WS Form B-91
reportsCoopDwnld.php	Facilitates generation/download of observer data in Excel format
siteAdd.php	'switchboard' to appropriate type of site to add to WxCoder
siteAddCoop.php	facilitates addition of a coop site
siteAddMarine.php	facilitates addition of a marine site
siteAddSpotter.php	facilitates addition of a spotter site
siteDelete.php	facilitates deletion of a site
siteDetailsPopup.php	facilitates popup window displaying site-specific information
siteLinkMultiple.php	facilitates linking multiple site to a single observer
siteShow.php	presents a list of all WFO's subordinate sites
siteUpdate.php	'switchboard' to updating information for a site
siteUpdateCoop.php	facilitates updating coop site information
userAdd.php	facilitates addition of a user to WxCoder
userBackupDataEntry.php	'switchboard' to backup of observer data entry by an administrator
userBackupDataEntryCoop.php	facilitates backup data entry for coop observer
userDelete.php	facilitates deletion of an observer from WxCoder
userDetailsPopup.php	facilitates popup window displaying user-specific information
userReports.php	'switchboard' to user reports to be generated
userReportsActivityLog1.php	facilitates stage 1 of generating user activity report
userReportsActivityLog2.php	facilitates stage 2 of generating user activity report
userReportsActivityLogPopup.php	displays popup window with user activity
userReportsActivityLogPrint.php	facilitates printing of user activity popup window
userResendWelcome.php	facilitates resending of welcoming email to subordinate user
userSendEmail.php	facilitates sending of email to all subordinate users
userSetReset.php	facilitates user account reactivation/disabling
userShow.php	presents list of all WFO's subordinate users
userTempPassword.php	facilitates generation of a temporary user identifier
userUpdate1.php	facilitates stage 1 of updating a user account
userUpdate2.php	facilitates stage 2 of updating a user account
validateDataAccount.php	validates entries on form for user account information
validateDataAddUpdateCoop.php	validates entries on forms for adding/updating coop information
validateDataAddWFO.php	validates entries on form to add a WFO
validateDataCoop.php	validates coop data entries; adds ob to database
validateDataMarine.php	validates marine data entries; adds ob to database
validateDataOptionsLimits.php	validates entries on form to set data limits
validateDataOptionsUpdate.php	validates entries on form to update WFO information
validateDataUpdateCoop.php	Validates entries on form to update coop site information
validateDataUserSendEmail.php	validates information for sending bulk email to observers
validateDataUserUpdate.php	validates user information update entries
validationChecks.php	miscellaneous validation functions (date, email, zip code, etc.)
wfoAdd.php	facilitates additions of a WFO account to WxCoder
wfoDelete.php	facilitates deletion of a WFO account from Wxcoder
wfoShow.php	presents a list of all WFO sites
wfoUpdate1.php	facilitates stage 1 of updating a WFO account

wfoUpdate2.php	facilitates stage 2 of updating a WFO account
xmit.php	facilitates relay/transmission of WxCoder observation to AWIPS

/wxcoder/include/help

WxCoder provides considerable context-sensitive help. It is usually accessed by clicking the Help glyph that appears near the item of interest. The help text is provided in these files. With one exception the files are text files containing both the help text and layout instructions (included in each file).

filename	description
hlpAccount.txt	help for user account maintenance
hlpAddCoop.txt	help for operations related to adding a user
hlpAddUser.txt	admin help for adding a user account
hlpAddWFO.txt	admin help for adding a WFO account
hlpDew.txt	help with dew-related topics
hlpGeneral.txt	help with general data entry topics
hlpMisc.txt	help with user topics not covered in other files
hlpPcpn.txt	help with precipitation-related topics
hlpReports.txt	help with report generation topics
hlpRiver.txt	help with river-related topics
hlpSoil.txt	help with soil temperature-related topics
hlpTemp.txt	help with temperature-related topics
hlpUpdateWFO.txt	admin help for updating WFO information
HlpWind.txt	Help with wind-related topics
hlpWxCoder.txt	top-level menu help
synopticCodes.html	complete list of NWS synoptic codes

/wxcoder/include/jpgraph

WxCoder has the capability to generate charts and graphs. The feature is implement through the non-commercial use of the graphing library JPGraph (<http://www.aditus.nu/jgraph>). This directory contains files included in the standard distribution of the software.

/wxcoder/include/reports

WxCoder allows observers to generate several standard NWS forms that are filled-in with data they have previously entered into the WxCoder database. The files are generated as Adobe Acrobat PDF files. A commercial software package, PDFLib, is used to implement this feature. PDFLib allows data to be placed on pre-existing PDF files. This directory contains PDF versions of the various NWS forms used in this process.

filename	description
B-91.pdf	NWS Form B-91

/wxcoder/include/templates

Although WxCoder pages are customized for each user at runtime, the general layout of a page remains constant from user to user. There is a need to retain the common elements (e.g., page title, menus, buttons) while at the same time allowing flexibility for inclusion of a wide range of (e.g., type and number of data entry boxes, site-specific information). To achieve this level of flexibility, WxCoder makes extensive use of templates – in particular FastTemplate, a widely used PHP package.

The basic idea behind FastTemplate is that a single page consists of multiple logical parts. FastTemplate differentiates between these logical pieces (templates) by giving each piece of the page a name – a template name. Within a template, there may be any number of variables that are replaced at runtime with the actual data/information that will make up the final page output.

The list below names the templates (file extension .tpl) that WxCoder uses to generate its pages. The files define the template used by the corresponding WxCoder .php file to generate page output.

about.tpl	optionsSettings.tpl
account.tpl	optionsUpdate.tpl
adminMaintenacne.tpl	reportsCoop.tpl
adminNational.tpl	siteAdd.tpl
adminRegion.tpl	siteAddCoop.tpl
adminSuccess.tpl	siteAddMarine.tpl
adminSuperuser.tpl	siteAddSpotter.tpl
adminWFO.tpl	siteDelete.tpl
adminWFOlite.tpl	siteDetailsPopup.tpl
dataEntryCoop.tpl	siteLinkMultiple.tpl
dataEntryMarine.tpl	siteShow.tpl
feedback.tpl	siteUpdate.tpl
feedbackAdmin.tpl	siteUpdateCoop.tpl
feedbackBackupDataEntry.tpl	success.tpl
forgot.tpl	userActivityLogAdmin.tpl
forgotSent.tpl	userAdd.tpl
forgotTryAgain.tpl	userBackupDataEntry.tpl
login.tpl	userBackupDataEntryCoop.tpl
logout.tpl	userDelete.tpl
logoutAdmin.tpl	userDetailsPopup.tpl
main.tpl	userReports.tpl
mainPopup.tpl	userReportsActivityLog1.tpl
mainPopup2.tpl	userReportsActivityLog2.tpl
mainPrint.tpl	userReportsActivityLogPopup.tpl
mainRegion.tpl	userReportsActivityLogPrint.tpl
mainSuperuser.tpl	userResendWelcome.tpl
mainWFO.tpl	userSendEmail.tpl
multipleSites.tpl	userSetReset.tpl
noRights.tpl	userShow.tpl
optionsLimits.tpl	userUpdate1.tpl
optionsLimits2.tpl	userUpdate2.tpl
optionsLimitsNA.tpl	wfoAdd.tpl
optionsMessage.tpl	wfoDelete.tpl
optionsMessage2.tpl	wfoShow.tpl
optionsMessagePreview.tpl	wfoUpdate1.tpl
optionsPassword.tpl	wfoUpdate2.tpl

/WFO & its subdirectories

This directory contains a subdirectory for each WFO and region. The subdirectories are used to store customization files. Typical files that would be placed here include a localized logout file (.txt) for each type of observer supported by the site along with any images (.gif, .jpg) that are included with the logout text. The WFO will also place its customized page 'bug' (bug.jpg) in this directory.



Appendix C: WxCoder User Page Screenshots

The screenshot shows the WxCoder login page. At the top left is the WxCoder logo. To its right is the text "National Weather Service". Further right is the text "Web Xnitted Cooperative Observer Data Encoded Report". Below this is a green horizontal bar. The main content area has the text "Access to WxCoder requires that you login...". In the center is a blue login box with the following fields: "Username:" with a text input, "User Identifier:" with a text input, a "Remember me" checkbox, and a "Login" button. Below the login box is the text: "This is a protected area. Please enter your user name and identifier (both are case-sensitive) then click the 'Login' button." Below that is a link: "I forgot my user identifier!". At the bottom of the page is the text: "WxCoder is best view using IE 5.5/MS 7.0 at a resolution of 800 x 600 or more."

Figure 9: The WxCoder login page

The screenshot shows the WxCoder data entry page. At the top left is the WxCoder logo. To its right is the text "National Weather Service". Further right is the text "Web Xnitted Cooperative Observer Data Encoded Report". Below this is a green horizontal bar with navigation links: "Enter your observation", "Reports", "Your WxCoder account", "Contact us", and "Help". The main content area has the text "About your observation...". Below this are the following fields: "Location: Burr Ridge, IL (BURI2)", "Date/time of observation: 09/30/2003 0700 AM CDT", and "Type of observation: daily [24 hr values/totals]". Below these is a horizontal line. The next section is "Enter your data...". It has two columns: "Precipitation" with "Precipitation: x.xx in" and "Snowfall: x.x in" fields, and "Remarks for Form B-91" with a text area. Below these is a checkbox: "I'd like to send an email to the program manager at NWS Chicago". At the bottom right are "Reset", "Submit Data", and "Logout" buttons. The Chicago logo is at the bottom right.

Figure 10: A WxCoder data entry page

WxCODER National Weather Service
Web Xmitted Cooperative Observer Data Encoded Report

Enter your observation! Reports Your WxCoder account Contact us Help

About your observation...
 Location: Burr Ridge, IL (BURI2) Date/time of observation: 09/17/2003 0700 AM CDT
 Type of observation: daily (24 hr values/totals)

Enter your data...

You must report precipitation with snowfall

Precipitation
 Precipitation: x.xx in
 Snowfall: 1.0 x.x in

Remarks for Form B-91

I'd like to send an email to the program manager at NWS Chicago

Figure 11: A WxCoder data entry page with errors

WxCODER National Weather Service
Web Xmitted Cooperative Observer Data Encoded Report

Enter your observation! Reports Your WxCoder account Contact us Help

**Your data has been entered and transmitted!
Thanks!**

Your Burr Ridge, IL report...

Precipitation: 0.00 inch

Logout

CHICAGO

Figure 12: A WxCoder 'success' page



Figure 13: A WxCoder reports page

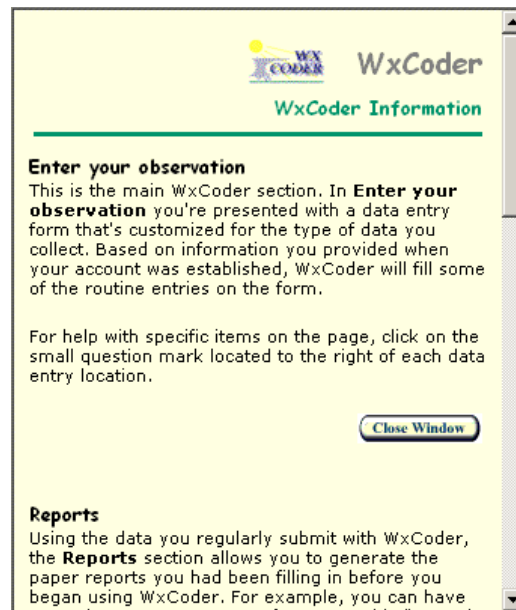


Figure 14: WxCoder top level help

The screenshot shows a web page with the following elements:

- Header:** WxCoder logo (a sun with 'WX CODER' text) and 'National Weather Service' text.
- Text:** 'Web Xmitted Cooperative Observer Data Encoded Report'.
- Section Header:** 'Lightning Facts' in a large blue font.
- List-Group:**
 - Lightning causes an average of 80 fatalities and 300 injuries each year
 - Lightning occurs in all thunderstorms; each year lightning strikes the Earth 20 million times!
 - Most lightning fatalities and injuries occur when people are caught outdoors in the summer months
 - Lightning can occur from cloud-to-cloud, within a cloud, cloud-to-ground, and cloud-to-air
- Text:** 'Have a great and safe summer!'
- Buttons:** A 'Login again' button.
- Image:** The Chicago logo.

Figure 15: A WxCoder logout page