

Live Chart Retriever

Effective 15 October 2009 with Version 2.09 Professional, Digital Atmosphere now includes the Live Chart Retriever module. This is a process which streams live charts to the printer, allowing weather charts from NWS, NCEP, CMC, Met Office, or any weather agency to be printed almost instantly when a graphic update occurs on the server. This is designed to emulate the DIFAX and AFDIGS service that existed from the 1970s through the 1990s, giving forecasters easy, immediate access to paper products for hand analysis purposes. Charts are automatically printed in full resolution without the tedious, troublesome work that is required in Internet browsers.

It augments Digital Atmosphere's own analysis capabilities by providing a feature of great use to operational forecasters. The Live Chart Retriever is also similar to our Weatherpipe program except that the module actively checks for updates rather than relying on schedules, and it offers printer profiles and built-in image rotation. Weatherpipe will also be retired so that we can more actively focus on the Live Chart Retriever as an integral part of Digital Atmosphere.

Concept of operation

The Live Chart Retriever is found in the Digital Atmosphere "File" menu. This brings up the retriever control panel (Figure 2). Desired charts to be printed are checkmarked in the Live Chart Retriever panel's Chart Selection Menu. Once the retriever is activated, Digital Atmosphere examines each chosen product and polls the server every 120 seconds, using a HTTP HEAD request to ask the server if the file has been updated. If the file on the server is newer than the last one that Digital Atmosphere encountered, it commences with a full download. It is then sent to the printer.

Live Chart Retriever supports the use of multiple printer profiles for each product. Though this can

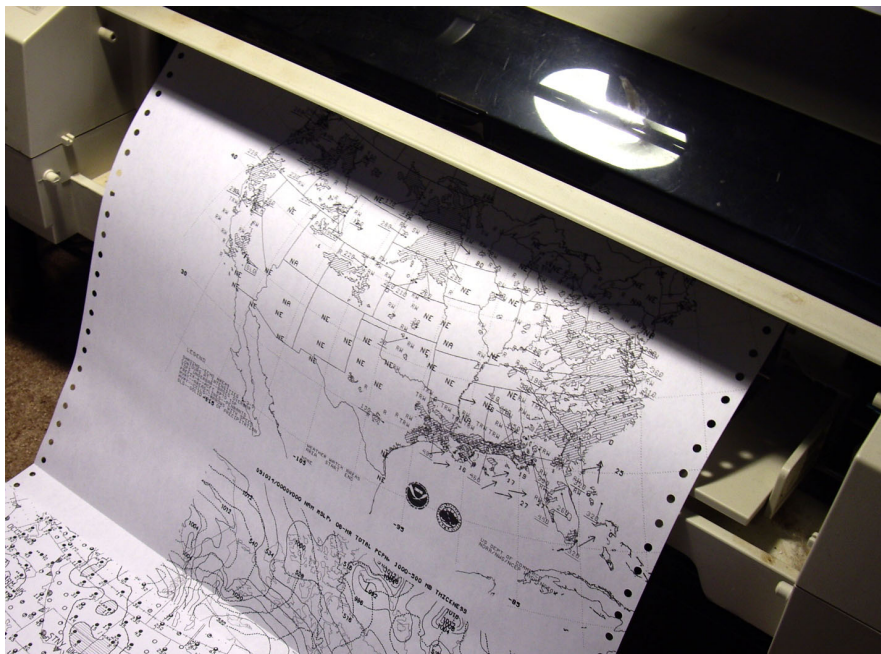


Figure 1. Live Chart Retriever streaming automatically on our inhouse Epson 1520 printer.

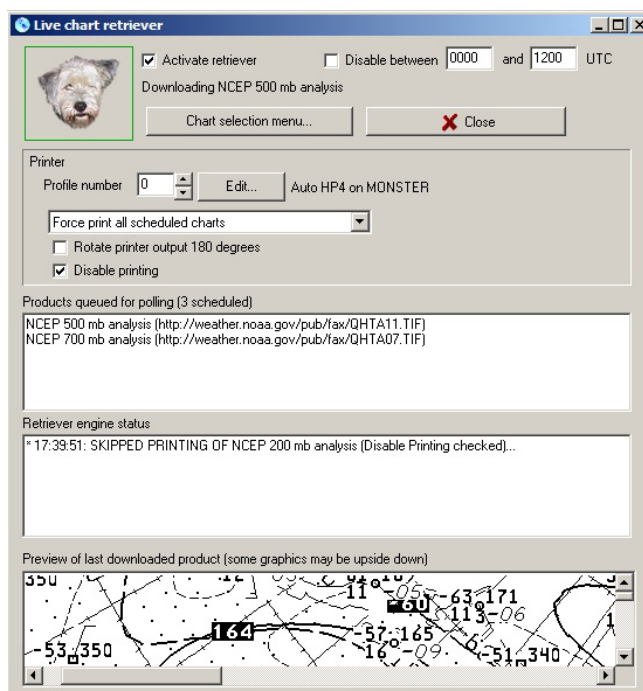


Figure 2. The Live Chart Retriever panel.

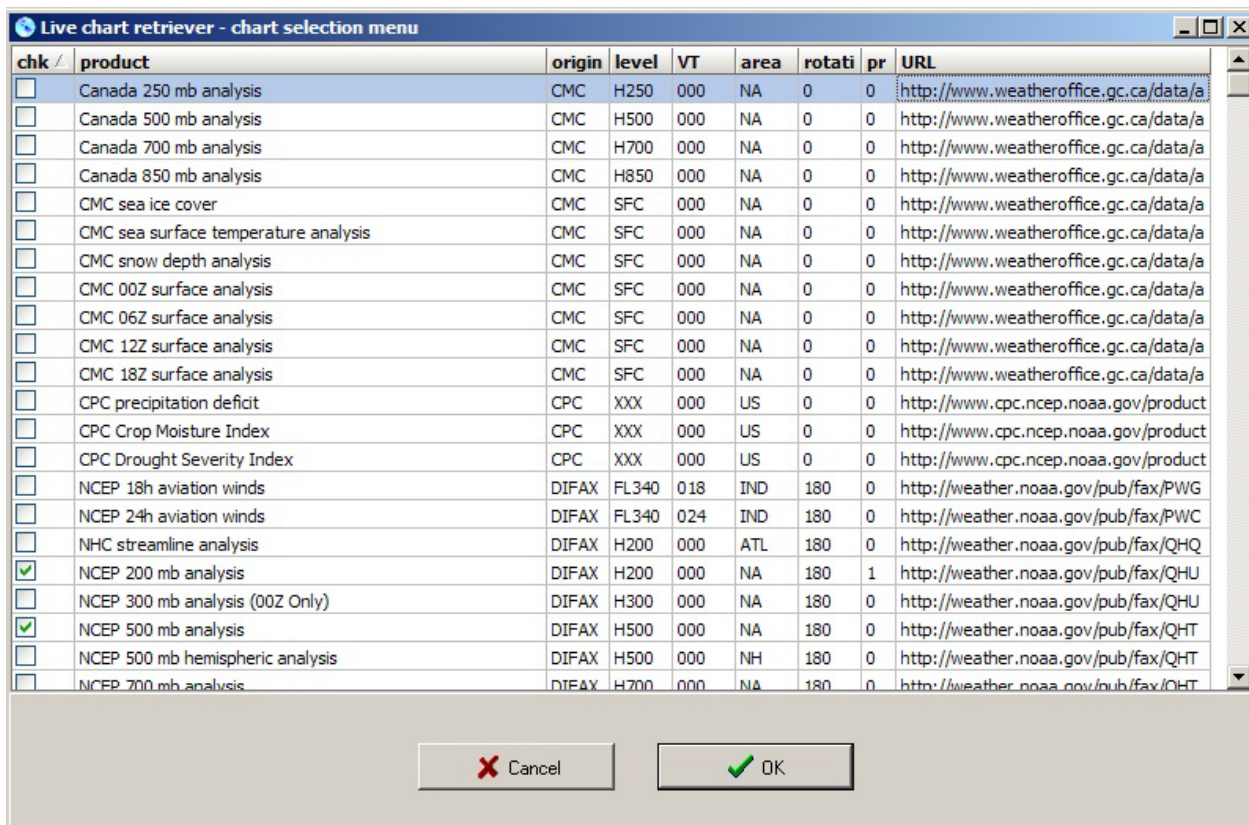


Figure 3. The Chart Selection Menu.

obviously be used to send different kinds of charts to different printers, it can also be used to support multiple configurations of one printer.

For example, the Epson 1520 works with fanfold computer paper. It is easy to select a paper height much greater than the distance between fanfolds, allowing giant images to be printed across folds. However the Epson 1520 does not allow formfeeds to be turned off, so smaller images which normally occupy a much smaller print space will be followed by many inches of wasted paper when the printer initiates a form feed. By associating most graphics to smaller paper size profiles except for the giant images, it is possible to reduce paper waste on tractor feed printers.

Live chart retriever controls

The following list summarizes the features and options available on the main retriever panel (Figure 2).

* **Dog icon.** A green box around the dog icon confirms that the retriever is active. A red box indicates that it is inactive. An orange box indicates that a user-defined time suspension is in effect.

* **Activate retriever engine.** When toggled on, the

Live Chart Retriever will monitor the Internet products which have been checkmarked in the chart selection menu. The dog icon will have a green box to show that it is active. When the retriever is turned off, the dog icon will have a red box to show that it is off.

* **Disable between (hours).** If checked, this forces the retriever to suspend its activities daily between certain hours. The UTC time is used. This setting is useful if a forecast office is closed and no charts are needed during those times. Each time must be entered in four-digit *hhmm* format, e.g. 2115 for 21:15 UTC. If the end time is smaller than the starting time it is correctly assumed that the suspension is released at the given time on the following day.

* **Status message.** A status message is displayed just below the “activate retriever engine” control. This shows what the retriever is currently doing.

* **Chart selection menu.** This button causes the Live Chart Retriever chart selection menu (see above) to be displayed. See the next section for a description of this menu.

* **Close.** When pressed, the Live Chart Retriever panel is dismissed. If the retriever is active, it will

still continue to monitor and download charts.

* **Printer profile number.** This control is used to view any desired printer profile. The profile “0” is the default profile. Use the “up” and “down” controls to see a different one. The printer assigned to that profile will be displayed to the right of the Edit button.

* **Edit (profile).** Press this to edit the details of the displayed profile number. This will cause a printer configuration panel to be displayed. If the configuration is exited with “Ok” that printer setting will be assigned to the profile number shown.

* **Startup behavior dropdown box.** There is a dropdown box that dictates how the Live Chart Retriever will behave when it is started. If the retriever has not been run in days, then there is the potential for all chosen charts to be downloaded and printed, which may not be wanted. Possible choices are “Do not print any charts on startup”, “Print only missed charts on startup”, and “Force print all scheduled charts”. The preferred setting must be chosen before the retriever is activated.

* **Rotate printer output 180 degrees.** If it is preferred that the charts come out of the printer rotated 180 degrees, then check this box.

* **Disable printing.** To test the retriever without printing anything, check this box. Attempts to print will be indicated in the engine status.

* **Products queued for polling.** Products will appear in here about every 2 minutes. Digital Atmosphere has been instructed to check with the server whether newer versions are available.

* **Retriever engine status.** This window shows what the live retriever is doing.

* **Preview of last downloaded product.** This window confirms the appearance of the last downloaded product to show what the Live Retriever obtained.

Chart selection menu

The chart selection menu (Figure 3) is a listing of numerous Internet charts which can be activated. There are about 100 charts that ship with Digital Atmosphere but many more can be added, allowing for soundings, cross-sections, and other charts available on the Internet to be printed when available.

A checkmark indicates that the product is active.

If the retriever engine is active, then active products will be monitored on the host server. Items without checkmarks are inactive.

To sort the columns, click on the column heading.

To delete a product, press the DELETE key on any line. The item will be permanently removed.

To add a new product, press INSERT to insert a new product. Type in the product, using the products above and below and the information contained in Table 1, Chart Selection Menu, as a guide.

Limitations

Live Chart Retriever is limited to these image formats: JPG/JPEG, GIF, PNG, and TIF/TIFF (CCITT Group 4 only). The former three constitute the vast majority of Internet images, while the latter one (TIF) is provided for compatibility with NCEP and WMO chart transmission standards. Animated GIFs are not supported. Requests for other formats can be submitted to us for consideration.

Currently there is no support for password protected files. We may add this in an upgrade, but work on it is not planned since we expect that the vast majority of users will be using graphics that are freely available on the web.

Chart Retriever does not support non-HTTP Internet protocols, such as FTP, HTTPS, SSL, or Telnet.

The live retriever will use any proxy username and password settings found in the Digital Atmosphere *File > Preferences* panel. Proxy support is provided as-is and we cannot troubleshoot issues with it.

Usage of TIFF files

Due to a shortfall in available components, Digital Atmosphere does not currently support TIFF format natively. Users who wish to access TIFFs (especially for NCEP DIFAX products) must install four files that are part of the Libtiff Win32 package: **fax2png.exe**, **libtiff3.dll**, **libpng13.dll**, and **jpeg62.dll**, and place them in the same folder where Digital Atmosphere executable (digatmos.exe) resides. When this is done then TIFF support will be enabled.

We do not distribute these files because they fall under the GNU General Public License which prohibits them being packaged with commercial software.

You may obtain the four files at:

<http://www.weathergraphics.com/dl/fax2png.zip>

Simply unzip to the same directory where the

Digital Atmosphere executable resides (and if you aren't sure, right click the Digital Atmosphere startup icon and select Properties).

In a coming release, we will provide native support and eliminate this requirement.

Printer considerations

One often overlooked consideration is the suitability of letter-sized printers to meteorology work, a task that is heavily map-oriented. Users who do extensive analysis and forecasting should give consideration to whether their printer is adequate for the job.

The optimum printer for the forecast desk is the so-called "large format" printer. This type of printer handles the so-called ledger or tabloid paper sizes, which are 11 x 17" in the U.S. and A3 internationally. Inkjet offers the lowest cost, and as of 2009 street prices of these printers were about \$400 new. Printing should always be done on plain bond paper, not photo paper (which tends to be the selling point of large format printers). Many of these printers accept tractor feed (e.g. fanfold paper, also known as "computer paper"), which can actually be quite cheap, is less prone to jamming, and allows for variable map sizes. The cost of consumables can be drastically reduced if weather charts with white backgrounds are used, such as those available from NCEP and the legacy DIFAX charts. These allow for very low ink consumption.

Some large format models to consider include the HP Photosmart Pro B9180, the Epson R1900, and Canon Pixma Pro 9000. However those are just a few examples and many other models exist. During much of the late 1990s and early 2000s, the workhorse printer of choice was the Epson 1520. It is out of production but can still be found used for about \$100-200, and cartridges are still being manufactured.

Industrial users may consider "wide format" printers, which have a width of greater than 17 inches and a cost of over \$1000. However such sizes are really not necessary since ultra-high weather chart resolutions are rarely encountered.

Technical support

Registered users may obtain support by contacting servicedesk@weathergraphics.com.

- TIM VASQUEZ / 10/15/09

Table 1. Chart Selection Menu elements.

The following table lists the elements of the chart selection menu.

product - Plain language name of the product. This may be set to whatever the user likes. It is not used by the software.

origin - Origin of the product, strictly for organizational purposes and is not used by the software. The abbreviations we are using include:

DIFAX	NCEP products that are part of the DIFAX family
CPC	NCEP Climate Prediction Center
NCEP	Other NCEP products
GEM	CMC GEM products
CMC	Other CMC products

level - Level of the product, strictly for organizational purposes and is not used by the software. We use H500, H700, H850, etc for the mandatory levels, FL180, FL300, etc for flight levels, SFC for surface, and XXX for nonspecific levels.

VT hour - Forecast valid time in hours. This is strictly for organizational purposes and is not used by the software. This should always be in 3-digit format otherwise sorting will cause rows to be sorted as 0,12,120,24... instead of 000,012,024,120...

area - Geographical area, strictly for organizational purposes and not used by the software. Our convention is as follows:

US	United States
NA	North America (we recommend not using "NAM")
NH	Northern Hemisphere
ATL	Atlantic Ocean basin
PAC	Pacific Ocean basin
IND	Indian Ocean basin
-E	Suffix for east
-W	Suffix for west
-N	Suffix for north
-S	Suffix for south
-T	Suffix for tropics

rotation - If charts come in upside down or sideways and you do not wish them to be printed that way, you may force a rotation after download by putting in a value of 90, 180, or 270. Sideways graphics that are to be printed sideways should be left at 0.

profile - The number here indicates the printer profile number that should be associated with this chart. It should normally be set to 0 unless you want it associated with a different printer profile. If that printer profile does not exist, the chart will be printed with profile 0.

URL - URL of the resource. This must be a direct link to an image. Acceptable image formats are JPG, JPEG, GIF, PNG, TIF, or TIFF (TIF/TIFFs must be CCITT Group 4 only). A link to an HTML, PHP, or other page will not work!