

# Retrieving Raw Chromatogram Data from a 55i via “dump” commands

## Introduction

HyperTerminal or an equivalent communication program is recommended for SERIAL CLink connections to the analyzer. PuTTY software is recommended for a TCP CLink connection to the analyzer via port 9880. All CLink commands are covered in Appendix B of the manual. iPort software should NOT be used for raw chromatogram data retrieval, as it has no capability to save the retrieved chromatogram at this time. The raw data is retrieved from the analyzer using the following CLink commands:

“dump run current” retrieves the most recent run’s data

“dump run previous” retrieves the next-to-last run’s data

These commands **should not be run** while the instrument is not in the DONE state, while a run is in progress. The latest versions of the instrument firmware prevent this, but earlier pre-release versions may not. The only other chromatogram data available from the analyzer is the zero chromatogram, which can be retrieved via the “dump zero data array” command.

The data will be “dumped” from the instrument to the terminal program as a long string of values separated by the new line character (ASCII 0x0A). This data can be saved to a text file from the terminal program and then loaded into Excel and graphed. The terminal program must be set up to save a “dump” of more than 1000 lines or the earlier data will scroll away and be lost. HyperTerminal has a “capture text” function in the transfer menu, however, other programs may be different.

## To set up HyperTerminal for serial connection:

1. Connect the analyzer and PC with the proper cable (supplied by Thermo or use any 9-pin null-modem cable).
2. Set the instrument ID to 0 (zero) so you don’t have to worry about sending the instrument ID byte with each command (Instrument Controls > Communications Settings > Instrument ID).
3. Make sure that the communication protocol is set to CLINK. (Instrument Controls > Communications Settings > Communication Protocol).
4. Load HyperTerminal on the PC by selecting Start... Programs... Accessories... Communications... HyperTerminal (the path may be slightly different on newer Windows platforms such as XP).
5. Once HyperTerminal is running, enter a name for the connection, select the COM port that the board is connected on, and set 19200,8,None,1,None for the port settings (alternatively, a session may be created on the desktop or in the Start menu so these settings don’t have to be set every time).

6. Make sure that the BAUD rate set in HyperTerminal matches the rate set in the analyzer's communications menu. (Instrument Controls > Communications Settings > Serial Settings > Baud Rate)
7. In HyperTerminal, also make sure that typed commands will be echoed. This is not necessary, but it is easier. (File > Properties > Settings tab > ASCII Setup button > Echo Typed Characters Locally checkbox)

**NOTE:** Also set in File>Properties>Settings>ASCII Setup

Check Append line feeds to incoming line ends.

8. Type in the command "time" and look for the appropriate response (ex.: time 09:08:46) to confirm that the communications are properly set up. Depending on the instrument's configuration, there may be additional information, such as a checksum, after the response.
9. Enable text capture in HyperTerminal if you haven't already (Transfer > Capture Text > select a file/name > Start button)
10. Make sure the analyzer is in single run mode so that the analyzer will return to the DONE state after a run (Instrument Controls > Set Operation Mode). Perform a run on the analyzer (if you haven't already).
11. Retrieve the data via the "dump run current" command: type "dump run current" into the HyperTerminal window and press the ENTER key. The dump will begin within a few seconds, and the data will scroll on the HyperTerminal screen. The data as viewed on screen will not look tidy, but the capture file will be OK.
12. Stop the capture to save the data into the file. (Transfer > Capture Text > Stop)
13. Repeat from the enable capture step, step 9 above, for subsequent data dumps.
14. Import the capture file into Excel and graph it as a line to view the chromatogram. The dump is always 100 seconds long (1000 data points) regardless of the actual endpoint of the chromatogram (the default setting is 52 seconds) so the graphed data will have zeros filling out the data from the actual end of the data to the end of the dump. This is not a problem.

### To set up PuTTY for a TCP Clink connection to the analyzer:

1. Install PuTTY on your PC if you don't already have it available. PuTTY is freeware, available from the internet, at <http://www.chiark.greenend.org.uk/~sgtatham/putty/>
2. To set up Putty for a clink connection to your analyzer:
  - a. Open Putty. The configuration screen will be displayed, with "Session" highlighted in the tree on the left of the window.
  - b. In the Host Name box, enter the IP address of the analyzer.
  - c. In the Port box, enter 9880.
  - d. For Connection Type, click the Telnet button.
  - e. Change to the Terminal screen by clicking Terminal in the left window (right under Session)
  - f. Make sure the "Implicit CR in every LF" box is checked.
  - g. Change to the Window screen by clicking Window in the left window.
  - h. In the "lines of scrollbar" box enter 2000. This will enable one entire chromatogram retrieval to be saved in the buffer.

- i. Change to the Connection > Telnet screen by clicking on Connection > Telnet in the left window.
  - j. Change to passive telnet negotiation mode by clicking the Passive button under Telnet Negotiation mode.
  - k. Go back to the Session screen and enter a name in the Saved Sessions box, then click the Save button to save your settings.
3. Click the Open button to begin the session. A session will terminate and the window will disappear if there is no command activity for a certain length of time, about three minutes. You will have to restart the session if it closes by re-opening putty and loading the saved session.
4. Type in the command “time” and look for the appropriate response (ex.: time 09:08:46) to confirm that the communications are properly set up. Depending on the instrument’s configuration, there may be additional information, such as a checksum, after the response.
5. To log the retrieved data to a file, left click on the icon in the upper left of the window to open the window menu. Choose the “Change Settings...” item, which will open a settings window.
  - a. Change to the Session > Logging screen.
  - b. check the “all session output button”
  - c. enter or browse to a file to save the data to.
  - d. Check the “Ask the User Every Time” and “Flush log file frequently” buttons if they aren’t by default.
  - e. click the Apply button.
6. Make sure the analyzer is in single run mode so that the analyzer will return to the DONE state after a run (Instrument Controls > Set Operation Mode). Perform a run on the analyzer (if you haven’t already).
7. Retrieve the data via the “dump run current” command: type “dump run current” into the PuTTY window and press the ENTER key. The dump will begin within a few seconds, and the data will scroll on the PuTTY screen.
8. Stop logging by either closing the PuTTY window or by left-clicking the icon in the upper left of the window to open the window menu. Choose the “Change Settings...” item, which will open a settings window.
  - a. Change to the Session > Logging screen.
  - b. check the “None” button
  - c. click the Apply button.
9. Repeat from Step 5, above, for subsequent runs.
10. It is possible to save all the data into the same file, but that makes importing it into Excel a little harder.

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