

# Understanding ZMQ Blocks

Based on [https://wiki.gnuradio.org/index.php/Understanding\\_ZMQ\\_Blocks](https://wiki.gnuradio.org/index.php/Understanding_ZMQ_Blocks)

## A. Types of ZMQ Blocks

1. Data Blocks
2. Message Blocks

## B. Addressing

1. localhost (127.0.0.1)
2. full IP address of Sink block

## C. Using ZMQ Blocks

1. Separate GR flowgraphs on Same Computer (PUB / SUB)
2. Separate GR flowgraphs on Different Computers (PUSH / PULL)
3. Python Program as a REQ / REP Server
4. Python Program to Process Flowgraph Data (PUB / SUB)
5. Python Program as a PUSH / Pull Server  
[https://github.com/duggabe/gr-webserver/blob/master/examples/zmq\\_PUSH\\_PULL\\_server.py](https://github.com/duggabe/gr-webserver/blob/master/examples/zmq_PUSH_PULL_server.py)

## D. Terminal functions for flowgraphs

1. Using /stdin and /stdout is not a very satisfactory solution
2. Using QT GUI Message Edit Box for input works, but there is no history of past entries  
<https://github.com/duggabe/gr-morse-code-gen>
3. <https://github.com/dl1ksv/gr-display> provides a QT text sink
4. Browser-based terminal emulator using Javascript
  - a. <https://github.com/duggabe/gr-webserver/blob/master/requestHandlers.js>  
Python has "import pmt" and "import zmq", but Javascript does not  
line 57: function pmt\_to\_string  
line 87: function string\_to\_pmt  
line 232: function init - set up sockets  
line 333: function upload - sends input line
  - b. demo with [zmq\\_PUSH\\_PULL\\_server.py](https://github.com/duggabe/gr-webserver/blob/master/examples/zmq_PUSH_PULL_server.py)