

Sociable Objects Workshop

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Plan for Today

- Sensor / Actuator Presentations
- Internet Interlude
- ZigBee Internet Gateway
- ZIG code snippets
- Readings & Assignments

Internet Interlude

- IP addresses
- ports
- sockets
- layers physical, transport, application
- telnet demo

Telnet

- into ZIG
- ssh into itp
- daytime
- web server
- mail server

ZigBee Internet Gateway

To use the gateway you need to:

Switch the PAN to AAAA: ATIDAAAA

Set your radio to 115200 baud: ATBD7

Set the destination address to zero: ATDH0 and ATDL0

When you're ready to go, attach the XBee to your Arduino's hardware serial port (pins 0 and 1), then send a URL and you'll get back the response. For example to send your request from Arduino:

```
Serial.print("http://www.faludi.com/test.html");
```

And to read the response back:

```
if (Serial.available()) {  
    char inChar = Serial.read();  
    print ( inChar );  
}
```

Some useful things to know:

- currently supported URL formats (items in [] are optional):

[http://host/path\[:port\]](http://host/path[:port])

[https://host/path\[:port\]](https://host/path[:port])

[ftp://\[username:password@\]host/path\[:port\]](ftp://[username:password@]host/path[:port])

- sending help or ? will get the current help file from the gateway
- baud rates lower than 115200 will work if the results you're getting are brief
- the software is still under development and may go offline for improvements from time to time
- right now error messages are displayed raw. You can ignore the specifics which are solely for our debugging

COMMANDS:

help: displays this file

http://<host/path> receives a URL

https://<host/path> receives a secure URL

http://<host/path:port>

https://<host/path:port>

ftp://<host/path>

ftp://<username:password@host & path>

USE:

The recommended speed is 115200 baud which can be set with ATBD7

Lower baud rates may work if you are receiving short responses

The following formats are NOT yet supported:

http://<username:password@host/path>

telnet://<host:port>

mailto:<addr@host>

XBee I/O into a database

ZigBee Internet Gateway Demo

Send a request

```
Serial.println("http://itp.nyu.edu/~raf275/testpage.html");
```

Seek a character

```
if (Serial.available() > 0) {  
  
    if (Serial.read() == 'A') {  
  
        //do something  
  
    }  
  
}
```

Send a value

```
Serial.println("http://faludi.com/testpage.php?value=37");
```

Read an ASCII decimal value

```
if (Serial.available() >= 3) {  
  
    position1 = Serial.read() - 48;  
  
    position2 = Serial.read() - 48;  
  
    position3 = Serial.read() - 48;  
  
    value = position1 * 100 + position2 * 10 + position3  
  
}  
  
// using a buffer would be more sophisticated
```

Read a phrase

```
char buffer[128], result[128];  
int count = 0;
```

```
if (Serial.available() > 0) {
```

```
    buffer[count] = Serial.read();
```

```
    count++;
```

```
    if (buffer[count] == '\r') {
```

```
        strcpy(result, buffer);
```

```
        count = 0;
```

```
    }
```

```
// additional code would be added to make this work well
```

Readings and Assignments

- Readings

- none

- Assignments

- Final Project *it's time!*