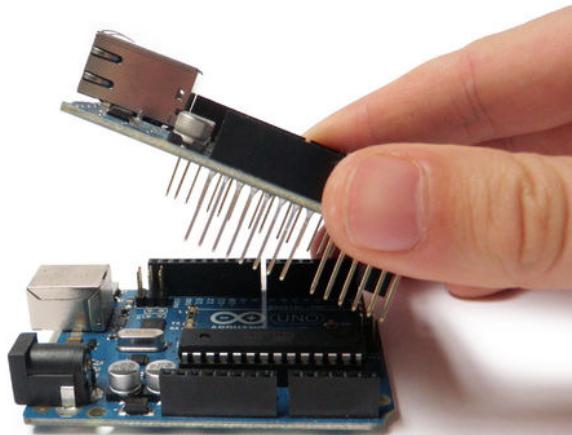


Step 1: Setup

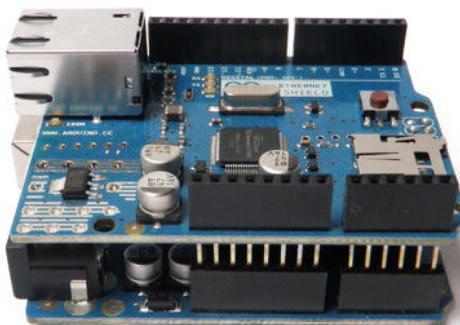


(<http://cdn.instructables.com/FZ0/5SN7/H05NT26I/FZ05SN7H05NT26I.LARGE.jpg>)

Setting it up is as simple as plugging the header pins from the shield into your Arduino.

Note that the Ethernet Shield sold at Radioshack is online compatible with Arduino Uno Rev. 3 boards (or later). It has too many pins to plug into earlier version Arduino boards.

Step 2: Shield Features



(<http://cdn.instructables.com/FMK/3BSQ/H05NOV88/FMK3BSQH05NOV88.LARGE.jpg>)

The Ethernet shield is based upon the Wiznet chip, which has an internal TCP buffer. It has a connection speed of up to 10/100Mb. This is not the fastest connection around, but is also nothing to turn your nose up at.

It relies on the Arduino Ethernet library, which comes bundled with the development environment.

There is also an on-board micro SD slot which enables you to store a heck-of-a-lot of data, and serve up entire websites using just your Arduino. This requires the use of an external SD library, which does not come bundled with the



(/id/Jar-Lantern)



(/id/SELFIE-Mirror)



(/id/Groundhog-Day-Alarm-Clock)

Tags:

arduino (/tag/type-id/category-technology/keyword-arduino/)

ethernet (/tag/type-id/category-technology/keyword-ethernet/)

shield (/tag/type-id/category-technology/keyword-shield/)

website (/tag/type-id/category-technology/keyword-website/)

rev 3 (/tag/type-id/category-technology/keyword-rev+3/)

webpage (/tag/type-id/category-technology/keyword-webpage/)

internet (/tag/type-id/category-technology/keyword-internet/)

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Related



Ethernet Shield LED SERVER
(<http://www.instructables.com/Shield-LED-WEB->)



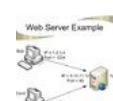
Run Ethernet shield on arduino
(<http://www.instructables.com/Ethernet-shield-on->)



Arduino Ethernet Web Server (HACKED)
(<http://www.instructables.com/Ethernet-Web-Server->)



The cheapest and simplest method to control arduino through ethernet
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How to make a Arduino web Server
(<http://www.instructables.com/to-make-a-Arduino-web->)

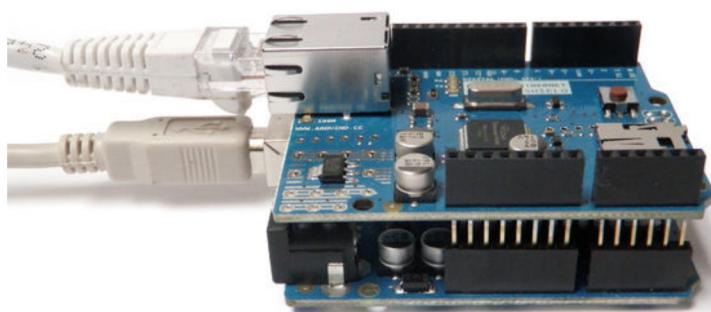
See More (/tag/type-id/?q=)

software. Using the SD card is not covered in this Instructable. However, it is covered in the Step 8 (<http://www.instructables.com/id/Arduino-Wireless-SD-Shield-Tutorial/step8/Prepare-the-SD-card/>) of the Wireless SD card instructable.

The board also has space for the addition of a Power over Ethernet (PoE) module, which allows you to power your Arduino over an Ethernet connection.

For a full technical overview, see the official Ethernet Shield (<http://arduino.cc/en/Main/EthernetShield>) page.

Step 3: Get started

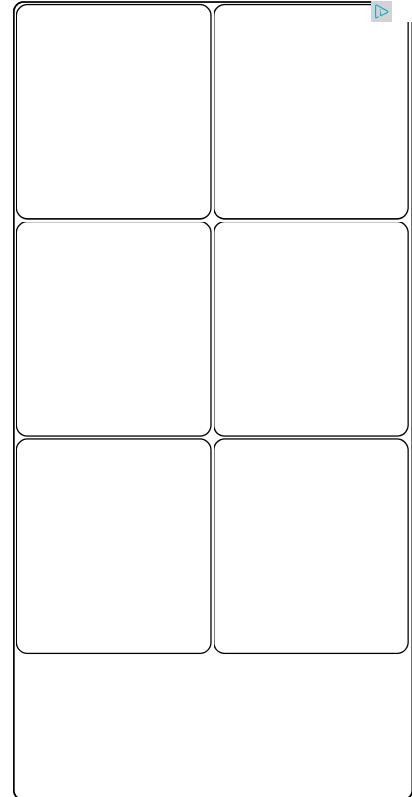


(<http://cdn.instructables.com/FDP/0VOX/H05NHCWO/FDP0VOXH05NHCWO.LARGE.jpg>)

(<http://cdn.instructables.com/FTA/OCMQ/H05Y7KE8/FTAOCMQH05Y7KE8.LARGE.jpg>)

Plug the Arduino into your computer's USB port, and the Ethernet shield into your router (or direct internet connection).

Next, open the Arduino development environment. I highly recommend



upgrading to Arduino 1.0 or later (if you have not done so already). This version of the software has built in DHCP support, and does not require manually configuring an IP address.

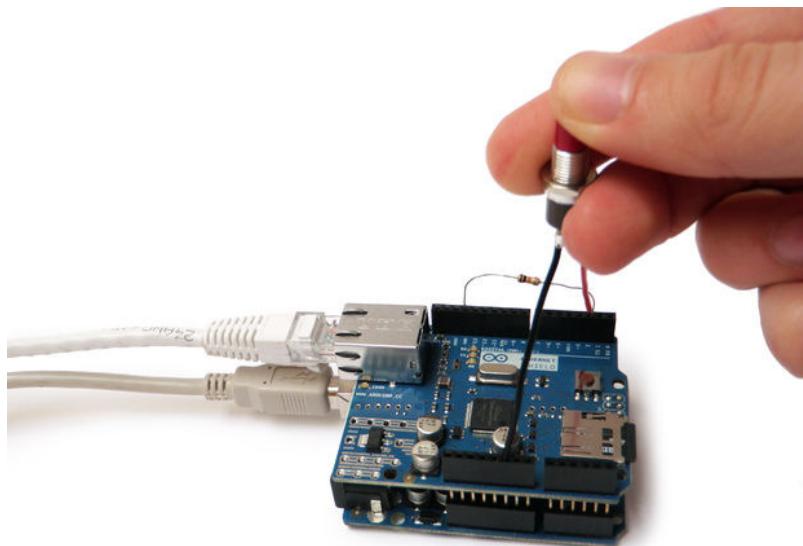
To figure out what IP address has been assigned to your board, open the DhcpAddressPrinter sketch. This can be found at:

File --> Examples --> Ethernet --> DhcpAddressPrinter

Once open, you may need to change the Mac address. On newer versions of the Ethernet shield, you should see this address on a sticker attached to the board. If you are missing a sticker, simply making up a unique mac address should work. If you are using multiple shields, make sure each has a unique mac address.

Once the mac address is properly configured, upload the sketch to your Arduino, and open the serial monitor. It should print out the IP address in use.

Step 4: Server



(<http://cdn.instructables.com/FSR/VTRF/H05NTD9O/FSRVTRFH05NTD9O.LARGE.jpg>)

(<http://cdn.instructables.com/FS3/6KGM/H05Y7UTC/FS36KGMH05Y7UTC.LARGE.jpg>)

(<http://cdn.instructables.com/FKJ9MK7/H05NL7BN/FKJ9MK7H05NL7BN.LARGE.jpg>)

You can use the Arduino Ethernet shield as a web server to load an HTML page or function as a chat server. You can also parse requests sent by a client, such as a web browser. The following two examples show how to use it to serve HTML pages, and parse URL strings.

One important thing to keep in mind is that you will have to enter your Arduino's IP address in both of the examples below in order for them to work.

The following code changes the web page served based on a button press:

```
/*
Web Server Demo
thrown together by Randy Sarafan

A simple web server that changes the page that is served, triggered by a button press.

Circuit:
* Ethernet shield attached to pins 10, 11, 12, 13
* Connect a button between Pin D2 and 5V
* Connect a 10K resistor between Pin D2 and ground

Based almost entirely upon Web Server by Tom Igoe and David Mellis

Edit history:
created 18 Dec 2009
```

To make this example code work, simply attach a button between pin D2 and 5V, a 10K resistor between pin D2 and ground, and then load the IP address of your Arduino into your web browser. The page should load with a black background. Press and hold the button, and then refresh the browser page. The site should now load with a white background.

The following code lights up an LED depending on the URL that is sent to the Arduino:

```
/*
Web Server Demo
thrown together by Randy Sarafan

Allows you to turn on and off an LED by entering different urls.

To turn it on:
http://your-IP-address/$1

To turn it off:
http://your-IP-address/$2

Circuit:
* Ethernet shield attached to pins 10, 11, 12, 13
* Connect an LED to pin D2 and put it in series with a 220 ohm resistor to ground
```

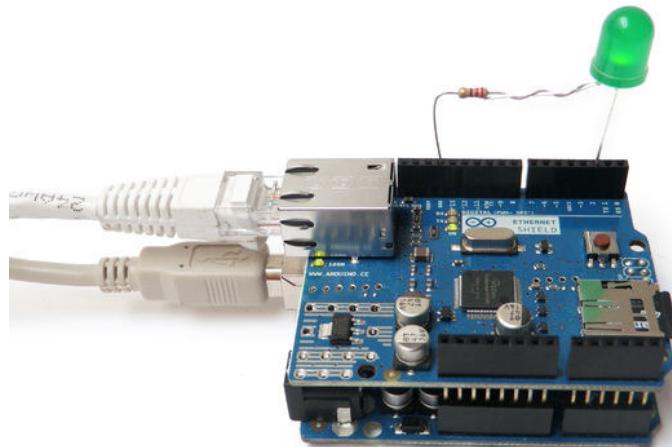
To make this work connect the positive lead an LED to pin D2, and the negative lead in series with a 220 ohm resistor to ground.

To turn on the LED enter this into your browser:
http://[YOUR IP ADDRESS HERE]/\$1

To turn off the LED enter this into your browser:
http://[YOUR IP ADDRESS HERE]/\$2

Note: You should obviously replace [YOUR IP ADDRESS HERE] with your IP address.

Step 5: Client



(<http://cdn.instructables.com/FQL/Q62H/H05NP76W/FQLQ62HH05NP76W.LARGE.jpg>)

You can also use the Ethernet shield as a client. In other words, you can use it to read websites like a web browser.

Websites have a lot of text both visible and hidden, which makes programming on the client side very tricky. Reading information from websites typically involves parsing a lot of strings. This is maddening, but worth it, if that is what you intend to do.

I was going to write some code to read Twitter messages, but such a code already exists as an example within the Arduino programmer. Instead, I simply modified it slightly to turn on an LED if a special message is read.

To make this work connect the positive lead an LED to pin D2, and the negative lead in series with a 220 ohm resistor to ground.

Don't forget to enter your own IP address into the code below, or it will not work.

Here is the code:

```
/*
Twitter Client with Strings

This sketch connects to Twitter using an Ethernet shield. It parses the XML
returned, and looks for <text>this is a tweet</text>

You can use the Arduino Ethernet shield, or the Adafruit Ethernet shield,
either one will work, as long as it's got a Wiznet Ethernet module on board.

This example uses the DHCP routines in the Ethernet library which is part of the
Arduino core from version 1.0 beta 1

This example uses the String library, which is part of the Arduino core from
version 0019.
```

Presumably you are going to want to read something other than the recent post on the RandyMcTester Twitter feed.

To read other Twitter feeds, change the following bit of text:
client.println("GET /1/statuses/user_timeline.xml?screen_name=[NEW



We have a **be nice** comment policy.
Please be positive and constructive.

[I Made it!](#) [Add Images](#) [Make Comment](#)

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Next » (<http://www.instructables.com/id/Arduino-Ethernet-Shield-Tutorial/?&sort=ACTIVE&limit=40&offset=40#DISCUSS>)

 **GodoC** (/member/GodoC/)

6 days ago [Reply](#)

Thanks ! it worked for me. Just a little reminder : to get the info on your monitor, don't forget to set it to the same baud rate as the one set by the program (ie DhcpAddressPrinter) for the serial connection (check the number XXX in Serial.begin(XXX)). To change the baud rate, you can use the "check list button" at bottom right of the monitor

 **嘉瑜陳** (/member/%E5%98%89%E7%91%9C%E9%99%B3/)

1 month ago [Reply](#)

Thanks for the tutorial, but i have a question to the server work example.
~~I know how to use other strings~~ other than "\$1" and "\$2", like "\$ledon" for switching on the led connected, what adjustment need to do to the codes.
I find it difficult to solve this problem.

 **voltman** (/member/voltman/)

1 month ago [Reply](#)

Didn't work with 1.0, but first time with 1.6.1

 **oregondunerz** (/member/oregondunerz/)

1 month ago [Reply](#)

Let me first start by saying that I am a complete noob when it comes to anything Arduino. My kit hasn't even arrived in the mail yet so please go easy on me. :)

However, I have a question regarding this project. Specifically the RJ45 Ethernet Shield. In your example you are using the RJ45 to interact with the Arduino via a website/internet, is it possible to use the Arduino + Shield to interact with a series of rocker switches via a 8 channel relay board? If so, I was thinking that it would make the installation of my project really clean being able to use the RJ45 cable between my Arduino and the switches that will be located perhaps 10-15 feet away.

Any and all help is appreciated.

 **cool.honny.5** (/member/cool.honny.5/)

2 months ago [Reply](#)

This Tutorial is Fantastic and very very very clear everything.Got this tutorial after 4 days searching on my related topic.

Many Many Thanks Dear.

 **daniel.kral.37** (/member/daniel.kral.37/)

2 months ago [Reply](#)

Excuse me, does anyone know how to access the ethernet shield from the outside of the local network - that is from the internet? I guess the local dynamic IP has to be changed, right..? Where to get that IP?



2 months ago [Reply](#)
how to access the ethernet shield from the outside of the local network - that is from the internet?
(/member/Pixelsofsteel/)

You need to port forward the IP and port you are using of the ethernet shield to the internet

This website may help: <http://portforward.com/> (<http://portforward.com/>)

I guess the local dynamic IP has to be changed, right..?

Yes if you are port forwarding the ethernet shield should have a static local IP. You can define the ethernet shield IP in the code.

<http://arduino.cc/en/Reference/EthernetIPAddress>
(<http://arduino.cc/en/Reference/EthernetIPAddress>)

you can find your DNS servers, gateway, and subnet by typing `ipconfig /all` in a windows command line.

Make the ip of the ethernet shield any ip not currently used on your network. An easy way to do this is to take IP address listed in `ipconfig /all` and change the numbers after the last dot to 254 and put that in the arduino code as its IP.

Where to get that IP?

If you mean your public IP you can find that by visiting

<http://www.whatismyip.com/> (<http://www.whatismyip.com/>)



Sarmadalabbad (/member/Sarmadalabbad/)

2 months ago

[Reply](#)

Nice thank u

(/member/Sarmadalabbad/)



nur.rohmat1 (/member/nur.rohmat1/)

2 months ago

[Reply](#)

thanks for your information,

(/member/nur.rohmat1/)
secretfood.net



intanrahmihul (/member/intanrahmihul/)

3 months ago

[Reply](#)

(/member/intanrahmihul/)



IdeS (/member/IdeS/)

4 months ago

[Reply](#)

It's useful thank

(/member/IdeS/)



midnightcow (/member/midnightcow/)

5 months ago

[Reply](#)

Nice Tutorial!!

(/member/midnightcow/)
I'm a engineer in WIZnet providing W5100 to the official Arduino Ethernet Shield.

WIZnet made W5500 and WIZ550io/ioShield-A. If you are interested in W5500 and make a tutorial of W5500, I will give a WIZ550io to you free. If you want, feel freely to contact me.

Thank you.



parth_bhat (/member/parth_bhat/)

1 year ago

[Reply](#)

my ethernet shields ic gets hot will u plsplspls help me for that

(/member/parth_bhat/)
am using arduino leonardo board
pls help me

regards
pyt



Gelfling6 (/member/Gelfling6/)

1 year ago

[Reply](#)

I have one of the Non-POE (power Over Ethernet) 5100's, and it does the same to me.. I think it's the 3.3V regulator trying to run the single chip, which is chewing-up massive wattage.. (even if it is being powered from the +5V regulator from the Arduino.) I've often wondered, if I could repower this off the 3.3V off an external power supply, but

someone said that's a bad idea, as the back-feed could burn-out the regulator, and other chips switching between the 9 down to 5, and 5 down to 3.3, or even the USB to serial chip.



alin.bartos (/member/alin.bartos/) Gelfling6 6 months ago [Reply](#)

You need to supply the arduino and the shield with 7 or 7.5 v, you can (/member/alin.bartos/) use a dc-dc power regulator. I use a 12v power suply and a dc to dc regulator, who give me 7.5v and everything is fine.



randofo (/member/randofo/) (author) parth_bhat 1 year ago [Reply](#)

Did you do anything to change it, and/or did you plug it in correctly? It (/member/randofo/) sounds like you are shorting something.



Gelfling6 (/member/Gelfling6/) randofo 8 months ago [Reply](#)

Wow! a whole year later? No, It's something about the 3.3 regulator, (/member/Gelfling6/) handling a lot of amperage from the 5100.. I thought I saw somewhere on another instructable, someone solved the problem (slightly) by DOUBLING the regulator. (stacking another one on top of the original, so you had 2 in parallel.)
<http://www.instructables.com/id/Beef-up-your-Arduino-power/>



Dylon124 (/member/Dylon124/) parth_bhat 1 year ago [Reply](#)

That happens with my wiznet W5100 too. It just happens I think. (/member/Dylon124/)



antonio11 (/member/antonio11/) 7 months ago [Reply](#)

Thanks a lot work at the first run.No problem with me here.
(/member/antonio11/)



hzv8 (/member/hzv8/) 3 years ago [Reply](#)

'and open the serial monitor. It should print out the IP address in use.'
(/member/hzv8/)
This dosen't work.....WTF



randofo (/member/randofo/) (author) hzv8 3 years ago [Reply](#)

Are you using Arduino 1.0?
(/member/randofo/)



Rayan_ADR (/member/Rayan_ADR/) randofo 11 months ago [Reply](#)

i have the same problem, i'm using Arduino 1.0.5 and the serial monitor
(/member/Rayan_ADR/). Don't print the IP address



yeagerxp (/member/yeagerxp/) Rayan_ADR 8 months ago [Reply](#)

check the baud rate of serial monitor
(/member/yeagerxp/). Something happened to me, had the baud set to 115200, changed it to 9600, and it works



Nick2012Future (/member/Nick2012Future/) Rayan_ADR 10 months ago [Reply](#)

Use DHCPAddressPrint it should work...
(/member/Nick2012Future/)



rstott2 (/member/rstott2/) 9 months ago [Reply](#)

This instructable answered questions I couldn't resolve after hours of work!
(/member/rstott2/). Thanks for taking the time to do it!

AmpOwl (/member/AmpOwl/)



11 months ago [Reply](#)
Could you make it send emails? I'm thinking of hooking one up to a 3D printer
(/member/Arto_email/) to email you when it finishes a print.



waterlubber (/member/waterlubber/)
2 years ago [Reply](#)
What if you don't have access to a router? (e.g apartment building, hotel
(/member/waterlubber/)) Can I use the ethernet port on my win7 computer?



bermejo92 (/member/bermejo92/)
waterlubber 11 months ago [Reply](#)
I have the same problem, I've tried connecting the shield to the router
(/member/bermejo92/) and it worked, but I can't do it in my computer. I use Windows
Vista, and the cable I'm using is crossed over (with just 4 wires). Do I
need to configure something in Windows or what could I do?



purpulhaze (/member/purpulhaze/)
waterlubber 2 years ago [Reply](#)
Port should handle the cross over internally if its a newer computer if it
(/member/purpulhaze/) doesn't you will need a cross over cable.



waterlubber (/member/waterlubber/)
purpulhaze 2 years ago [Reply](#)
What is a crossover cable, and do I need one? (If so, why) I have an
Atheros AR8132 PCI-E Fast Ethernet Controller and and Atheros
AR5B95 Wireless Network Controller.



purpulhaze (/member/purpulhaze/)
waterlubber 2 years ago [Reply](#)
Well communicating from pc to pc via the rj45 port in the past you
(/member/purpulhaze/) would need a cross over cable. Alot of ports on newer computers
usually handle this internally. You may need to check the specs for
your computer. Please read up on cross over cables. Just look up pc to
pc networking via rj45 port. Basically pc to pc networking. The arduino
and ethernet shield is basically a computer.



waterlubber (/member/waterlubber/)
purpulhaze 2 years ago [Reply](#)
OK, my memory just gave me the memory of hooking up mine with
(/member/waterlubber/) another (it worked) so a Windows 7 computer seems to be compatible.
;P Is it like the serial cables when you have to "cross over" the TX and
RX wires? Anyhows, its working. Thanks for the help.



Simsso (/member/Simsso/)
1 year ago [Reply](#)
Hi all!
Does anyone know, how to give people, who are not in the local network,
access to the Arduino Server?



tamberg (/member/tamberg/)
Simsso 1 year ago [Reply](#)
Another option is using a relay service like Yaler.net (disclosure: I'm a
(/member/tamberg/)).



jelimoore (/member/jelimoore/)
Simsso 1 year ago [Reply](#)
Port forward. Depending on what router you have, you SHOULD, I
(/member/jelimoore/) mean SHOULD be able to.



wasimxxl (/member/wasimxxl/)
1 year ago [Reply](#)
can any one help me please ??
(/member/wasimxxl/)
i wont to use arduino in my project ..
i wont ardino send alarm to my androin phone 'by internet ' whin the Bell home
is ring
What are the pieces that will I need ??
remember by internet no IRir no bluetooth
thank you



kgwolf (/member/kgwolf/) wasimxxl

1 year ago

[Reply](#)

it's been a few months since you posted this; were you able to get answers to your questions?



ckrmustafa (/member/ckrmustafa/)

1 year ago

[Reply](#)

Hi everyone. I am new at Arduino. When I have tried to use the sketch in "File Examples --> Ethernet --> DhcpAddressPrinter" I am getting "Failed to configure Ethernet using DHCP" message on Serial Monitor. Could anyone explain what the reason is this message?
Note: I changed the MAC address as 0x22, 0x7A, 0xFE, 0xFC, 0xFE, 0xF2 in code file.



Dylon124 (/member/Dylon124/)

1 year ago

[Reply](#)

(/member/Dylon124/)



randofo (/member/randofo/) (author)

Dylon124

1 year ago

[Reply](#)

(/member/randofo/)

See the previous step (Step 3)

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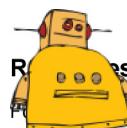
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