CoderDojo Athenry

"Above all, be cool"

Every week:
✓ Sign in at the door

If you are new:
✓ Fill in Registration Form
✓ Ask a Mentor how to get started

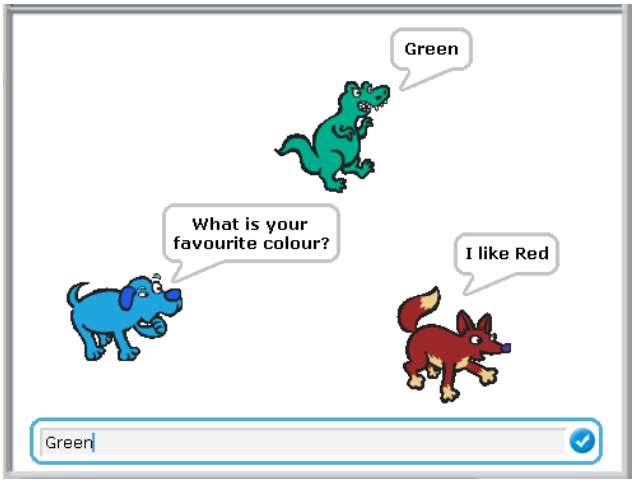
Make sure you are on the Athenry Parents/Kids Google Group: email coderdojoathenry@gmail.com

CoderDojo Athenry

Scratch Beginners

Code and notes by Michael Madden with Michael Finn, 2012/13

Today's Ninja Challenge:
Make a Network Chat Program!



Today's Big Ideas

How Networks Work

Comms Between PCs

Variables

How Computers Talk

What happens when you connect to a network?

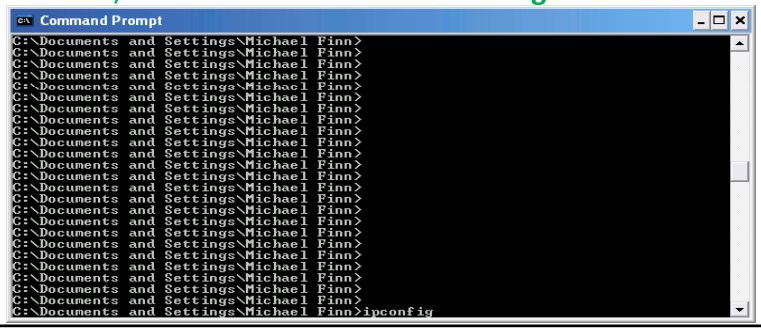
Your IP Address

After connecting to a network you get an IP Address

Each IP address is unique

How to find your IP Address

- Windows XP – Click **Start**, then click on **Run**, enter **cmd**
- Windows 7 – Click **Start**, then enter **cmd** in Search field
- Windows: Enter command **ipconfig**
- Linux/MacOS: Enter command **ifconfig**



What's Your Computer's IP Address?

Windows IP Configuration:

Ethernet adapter Local Area Connection 2:

Connection-specific DNS Suffix . :
IP Address. . . . . : 192.168.1.5
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.1.1

Look for the IP Address

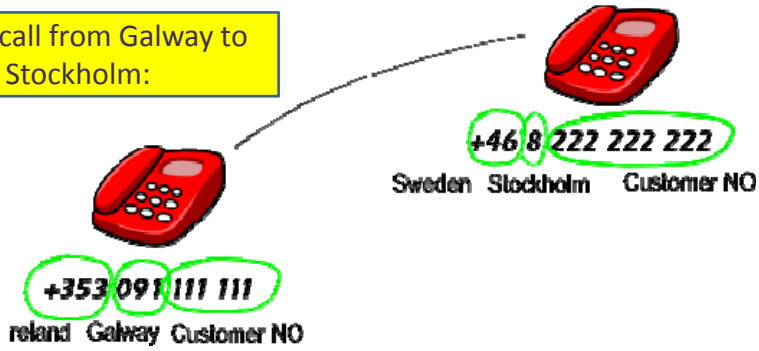
Can you find the IP address on your computer?

How Does this Help Me?

Computers use IP addresses to communicate

A bit like phone numbers:
Parts to identify location & recipient

Phone call from Galway to Stockholm:

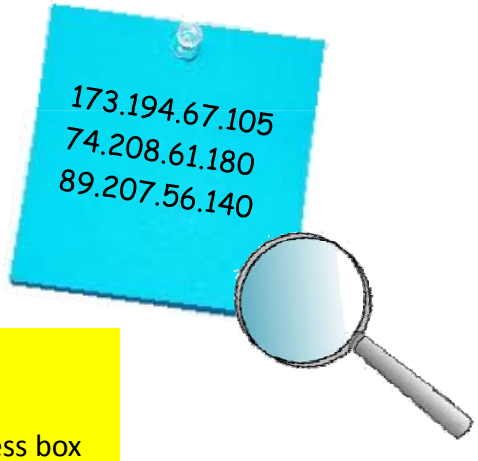


Similarly with IP Address …

Web browser on my PC (IP address 192.12.201.72)
talks to Google web server (64.233.187.99)

Find the Website

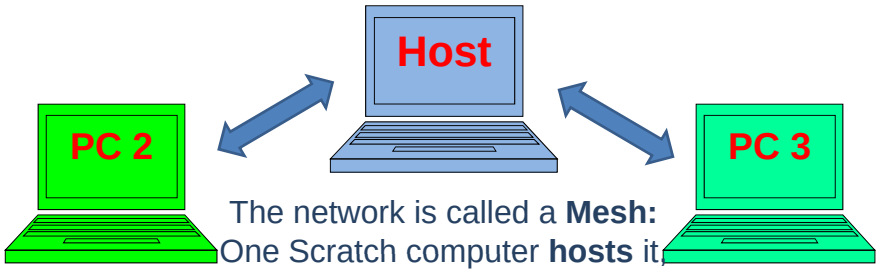
What web sites are at these IP addresses?



How to do it:

- Open web browser
- Enter IP address in Address box
- What site opens?

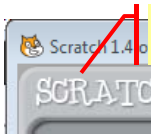
Networking Between Computers in Scratch



The network is called a **Mesh:**
One Scratch computer **hosts** it;
Others can **join** it.

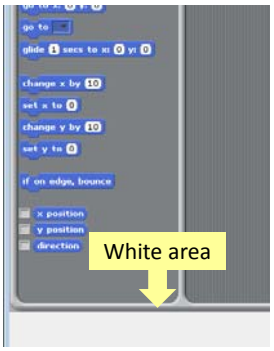
Then all of them can **communicate**:
Receive each other's **broadcasts**,
Sense each other's **variables**.

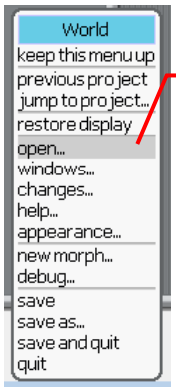
Meshes are a secret hidden feature!!
Tricky to set up first time!



1: Shift-Click on Top of **R**

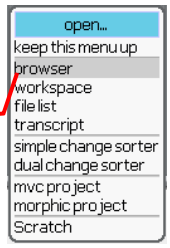
2: Select "**turn fill screen off**": White area appears at bottom



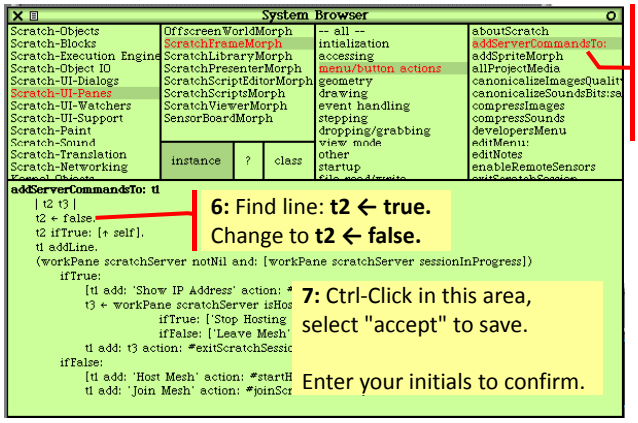


3: Click in white area; select "**open**"

4: Then select "**browser**"



Set Mesh Up, Part 2



5: Click: **Scratch-UI-Panes** then **ScratchFrameMorph** then **menu/button actions** then **addServerCommandsTo**

6: Find line: **t2 ← true.** Change to **t2 ← false.**

7: Ctrl-Click in this area, select "accept" to save.

Enter your initials to confirm.

8: Press **X** to close System Browser.

Select **Yes** to save changes.

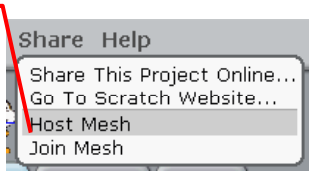
9: Shift-click on top of **R** again. Select "**turn fill screen on**" to get rid of white area.

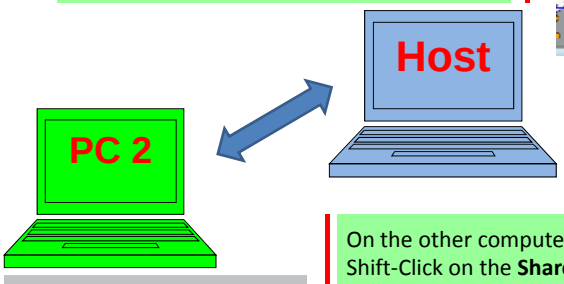
10: Select "**save image for end-user**": this is you won't have to repeat these steps every time!

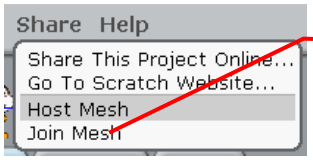
Now Activate a Mesh!

Pick a computer to be the **Host**.
Shift-Click on the **Share** menu and select "**Host Mesh**" from the extra menu items.

It will display an **IP address**: write it down!





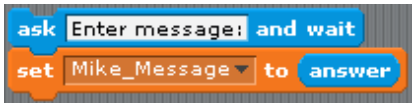


On the other computers,
Shift-Click on the **Share** menu and select "**Join Mesh**".
You will have to enter the **IP address** of the Host.

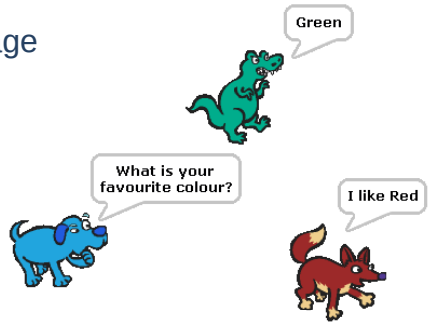
When meshed, Scratch programs on the two computers can receive each other's **broadcasts** and sense each other's **variables**.

The Design of Chatty: Your First Networking Program

My computer will ask for a message and **set** value of variable

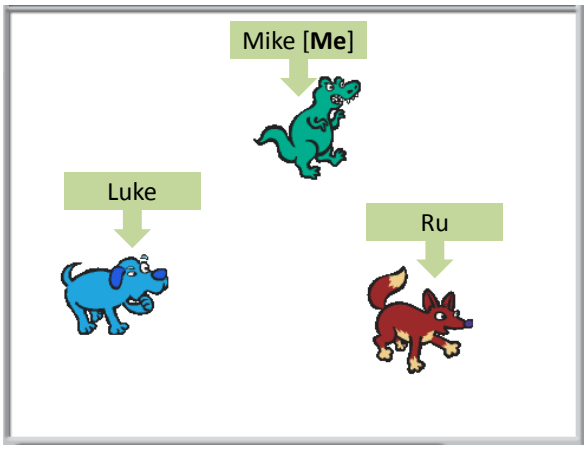


Other computers will **sense** variable & display it using "say"



They all set their own variable's values and display each other's, so everyone can exchange messages.

Chatty Step 1



Create a sprite for each ninja in your group

Chatty Step 2

Make a variable with your name;
add this code to **your own** sprite

Set your variable to the text that is entered

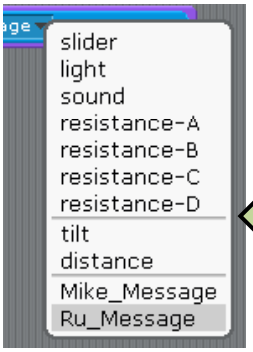
Get your sprite to display your variable's values

Chatty Step 3 (Final)

Add this code to **your friends'** sprites on your computer to display their messages

First host or join your **Mesh**, so your friends' variables will show up on the **sensor** menu.

Get the sprite to display your friend's message, sensed from their computer



At the End …

Upload your project to the Scratch Website
user: **cdathenry** password: _____

Access it from home

Improve it

Show your friends!