

First Serve

Chrome File -> Open File

- IS rendering
- IS NOT a "served" html file

Installing via NPM

NPM is

- N - Node
- P - Package
- M - Manager

Manages the installation and update of tools and libraries that involve NodeJS

Global vs Local

"Global" install

- can run from any directory
- for system tools not specific to a project

"Local" install

- run command IN project with a package.json file
- installs into a specific project (only)
- when version of tool/library is specific to project

When Global

Can I use a different version of this, or even have a different program for that functionality?

- Global is fine
- Examples: Editors, browsers, spellcheckers

When Local

Do all users/developers need the same version of this to have the same experience?

- Local is appropriate

Do users need this to run/use the application, but it's not something I can assume they have installed?

- Local is probably appropriate

Installing a package

(Don't do this, this is just explaining)

```
npm install -g cat-me
```

- `npm` is running npm
- `install` is passed to npm program to use
- `-g` is a "switch", alters the command
- `cat-me` tells `npm install` what package to install
- Can run this command in any directory
 - Because this is a *global* install
- You DON'T want to run this as `sudo` (or Administrator)

NPX

`npx` node package executor

- 2 main uses
- Runs an installed local node-based binary
 - from `./node_modules/bin/`
 - if not in your OS `PATH` when you run the command it won't find the binary
 - e.g. after `npm install cat-me`, `cat-me` gives `command not found`, but `npx cat-me` will work
- Installs and runs binaries from a global cache
 - e.g. `npx serve` will run `serve`
 - installs in global cache if needed

Using NPX

`npx serve`

- Installs `serve` AND runs it
- npx will install the first time and ask for confirmation
- No installation or confirmation on later runs
- npx doesn't care what directory you are in
- BUT `serve` cares where you are at command line

Running serve

```
npx serve
```

This will run a webserver that serves static files where the document root is the current directory

Wut?

```
run a webserver
```

- A program that returns ("serves") web pages to incoming web (HTTP) requests
- Your machine can be reached as `127.0.0.1` using DNS name of `localhost`
 - These mean "me"
 - Globally true, not just with this webserver
- It will default to port 5000 if available
 - This is specific to this webserver
- "port" is a "subaddress" on the machine. Servers "listen" and "send" traffic on a port.

Wut? - Static Files

that serves static files

A "Static" file is a file that exists as a file.

- The webserver will send the contents of the file from the filesystem

The opposite of a "static" file is a "dynamic" file.

A dynamic file doesn't exist as a file

- generated in response to the request

Like someone telling you the contents of an existing note (static) vs telling you something new on the spot (dynamic).

Wut? - Document Root

```
the document root is the current directory
```

When the webserver needs access to static files, it needs to find them.

You don't want the webserver giving access to every file on the computer.

The "document root" is the root of the directory tree of files it can offer access to.

That is wut

Running the command `npx serve` will run a webserver that serves static files where the document root is the current directory

(Using a program that relies on NodeJS, installed using npm)

Defaults

Run `npx serve`; Browse `http://localhost:3000/`

- We each get only our machine as localhost
- Other IP address is based on current network
- Many places (like NEU) block web traffic INTO personal machines

If no `index.html` file, `serve` shows a file listing

- Default `index.html` is common, but not universal.
 - Up to *webserver* to decide this
- Most production servers won't show a directory

serve has a detail that can be surprising

- When you request `cat.html` (or any file)
 - `serve` responds with a redirect to `cat`
 - Browser will automatically follow redirect
- When you request `cat` (or whatever)
 - `serve` responds with `cat.html`

Actually long standing but rarely followed advice

- URLs without file extensions can work longer

For INFO6250 always use file extensions in URLs

- Ensure you know how URLs/links work

Summary - NPM

- NPM installs and manages tools and libraries for NodeJS
- You can install locally or globally
 - Global installs for tools not part of an app
 - Local installs for anything part of an app
- You should **not** install as sudo/root/administrator
- `npx` can install packages into a global cache
- `npx` can run package binaries regardless of OS `PATH`

Summary - Webservers

- Webservers listen to a `port`
- Webservers serve `static` and `dynamic` "assets" (files)
- `127.0.0.1/localhost` means "me"/"yourself"
- `index.html` is a common default if no file in URL for a static asset
- Development servers may show a directory listing if no `index.html`
- Static assets are served from a "document root" that act as the root for url paths for static assets