Reverse proxy using ExpressJS

Reverse proxy is a proxy server which retrieve resources on behalf of client from one or more servers. Client end need not to know about all those servers. They request to proxy server on specific URL with over HTTP and proxy server finds out where to look (in Servers) to serve that request.

In this tutorial we will learn and develop proxy server using Express.js. Our proxy server will :

→ Contain 3 different server running on different port.

→ Accept requests and return response.

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About http-proxy :

Http-proxy is a node module developed by Nodejitsu, one of the leading Node.js hosting provider. This module will help us to write Reverse proxy in Node.js very easily.

Project installation :

Create new Node.js project and create package.json file. It is recommended to use **npm init** command to generate one.

Once done use following command to install Express.js and http-proxy.

```
npm install --save express http-proxy
```

Server code

In order to run our reverse proxy server we need some resource server from which Proxy will fetch data. In order to do so, let's develop three Express server running on Port 3001,3002,3003 respectively.

```
Server.js
var express = require("express");
var app = express();

app.get('/app1',function(req,res) {
    res.send("Hello world From Server 1");
});

app.listen(3001);
```

Copy paste same code for other servers too and change the text.

Proxy Server Code

Here is our simple proxy server code in express.js with multiple targets.

```
app.js
var express  = require('express');
var app      = express();
var httpProxy = require('http-proxy');
var apiProxy = httpProxy.createProxyServer();
var serverOne = 'http://localhost:3001',
    ServerTwo = 'http://localhost:3002',
    ServerThree = 'http://localhost:3002';

app.all("/app1/*", function(req, res) {
    console.log('redirecting to Server1');
```

```
   apiProxy.web(req, res, {target: serverOne});
});

app.all("/app2/*", function(req, res) {
   console.log('redirecting to Server2');
   apiProxy.web(req, res, {target: ServerTwo});
});

app.all("/app2/*", function(req, res) {
   console.log('redirecting to Server3');
   apiProxy.web(req, res, {target: ServerThree});
});

app.listen(3000);
```
You can add as many targets you want and it will create a proxy for that. In order to check whether its working or not we need to first run all the servers and hit request to /app1 and /app2 etc.
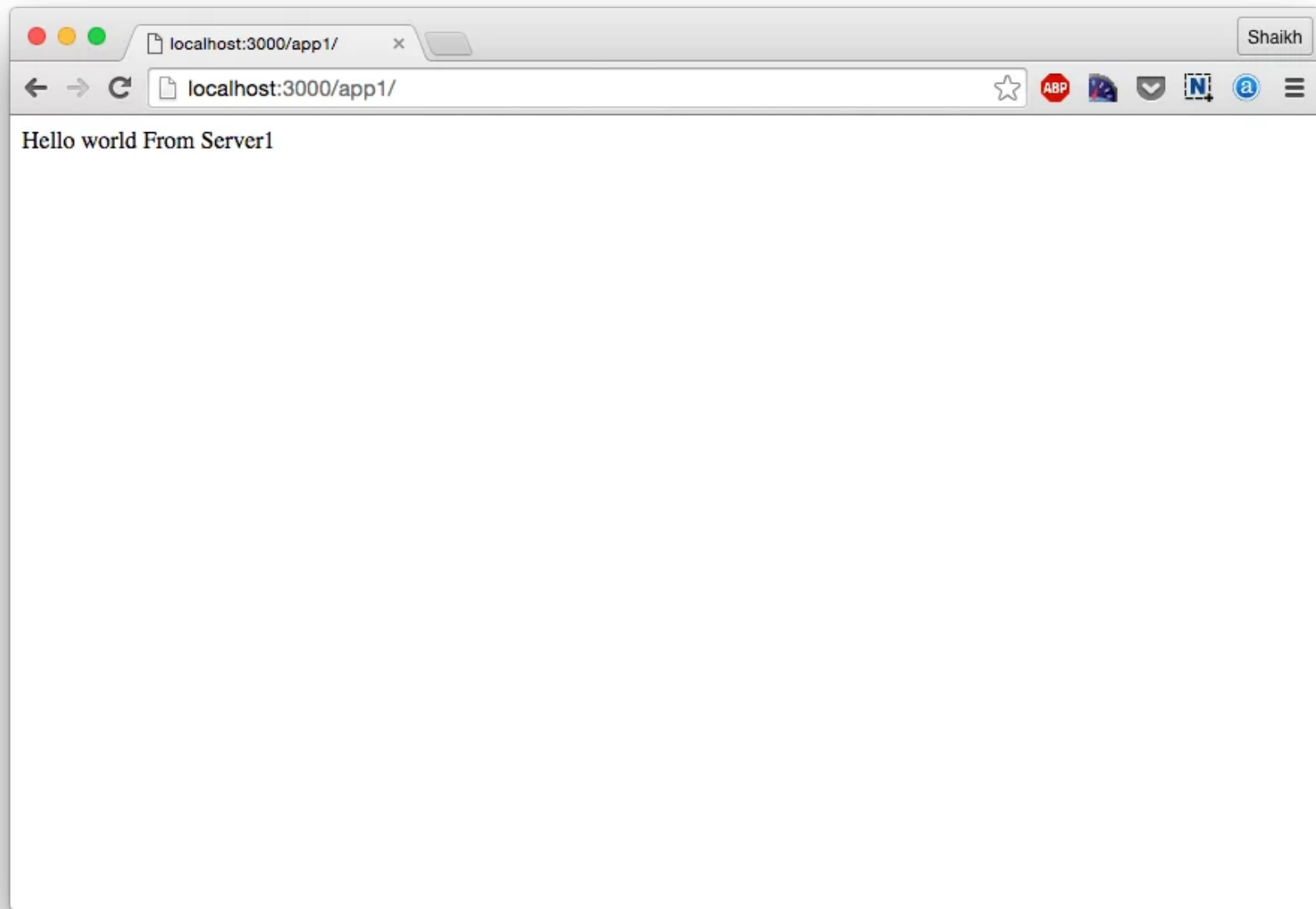
Running the app

Put all server in running mode, including proxy one. Note the servers are as follows :
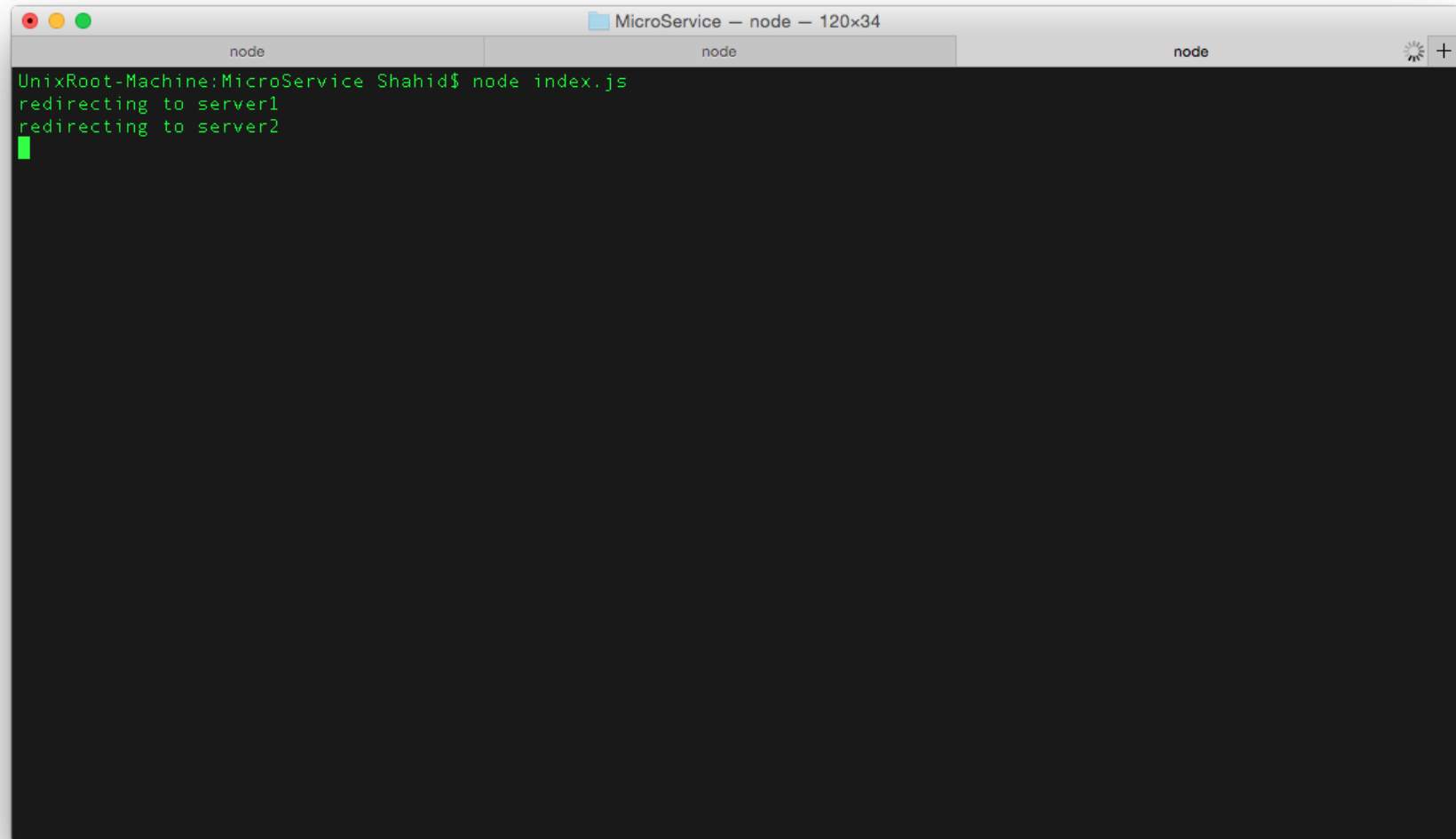
==> localhost:3000 – Reverse proxy server.
== >localhost:3001 – First resource server.

...

Hello world From Server1

You can hit the other server target URL too and it will return a response from second server.

```
UnixRoot-Machine:MicroService Shahid$ node index.js
redirecting to server1
redirecting to server2
```

Conclusion :

Reverse proxy is one of the famous approach when it comes to security. Real world user will never know from which server resource came from. Developing reverse proxy from core in Node.js is little tricky but thanks to awesome contribution as http-proxy, our life is easier.

17 thoughts on "Reverse proxy using ExpressJS"

FLOWCK II
DEC 25, 2015 AT 12:38 PM

Great article and very useful. Thanks for sharing.

Is this the same approach that big web applications uses to scale?

SHAHID
JAN 11, 2016 AT 11:17 AM

Probably.

Can't say it by sure because they don't share things like this in their doc

OLE
JAN 5, 2016 AT 1:47 AM

Awsome work, love your articles.
I tried the example and it works great when i have no further routes in the "subapp". But when the subapp has routes of its own, it cannot match the route as the path is not at root level anymore. Is there a solution for this without touching the subapp?
I have a react-router in one of the subapps, and it is very confused.

MARK

MAR 31, 2016 AT 8:52 PM

I think you would want to take a look at mounting the subapp in Express using mountPath.

SRINI

FEB 20, 2016 AT 4:36 AM

Nice! Is it possible to add routes dynamically without restarting the router? Thanks in advance!

SHAHID

FEB 21, 2016 AT 12:55 PM

That's the part i am stuck too. No success yet.

SEYNABOU

AUG 3, 2016 AT 6:42 PM

Great and useful article ! Is it possible for the proxy server to load static pages ? Like if we have an HTML client and we want to make a request to one of the servers via that client.

SHAHID (UNIXROOT) SHAIKH

AUG 3, 2016 AT 6:43 PM

Yup.

Basically it will forward the HTML encoded content coming from server to proxy to client.

OM
FEB 5, 2017 AT 3:01 PM

nice explanation sir

NAMS
MAY 15, 2017 AT 7:43 PM

Hi,

I tried using the exact code, but for requests like POST, it converts it to GET, can you suggest something for think.

Thanks in Advance.

JERRY
JUN 23, 2017 AT 3:58 PM

What's the purpose of using app.all?

To me it is working find using app.use

SHAHID (UNIXROOT) SHAIKH

JUN 29, 2017 AT 12:41 PM

app.all is application router while app.use is middleware.

SHITAL

JUL 22, 2017 AT 12:36 PM

Thanks for info. Wondering how reverse prixy is it different than proxy ? Or its the same thing.

SHAHID (UNIXROOT) SHAIKH

JUL 28, 2017 AT 4:31 PM

Proxy is generally meant for IP masking. Reverse proxy brings the response back.

Click Here to Read More.

SURVIS

OCT 31, 2017 AT 4:08 AM

Shahid, I am working on a project where it get the data from an external API and it is in JSON format, I need to customize it to our requirement, that only need 1% of the data we received. Is there a way we can rewrite the output? I tried Harmon Trumpet and its meant for html tag manipulation. What API should I use, can you put a tutorial on that? Thank you

Suresh

CHANDUTHEDEV

OCT 10, 2018 AT 10:07 AM

Very nice and simple explanation. I could see some copy paste error in proxy server code, redirecting to server3 URI is app2 and not app3. So this code never hits server3.

Please update that. Except that everything looks very good.

PUSHKAR

JUN 18, 2019 AT 11:29 PM

Thanks for sharing.

Can you explain how to deal with HTTP -> HTTPS & HTTPS -> HTTPS scenario with above example ?

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