IPTV SD/HD SetTopBox

Remote debug

version 1.0

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Overview

This document describes a deployment of the debug environment and the method of remote debug of IPTV-devices. The document assumes some knowledge of system administration and JavaScript.

Environment preparation

In general the remote debugging can be represented by these parts:

- debug server
- set top box
- desktop browser

The first point from this list requires some preparation described bellow.

Debug server can be any standalone or virtual computer with Linux or Windows operating system available in the local network. The software required:

- 1. Node.js (<u>http://nodejs.org/</u>)
- 2. WEb INspector Remote (https://npmjs.org/package/weinre)

Node.js can be installed via the provided standard installation package or with the help of OS package manager (apt-get, yum, packman, emerge and so on). It's necessary to make sure that a firewall accept connection to the 8000 port.

When Node.js is ready WEb INspector Remote can be installed with its package manager NPM (this will download the web inspector and all its dependances):

npm install weinre

To start the debugger run this in the weinre directory:

node weinre

The output should be similar to this:

```
D:\tmp\node modules\weinre>node weinre
2013-07-17T12:00:44.563Z weinre: pid:
                                                                                                                 30144
2013-07-17T12:00:44.567Z weinre: version:
                                                                                                                 2.0.0-pre-HH0SN197
2013-07-17T12:00:44.568Z weinre: node versions:
2013-07-17T12:00:44.572Z weinre: http_parser: 1.0

      2013-07-17T12:00:44.576Z weinre:
      node
      : 0.10.12

      2013-07-17T12:00:44.581Z weinre:
      v8
      : 3.14.5.

      2013-07-17T12:00:44.586Z weinre:
      ares
      : 1.9.0-D

                                                                                                 : 3.14.5.9
                                                                                                : 1.9.0-DEV
2013-07-17T12:00:44.590Z weinre: uv
                                                                                                 : 0.10.11

      2013-07-17T12:00:44.597Z weinre:
      zlib

      2013-07-17T12:00:44.601Z weinre:
      modules

      2013-07-17T12:00:44.606Z weinre:
      openssl

                                                                                                : 1.2.3
                                                                                                 : 11
                                                                                                : 1.0.1e
2013-07-17T12:00:44.614Z weinre: options:

      2013-07-17T12:00:44.618Z weinre:
      httpPort:
      80

      2013-07-17T12:00:44.622Z weinre:
      boundHost:
      19

      2013-07-17T12:00:44.629Z weinre:
      verbose:
      tr

      2013-07-17T12:00:44.634Z weinre:
      debug:
      tr

      2013-07-17T12:00:44.638Z weinre:
      readTimeout:
      3

      2013-07-17T12:00:44.645Z weinre:
      deathTimeout:
      5

                                                                                                         8000
                                                                                                        192.168.1.71
                                                                                                         true
                                                                                                         true
2013-07-17T12:00:44.690Z weinre: starting server at http://192.168.1.71:8000
```

This means the web inspector is up and available by the given address.

Debugging process

The detailed instructions how to setup connection from the set top box can be found on the web inspector start page <u>http://192.168.1.71:8000</u>. It's a simple web page that should look like this:





In order to start debugging it's necessary to add this line to your test page you are atarting on the set top box device:

```
<script src="http://192.168.1.71:8000/target/target-script-
min.js#anonymous"></script>
```

For example your test file can be like this:

Start it with the command:

/usr/share/qt-4.6.0/stbapp -qws -display directfb /home/web/test.html

After the start it's possible to connect to it via the web inspector:

weinre: file:///home/web/ ×	
← → C 🗋 192.168.1.71:8000/client/#anonymous	☆ 🕇 =
weinre Image: Construction of the second secon	
Targets	
<u>192.168.1.63 [channel: t-631 id: anonymous] - file:///home/web/test.html</u>	weinre
Clients	
• 192.168.1.57 [channel: c-627 id: anonymous]	
Server Properties	
boundHost:0.0.0.0deathTimeout:15debug:falsehttpPort:8000readTimeout:5staticWebDir:/var/www/weinre/node_modules/weinre/webverbose:falseversion:2.0.0-pre-HH0SN197	
E	

Image 2. Web inspector connection page

Here it's possible to see the HTML structure, available database, local and session resources, network requests with detailed information, timeline data and also direct exec JavaScrip code.

At the same time there can be many connection from different std devices with different anchors.

weinre: file:///home/web/ ×		
← → C 🗋 192.168.1.71:8000/client/#anonymous	☆ 2 1 =	
weinro Image: Construction of the second construction of the s		
html	▼ Computed Style Show inherited	-
▼ <html> ▼<head> <title>test page</title></head></html>	display: block; height: 0px; width: 704px;	
<meta content="text/html;
charset=UTE-8" http-equiv="Content-Type"/>	▼ Styles 🕸・	
<script block"="" src="<u>http://</u></td><td>element.style {</td><td></td></tr><tr><td><u>192.168.1.71:8000/target/target-script-</u></td><td></td><td></td></tr><tr><td></head></td><td>}</td><td></td></tr><tr><td><body></body></td><td>▼ Metrics</td><td></td></tr><tr><td></html></td><td><math display=" type="text/javascript"></script>		

Image 3. Web inspector elements page

This page allows to see all the applied styles, metrics, element properties and listeners with the ability to modify these values.



Image 4. Web inspector resources page

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weinre: file:///home/we	eb/ ×						
← → C 🗋 192.16	58.1.71:80	00/clien	t/#anonymc	us			x 4 🕇
Weinro Image: Second condition Image: Second conditing condition Image: Second conditi							
Name Path	Method	Status Text	Туре	Size Transfer	Time Latency	Timeline	
▲ No requests captured. Re	eload the p	age to see	detailed infor	mation on the n	etwork activity		
>= == • • •	Docu	ments S	tylesheets I	mages Script	ts XHR For	ts WebSockets	Other

Image 5. Web inspector network page

All the network requests are visible on this page.

← → C 🗋 192.168.1.71	1:8000/client/#and	onymous				\$ 3	t =
weinro	work Timeline Consol	e					
Timelines							
RECORDS	0 0	0 0	0	0 0	0	0 0	0
	🗹 Loading 🗹 Scripti	ing			0 of 0 cap	tured records a	re visible

Image 6. Web inspector timeline page



Image 7. Web inspector console page

This page allows to execute any JavaScript code and see the result in real time.