



2020
오픈소스 컨트리뷰톤

- Chromium -

주최  과학기술정보통신부

주관  정보통신산업진흥원

- **프로젝트명** : Chromium
- **프로젝트 분야** : Web / Web Engine
- **프로젝트 저장소** : <https://chromium.googlesource.com/chromium/src.git>
- **활용 언어** : C++(Engine code), Python(Build code), Javascript(Test code), CSS/HTML(Test code)
- **프로젝트 난이도** : 높음 (상)
- **참가자 모집 유형** :
 - 구현은 대부분 C++로 구현하며 각 패치의 Test는 Javascript로 작성 함

- Chromium은 모든 사용자가 웹을 더 안전하고 빠르고 안정적으로 사용할 수 있도록 하는 오픈 소스 브라우저 프로젝트

- Chromium이 적용된 제품들





- 해당 프로젝트는 다음과 같은 순서로 진행할 예정
- 생각보다 어려운 과정 임

코스 1. Chromium Download 및 Build

Download

Step 1 depot_tools 설치

```
$ gitclone https://chromium.googlesource.com/chromium/tools/depot_tools.git
```

```
$ export PATH="$PATH:/path/to/depot_tools"
```

Step 2 Check out the code and its dependencies

```
$ mkdir~/chromium && cd ~/chromium
```

```
$ fetch --nohookschromium
```

Step 3 Additional build dependencies 설치

```
$ cd src
```

```
$ ./build/install-build-deps.sh
```

```
$ gclient runhooks
```

코스 1. Chromium Download 및 Build

Build

Step 1 GN을 이용하여 Ninja file 생성

```
$gn gen out/Default
```

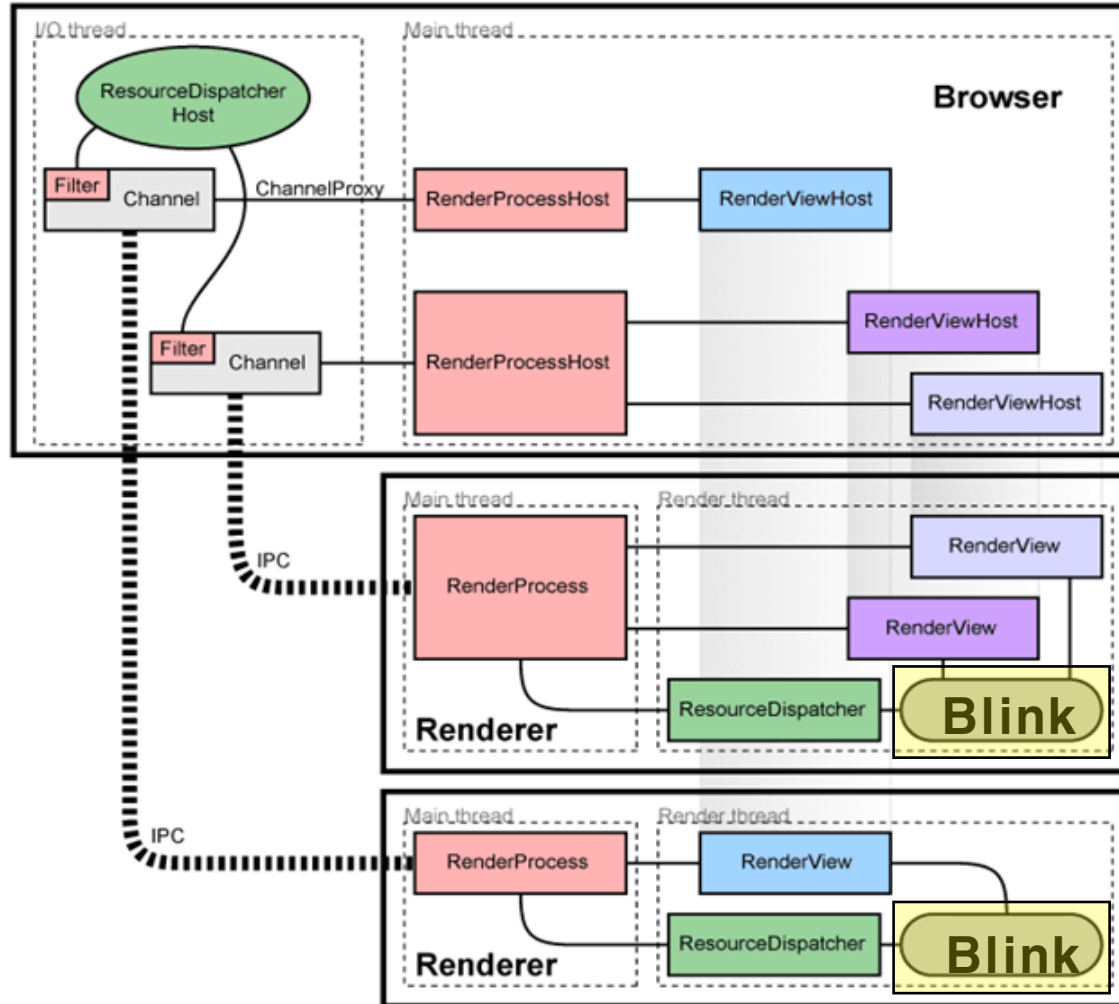
Step 2 - 1 Chromium 빌드

```
$ autoninja-C out/Default chrome
```

Step 2 - 2 Content Shell 빌드

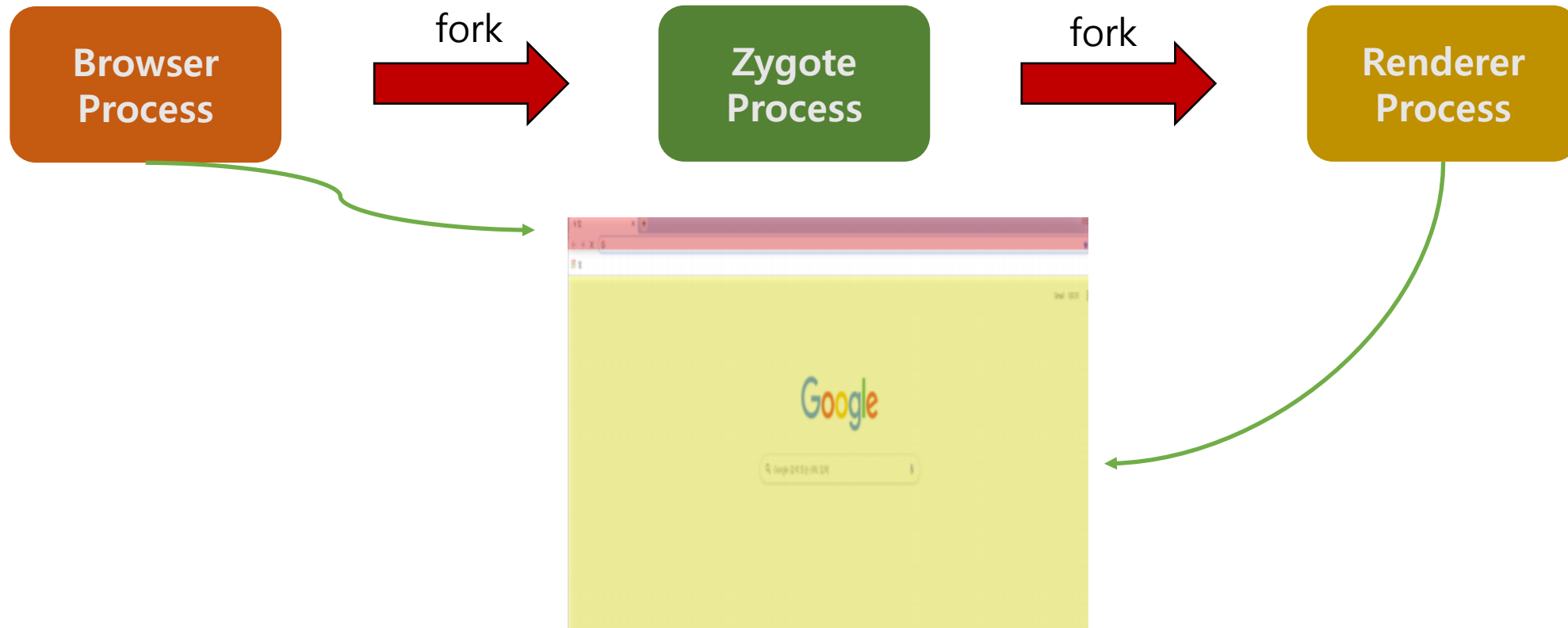
```
$ autoninja-C out/Default content_shell
```

코스 2. Chromium 이해하기_Chromium Architecture



코스 2. Chromium 이해하기_Chromium Process 구조

```
18810 18481 15 18:29 pts/1    00:00:00 /home/ttt/chromium/src/out/Default/content_shell --no-sandbox
18812 18810  2 18:29 pts/1    00:00:00 /home/ttt/chromium/src/out/Default/content_shell --type=zygote --no-sandbox
18829 18812  2 18:29 pts/1    00:00:00 /home/ttt/chromium/src/out/Default/content_shell --type=renderer --no-sandbox --field-tr
m-raster-threads=4 --enable-main-frame-before-activation --service-request-channel-token=4784992174345180916 --renderer-client-
```



코스 3. Issue 찾기

[blink-dev] Blink bug status as of 2019-09-23



TAMURA, Kent <tkent@chromium.org>
blink-dev에게 소식거보

영어 > 한국어 > 매일 번역

Blink bug status as of 2019-09-23

Component	Open	Slow Triage	Pri-0/1	No owner	Oldest
Whole Blink	13,701 (+65)	704 (+17)	881 (-10)	158	Apr 2014
Uncategorized	24 (-2)	0	1	1	83 minutes ago
Blink>Accessibility	179 (+3)	18 (-3)	24 (+2)	8	Sep 2016
Blink>Animation	154 (+10)	1	3	0	Jun 21
Blink>AppManifest	13	5	0	0	
Blink>BackgroundFetch	10 (+1)	0	2 (+1)	1	Sep 2018
Blink>BackgroundSync	26 (-2)	0	2	0	Aug 2018
Blink>Bindings	259 (+6)	5	11 (+1)	2	Sep 2015
Blink>Bluetooth	124	8	0	0	
Blink>Canvas	276 (+6)	0 (-1)	13 (-1)	0	May 2017
Blink>Compositing	226 (+3)	0	10 (+1)	3	Oct 2017
Blink>Contacts	11 (-1)	0	2 (-1)	0	Jun 27
Blink>CSS	431 (+4)	2 (-1)	4	1	May 18
Blink>DarkMode	65 (-2)	12 (-2)	6 (-5)	1	May 16
Blink>DataTransfer	176 (+2)	3 (+2)	9	3	Nov 2017
Blink>DOM	146 (-5)	3 (+1)	22 (+1)	11	Jun 2018
Blink>Editing	860 (-8)	4 (+1)	7 (-2)	3	Aug 16
Blink>FeaturePolicy	49 (+1)	0	1 (+1)	1	3 days ago
Blink>Fonts	301 (+2)	0 (-4)	13 (+1)	1	Nov 2015
Blink>Forms	362 (-4)	7 (+2)	10 (-2)	6	Sep 2018
Blink>Fullscreen	31 (-1)	1 (-2)	0	0	
Blink>GamepadAPI	72 (-3)	0	2 (-2)	0	Feb 2019

- Bug status를 보고 관심 분야 찾기
- Issue tracker를 이용하여 이슈 검색하기

The screenshot shows the Chromium bug tracker interface. A search bar at the top contains the text 'Component:Blink-CSS'. Below the search bar, a table lists search results. The first row is highlighted in red and matches the 'Blink>CSS' component from the table on the left. A green arrow points from the 'Blink>CSS' row in the table to the search bar in the screenshot.

ID	Pri	M	Stars	ReleaseBlock	Component	Status	Owner	Summary + Labels
1008471	3	---	1	---	Blink-CSS	Available	---	<number> calc() is fully resolved at parse time
1008146	3	---	1	---	Blink-CSS	Available	---	Summation should sort terms in the specified order
1007985	3	---	1	---	Blink-CSS	Available	---	'translate' property does not obey serialization rules for getCompu
1007928	3	---	2	---	Blink-CSS	Available	---	'scale' property does not obey serialization rules for getComputed
1007624	---	---	1	---	Blink-CSS	Untriaged	---	[WPT] New failures introduced in external/wpt/css/css-background

코스 3. Issue 찾기

- Chromium의 이슈 예시

이슈 분석 : Element 내 focus와 blur라는 JS함수가 있는데 표준에 따르면 HTMLElement와 SVGElement가 가지고 있어야 함
해당 이슈가 올라올 당시에 Element가 해당 함수들(focus, blur)을 property로써 가지고 있었음

bugs chromium New issue Open issues owner:me

★ Starred by 3 users

Owner: hyunjune.kim@samsung.com

CC: hyunjune.kim@samsung.com
rbyers@chromium.org

Status: Fixed (Closed)

Components: [Blink>SVG](#)
[Blink>HTML](#)
[Blink>DOM](#)

Modified: Jun 11, 2015

Editors: ----

Issue 497274: Move Element.focus()/blur() to HTMLElement and SVGElement
Reported by philipj@opera.com on Sat, Jun 6, 2015, 3:46 AM GMT+9

Per spec they are on HTMLElement and SVGElement separately:
<https://html.spec.whatwg.org/#htmlelement>
<http://www.w3.org/TR/SVG2/types.html#InterfaceSVGElement>

In Blink, it is instead in Element.idl, which isn't right.

Gecko and IE11 has these on HTMLElement only.

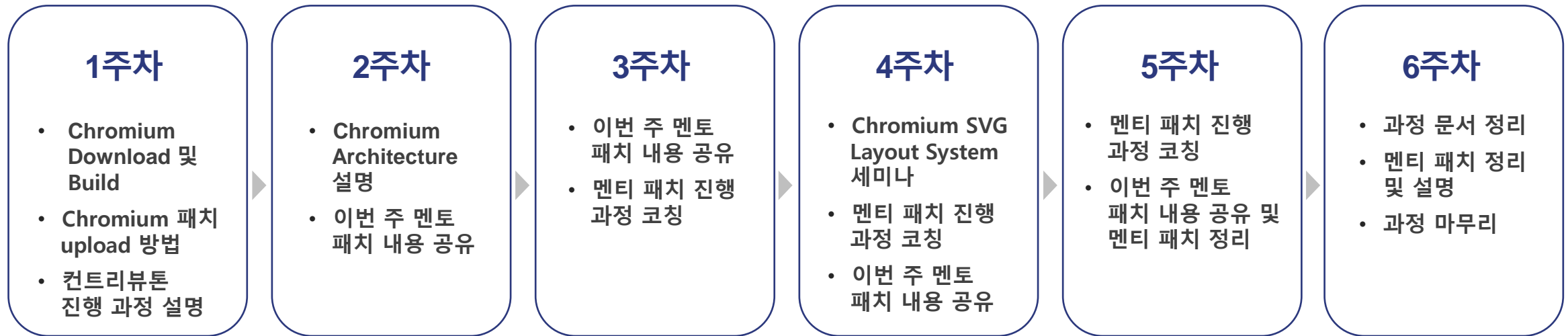
Comment 1 by philipj@opera.com on Sat, Jun 6, 2015, 3:47 AM GMT+9
IMHO, this does not need an intent on blink-dev, it is very unlikely to break anything, especially g

코스 4. Chromium 패치 만들기

- Git 간단한 사용법을 배움으로써 Chromium Gerrit에 패치를 만들어 봄
- 아래 이미지는 패치를 만들고 marge가 된 상태

The screenshot shows a Chromium Gerrit commit page. At the top, there's a navigation bar with 'Chromium Gerrit', 'CHANGES', 'DOCUMENTATION', and 'BROWSE'. Below that, a green 'Merged' badge is followed by the commit hash 'b4a7104' and the change ID '2094055'. The commit title is 'Fix up incorrect size of <svg:image> with a SVG image without intrinsic size'. On the left, there's a metadata section with fields like 'Updated' (Mar 19), 'Owner' (Hyunjune Kim), 'Uploader' (Commit Bot), 'Committer' (Commit Bot), 'Assignee', 'Reviewers' (Commit Bot, Fredrik Söderquist, Stephen Chenney), 'CC' (Dirk Schulze, chromium-reviews..., Blink WPT Bot), 'Repo | Branch' (chromium/src | master), 'Parent' (1c344c8), 'Topic' (No topic), and 'Hashtags' (wip). The main content area shows the commit message: 'Fix up incorrect size of <svg:image> with a SVG image without intrinsic size'. Below the message, there's a detailed description: 'This patch fixes up incorrect sizing of SVG Image with referred SVG image without the intrinsic size. So when referred image is SVG, it currently checks that referred image has aspect-ratio. If referred svg image doesn't have the aspect-ratio, set the concrete object size from the 'default object size'.', followed by metadata like 'Bug: 1045932', 'Change-Id: If979b3a9a7980bde9e2bee38ba2863cf223b4f0b', 'Reviewed-on: https://chromium-review.googlesource.com/c/chromium/src/+2094055', 'Reviewed-by: Fredrik Söderquist <fs@opera.com>', 'Commit-Queue: Hyunjune Kim <hyunjune.kim@samsung.com>', and 'Cr-Commit-Position: refs/heads/master@{#751325}'.

- 운영 목표 : 멘티들이 Chromium을 이해하고 6주간 앞으로 오픈 소스를 활동 할 수 있게 도움



- 온라인을 통해서도 멘티의 첫 패치를 위해 도와주고자 함



김현준 / 삼성전자 / Software Engineer

Chromium Committer

Web Engine Developer

글로벌 전문 개발자 - 파트



박중헌 / 삼성전자 / Software Engineer

Chromium Contributor

Webkit committer

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Join the Team!

- Chromium -