ThoughtWorks®

Cabinet Office

Tin Tulip - Blue team

Showcase #11 - July 7

Agenda

What we achieved

Threat modelling

What's next

Summary

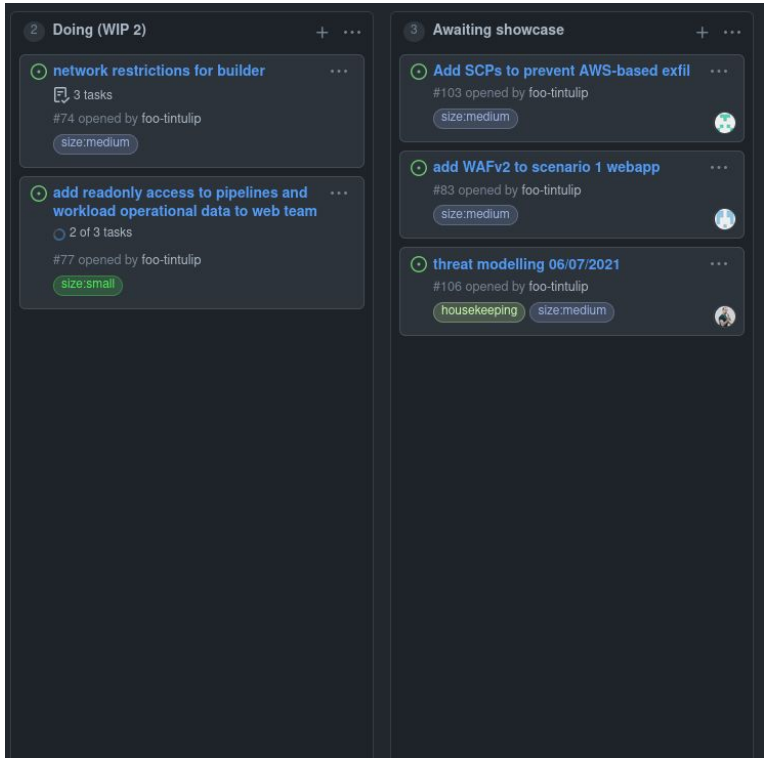
Red team is testing Scenario 2 and 3.

Blue team is improving security controls in builder account.

What we achieved

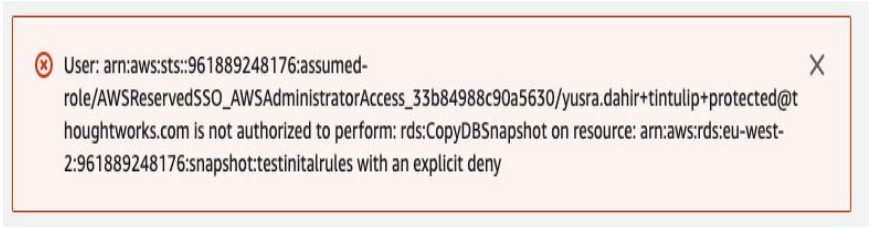
What we worked on

- Preventing Data Exfil with SCPs
- Web Application Firewall



Preventing Data Exfil with SCPs

What we built:
A policy that prevents snapshots of the database being exported, modified or copied into external accounts.



Why we built it:
To prevent the snapshot from being used in the attackers account allowing them to steal data.

What we learned from it:

- RDS provides automated backups and manual backups which are the database snapshots.
- Can prevent EBS exfils by blocking modify-snapshot-attribute and create-volume permissions.

Resource available at this Link

Web Application Firewall

What we built:
Added a second load balancer pointing to the same web application that is protected by WAF

Why we built it:
To do A/B testing and see if a WAF catches and blocks bad input

What we learned from it:

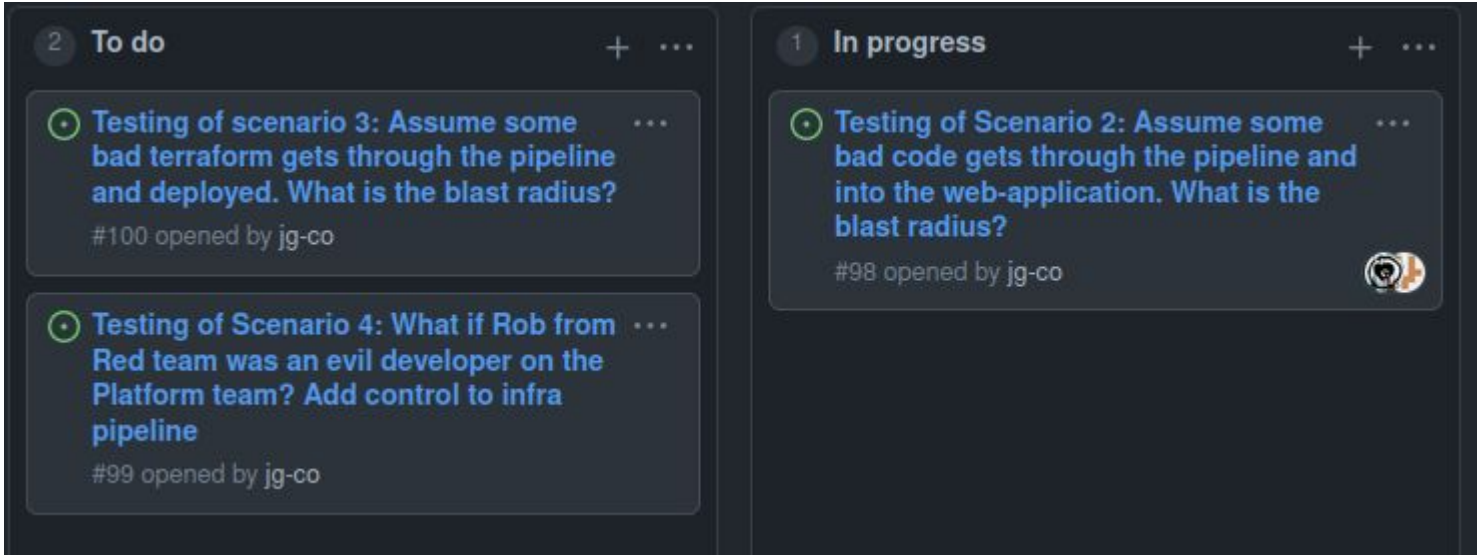
- Quick and easy to set up
- Can use AWS managed rules to cover a lot of cases
- Various attempts at probing the site have already been made

```
~ export TINTULIP_URL=https://waf.tintulip-scenario1.net
~ curl -X POST $TINTULIP_URL -F "user='AND 1=1;"
<html>
<head><title>403 Forbidden</title></head>
<body>
<center><h1>403 Forbidden</h1></center>
</body>
</html>
~ curl -X POST $TINTULIP_URL -F "user='<script><alert>Hello></alert></script>'"
<html>
<head><title>403 Forbidden</title></head>
<body>
<center><h1>403 Forbidden</h1></center>
</body>
</html>
~ curl -X GET $TINTULIP_URL
<!DOCTYPE html>
<html>
~ export TINTULIP_URL=https://www.tintulip-scenario1.net
~ curl -X POST $TINTULIP_URL -F "user='<script><alert>Hello></alert></script>'"
{"timestamp":"2021-07-07T09:27:06.487+00:00","status":405,"error":"Method Not Allow
~ curl -X POST $TINTULIP_URL -F "user='AND 1=1;"
{"timestamp":"2021-07-07T09:27:28.857+00:00","status":405,"error":"Method Not Allow
```

Metric name	URI	Rule inside rule group	Action	Time
common-rule-set	/	AWS#AWSManagedRulesCommonRuleSet#CrossSiteScripting_BODY	BLOCK	Fri Jul 02 2021 11:58:31 GMT+0100 (British Summer Time)
sql-database-rule-set	/	AWS#AWSManagedRulesSQLiRuleSet#SQLi_BODY	BLOCK	Fri Jul 02 2021 11:58:33 GMT+0100 (British Summer Time)
sql-database-rule-set	/	AWS#AWSManagedRulesSQLiRuleSet#SQLi_BODY	BLOCK	Fri Jul 02 2021 11:58:22 GMT+0100 (British Summer Time)
sql-database-rule-set	/	AWS#AWSManagedRulesSQLiRuleSet#SQLi_BODY	BLOCK	Fri Jul 02 2021 11:51:14 GMT+0100 (British Summer Time)

Resource available at this Link

Red team update

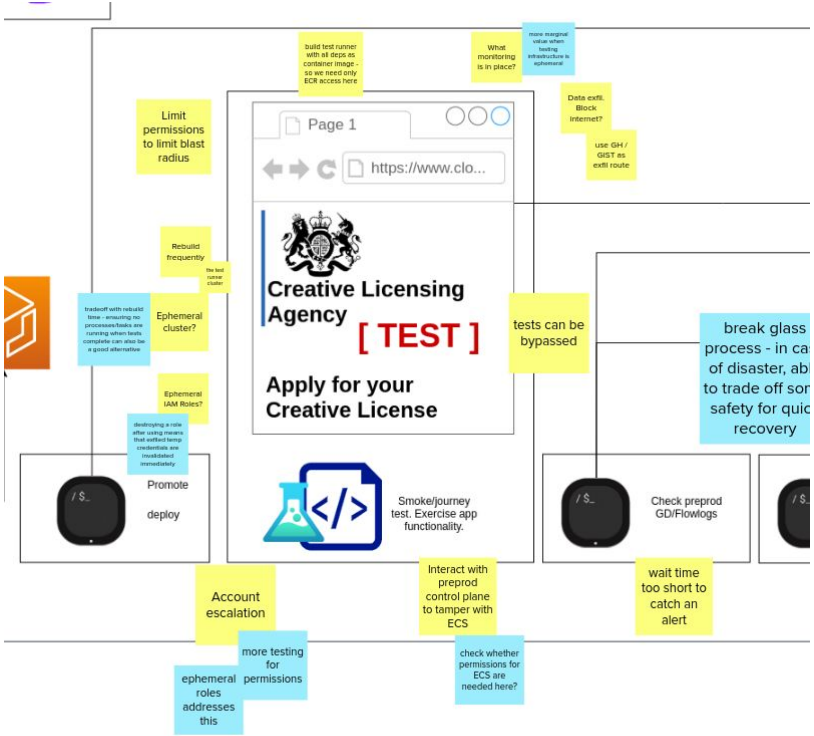


Threat modelling #3 - recap

Threat Modelling

On running tests in Trusted Pipelines:

- Networking restrictions remain strong control
- Pre-building a test runner container cuts some networking requirements
- Running tests on ephemeral compute and roles limits exposure

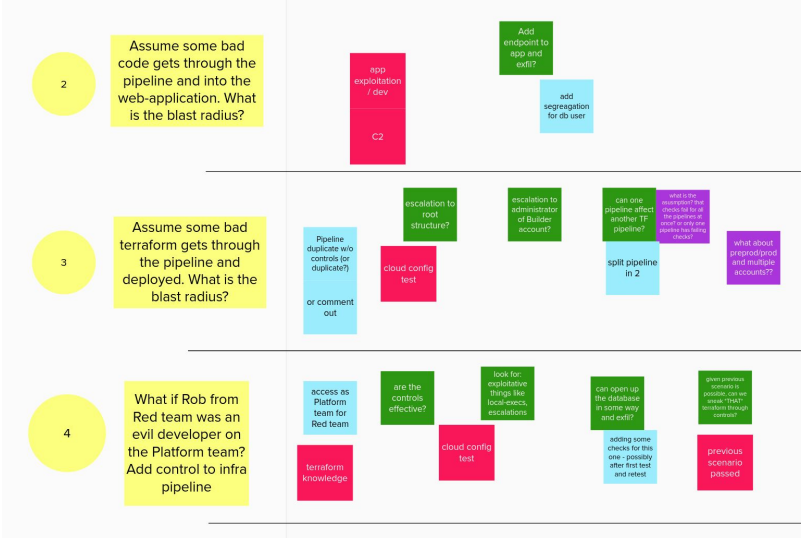


What's next

Next scenarios tested

In running order:

- IN PROGRESS
  Assume some bad code gets through the pipeline and into the web-application. What is the blast radius?
- ☐ STARTING TODAY
  Assume some bad terraform gets through the pipeline and deployed. What is the blast radius?
- Assume a Platform developer has malicious intent. Can they bypass automated checks and add malicious Terraform?



Breakdown board at Link

Public showcase next week

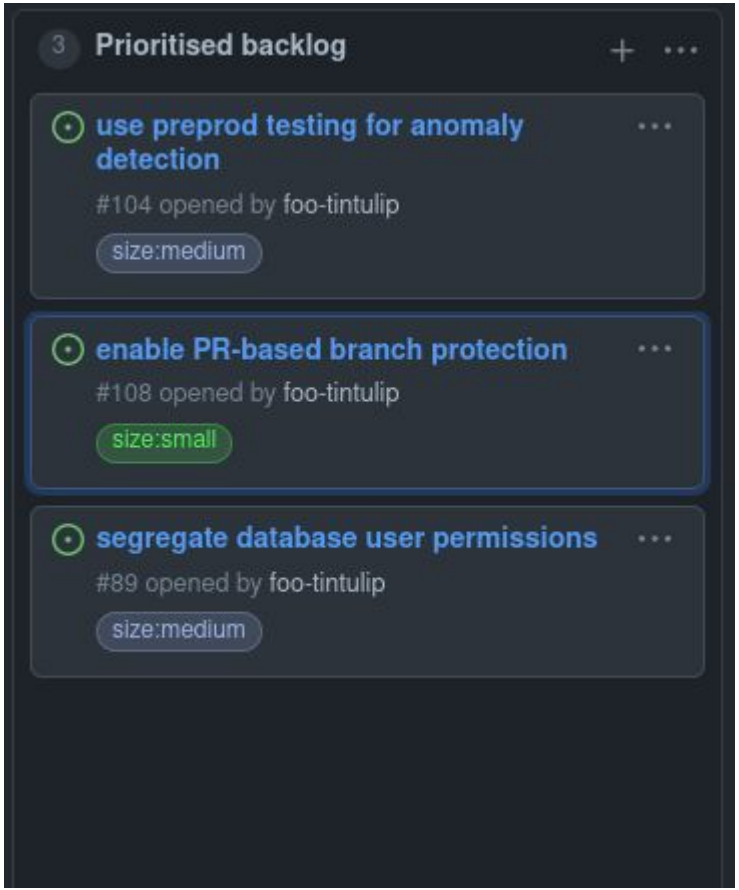
- 3pm Wednesday 14th July
- Progress update
- Planning next week
  - Phil / Foo / Breandan availability?
- Invite
  - 73 invited
  - Can invite others
    - 19 yes so far (only send this morning)
    - 4 maybe
    - 47 awaiting

Breakdown board at Link

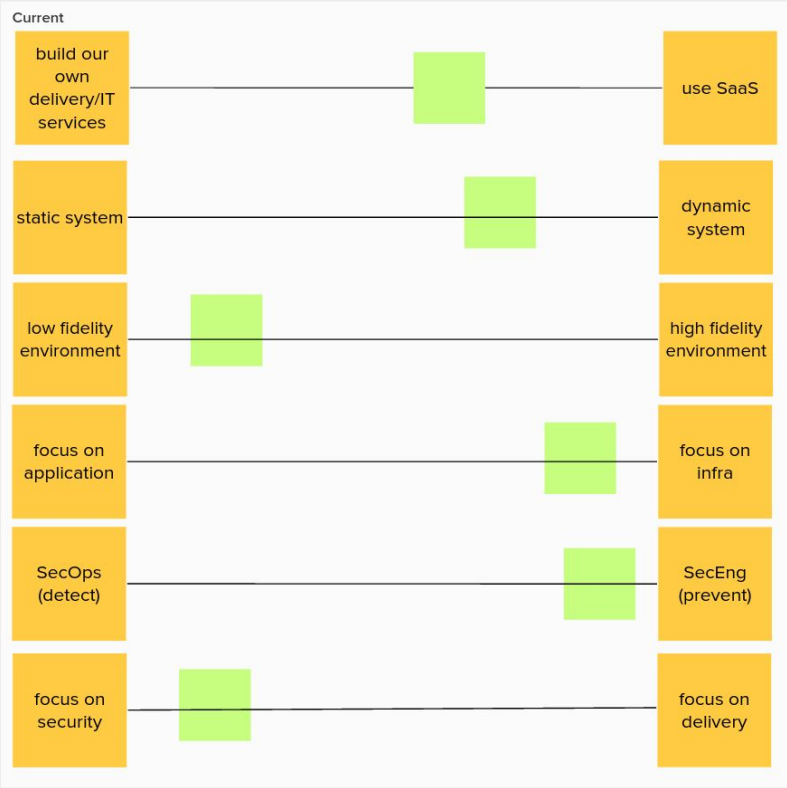
Next priorities for Blue team

In order:

- Limit egress from builder to a SaaS artifact repository
- Introduce technical controls around two pairs of eyes
- Introduce anomaly detection in preprocessing application testing
- Something else?



Tradeoff Sliders review



- Stable since last 2 weeks
  - Focus on security controls on existing infra

Sliders tracker (link requires access):

https://app.mural.co/t/thoughtworksclientprojects1205/m/thoughtworksclientprojects1205/1620729955822

Thank you!