Troubleshooting

Introduction to Troubleshooting

Troubleshooting the Element Installer comes down to knowing a little bit about kubernetes and how to check the status of the various resources. This guide will walk you through some of the initial steps that you'll want to take when things are going wrong.

Known issues

Installer fails and asks you to start firewalld

The current installer will check if you have firewalld installed on your system. It does expect to find firewalld started as a systemd service if it is installed. If it is not started, the installer will terminate with a failure that asks you to start it. We noticed some Linux distributions like SLES15P4, RHEL8 and AlmaLinux8 that have firewalld installed as a default package but not enabled, or started.

If you hit this issue, you don't need to enable and start firewalld. The workaround is to uninstall firewalld, if you are not planning on using it.

On SLES

```
zypper remove firewalld -y
```

On RHEL8

```
dnf remove firewalld -y
```

Airgapped installation does not start

If you are using element-enterprise-graphical-installer-2023-03.02-gui.bin and element-enterprise-installer-airgapped-2023-03.02-gui.tar.gz. You might run into an error looking like this:

```
Looking in links: ./airgapped/pip

WARNING: Url './airgapped/pip' is ignored. It is either a non-existing path or lacks a specific scheme.

ERROR: Could not find a version that satisfies the requirement wheel (from versions: none)

ERROR: No matching distribution found for wheel
```

The workaround for it is to copy the pip folder from the airgapped directory to ~/.element-enterprise-server/installer/airgapped/pip

Wiping all user data and start fresh with an existing config

On a standalone deployment you can wipe and start fresh by running:

`sudo snap remove microk8s --purge && sudo rm -rf /data && sudo reboot`

then run `./<element-installer>.bin unattended` (this will require passwordless sudo to run noninteractively)

Failure downloading https://..., An unknown error occurred: ''CustomHTTPSConnection'' object has no attribute ''cert_file''

Make sure you are using a supported operating system version. See https://ems-docs.element.io/books/element-on-premise-documentation-lts-2404/page/requirements-and-recommendations for more details.

install.sh problems

Sometimes there will be problems when running the ansible-playbook portion of the installer. When this happens, you can increase the verbosity of ansible logging by editing `.ansible.rc` in the installer directory and setting:

```
export ANSIBLE_DEBUG=true
export ANSIBLE_VERBOSITY=4
```

and re-running the installer. This will generate quite verbose output, but that typically will help pinpoint what the actual problem with the installer is.

Problems post-installation

Checking Pod Status and Getting Logs

- In general, a well-functioning Element stack has at it's minimum the following containers (or pods in kubernetes language) running:

```
[user@element2 ~]$ kubectl get pods -n element-onprem
kubectl get pods -n element-onprem
NAME                                                  READY   STATUS    RESTARTS   AGE
first-element-deployment-element-web-6cc66f48c5-lvd7w         1/1     Running   0
4d20h
first-element-deployment-element-call-c9975d55b-dzjw2         1/1     Running   0
4d20h
integrator-postgres-0                                 3/3     Running   0
4d20h
synapse-postgres-0                                    3/3     Running   0
4d20h
first-element-deployment-integrator-59bcfc67c5-jkbm6          3/3     Running   0
4d20h
adminbot-admin-app-element-web-c9d456769-rpk9l                1/1     Running   0
4d20h
auditbot-admin-app-element-web-5859f54b4f-8lbng               1/1     Running   0
```

```
4d20h
first-element-deployment-synapse-redis-68f7bfbdc-wht9m       1/1     Running   0
4d20h
first-element-deployment-synapse-haproxy-7f66f5fdf5-8sfkf    1/1     Running   0
4d20h
adminbot-pipe-0                                              1/1     Running   0
4d20h
auditbot-pipe-0                                              1/1     Running   0
4d20h
first-element-deployment-synapse-admin-ui-564bb5bb9f-87zb4   1/1     Running   0
4d20h
first-element-deployment-groupsync-0                         1/1     Running   0          20h
first-element-deployment-well-known-64d4cfd45f-l9kkr         1/1     Running   0          20h
first-element-deployment-synapse-main-0                      1/1     Running   0          20h
first-element-deployment-synapse-appservice-0                1/1     Running   0          20h
```

The above `kubectl get pods -n element-onprem` is the first place to start. You'll notice in the above, all of the pods are in the `Running` status and this indicates that all should be well. If the state is anything other than "Running" or "Creating", then you'll want to grab logs for those pods. To grab the logs for a pod, run:

```
kubectl logs -n element-onprem <pod name>
```

replacing `<pod name>` with the actual pod name. If we wanted to get the logs from synapse, the specific syntax would be:

```
kubectl logs -n element-onprem first-element-deployment-synapse-main-0
```

and this would generate logs similar to:

```
  2022-05-03 17:46:33,333 - synapse.util.caches.lrucache - 154 - INFO -
LruCache._expire_old_entries-2887 - Dropped 0 items from caches
2022-05-03 17:46:33,375 - synapse.storage.databases.main.metrics - 471 - INFO -
generate_user_daily_visits-289 - Calling _generate_user_daily_visits
2022-05-03 17:46:58,424 - synapse.metrics._gc - 118 - INFO - sentinel - Collecting gc 1
2022-05-03 17:47:03,334 - synapse.util.caches.lrucache - 154 - INFO -
LruCache._expire_old_entries-2888 - Dropped 0 items from caches
2022-05-03 17:47:33,333 - synapse.util.caches.lrucache - 154 - INFO -
LruCache._expire_old_entries-2889 - Dropped 0 items from caches
2022-05-03 17:48:03,333 - synapse.util.caches.lrucache - 154 - INFO -
LruCache._expire_old_entries-2890 - Dropped 0 items from caches
```

- Again, for every pod not in the `Running` or `Creating` status, you'll want to use the above procedure to get the logs for Element to look at.

- If you don't have any pods in the `element-onprem` namespace as indicated by running the above command, then you should run:

```
[user@element2 ~]$ kubectl get pods -A
NAMESPACE            NAME                                       READY   STATUS    RESTARTS
AGE
kube-system          calico-node-2lznr                          1/1     Running   0
8d
kube-system          calico-kube-controllers-c548999db-s5cjm    1/1     Running   0
8d
kube-system          coredns-5dbccd956f-glc8f                   1/1     Running   0
8d
kube-system          dashboard-metrics-scraper-6b6f796c8d-8x6p4 1/1     Running   0
8d
ingress              nginx-ingress-microk8s-controller-w8lcn    1/1     Running   0
8d
cert-manager         cert-manager-cainjector-6586bddc69-9xwkj   1/1     Running   0
8d
kube-system          hostpath-provisioner-78cb89d65b-djfq5      1/1     Running   0
8d
kube-system          kubernetes-dashboard-765646474b-5lhxp      1/1     Running   0
8d
cert-manager         cert-manager-5bb9dd7d5d-cg9h8              1/1     Running   0
8d
container-registry   registry-f69889b8c-zkhm5                   1/1     Running   0
8d
cert-manager         cert-manager-webhook-6fc8f4666b-9tmjb      1/1     Running   0
8d
kube-system          metrics-server-5f8f64cb86-f876p            1/1     Running   0
8d
jitsi                sysctl-jvb-vs9mn                           1/1     Running   0
8d
jitsi                shard-0-jicofo-7c5cd9fff5-qrzmk            1/1     Running   0
8d
jitsi                shard-0-web-fdd565cd6-v49ps                1/1     Running   0
8d
jitsi                shard-0-web-fdd565cd6-wmzpb                1/1     Running   0
8d
jitsi                shard-0-prosody-6d466f5bcb-5qsbb           1/1     Running   0
8d
```

```
jitsi               shard-0-jvb-0                              1/2     Running   0
8d
operator-onprem     element-operator-controller-manager-...    2/2     Running   0
4d
updater-onprem      element-updater-controller-manager-...     2/2     Running   0
4d
element-onprem      first-element-deployment-element-web-...   1/1     Running   0
4d
element-onprem      first-element-deployment-element-call-...  1/1     Running   0
4d
element-onprem      integrator-postgres-0                      3/3     Running   0
4d
element-onprem      synapse-postgres-0                         3/3     Running   0
4d
element-onprem      first-element-deployment-integrator-...    3/3     Running   0
4d
element-onprem      adminbot-admin-app-element-web-...         1/1     Running   0
4d
element-onprem      auditbot-admin-app-element-web-...         1/1     Running   0
4d
element-onprem      first-element-deployment-synapse-redis-... 1/1     Running   0
4d
element-onprem      first-element-deployment-synapse-haproxy-.. 1/1    Running   0
4d
element-onprem      adminbot-pipe-0                            1/1     Running   0
4d
element-onprem      auditbot-pipe-0                            1/1     Running   0
4d
element-onprem      first-element-deployment-synapse-admin-ui-. 1/1    Running   0
4d
element-onprem      first-element-deployment-groupsync-0       1/1     Running   0
20h
element-onprem      first-element-deployment-well-known-...    1/1     Running   0
20h
element-onprem      first-element-deployment-synapse-main-0    1/1     Running   0
20h
element-onprem      first-element-deployment-synapse-appservice-0 1/1  Running   0
20h
```

- This is the output from a healthy system, but if you have any of these pods not in the `Running` or `Creating` state, then please gather logs using the following syntax:

```
kubectl logs -n <namespace> <pod name>
```

- So to gather logs for the kubernetes ingress, you would run:

```
kubectl logs -n ingress nginx-ingress-microk8s-controller-w8lcn
```

and you would see logs similar to:

```
I0502 14:15:08.467258       6 leaderelection.go:248] attempting to acquire leader lease
ingress/ingress-controller-leader...
I0502 14:15:08.467587       6 controller.go:155] "Configuration changes detected, backend
reload required"
I0502 14:15:08.481539       6 leaderelection.go:258] successfully acquired lease
ingress/ingress-controller-leader
I0502 14:15:08.481656       6 status.go:84] "New leader elected" identity="nginx-ingress-
microk8s-controller-n6wmk"
I0502 14:15:08.515623       6 controller.go:172] "Backend successfully reloaded"
I0502 14:15:08.515681       6 controller.go:183] "Initial sync, sleeping for 1 second"
I0502 14:15:08.515705       6 event.go:282] Event(v1.ObjectReference{Kind:"Pod",
Namespace:"ingress", Name:"nginx-ingress-microk8s-controller-n6wmk", UID:"548d9478-094e-4a19-
ba61-284b60152b85", APIVersion:"v1", ResourceVersion:"524688", FieldPath:""}): type: 'Normal'
reason: 'RELOAD' NGINX reload triggered due to a change in configuration
```

Again, for all pods not in the `Running` or `Creating` state, please use the above method to get log data to send to Element.

Default administrator

The installer creates a default administrator `onprem-admin-donotdelete` The Synapse admin user password is defined under the synapse section in the installer

Error: UPGRADE FAILED: another operation (install/upgrade/rollback) is in progress

Delete the updater namespace and Deploy again.

```
kubectl delete namespaces updater-onprem
```

microk8s takes a logn time to become ready after system boot

See https://ems-docs.element.io/link/109#bkmrk-kernel-modules

Node-based pods failing name resolution

```
05:03:45:601 ERROR [Pipeline] Unable to verify identity configuration for bot-auditbot:
Unknown errcode Unknown error
05:03:45:601 ERROR [Pipeline] Unable to verify identity. Stopping
matrix-pipe encountered an error and has stopped Error: getaddrinfo EAI_AGAIN
synapse.prod.ourdomain
    at GetAddrInfoReqWrap.onlookup [as oncomplete] (node:dns:84:26) {
  errno: -3001,
  code: 'EAI_AGAIN',
  syscall: 'getaddrinfo',
  hostname: 'synapse.prod.ourdomain'
}
```

To see what Hosts are set, try:

```
kubectl exec -it -n element-onprem <pod name> getent hosts
```

So to do this on the adminbot-pipe-0 pod, it would look like:

```
kubectl exec -it -n element-onprem adminbot-pipe-0 getent hosts
```

and return output similar to:

```
127.0.0.1       localhost
127.0.0.1       localhost ip6-localhost ip6-loopback
10.1.241.27     adminbot-pipe-0
192.168.122.5   ems.onprem element.ems.onprem hs.ems.onprem adminbot.ems.onprem
auditbot.ems.onprem integrator.ems.onprem hookshot.ems.onprem admin.ems.onprem
eleweb.ems.onprem
```

Node-based pods failing SSL

```
2023-02-06 15:42:04 ERROR: IrcBridge Failed to fetch roomlist from joined rooms: Error: unable
to verify the first certificate. Retrying
MatrixHttpClient (REQ-13) Error: unable to verify the first certificate
at TLSSocket.onConnectSecure (_tls_wrap.js:1515:34)
at TLSSocket.emit (events.js:400:28)
at TLSSocket.emit (domain.js:475:12)
at TLSSocket. finishInit (_tls_wrap.js:937:8),
at TLSWrap.ssl.onhandshakedone (_tls_wrap.js:709:12) {
code: 'UNABLE TO VERIFY LEAF SIGNATURE
```

Drop into a shell on the pod

```
kubectl exec -it -n element-onprem adminbot-pipe-0 -- /bin/sh
```

Check it's ability to send a request to the Synapse server

```
node


require=("http")
request(https://synapse.server/)
```

Postgres Corrupted `pg_statistic`

Get the Postgres image used:

```
kubectl get pod synapse-postgres-0 -n element-onprem -o jsonpath='{.spec.containers[0].image}'
```

Scale down the Postgres container:

```
kubectl scale statefulset synapse-postgres --replicas=0 -n element-onprem
```

Create the recovery pod (replacing with the Postgres image retrieved above):

```
kubectl run pg-recovery --rm -it --restart=Never \
  --
image=docker.io/library/postgres@sha256:13ae5ab08d8400b3002da7495978381b83ad094c24f54d7cd7ddebefc5ac9e64 \
  --namespace=element-onprem \
  --overrides='{
    "spec": {
      "securityContext": {
        "runAsUser": 999,
        "runAsGroup": 999,
        "fsGroup": 999
      },
      "containers": [{
        "name": "pg-recovery",
        "image":
"docker.io/library/postgres@sha256:13ae5ab08d8400b3002da7495978381b83ad094c24f54d7cd7ddebefc5ac9e64",
        "securityContext": {
          "runAsUser": 999,
          "runAsGroup": 999,
          "allowPrivilegeEscalation": false
        },
        "command": ["postgres", "--single", "-D", "/var/lib/postgresql/data", "synapse"],
        "stdin": true,
        "tty": true,
        "volumeMounts": [{
          "name": "database",
          "mountPath": "/var/lib/postgresql/data"
        }]
      }],
      "volumes": [{
        "name": "database",
        "persistentVolumeClaim": {
          "claimName": "synapse-postgres"
        }
```

```
      }]
    }
  }'
```

Once inside the recovery pod, run these individually, then CTRL-D to exit:

```
DELETE FROM pg_statistic;
ANALYZE;
VACUUM FULL pg_statistic;
```

The `ANALYZE` step ran continuously so I cancelled, leaving for completeness.

Scale back up the Postgres container:

```
kubectl scale statefulset synapse-postgres --replicas=1 -n element-onprem
```

Delete Synapse / any other stuck pods / those not working due to this issue (Sliding Sync Proxy, Admin/Audit Bot, Hookshot etc.)

Reconciliation failing / Enable enhanced updater logging

If your reconciliation is failing, a good place to start is with the updater logs

```
kubectl --namespace updater-onprem logs \
    "$(kubectl --namespace updater-onprem get pods --no-headers \
        --output=custom-columns="NAME:.metadata.name" | grep controller)" \
    --since 10m
```

If that doesn't have the answers you seek, for example

```
TASK [Build all components manifests] ******************************
fatal: [localhost]: FAILED! => {"censored": "the output has been hidden due to
the fact that 'no_log: true' was specified for this result"}
```

You can enable debug logging by editing the updater deployment

```
kubectl --namespace updater-onprem edit \
    deploy/element-updater-controller-manager
```

In this file, search for `env` and add the this variable to all occurrences

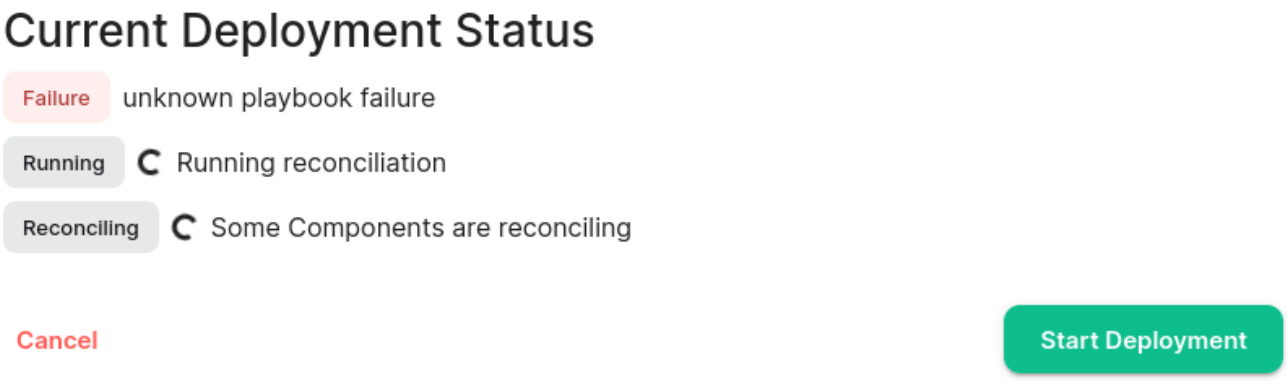
```
        - name: DEBUG_MANIFESTS
          value: "1"
```

Wait a bit for the updater to re-run and then fetch the updater logs again. Look for `fatal` or to get the stdout from Ansible, look for `Ansible Task StdOut`. See also Unhealthy deployment below.

Click for a specific example

I had this "unknown playbook failure"





After enabling debug logging for the updater, I found this error telling me that my Telegram bridge is misconfigured

```
--------------------------- Ansible Task StdOut -------------------------------
 TASK [Build all components manifests] ********************************
fatal: [localhost]: FAILED! => {"msg": "The task includes an option with an
undefined variable. The error was: 'dict object' has no attribute
'telegramApiId'. 'dict object' has no attribute 'telegramApiId'. 'dict object'
```

```
has no attribute 'telegramApiId'. 'dict object' has no attribute
'telegramApiId'. 'dict object' has no attribute 'telegramApiId'. 'dict object'
has no attribute 'telegramApiId'. 'dict object' has no attribute
'telegramApiId'. 'dict object' has no attribute 'telegramApiId'\n\nThe error
appears to be in '/element.io/roles/elementdeployment/tasks/prepare.yml': line
21, column 3, but may\nbe elsewhere in the file depending on the exact syntax
problem.\n\nThe offending line appears to be:\n\n\n- name: \"Build all
components manifests\"\n  ^ here\n"}
```

Unhealthy deployment

```
kubectl get elementdeployment --all-namespaces --output yaml
```

In the status you will see which component is having an issue. You can then do

```
kubectl --namespace element-onprem get `<kind>`/`<name>` --output yaml
```

And you would see the issue in the status.

Other Commands of Interest

Some other commands that may yield some interesting data while troubleshooting are:

Check list of active kubernetes events

```
kubectl get events -A
```

You will see a list of events or the message `No resources found`.

- Show the state of services in the `element-onprem` namespace:

```
kubectl get services -n element-onprem
```

This should return output similar to:

```
NAME                              TYPE        CLUSTER-IP       EXTERNAL-IP
PORT(S)                    AGE
postgres                          ClusterIP   10.152.183.47    <none>
5432/TCP                   6d23h
app-element-web                   ClusterIP   10.152.183.60    <none>
80/TCP                     6d23h
server-well-known                 ClusterIP   10.152.183.185   <none>
80/TCP                     6d23h
instance-synapse-main-headless    ClusterIP   None             <none>
80/TCP                     6d23h
instance-synapse-main-0           ClusterIP   10.152.183.105   <none>
80/TCP,9093/TCP,9001/TCP   6d23h
instance-synapse-haproxy          ClusterIP   10.152.183.78    <none>
80/TCP                     6d23h
```

Connect to the Synapse Database

```
kubectl --namespace element-onprem exec --container postgres --stdin --tty synapse-postgres-0
-- bash
psql "dbname=$POSTGRES_DB user=$POSTGRES_USER password=$POSTGRES_PASSWORD"
```

The variables `POSTGRES_DB`, `POSTGRES_USER`, and `POSTGRES_PASSWORD` are already set on the postgres pod, so you do not need to know or find the values. Just paste the `psql` command as it is above and press enter.

Excessive Synapse Database Space Usage

Connect to the Synapse database.

SQL queries provided for reference only. Ensure you fully understand what they do before runnign and use at your own risk.

List tables ordered by size

```
SELECT
    schemaname AS table_schema,
    relname AS table_name,
    pg_size_pretty(pg_relation_size(relid)) AS data_size
FROM pg_catalog.pg_statio_user_tables
ORDER BY pg_relation_size(relid) DESC;
```

Example output

```
 table_schema |              table_name               | data_size
--------------+---------------------------------------+-----------
 public       | event_json                            | 2090 MB
 public       | event_auth                            | 961 MB
 public       | events                                | 399 MB
 public       | current_state_delta_stream            | 341 MB
 public       | state_groups_state                    | 294 MB
 public       | room_memberships                      | 270 MB
 public       | cache_invalidation_stream_by_instance | 265 MB
 public       | stream_ordering_to_exterm             | 252 MB
 public       | state_events                          | 249 MB
 public       | event_edges                           | 208 MB
(10 rows)
```

Count unique values in a table ordered by count

This example counts events per room from the `event_json` table (where all your messages etc. are stored). This may take a while to run and may use a lot of system resources.

```
SELECT
    room_id,
    COUNT(*) AS count
FROM event_json
GROUP BY room_id
ORDER BY count DESC
LIMIT 10;
```

Example output

```
             room_id             |  count
---------------------------------+---------
 !GahmaiShiezefienae:example.com | 1382242
 !gutheetheixuFohmae:example.com |    1933
 !OhnuokaiCoocieghoh:example.com |     357
 !efaeMegazeeriteibo:example.com |     175
```

```
  !ohcahTueyaesiopohc:example.com |      93
  !ithaeTaiRaewieThoo:example.com |      43
  !PhohkuShuShahhieWa:example.com |      39
  !eghaiPhetahHohweku:example.com |      37
  !faiLeiZeefirierahn:example.com |      29
  !Eehahhaepahzooshah:example.com |      27
 (10 rows)
```

In this instance something unusual might be going on in `!GahmaiShiezefienae:example.com` that warrants further investigation.

Export logs from all Synapse pods to a file

This will export logs from the last 5 minutes.

```
for pod in $(kubectl --namespace element-onprem get pods --no-headers \
    --output=custom-columns="NAME:.metadata.name" | grep '\-synapse')
do
    echo "$pod" >> synapse.log
    kubectl --namespace element-onprem logs "$pod" --since 5m >> synapse.log
done
```

Grep all configmaps

```
for configmap in $(kubectl --namespace element-onprem get configmaps --no-headers --
output=custom-columns="NAME:.metadata.name"); do
    kubectl --namespace element-onprem describe configmaps "$configmap" \
    | grep --extended-regex '(host|password)'
done
```

List Synapse pods, sorted by pod age/creation time

```
kubectl --namespace element-onprem get pods --sort-by 'metadata.creationTimestamp' | grep --
extended-regex '(NAME|-synapse)'
```

Matrix Authentication Service admin

If your server use Matrix Authentication Service (MAS), you might accoationally need to interact with this directly. This can be done either using the MAS Admin API or using `mas-cli`.

Here is an one-liner for connectign to `mas-cli`:

```
kubectl --namespace element-onprem exec --stdin --tty \
    "$(kubectl --namespace element-onprem get pods \
        --output=custom-columns='NAME:.metadata.name' \
        | grep first-element-deployment-matrix-authentication-service)" \
    -- mas-cli help
```

Alternately, to make it easier, you can create an alias:

```
alias mas-cli='kubectl --namespace element-onprem exec --stdin --tty \
    "$(kubectl --namespace element-onprem get pods \
        --output=custom-columns="NAME:.metadata.name" \
        | grep first-element-deployment-matrix-authentication-service)" \
    -- mas-cli '
```

Redeploy the micro8ks setup

It is possible to redeploy microk8s by running the following command as root:

```
snap remove microk8s
```

This command does remove all microk8s pods and related microk8s storage volumes. **Once this command has been run, you need to reboot your server** - otherwise you may have networking issues. Add `--purge` flag to remove the data if disk usage is a concern.

After the reboot, you can re-run the installer and have it re-deploy microk8s and Element Enterprise On-Premise for you.

Show all persistent volumes and persistent volume claims for the `element-onprem` namespace

```
kubectl get pv -n element-onprem
```

This will give you output similar to:

```
NAME                                     CAPACITY   ACCESS MODES   RECLAIM POLICY
STATUS   CLAIM                                                 STORAGECLASS        REASON
AGE
pvc-fc3459f0-eb62-4afa-94ce-7b8f8105c6d1   20Gi       RWX            Delete
Bound    container-registry/registry-claim                    microk8s-hostpath
8d
integrator-postgres                        5Gi        RWO            Recycle
Bound    element-onprem/integrator-postgres                   microk8s-hostpath
8d
synapse-postgres                           5Gi        RWO            Recycle
Bound    element-onprem/synapse-postgres                      microk8s-hostpath
8d
hostpath-synapse-media                     50Gi       RWO            Recycle
Bound    element-onprem/first-element-deployment-synapse-media   microk8s-hostpath
8d
adminbot-bot-data                          10M        RWO            Recycle
Bound    element-onprem/adminbot-bot-data                     microk8s-hostpath
8d
auditbot-bot-data                          10M        RWO            Recycle
Bound    element-onprem/auditbot-bot-data                     microk8s-hostpath
8d
```

Show deployments in the `element-onprem` namespace

```
kubectl get deploy -n element-onprem
```

This will return output similar to:

```
NAME                     READY   UP-TO-DATE   AVAILABLE   AGE
app-element-web          1/1     1            1           6d23h
server-well-known        1/1     1            1           6d23h
instance-synapse-haproxy   1/1     1            1           6d23h
```

Show hostname to IP mappings from within a pod

Run:

```
kubectl exec -n element-onprem <pod_name> -- getent hosts
```

and you will see output similar to:

```
127.0.0.1       localhost
127.0.0.1       localhost ip6-localhost ip6-loopback
10.1.241.30     instance-hookshot-0.instance-hookshot.element-onprem.svc.cluster.local
instance-hookshot-0
192.168.122.5   ems.onprem element.ems.onprem hs.ems.onprem adminbot.ems.onprem
auditbot.ems.onprem integrator.ems.onprem hookshot.ems.onprem admin.ems.onprem
eleweb.ems.onprem
```

This will help you troubleshoot host resolution.

Show the Element Web configuration

```
kubectl describe cm -n element-onprem app-element-web
```

and this will return output similar to:

```
config.json:
----
{
    "default_server_config": {
        "m.homeserver": {
            "base_url": "https://synapse2.local",
            "server_name": "local"
        }
  },
  "dummy_end": "placeholder",
  "integrations_jitsi_widget_url": "https://dimension.element2.local/widgets/jitsi",
  "integrations_rest_url": "https://dimension.element2.local/api/v1/scalar",
  "integrations_ui_url": "https://dimension.element2.local/element",
  "integrations_widgets_urls": [
      "https://dimension.element2.local/widgets"
  ]
}
```

Show the nginx configuration for Element Web: (If using nginx as your ingress controller in production or using

thPoC installer.)

```
kubectl describe cm -n element-onprem app-element-web-nginx
```

and this will return output similar to:

```
  server {
      listen       8080;

      add_header X-Frame-Options SAMEORIGIN;
      add_header X-Content-Type-Options nosniff;
      add_header X-XSS-Protection "1; mode=block";
      add_header Content-Security-Policy "frame-ancestors 'self'";
      add_header X-Robots-Tag "noindex, nofollow, noarchive, noimageindex";

      location / {
          root   /usr/share/nginx/html;
          index  index.html index.htm;

          charset utf-8;
      }
  }
```

Show the status of all namespaces

```
kubectl get namespaces
```

which will return output similar to:

```
NAME                STATUS   AGE
kube-system         Active   20d
kube-public         Active   20d
kube-node-lease     Active   20d
default             Active   20d
ingress             Active   6d23h
container-registry  Active   6d23h
operator-onprem     Active   6d23h
element-onprem      Active   6d23h
```

Show the status of the stateful sets in the `element-onprem` namespace

```
kubectl get sts -n element-onprem
```

This should return output similar to:

```
NAME                   READY   AGE
postgres               1/1     6d23h
instance-synapse-main  1/1     6d23h
```

Show the Synapse configuration

Click to see commands for installers prior to version 2023-05.05

For installers prior to 2022-05.06, use:

```
kubectl describe cm -n element-onprem first-element-deployment-synapse-shared
```

For the 2022-05.06 installer and later, use:

```
kubectl -n element-onprem get secret synapse-secrets -o yaml 2>&1 | grep shared.yaml | awk
-F 'shared.yaml: ' '{print $2}' - | base64 -d
```

For the 2023-05.05 installer and later, use:

```
kubectl --namespace element-onprem get \
    secrets first-element-deployment-synapse-main \
    --output jsonpath='{.data.instance_template\.yaml}' \
    | base64 --decode
```

Note there are separate config secrets for writers. Use `kubectl --namespace element-onprem get secrets` to get a list, then modify the command as needed.

Verify DNS names and IPs in certificates

In the `certs` directory under the configuration directory, run:

```
for i in $(ls *crt); do echo $i && openssl x509 -in $i -noout -text | grep DNS; done
```

This will give you output similar to:

```
local.crt
              DNS:local, IP Address:192.168.122.118, IP Address:127.0.0.1
synapse2.local.crt
              DNS:synapse2.local, IP Address:192.168.122.118, IP Address:127.0.0.1
```

and this will allow you to verify that you have the right host names and IP addresses in your certificates.

View the MAU Settings in Synapse

```
kubectl get  -n element-onprem secrets/synapse-secrets -o yaml | grep -i shared.yaml -m 1| awk
-F ': ' '{print $2}' - | base64 -d
```

which will return output similar to:

```
# Local custom settings
mau_stats_only: true

limit_usage_by_mau: False
max_mau_value: 1000
mau_trial_days: 2

mau_appservice_trial_days:
  chatterbox: 0

enable_registration_token_3pid_bypass: true
```

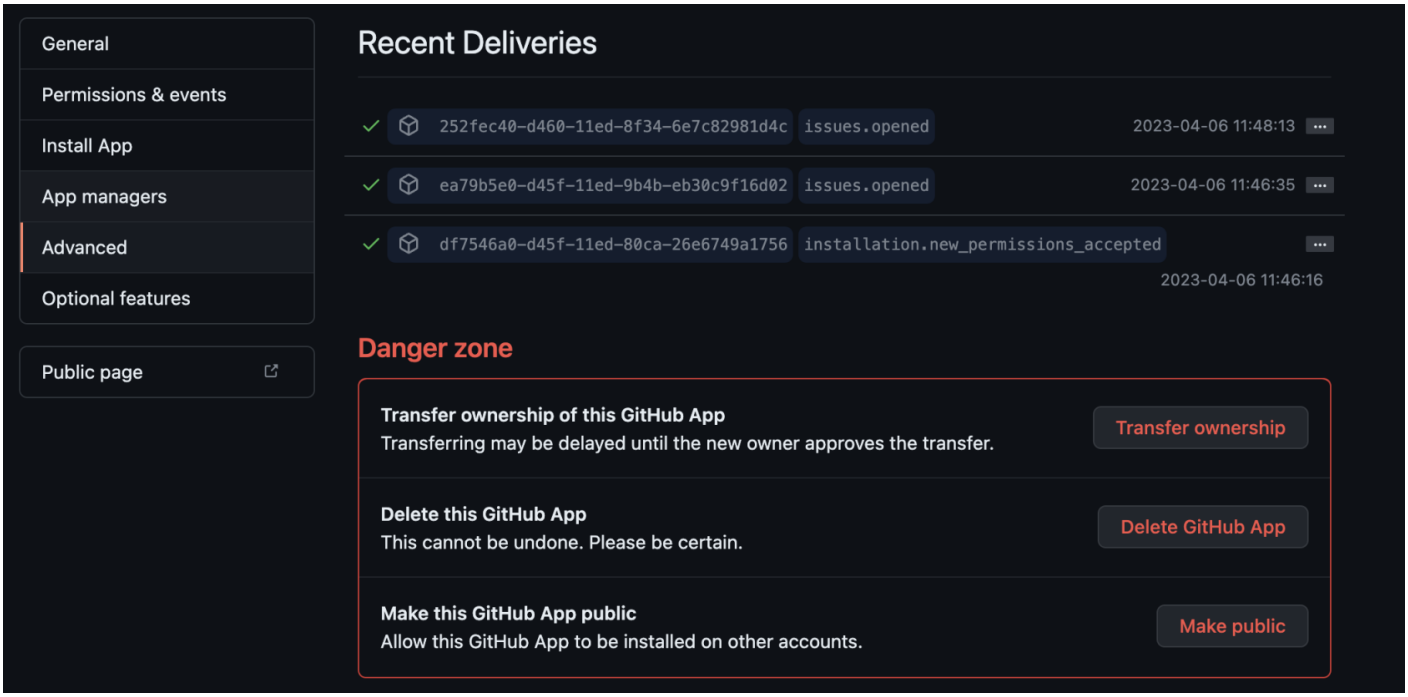
Integration issues

GitHub not sending events

You can trace webhook calls from your GitHub application under `Settings` / `developer settings` / `GitHub Apps`

Select your GitHub App

Click on `Advanced` and you should see queries issues by your app under `Recent Deliveries`



Updater and Operator in `ImagePullBackOff` state

Check EMS Image Store Username and Token

Check to see if you can pull the Docker image:

```
kubectl get pods -l app.kubernetes.io/instance=element-operator-controller-manager -n operator-onprem  -o yaml | grep 'image:'
```

grab the entry like `image: gitlab-registry.matrix.org/ems-image-store/standard/kubernetes-operator@sha256:305c7ae51e3b3bfbeff8abf2454b47f86d676fa573ec13b45f8fa567dc02fcd1`

Should look like

```
microk8s.ctr image pull gitlab-registry.matrix.org/ems-image-store/standard/kubernetes-operator@sha256:305c7ae51e3b3bfbeff8abf2454b47f86d676fa573ec13b45f8fa567dc02fcd1  -u <EMS Image Store usenamer>:<EMS Image Store token>
```

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