Real life challenges and configurations when implementing HCL Sametime V12.0.1 FP1

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Erik started working with Sametime in version 1 and later co-authored the Lotus Sametime 2.0 Deployment Guide. More recently he created a Do-it-yourself monitoring solution for HCL Sametime Meetings on Docker and keeps his hands-on experience current by maintaining the HCL Sametime Sandbox and several other Sametime environments.

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Creating Truststores and Keystores for Sametime
Creating Truststores and Keystores for Sametime
It's all about PKCS#12, but ...

Sametime 12.0.1 requires PCKS#12 file format for Truststores and Keystores.

Due to security enhancements, PKCS#12 files created with newer versions of Java will not work with older versions of Java!

Either use an older version of OpenJDK keytool (eg OpenJDK 8) or add the -J-Dkeystore.pkcs12.legacy parameter when using newer versions of keytool!

Example for converting an existing PKCS#12 file to the desired file format:
```
keytool -importkeystore -srckeystore <existingkeystore.p12> -srcstoretype PKCS12 \ -srcstorepass <existingkeystorepassword> -destkeystore <sametimekeystore.p12> \ -deststoretype PKCS12 -deststorepass <sametimekeystorepassword> \ -J-Dkeystore.pkcs12.legacy
```

Securing connections between Sametime servers and LDAP
Securing connections between Sametime servers and LDAP

Important things to know

1. Requires a properly created PKCS#12 truststore containing the TLS certificates of your LDAPs server. We already learned about that earlier …

2. Requires specific TLS Ciphers to work correctly, ie for TLS1.2:
   - RSA_WITH_AES_256_GCM_SHA384 (0x009D)
   - RSA_WITH_AES_128_CBC_SHA (0x002F)

Sametime 12.0 TLS required ciphers to connect to Domino 12.0.2 LDAP
https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0099644


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You can expand your configuration for your LDAP trustore with a tlsdlap.env file (as documented) or simply add the required parameters to your custom.env file:

```plaintext
STI__Config__STLDAP_TLS_TRUST_STORE_TYPE=p12
STI__Config__STLDAP_TLS_TRUST_STORE_FILE=/local/notesdata/ldaptruststore.p12
STI__Config__STLDAP_TLS_TRUST_STORE_PASSWORD=<sametimetruststorepassword>
```

Important:

- **STI__Config__STLDAP_TLS_TRUST_STORE_FILE** describes the path to your PKCS#12 file as seen by the **community container**, it does not refer to the path of the file on the host system.

- File permissions
  Ensure that your PKCS#12 file permissions are not restricted to root only, otherwise the community container won't be able to read the file.

Securing connections between Sametime servers and LDAP Docker configuration (cont.)

Change your docker-compose.yml to map your PKCS#12 file from the host system to the community container:

```yaml
[...] community:
    image: hclcr.io/st/chat-server:${BUILD_LEVEL}
    restart: ${RESTART_POLICY}
    env_file: custom.env
    environment:
        - JWT_SECRET_ENV=${JWT_APP_SECRET}
[...] networks:
    - sametime.test
volumes:
    - <sametimekeystore.p12>:/local/notesdata/ldaptruststore.p12
[...]
```

Important:

- `<sametimekeystore.p12>` describes the path to your PKCS#12 file on the host system. Either use an absolute path or a relative path (relative to the directory containing your docker-compose.yml file).

- The right part of your volumes configuration (after the colon) must match the path as specified earlier in the `STI__Config__STLDAP_TLS_TRUST_STORE_FILE` parameter.

Securing connections between Sametime servers and LDAP
Kubernetes configuration

In a Kubernetes configuration the LDAP truststore is stored in a Kubernetes Secret.

```
kubectl -n <sametimenamespace> create secret generic <ldapsecretname> \
--from-literal=KeyStorePassword=<sametimetruststorepassword> \
--from-file=ldaptruststore.p12=<sametimetruststore.p12>
```

Important:

- `<ldapsecretname> is the name of the secret you refer to in your values.yaml file.
  The default value in the Sametime documentation is "ldap-secret".

- Have a closer look at the `--from-file` option:
  The value after the first equal sign specifies the filename in the Kubernetes Secret (which has to be "ldaptruststore.p12").
  The value after the second equal sign specifies the path to the PKCS#12 file you want to import into the Secret.
  So the file imported can actually have a name different than "ldaptruststore.p12".

Securing connections between Sametime servers and LDAP
Kubernetes configuration (cont.)

Change your helm/values.yaml file to refer to your Kubernetes Secret and enable LDAPs.

global:
  ...
  ldapHost: <ldapsfqhn>
  # ldapPort: 389
  ldapPort: <ldapsport>
  # ldapTls: false
  ldapTls: true
  ldapConfigSecret: <ldapsecretname>
  ...

Remarks:

<ldapsport> specify your LDAP server’s secure port. The default port for LDAPs is 636.

Setting up SSO using LTPA
Setting up SSO using LTPA
Additional things to consider ...

In real life scenarios you will have to deal with existing LTPA Keys, generated in other systems, eg

```
#IBM WebSphere Application Server key file
#Tue Jan 24 15:26:53 CET 2017
com.ibm.websphere.CreationDate=tue Jan 24 15:26:53 CET 2017
com.ibm.websphere.ltpa.version=1.0
com.ibm.websphere.ltpa.3DESKey=T+mMs2ekH83ev0csh8FpwhFduUkonkB33/cGjIn+mR4=
com.ibm.websphere.CreationHost=connections
com.ibm.websphere.ltpa.PrivateKey=28mfdluonFfUPuZzX9RRScpfBQRJ5Xan9m1SDLdpXwQAWqvDVI2Cog9MF5ithR9NaAVYWVTaaToxVV6mWA0XD+vfWmVumUtPfCjzPhOGS+ghetcgdPOQmCkuaq0tvf28uaxhLttT7plCuKST7B9cgrjks7bfOSOs3HDU12tm1JRWLlnUlieE6Vd7dCOhGd/garvyzAD6Z91xqEzi+kEQ68i9DprHxG+t4PqYT6yQaEYLTywTzBa96zrirdoDuL5sizQ9FqSc071X4AnaLnRdR961jpuVW+12uNoABIluxE7seFG2Mb8ratszaQd8dOLcMFom3yeaSVKmCXXy31EbdVs4V2AsvdXVoU8DL4xts=
com.ibm.websphere.ltpa.Realm=defaultWIMFileBasedRealm
com.ibm.websphere.ltpa.PublicKey=AKu1AH1HCpiwOKAMVaKgBO8GikkB7U3n7zMAb6O2E459Tm6vgMzChrnSmY4IY6U20VpkbXzirF4stoi2PMrUC0DktaeTXsMt7kfe6yCCMAL18xiB35hQoOJ4ktQi4YtIpBvBWtDCjbxGYZa0wmAK+0ovSUZUaKRIm0QkxPtzAQB
```

Important:
An existing LTPA Key, created in another system like Connections, might contain a different LTPA Realm than the default Realm of WebSphere Liberty ("defaultRealm").

To integrate Sametime with existing LTPA configurations you also have to properly configure the Realm!

Setting up SSO using LTPA Docker

Change your .env file:

ENABLE_LTPA=true
LTPA_KEYS_FILE_PATH=<ltpakeyfilepath>
LTPA_KEYS=/ltpa-config/ltpa.keys
LTPA_KEYS_PASSWORD=<ltpakeyfilepassword>
LTPA_REALM=<ltparealm>

Important:

• `<ltpakeyfilepath>` specifies the path to your LTPA Key file. The actual file name does not matter.

• Do not change the value of the parameter LTPA_KEYS. This is how the container refers to the LTPA Key file and must not be changed.

• If your LTPA Realm differs from the default name "defaultRealm", specify your existing LTPA Realm name in the LTPA_REALM variable as `<ltparealm>`.

• You have to make additional changes to your docker-compose.yml for configuring your LTPA Realm.

Change the value `STI_ST_BB_NAMES_ST_AUTH_TOKEN` in your custom.env file to

`STI_ST_BB_NAMES_ST_AUTH_TOKEN=Fork:Jwt,Ltpa`

If you had to specify a different LTPA Realm name, you have to change your docker-compose.yml as follows:

```yaml
[...]
auth:
  image: hclcr.io/st/meetings-auth.node:${BUILD_LEVEL}
  restart: ${RESTART_POLICY}
  env_file: custom.env
  volumes:
    - ${LTPA_KEYS_FILE_PATH}:/ltpa-config/ltpa.keys:Z
  environment:
    - LTPA_KEYS
    - LTPA_KEYS_PASSWORD
    - LTPA_REALM
[...]
```

Setting up SSO using LTPA Kubernetes

In a Kubernetes configuration the LTPA Key File is stored in a Kubernetes Secret.

```
kubectl -n <sametimenamespace> create secret generic <ltpasecretname> \
--from-file=ltpa.keys=<ltpakeyfilepath>
```

Important:

- `<ltpasecretname>` is the name of the secret you refer to in your values.yaml file. The default value in the Sametime documentation is "ltpa-keys".

- Have a closer look at the `--from-file` option:
  The value after the first equal sign specifies the filename in the Kubernetes Secret (which has to be "ltpa.keys"). The value after the second equal sign specifies the path to the LTPA Keys file you want to import into the Secret. So the file being imported can have a name different than "ltpa.keys".

Setting up SSO using LTPA
Kubernetes (cont.)

Change your helm/values.yaml file to enable LTPA, if required also specify your existing LTPA Realm:

```yaml
global:
  [...]
  enableLtpa : true
  ltpaRealm: <ltparealm>
  [...]
```

Add the base64 encoded LTPA Key Password to helm/templates/sametime-secrets.yaml:

```yaml
data:
  [...]
  LtpaKeysPassword: <ltpakeyfilepasswordbase64>
  [...]
```

Remarks:

Calculate `<ltpakeyfilepasswordbase64>` by executing `echo -n <ltpakeyfilepassword> | base64` where `<ltpakeyfilepassword>` is your plain text LTPA Key Password.

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Integrating with other applications
**Integrating with other applications**

**Things to know ...**

Beginning with HCL Sametime 12.0 the legacy web-client is *not enabled by default*, but it can be enabled when needed for integration with other products, eg HCL Connections, HCL Verse, …

**Things to do:**

- Enable (legacy) web-client integration
- Enable content security headers

**Remarks:**

SSO is required for integrating with other products, ie LTPA or SAML.

Enable the (legacy) web-client in docker-compose.yml:

```yaml
proxy:
    image: hclcr.io/st/chat-proxy:${BUILD_LEVEL}
    restart: ${RESTART_POLICY}
    env_file: custom.env
    volumes:
        - proxy-workspace:/workspace/proxy-storage
    environment:
        - JAVA_TOOL_OPTIONS=-XX:MaxDirectMemorySize=64M -XX:MaxMetaspaceSize=192M
        - SAMETIME_EXTERNAL_WARINTEGRATION=true
```

Enable content security policy by adding the following parameter to custom.env, eg:

```yaml
CONTENT_SECURITY_POLICY=frame-ancestors https://*.<yourdomain.tld>
```
Integrating with other applications

Kubernetes

Enable the (legacy) web-client in values.yaml:

```yaml
global:
  ...
  enableLegacyChatClient: true
  ...
```

Enable content security policy by adding the following parameter to values.yaml, eg:

```yaml
global:
  ...
  enableLegacyChatClient: true
  contentSecurityPolicy: frame-ancestors https://*.<yourdomain.tld>
  ...
```

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Branding
Branding

You can customize different elements of the Meeting Web UI:
- Define a custom product / meeting service name
- Replace the Sametime product logo with your company logo
- Use a custom meeting background image

Custom branding can be displayed on the login page, on the meeting home page, in a meeting, on the logout page and in meeting reports.
Adding corporate branding to Sametime Meetings on Docker

Settings in custom.env

```plaintext
REACT_APP_PRODUCT_NAME=DNUG Lab Meeting Server
REACT_APP_PRODUCT_LOGO=/images/branding/dnug-lab-logo-large.png
REACT_APP_MEETING_BANNER_IMAGE=/images/branding/dnug-lab-logo-large.png
REACT_APP_PRODUCT_LOGO_URL=https://sametime.lab.dnug.eu/images/branding/dnug-lab-logo-large.png
REACT_APP_MEETING_BACKGROUND_IMAGE=/images/branding/dnug-background.jpg
```

'/images/branding' in custom.env corresponds to './sametime-config/web/branding'

```
[root@sametime sametime]# ls -l ./sametime-config/web/branding
 total 1848
-rw-r--r--. 1 root root    1825010 Dec  6 11:02 dnug-background.jpg
-rw-r--r--. 1 root root       7398 Dec  6 11:02 dnug-lab-large.png
-rw-r--r--. 1 root root       12221 Dec  6 11:02 dnug-lab-logo-large.png
-rw-r--r--. 1 root root        5703 Dec  6 11:02 dnug-lab-medium.png
-rw-r--r--. 1 root root         2977 Dec  6 11:02 dnug-lab-small.png
-rw-r--r--. 1 root root      30321 Dec  6 11:02 dnug-lab-xlarge.png
```

Alternatively, you can use a URL that points to an accessible image to specify your custom meeting background image:

```plaintext
REACT_APP_MEETING_BACKGROUND_IMAGE=https://mycompany.com/assets/theme.png
```

Adding corporate branding to Sametime Meetings on Kubernetes

Specify your custom branding settings in the `global:` section of `values.yaml`

```yaml
# Define your custom product / meeting service name
productName: <YourCustomProductName>

# Use a custom logo
productLogo: /images/branding/<your_logo_file>

# Use a custom meeting banner image
meetingBannerImage: /images/branding/<your_banner_image_file>

# Use a custom meeting background image
meetingBackgroundImage: /images/branding/<your_background_image_file>
```

Alternatively, you can use an accessible URL that points to your custom logo and custom images. Then you do not have to copy these files to the persistent volume:

```yaml
productLogo: "http://mycompany.com/assets/<your_logo_file>"
```

```yaml
## Custom branding settings begin
productLogo: "https://sametime.lab.dnug.eu/images/branding/dnug-lab-logo-large.png"
## Custom branding settings end
```

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Migrating contact lists
(vpuserinfo.nsf)
Migrating contact lists (vpuserinfo.nsf)
What do you need to know?

Starting with HCL Sametime 12.0 contact list data is now also stored in MongoDB as Community and Proxy is now containerized.

Existing contact list data stored in vpuserinfo.nsf must be migrated to MongoDB.

Important:

• Required tooling is part of HCL Sametime since 12.0 (notes-migration.zip) and available for Windows and Linux.

• Supports HCL Sametime 9.x, 10.x and 11.x. Prior versions are not supported due to outdated Java versions.

• Designed to be unzipped and run directly on the HCL Sametime Server.

• Be aware of limited character encoding capabilities for Mongo user and Mongo password. Currently only %, @, :, /, ?, #, [ and ] are supported characters in the migration scripts provided.

Migrating contact lists (vpuserinfo.nsf)
Running the migration tool - Windows

- The migration tool is designed to be unzipped into the Domino Program Directory.
- The notes-migration.bat script can only be executed out of the Domino Program Directory.
- Change notes-migration-user-input.txt to match your environment.
- If you specify a full path for NSF_PATH, either use \ or / as delimiter for the script to execute correctly.
- Run the notes-migration.bat script in an elevated ("Administrator") command window.
- Don't mind the "additional output" after successful execution... ;-)

Migrating contact lists (vpuserinfo.nsf)
Migration tool output - Windows

Migrating contact lists (vpuserinfo.nsf)
Running the migration tool - Linux

• The migration tool is designed to be **unzipped into the Domino Binaries Directory**.
• **Change setenv.sh** to match your environment.
• **Source setenv.sh** by executing: `source ./setenv.sh`
• **Run the notes-migration.sh** script by executing: `./notes-migration.sh`

```
PROGRAMDIR=/opt/hcl/domino/notes/latest/linux
LOTUSDIR=$PROGRAMDIR/../../../bin 
DATADIR=/local/notesdata 
PATH=/usr/bin:/bin:$PROGRAMDIR:/usr/ucb 
export PATH 
export PROGRAMDIR 

Notes_ExecDirectory=$PROGRAMDIR 
export Notes_ExecDirectory 

export CLASSPATH=/opt/hcl/domino/notes/latest/linux/jvm/lib/ext/Notes.jar 
export LD_LIBRARY_PATH=$PROGRAMDIR:$LD_LIBRARY_PATH:$PROGRAMDIR:/usr/lib/ssl:
```

Migrating contact lists (vpuserinfo.nsf)

Migration tool output - Linux

Migrating contact lists (vpuserinfo.nsf)

Migrated contact lists in MongoDB

Upgrading MongoDB
Upgrading MongoDB Considerations

Sametime 11.5/11.6 supports MongoDB 3.5 or 4.2
https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0082513
https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0089405

Sametime 12.0 supports MongoDB 4.4 or later (on best effort)
https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0097599

Sametime 12.0.1 supports MongoDB 4.2, 4.4, 5, 6 or later (on best effort)
https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0100619

Upgrading HCL Sametime to 12.0.x or higher requires the migration of contact lists from vpuserinfo.nsf to MongoDB. Given that requirement, you might also have/want to upgrade your existing MongoDB to a newer release.

https://www.mongodb.com/docs

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Important:

**Always follow the official MongoDB documentation** for detailed upgrade instructions.

In-place upgrading a MongoDB ReplicaSet - in a nutshell:

- Upgrade the MongoDB binaries to next major release on all secondaries.
- Step down the replica set primary to force an election of a new primary.
- Upgrade the MongoDB binaries on the stepped-down primary.
- Increment the feature compatibility version.

Implement a new MongoDB ReplicaSet and migrate your data with `mongodump` and `mongorestore`.

Remark: It is recommended to restore to a matching major version.

**Back up your databases** with `mongodump`, eg:

```
mongodump --host=<oldmongohost>:<port> --username=<mongouser> --password=<mongopassword> --forceTableScan --gzip --db=meeting --out /dump
```

```
mongodump --host=<oldmongohost>:<port> --username=<mongouser> --password=<mongopassword> --forceTableScan --gzip --db=mobileOffline --out /dump
```

```
mongodump --host=<oldmongohost>:<port> --username=<mongouser> --password=<mongopassword> --forceTableScan --gzip --db=chatlogging --out /dump
```

```
mongodump --host=<oldmongohost>:<port> --username=<mongouser> --password=<mongopassword> --forceTableScan --gzip --db=userinfo --out /dump
```

https://www.mongodb.com/docs/database-tools/mongodump/
https://www.mongodb.com/docs/database-tools/mongorestore/
Upgrading MongoDB
Side-by-side approach (cont.)

**Restore your databases** with `mongorestore`, eg:

```bash
mongorestore --host=<newmongohost>:<port> --username=<mongouser> --password=<mongopassword> --drop --noIndexRestore --gzip --verbose --nsInclude=meeting.* /restore
```

```bash
mongorestore --host=<newmongohost>:<port> --username=<mongouser> --password=<mongopassword> --drop --noIndexRestore --gzip --verbose --nsInclude=mobileOffline.* /restore
```

```bash
mongorestore --host=<newmongohost>:<port> --username=<mongouser> --password=<mongopassword> --drop --noIndexRestore --gzip --verbose --nsInclude=chatlogging.* /restore
```

```bash
mongorestore --host=<newmongohost>:<port> --username=<mongouser> --password=<mongopassword> --drop --noIndexRestore --gzip --verbose --nsInclude=userinfo.* /restore
```

https://www.mongodb.com/docs/database-tools/mongodump/
https://www.mongodb.com/docs/database-tools/mongorestore/

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Sametime Monitoring Dashboard
Sametime Statistics Monitoring

HCL Sametime

Provides statistics about chat and meeting services via several HTTP endpoints

You can

- collect
- store
- analyze
- visualize

the metrics from HCL Sametime using any tools of your choice

Provides a `docker-compose-monitoring.yml` file that creates a monitoring stack

Run a monitoring stack based on Prometheus and Grafana on the same Linux host as your Sametime server

Provides json files for Docker and Kubernetes to build a Grafana dashboard

Create a Sametime monitoring dashboard on a Grafana instance of your choice (e.g. on prem or in the cloud)
You need to make a few decisions

Where to run the different monitoring components?
- On the Sametime server / K8s cluster or on a separate server?
- Do you also want to collect system and container metrics (CPU & RAM usage, diskspace left, etc.)?

How often do you want to collect metrics data?
- More often means more load on the Sametime server
- Keep in mind: You’re NOT building a real time monitoring system!
- Hint: JVB stats are refreshed every 5 seconds

Where do you want to store the metrics data and how long do you want to keep it?
- A few hours…days…weeks…months?
  - You may want to configure persistent volumes for Prometheus and Grafana
The Sametime services defined in `docker-compose.yml` and the monitoring services defined in `docker-compose-monitoring.yml` run on the same Docker network.

➢ No need to expose any ports of the monitoring services to localhost except for Grafana
➢ No need to open firewall for any monitoring services ports except for Grafana port 3000
➢ Pull the cadvisor image from gcr.io, not from Docker hub.
Modify `docker-compose-monitoring.yml` to enable https for Grafana

You can use the same TLS certificate as Sametime

Open `https://SametimeServerFQDN:3000` and change default Grafana admin credentials

Other options

- Place a proxy server (e.g. built-in nginx) in front of Grafana Web UI
- Configure LDAP authentication in Grafana
The Sametime services defined in `docker-compose.yml` and the monitoring services defined in `docker-compose-monitoring.yml` run on the same Docker network.

- In Grafana you can refer to Prometheus service name on port 9090 instead of `http://host.docker.internal:9091`
HCL Sametime Monitoring on Docker – Grafana Dashboard
The Sametime product documentation tells you to install **kube-prometheus-stack** that already includes Grafana.

➢ No need for an additional Grafana installation

Familiarize yourself with this stack **before you install** it!

- What’s included, how does it work, how to open Prometheus Web UI, etc.
- See `values.yaml` to find the initial admin password for Grafana (hint: “prom-operator”)
  and learn about customization options

Accessing Grafana Web UI via `kubectl port-forward` is okay for the initial setup. For regular use of the dashboard(s) you may want to consider other options to implement secure access to Grafana.

- Expose Grafana as a LoadBalancer service
- Create an Ingress for Grafana (also see `values.yaml`)

Also see [https://www.youtube.com/watch?v=6xmWr7p5TE0](https://www.youtube.com/watch?v=6xmWr7p5TE0)
Register for the free of charge Deploying HCL Sametime Premium 12 on Kubernetes Self-Paced Workshop and get step-by-step instructions in the Set Up Sametime Monitoring Dashboard chapter.

➢ https://hclsoftwareu.hcltechsw.com/hclsoftwareu-courses/course/sametime-on-kubernetes-self-paced
Integration with Let’s Encrypt
Integrate Sametime on Docker with Let’s Encrypt

**Sametime 12.0.1 on Docker** can request, retrieve and apply a TLS certificate from Let’s Encrypt. It will also automatically renew the TLS certificate before it expires.

The built-in integration is based on the ACME protocol (Automatic Certificate Management Environment) using an HTTP-01 challenge to verify, that you are the owner of the requesting website.

1. ACME server (= Let’s Encrypt) sends a challenge to ACME client (= NGINX service in Sametime)
2. ACME server will ask via in-bound HTTP request on port 80 for the “secret” at a well-known URL

- The FQDN of your Sametime server must be registered in public DNS
- Your Sametime server must be accessible on the public Internet via http port 80

The built-in integration is currently **broken in 12.0.1 FP1**…but there is a **workaround 😎**
Integrate Sametime 12.0.1 on Docker with Let’s Encrypt

Settings in `.env`

# Exposed HTTP port
HTTP_PORT=80

# Exposed HTTPS port
HTTPS_PORT=443

# Redirect HTTP traffic to HTTPS
# Necessary for Let’s Encrypt, relies on standard HTTPS port (443)
ENABLE_HTTP_REDIRECT=1

# Let's Encrypt configuration
# Enable Let’s Encrypt certificate generation
ENABLE_LETSENCRYPT=1

# Domain for which to generate the certificate
LETSENCRYPT_DOMAIN=<your.sametimeserver.com>

# E-Mail for receiving important account notifications (mandatory)
LETSENCRYPT_EMAIL=<YourAdminEmailAddress>

# Use the staging server (for avoiding rate limits while testing)
# LETSENCRYPT_USE_STAGING=1

If you set up the integration for the first time, make sure to test it first with the Let’s Encrypt staging service enabled!
Integrate Sametime 12.0.1 on Docker with Let’s Encrypt

Settings in `docker-compose.yml`

```yaml
nginx:
  image: hclcr.io/st/meetings-web:${BUILD_LEVEL}
  restart: ${RESTART_POLICY}
  ports:
    - '${HTTP_PORT}:80'
    - '${HTTPS_PORT}:443'
  ...
  environment:
    ...
    - LETSENCRYPT_DOMAIN
    - LETSENCRYPT_EMAIL
    - LETSENCRYPT_USE_STAGING
    ...
```

Settings in `custom.env`

```bash
# Example: PUBLIC_URL=https://sametime.company.com
PUBLIC_URL=https://<your.sametimeserver.com>
```

A setting for `PUBLIC_URL` can be found both in `.env` and in `custom.env`.

Make sure you define a value for this setting only in `custom.env`.

If you want to use the Let’s Encrypt staging service you must also add `LETSENCRYPT_USE_STAGING` to the environment variables of the `nginx` container.
Temporary fix for Sametime 12.0.1 FP1 on Docker with Let's Encrypt

Settings in .env

# Exposed HTTP port
HTTP_PORT=8000
# Exposed HTTPS port
HTTPS_PORT=443
# Redirect HTTP traffic to HTTPS
# Necessary for Let's Encrypt, relies on standard HTTPS port (443)
ENABLE_HTTP_REDIRECT=1
# Let's Encrypt configuration
# Enable Let's Encrypt certificate generation
ENABLE_LETSENCRYPT=1
# Domain for which to generate the certificate
LEGEND_DOMAIN=<your.sametimeserver.com>
# E-Mail for receiving important account notifications (mandatory)
LEGEND_EMAIL=<YourAdminEmailAddress>
# Use the staging server (for avoiding rate limits while testing)
# LEGEND_USE_STAGING=1

Settings in docker-compose.yml

nginx:
  image: hclcr.io/st/meetings-web:${BUILD_LEVEL}
  user: "0:0" # temporary fix
  restart: ${RESTART_POLICY}
  ports:
    - '${HTTP_PORT}:8080'
    - '${HTTPS_PORT}:4443'
    - 80:80 # temporary fix
  ... 
  environment:
    ... 
    - LEGEND_DOMAIN
    - LEGEND_EMAIL
    - LEGEND_USE_STAGING
    ...
Integrate Sametime 12.0.1 on Docker with Let’s Encrypt

The nginx container will use the ACME protocol to register an account with Let’s Encrypt. If successful it will then request and retrieve a TLS certificate.
Integrate Sametime 12.0.1 on Docker with Let’s Encrypt

The TLS certificate will be placed in a subdirectory below the ./sametime-config directory, that is named after the FQDN of your server.

```bash
# List the TLS certificate
ls -l sametime-config/web/acme-certs/SametimeServerFQDN
```

```
-rw-r--r-- 1 root root 5597 Sep 2 18:06 fullchain.pem
-rw------- 1 root root 1679 Sep 2 18:06 key.pem
```
Integrate Sametime on Kubernetes with Let’s Encrypt

Sametime 12.0.1 on Kubernetes does not include built-in integration with Let's Encrypt. However, you can use cert-manager to get a TLS certificate from Let’s Encrypt and use it with your Sametime deployment.

cert-manager adds custom objects such as Certificates, CertificateRequests and Issuers as resource types in Kubernetes clusters, and simplifies the process of obtaining, renewing and using those certificates.

- Install and configure cert-manager including CRDs
- Create Let's Encrypt ClusterIssuer for staging and production
- Edit the file ingress.yaml that is included with the Sametime helm charts and insert a new line with the string `cert-manager.io/cluster-issuer: "letsencrypt-staging"` in the annotations section

When you then deploy Sametime, an ingress will be created as part of the deployment and cert-manager will automatically provision a TLS certificate from Let’s Encrypt.

➢ [https://cert-manager.io](https://cert-manager.io)
Integrate Sametime on Kubernetes with Let’s Encrypt

```yaml
{{ if .Values.global.sofySolutionContext }}
{{ else }}
apiVersion: networking.k8s.io/v1
kind: Ingress
metadata:
  name: {{ include "web.fullname" . }}
  labels:
    {{- include "web.labels" . | nindent 4 }}
  annotations:
    nginx.ingress.kubernetes.io/rewrite-target: /
    networking.gke.io/v1beta1.FrontendConfig: {{ include "web.fullname" . }}-frontend-config
    nginx.ingress.kubernetes.io/proxy-body-size: "0"
    nginx.ingress.kubernetes.io/ssl-redirect: {{ not (default false .Values.global.tlsTermination }}
    nginx.ingress.kubernetes.io/force-ssl-redirect: {{ not (default false .Values.global.tlsTermination }}
  cert-manager.io/cluster-issuer: "letsencrypt-prod"
spec:
{{ if .Values.global.ingressClassName }}
  ingressClassName: {{ .Values.global.ingressClassName }}
{{ else }}
  ingressClassName: nginx
{{ end }}
```
Integrate Sametime on Kubernetes with Let’s Encrypt

Register for the free of charge Deploying HCL Sametime Premium 12 on Kubernetes Self-Paced Workshop and get step-by-step instructions in the Prepare Deployment chapter.

➢ https://hclsoftwareu.hcltechsw.com/hclsoftwareu-courses/course/sametime-on-kubernetes-self-paced
Implementing and configuring an internal STUN server
What is STUN?

- Session Traversal Utilities for NAT (STUN) is a standardized set of methods, including a network protocol, for NAT traversal of Network address translation (NAT) gateways in applications of real-time voice, video, messaging, and other interactive communications.

- STUN is a tool used by other protocols, such as Interactive Connectivity Establishment (ICE), the Session Initiation Protocol (SIP), and WebRTC. It provides a tool for hosts to discover the presence of a network address translator, and to discover the mapped, usually public, Internet Protocol (IP) address and port number that the NAT has allocated for the application's User Datagram Protocol (UDP) flows to remote hosts.

- The protocol requires assistance from a third-party network server STUN server located on the opposing public side of the NAT, usually the public Internet.

Why do we need STUN?

Simply put, we use STUN as a tool to help clients determine their public IP address so that they can connect to each other and the Sametime Meeting Server to send and receive audio and video data.

https://en.wikipedia.org/wiki/STUN

Implementing and configuring an internal STUN server

Things you need to know
Implementing and configuring an internal STUN server
How does it work?

1. Client 192.168.3.29 sends a STUN request through Router 192.168.1.1 to a STUN server outside the network, listening on 108.177.15.127, using source port 5090.

2. Router 192.168.1.1 forwards the request to STUN server 108.177.15.127 and changes port 5090 to port 15090.

3. STUN Server 108.177.15.127 sends a response back to Client 192.168.3.29 through the Router with public IP 144.77.11.213 specifying that the request was received from IP 144.77.11.213 and port 15090.

https://en.wikipedia.org/wiki/STUN
Implementing and configuring an internal STUN server

Considerations

Common reasons for implementing an internal STUN server

- Internal only deployment in a NAT network
- DMZ deployment, but internal clients are not allowed to send UDP traffic to public IP
- etc. ...

Important:

- HCL Sametime ships with **Google STUN servers** in the default configuration, ie stun.l.google.com:19302,stun1.l.google.com:19302,stun2.l.google.com:19302
- The internal STUN server **must not** be installed on the same host running the Sametime JVB!

Implementing and configuring an internal STUN server
Sample setup and configuration (RedHat)

```
yum install epel-release coturn coturn-utils -y
mv /etc/coturn/turnserver.conf /etc/coturn/turnserver.conf.orig

cat <<EOF > /etc/coturn/turnserver.conf
listening-port=3478
server-name=<stun.yourdomain.tld>
realm=<yourdomain.tld>
total-quota=100
stale-nonce=600
proc-user=coturn
proc-group=coturn
EOF

firewall-cmd --zone=public --add-port=3478/udp --permanent
firewall-cmd --reload

systemctl enable coturn
systemctl start coturn
```
Modify your .env file:

[...]
# STUN servers used to discover the server's public IP.
JVB_STUN_SERVERS=stun.l.google.com:19302, stun1.l.google.com:19302, stun2.l.google.com:19302, <stun.yourdomain.tld>:<stunport>
[...]

eg

[...]
# STUN servers used to discover the server's public IP.
JVB_STUN_SERVERS=stun.l.google.com:19302, stun1.l.google.com:19302, stun2.l.google.com:19302, stun.yourdomain.tld:3478
[...]

Implementing and configuring an internal STUN server
Kubernetes

Modify your helm/values.yaml file:

global: ...
  jvbStunServers: stun.l.google.com:19302, stun1.l.google.com:19302, stun2.l.google.com:19302, stun.yourdomain.tld:<stunport>

eg

global: ...

HCL Software

Sametime Limited Use
Set Up Sametime Limited Use

HCL customers with an entitlement for Sametime Limited Use can download HCL Sametime 12 from FlexNet. The file Sametime_12.0.1_FP1.zip contains all server components for a “Chat-only” deployment of Sametime. If you install that file on Docker or Kubernetes, the deployment will automatically configure the Sametime clients, so that they only provide such capabilities, that are compliant with a Sametime Limited Use entitlement.

If your organization has both Sametime Limited Use and Sametime Premium users, you can deploy Sametime Premium and configure multiple policies to make sure, that Sametime Limited Use users will be restricted to their entitlement while Sametime Premium users can use all capabilities of Sametime.

- Modify the default user policy so that it allows only Sametime Limited Use capabilities
- Create a custom policy that allows Sametime Premium capabilities and assign it to your Sametime Premium users
Modifying a user policy to allow Sametime Limited Use capabilities

The file `policies.user.xml` is located in the `/local/notesdata` directory of the Sametime Community container. Change the following settings in the **default policy** in `policies.user.xml` to allow only Sametime Limited Use capabilities.

<table>
<thead>
<tr>
<th>Policy ID</th>
<th>set this to</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>im.2019</td>
<td>current-value=1</td>
<td>requires this community to be the default, primary community</td>
</tr>
<tr>
<td>im.2011</td>
<td>current-value=0</td>
<td>disables the ability to add multiple communities to the installed Sametime client</td>
</tr>
<tr>
<td>im.2001</td>
<td>current-value=0</td>
<td>disables the ability to add external users via the Sametime Gateway</td>
</tr>
<tr>
<td>im.enableOrganizationTreeView</td>
<td>current-value=0</td>
<td>disables the organization tree view</td>
</tr>
<tr>
<td>im.3000</td>
<td>current-value=0</td>
<td>disables the use of some integrated features of the client (e.g. Audio / Video)</td>
</tr>
<tr>
<td>im.2009</td>
<td>current-value=0</td>
<td>disables Screen Captures and Image Transfer</td>
</tr>
<tr>
<td>im.2005</td>
<td>current-value=0</td>
<td>disables client-to-client File Transfer</td>
</tr>
<tr>
<td>im.1</td>
<td>current-value=0</td>
<td>disables File Transfer through server</td>
</tr>
<tr>
<td>im.thirdPartyMeetingEnabled</td>
<td>current-value=0</td>
<td>disables Instant Meeting invite (&quot;Meet me here&quot;)</td>
</tr>
<tr>
<td>im.meetingsEnabled</td>
<td>current-value=0</td>
<td>disables Sametime 11.6 or Sametime 12 Meetings</td>
</tr>
</tbody>
</table>
Creating a custom policy for Sametime Premium users

Create a group in your LDAP directory, that contains your Sametime Premium users (e.g. "SametimePremiumUsers").

![Group in LDAP directory](image)

Example showing HCL Domino as the LDAP directory

Create a **custom policy** in policies.user.xml with settings for your Sametime Premium users and **assign it a weight**, that is **higher than the weight of the default policy**.

```xml
<policies>
  <product id="im">
    <policy weight="10">
      <id="im.premium.policy"/>
    </policy>
  </product>
</policies>
```

Assigning a custom policy to Sametime Premium users

Assign the custom policy to the group, that you created for your Sametime Premium users.

`assignment type="1"` means you are assigning the policy to a group.

```xml
<policyAssignment>
    <assignment type="1"
        id="SametimePremiumUsers"/>
</policyAssignment>
```
How to customize the policies.user.xml file in Sametime on Docker (1)

# Change to your Sametime directory

cd /opt/hcl/sametime

# Best practice: Create a separate directory for your customizations

mkdir custom-config

# Copy the file policies.user.xml from the Community container to your custom-config directory while Sametime is running

docker cp sametime_community_1:/local/notesdata/policies.user.xml custom-config/policies.user.xml

# Stop the Sametime server

docker compose down
# How to customize the policies.user.xml file in Sametime on Docker (2)

# Modify the policies.user.xml file in your custom-config directory as needed

# Edit the file `docker-compose.yml` to mount your customized policies file to the community container

# Note: In the example below, we changed the file name of the customized policy to customized.policies.user.xml

```
version: "2"
services:
  community:
    image: hclcr.io/st/chat-server:${BUILD_LEVEL}
    restart: ${RESTART_POLICY}
    env_file: custom.env
evironment:
      - JWT_SECRET_ENV=${JWT_APP_SECRET}
      - DOMINO_SERVER_HOST_ENV=domino
      - DOMINO_SERVER_NAME_ENV=CN=domino/D=O=test
      - DOMINO_SERVER_DOMAIN_ENV=test
      - ST_BRANDING_INFO_ENV=standard
    volumes:
      - ./custom-config/customized.policies.user.xml:/local/notesdata/policies.user.xml
  networks:
    - sametime.test
```

# Start the Sametime server

docker compose up -d
# Create a subdirectory for the customized policy and switch to this directory.
mkdir my-custom-policy
cd my-custom-policy

# Copy the existing policy files from the Community container to the current directory.
# You need to **copy both files**, even if you plan to update only one of the files.
kubectl exec -it <podID> --container community -- cat /local/notesdata/policies.user.xml > ./policies.user.xml
kubectl exec -it <podID> --container community -- cat /local/notesdata/policies.server.xml > ./policies.server.xml

# Modify the policy files as needed, then create a ConfigMap from these files.
kubectl create configmap custom-community-policy --from-file=./

# Modify the values.yaml file and add the following parameter to use the ConfigMap:
overrideCommunityPolicy: custom-community-policy
How to customize the policies.user.xml file in Sametime on Kubernetes (2)

# Change to the helm directory, run ‘helm upgrade’ and scale the Community pod.

```
helm upgrade <deploymentName> . # run this command from the helm directory
kubectl scale deploy community --replicas=0
kubectl scale deploy community --replicas=1
```

# If you need to make further changes to your policies, update the policy files again, then recreate the ConfigMap and scale the Community pod to apply your changes.

```
# Update the policy files, then run the commands below
kubectl delete cm custom-community-policy
kubectl create configmap custom-community-config --from-file=./
kubectl scale deploy community --replicas=0
kubectl scale deploy community --replicas=1
```
Sametime Limited Use

Download the Sametime Limited Use Whitepaper

https://support.hcltechsw.com/csm?id=kb_article&sysparm_article=KB0108328
HCL Sametime Premium 12.0 FP1 - Full stack Kubernetes Deployment

HCLSoftware U - Whitepapers

You want to get in touch with implementing Sametime on Kubernetes? Get your “free copy” now! … ;-)
Join us for the official launch of HCL Domino 14 and HCL Sametime 12.0.2

https://register.gotowebinar.com/register/3240097374153477467