ScopeAR Single Node Installation

This document details how to install Scope AR server components on a single machine running Red Hat Enterprise Linux.

Preparation

Before beginning the installation, you will need to obtain the following:

- A host running Red Hat Enterprise Linux 8.3 or greater with at least 16GB of system memory and 200GB of disk space available.
- For offline installs (air gapped environments), we require a secondary temporary RedHat8 instance (bootstrap machine) to package the required dependancies. Bootstrap machine requirements:
    - RedHat8 is the same primary and minor version as your target install machine.
    - Has internet access to allow downloading RedHat8 packages and DockerHub images.
    - Can be a smaller instance (less cpu cores and ram) than the target install machine but should have 50GB of disk space for the package download.
    - Bootstrap machine is only required temporarily, so it can be turned on or recreated when needed for package and image updates.
    - User that performs install requires SSH access to perform admin commands and file transfers.
- The IP address of the host onto which you are installing Scope AR server components.
- Four DNS records provisioned, all pointing to the installation host's IP address
    - An `A record` pointing to the Scope AR Content Management System (CMS)
    - An `A record` pointing to the new Scope AR Authoring Web Application (Create Client)
    - An `A record` pointing to the new Scope AR Authoring API (Create API)
    - An `A record` pointing to the Minio Object Store
    - If you cannot setup an A record for these hostnames you must run the installer with the `--dns-host-ip=yes` flag.
- A TLS certificate and corresponding private key valid for all four DNS names signed by a well-known public Certificate Authority (CA). If all of the DNS names share a common parent domain, then a wildcard certificate for that parent domain may be used. Otherwise a single certificate with a Common Name (CN) for one of the domains and Subject Alternative Names (SANs) for the three additional domains must be used. If the certificate is signed by one or more intermediate certificate(s), the certificate file must include the server certificate and all intermediate certificates up to a well-known root CA (your certificate issuer will likely provide this as part of your certificate bundle).
- The hostname, port number, username, and password of an SMTP server which may be used to send emails to users on behalf of the application. You will also need an email address which may be used by the app to send emails to users.
- Dockerhub credentials authorized to pull Scope AR images. Please contact Scope AR if you need help setting this up.
- For using the web based Create client, we recommend using the latest Chromium based browsers for fastest OpenGL support, but FireFox also works fine.

    - CPU: Dual core 2.33 Ghz or greater.
    - GPU: Graphics card with OpenGL ES 3.0 support
- OPTIONAL: Seperate Flexnet license server for Pixyz model processing. Web based Create will only be able to handle FBX, OBJ & DAE files without revisions if no valid Pixyz Batch license(s) are available. Please see further instructions below on setup.

The following network ports must be open on the installation host:

Port	Protocol	Description
80	TCP	HTTP web traffic
443	TCP	HTTPS web traffic
8443	TCP	TCP tunnel service
3478	TCP & UDP	TURN service (coturn)
24000	TCP & UDP	User presence service (zeus)
49152-50000	UDP	Relay ports by the TURN service (coturn)

Create 2 can use Pixyz to convert CAD models. If this functionality is desired, a Flex server with a valid Pixyz license will be required. This will be requested during the installation process. Please contact Scope AR for assistance obtaining and setting up a Pixyz license and license server. If CAD model conversion is not required, you may enter bogus values for the flex server when the installer requests it. All other functionality should work normally.

Ensure that `scopearctl` is present on the installation host, as well as the bootstrap host if performing an offline installation (see offline installation instructions later in this document).

To install `scopearctl`, run the following command as root from the directory containing the `scopearctl` file:

```
install -m 0755 ./scopearctl /usr/local/bin
```

If you did not receive a copy of `scopearctl` along with these instructions, please contact Scope AR.

Finally, ensure that your TLS certificates and private keys are located on your installation host or on a network filesystem mounted on the installation host.

Installation Steps (online)

The online installer is the fastest and easiest way to get up and running on a host with access to the internet.

Run the following command as root on your installation host:

```
scopearctl -v singlenode install
```

Installation Steps (offline)

The offline installer allows an installation bundle to be created on a host with internet access then transferred to the final host to permit installation without internet access.

This method involves the use of two machines. The first machine (referred to hereafter as the "bootstrap" host) should be a RHEL machine with internet access. It will only be used during the installation process to download and prepare installation assets for the installation host. The second machine (referred to as the "installation" host) is the machine onto which you plan on installing Scope AR server components.

First, prepare the installation bundle by running the following command on the bootstrap host:

```
scopearctl -v singlenode bundle create
```

A directory containing the installation packages and images will be created in the current working directory.

Transfer the contents of the newly created directory from the bootstrap host to the installation host.

You can now run the installer on the installation host to finish the installation process:

```
scopearctl -v singlenode install --offline-bundle=<path-to-bundle-directory>
```

Post-Install

Once the installer has finished, you can check on the status of Scope AR services using `systemctl`:

```
systemctl status
```

The Content Management System should be available at the domain name you configured for it. You may sign in using the administrator credentials provided during the installation process. If the default admin password was used, the randomly generated admin password can be read from `/opt/scopear/cms/secret/cms/cms_password` on the installation host.

Alternatively, you may use the "forgot your password" link to request a password reset email.

Upon successful completion, the installer will write provided configuration values to `/opt/scopear/install.yaml`. Configuration changes can be applied by editing this file and re-running the installer.

Flexnet Installation (optional)

Web Create can work without a Pixyz license but will be limited to handling FBX, OBJ & DAE files without revisions.

You may skip the flexnet server installation if your company already has a floating license server. However, you will still need to generate a license request.

Pixyz has provided a Pixyz license install script that works on Debian 9/10 linux machines. Instuctions

for using their installer script can be found further below. Pixyz licenses are locked to the hardware.Therefore, it's recommended the flexnet server machine doesn't require frequent reboot and doesn't change hostnames.

Please contact support@scopear.com on obtaining a Pixyz license and/or the flexnet install script.

More information on the flexnet server setup can also be found at *Pixyz's Helpdesk Guide*.

Firewall Ports

The following network ports must be open on the installation for the Flexnet License host: Port|Protocol| Description ---|---|--- 80|TCP|Flexnet Apache 443|TCP|Flexnet Apache (Optional for SSL) 27000|TCP|Flexnet Service 26999|TCP|Pixyz License Port

Please note that the flexnet server must be reachable by the Create host.

Run the Flexlm server installer

Pixyz licenses are locked to the hardware. Ensure to install Flexlm server on the final machine before generating a license request.

1. Uncompress the `flexlm_pixyz_installer_x.x.x` tar file into a suitable directory e.g. `/opt`. This tar should be part of the sent installation package. Please contact support@scopear.com if the package is missing.
2. Create directory for flexlm `mkdir -p /home/flexlm`.
3. Run the script in `flexlm/www/install.sh`.
4. Consider installing a SSL certificate on the one server. It's not required by Create that the license server URL needs HTTPS, but it's recommended for security reasons. The script installs Apache2 so it can be configured in the standard `/etc/apache2` directory.
5. Open a web browser and try to access the Flexlm server. There will be a web page title `License Server management` if installed correctly. Click on the Generate button and save the request file (`pixyz_conect_request.lic`).
6. On the Flexlm host machine run the following commands and save the output.
```
hostname
hostname -A
hostname -f
```
7. Send both the `pixyz_conect_request.lic` and the hostname output to support@scopear.com.
8. Once you receive the license file from ScopeAR. Open the web browser to the Flexlm server's web address. `Select file` and `Install` from the web interface. There will then be information on the `Server status section` of the webpage (may require webpage refresh).
   NOTE: If you need to uninstall the flexnet license server or upgrade with a new script then run `./install.sh â€“uninstall`, backup your licenses in `/home/flexlm/licenses`, and then delete the folder `/home/flexlm`.