SITECORE DOCKER OVERVIEW

Sitecore User Group Poland 13th October

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softserve

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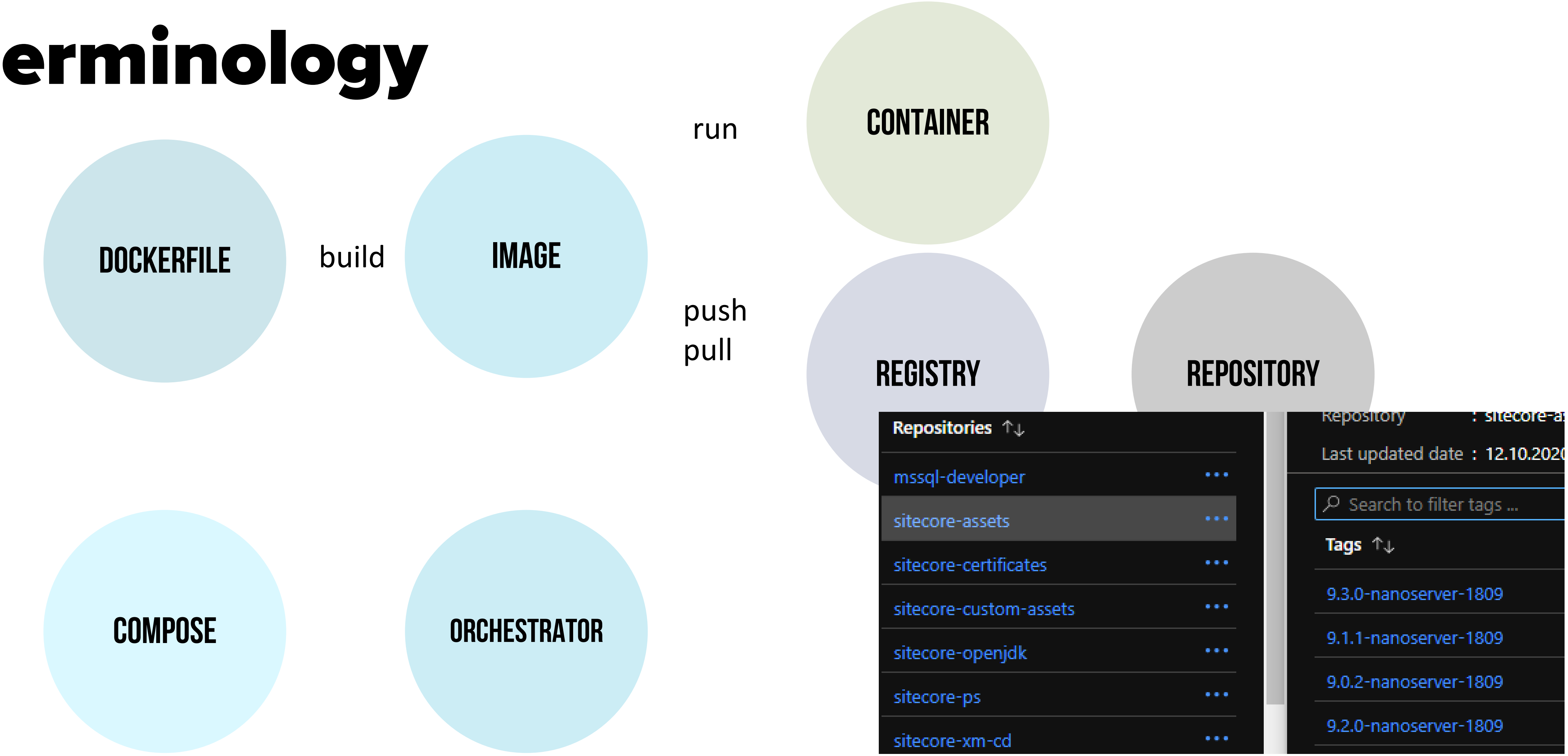
What is Docker?

- COMPANY
- OPEN SOURCE PROJECT
- SYNONYM

Terminology



DOCKERFILE

build

IMAGE

run

CONTAINER

push

pull

REGISTRY

REPOSITORY

COMPOSE

ORCHESTRATOR

Repositories ↑↓

mssql-developer

sitecore-assets

sitecore-certificates

sitecore-custom-assets

sitecore-openjdk

sitecore-ps

sitecore-xm-cd

Repository : sitecore-a

Last updated date : 12.10.202

Tags ↑↓

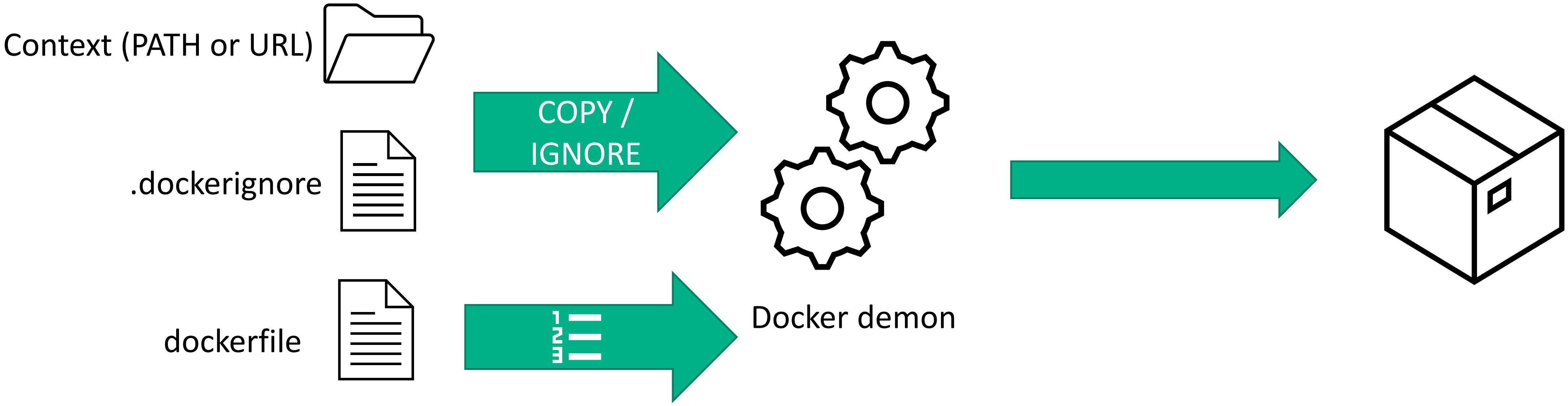
9.3.0-nanoserver-1809

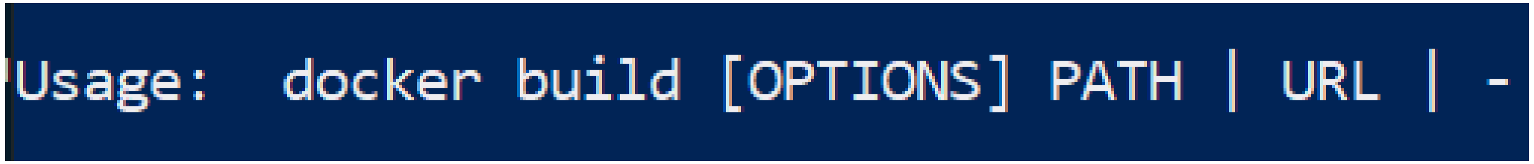
9.1.1-nanoserver-1809

9.0.2-nanoserver-1809

9.2.0-nanoserver-1809

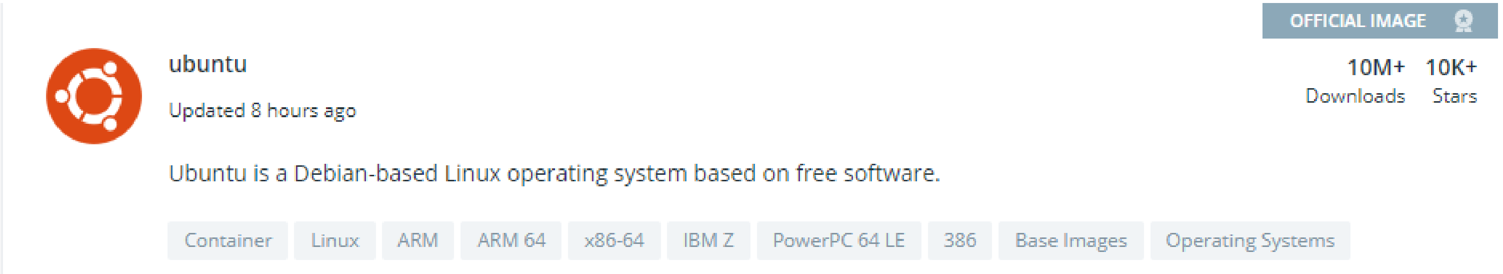
Build Image





```
Usage:  docker build [OPTIONS] PATH | URL | -
```

Image and layers



OFFICIAL IMAGE

ubuntu

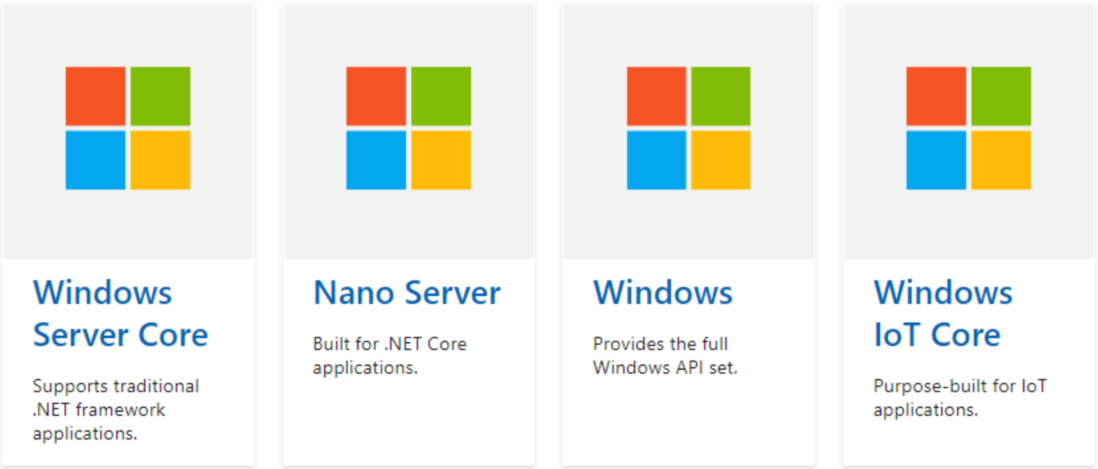
Updated 8 hours ago

10M+ Downloads

10K+ Stars

Ubuntu is a Debian-based Linux operating system based on free software.

Container | Linux | ARM | ARM 64 | x86-64 | IBM Z | PowerPC 64 LE | 386 | Base Images | Operating Systems



Windows Server Core

Supports traditional .NET framework applications.

Nano Server

Built for .NET Core applications.

Windows

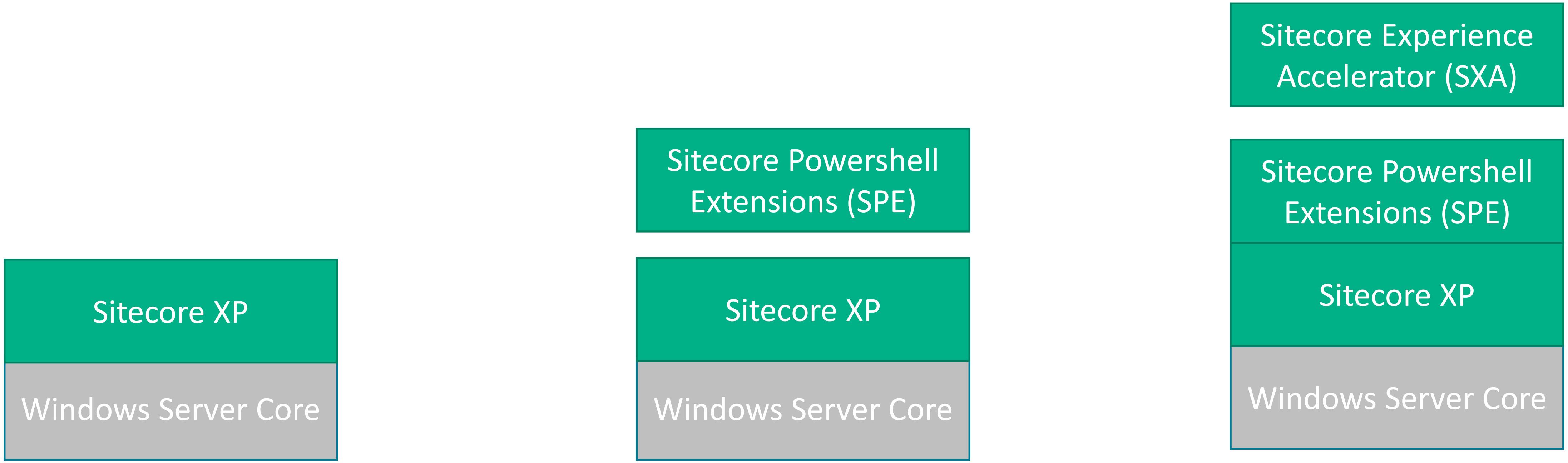
Provides the full Windows API set.

Windows IoT Core

Purpose-built for IoT applications.

Basic Image

Image and layers



Sitecore XP

Windows Server Core

Sitecore Powershell Extensions (SPE)

Sitecore XP

Windows Server Core

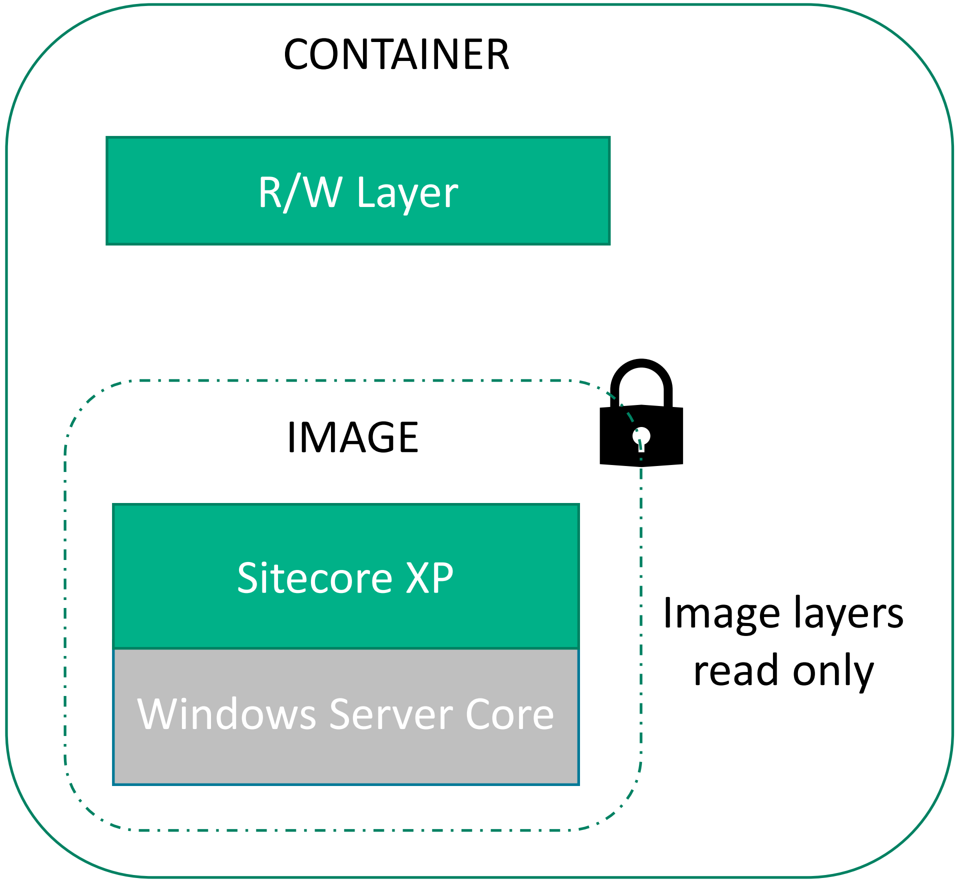
Sitecore Experience Accelerator (SXA)

Sitecore Powershell Extensions (SPE)

Sitecore XP

Windows Server Core

Containers

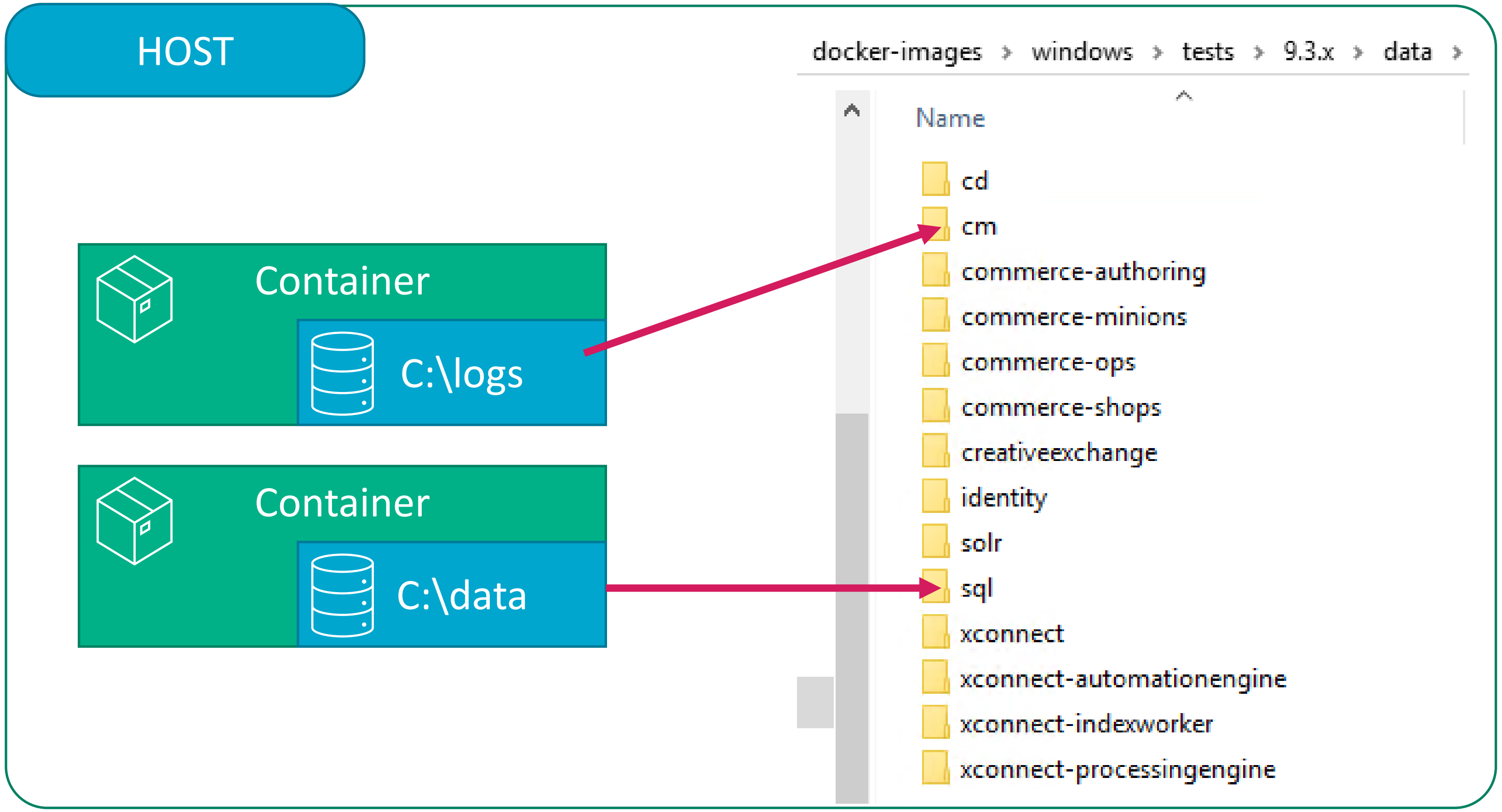


An image becomes a container when the **docker run** command is executed.

! R/W Layer exists only in runtime

Can be useful when you do something that broke your solution

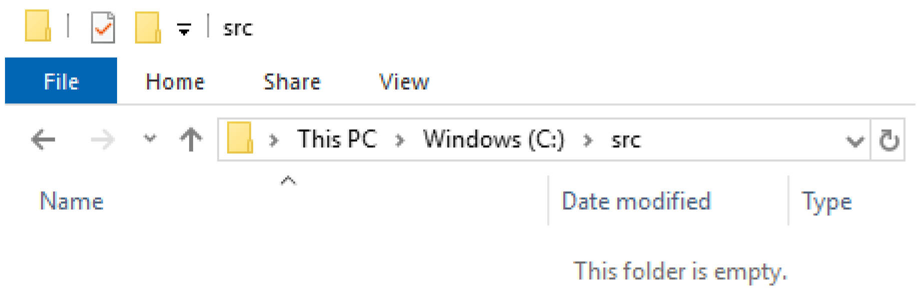
Volumes



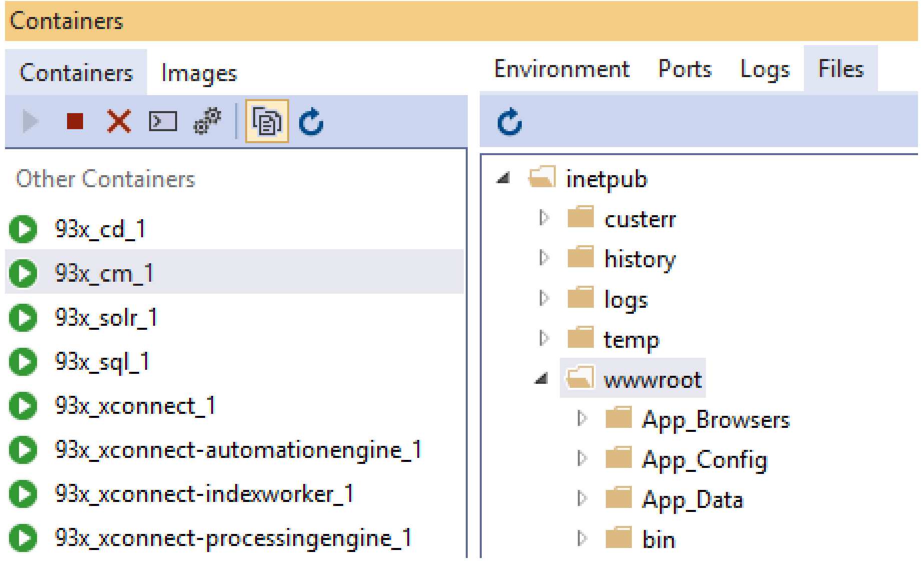
docker-images › windows › tests › 9.3.x › data ›

- cd
- cm
- commerce-authoring
- commerce-minions
- commerce-ops
- commerce-shops
- creativeexchange
- identity
- solr
- sql
- xconnect
- xconnect-automationengine
- xconnect-indexworker
- xconnect-processingengine

Container and Host Synchronization



This folder is empty.



93x_cd_1
93x_cm_1
93x_solr_1
93x_sql_1
93x_xconnect_1
93x_xconnect-automationengine_1
93x_xconnect-indexworker_1
93x_xconnect-processingengine_1

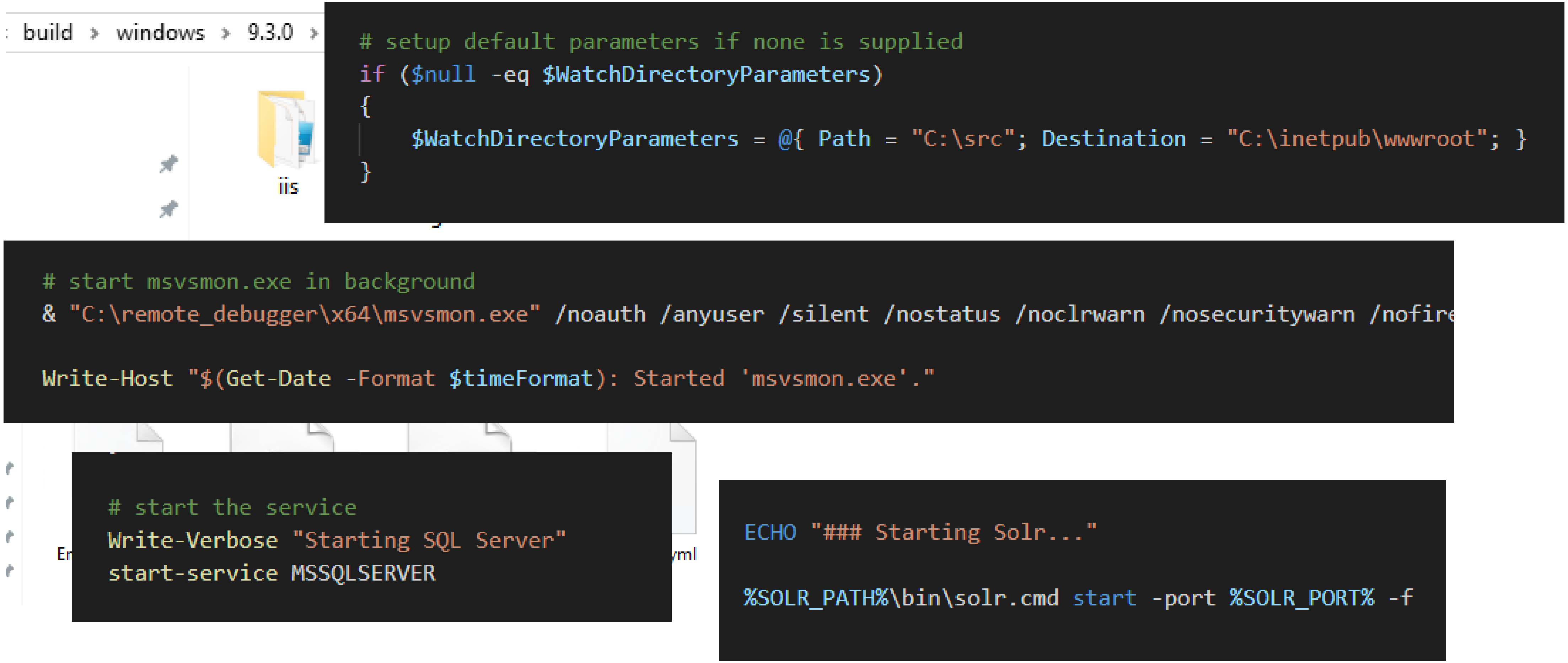
```
inetpub
  custerr
  history
  logs
  temp
  wwwroot
    App_Browsers
    App_Config
    App_Data
    bin
```

Watch-Directory.ps1
Type: Windows PowerShell Script

HOST

Container

ENTRYPOINT



```
# setup default parameters if none is supplied
if ($null -eq $WatchDirectoryParameters)
{
    $WatchDirectoryParameters = @{ Path = "C:\src"; Destination = "C:\inetpub\wwwroot"; }
}
```

```
# start msvsmon.exe in background
& "C:\remote_debugger\x64\msvsmon.exe" /noauth /anyuser /silent /nostatus /noclrwarn /nosecuritywarn /nofire

Write-Host "$(Get-Date -Format $timeFormat): Started 'msvsmon.exe'."
```

```
# start the service
Write-Verbose "Starting SQL Server"
start-service MSSQLSERVER
```

```
ECHO "### Starting Solr..."

%SOLR_PATH%\bin\solr.cmd start -port %SOLR_PORT% -f
```

Sitecore & Docker - Two worlds

Before Sitecore 10

https://github.com/Sitecore/docker-images

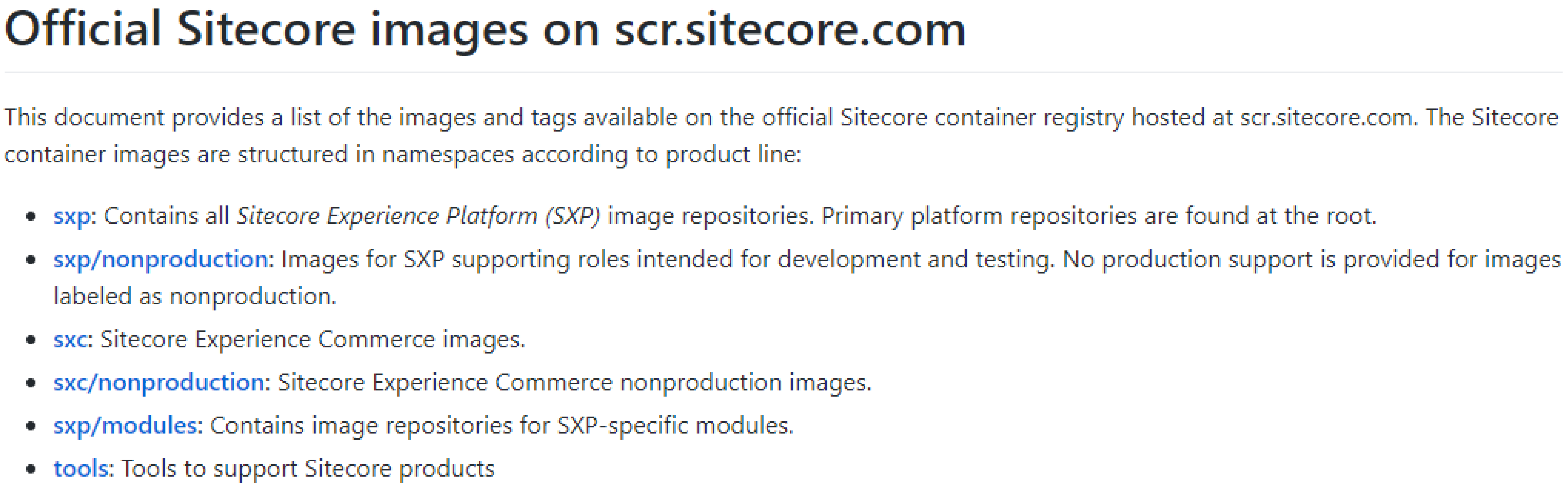
yourown.azurecr.io

Sitecore 10+

https://github.com/Sitecore/docker-examples

scr.sitecore.com

Sitecore Container Registry



Official Sitecore images on scr.sitecore.com

This document provides a list of the images and tags available on the official Sitecore container registry hosted at scr.sitecore.com. The Sitecore container images are structured in namespaces according to product line:

- sxp: Contains all *Sitecore Experience Platform (SXP)* image repositories. Primary platform repositories are found at the root.
- sxp/nonproduction: Images for SXP supporting roles intended for development and testing. No production support is provided for images labeled as nonproduction.
- sxc: Sitecore Experience Commerce images.
- sxc/nonproduction: Sitecore Experience Commerce nonproduction images.
- sxp/modules: Contains image repositories for SXP-specific modules.
- tools: Tools to support Sitecore products

https://github.com/Sitecore/docker-images/blob/master/sitecore-container-support/sitecore-tags.md

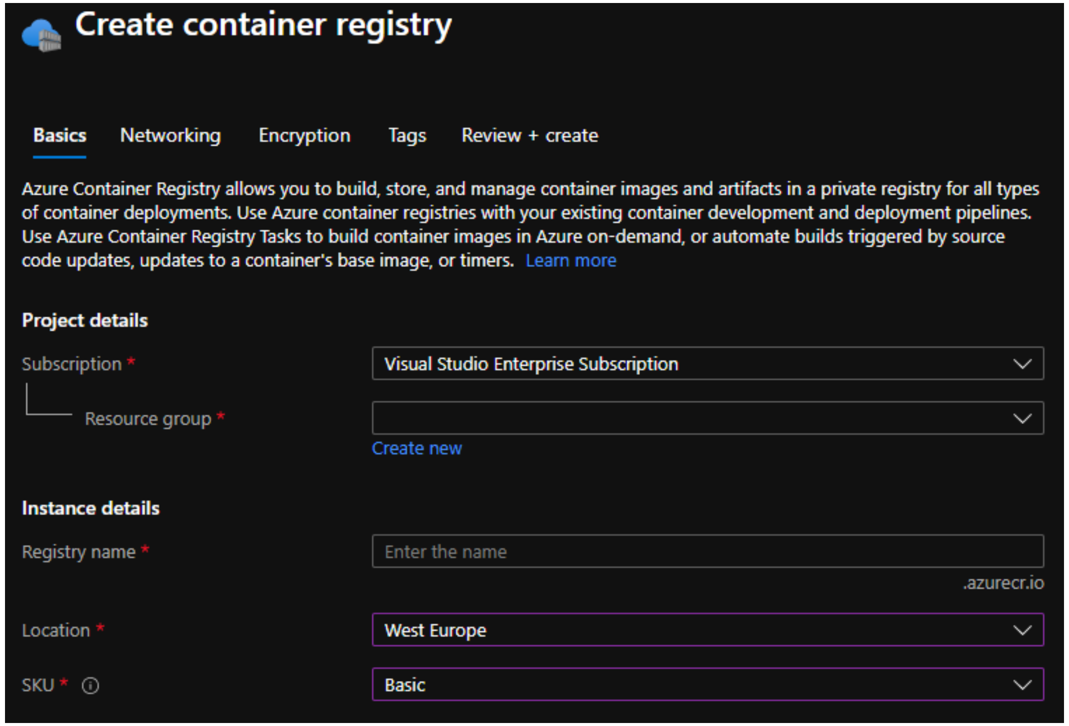
Your Own Container Registry

Building images from scratch is time consuming

Keeping images locally is space consuming

yourregistry.azurecr.io

Pull & Up XP1 topology takes 30 minutes



Create container registry

Azure Container Registry allows you to build, store, and manage container images and artifacts in a private registry for all types of container deployments. Use Azure container registries with your existing container development and deployment pipelines. Use Azure Container Registry Tasks to build container images in Azure on-demand, or automate builds triggered by source code updates, updates to a container's base image, or timers. Learn more

Project details

Subscription * Visual Studio Enterprise Subscription

Resource group *

Create new

Instance details

Registry name * Enter the name .azurecr.io

Location * West Europe

SKU * Basic

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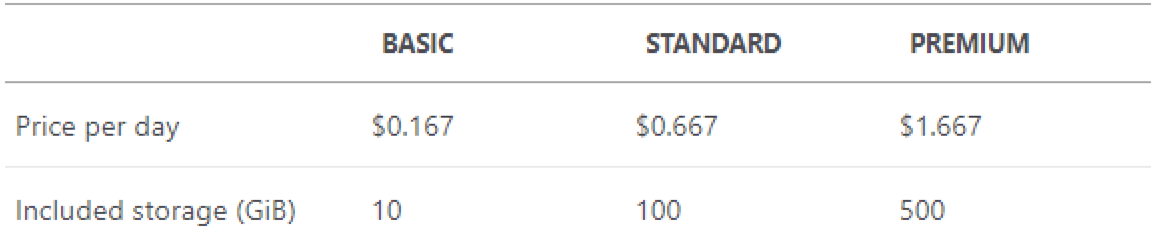
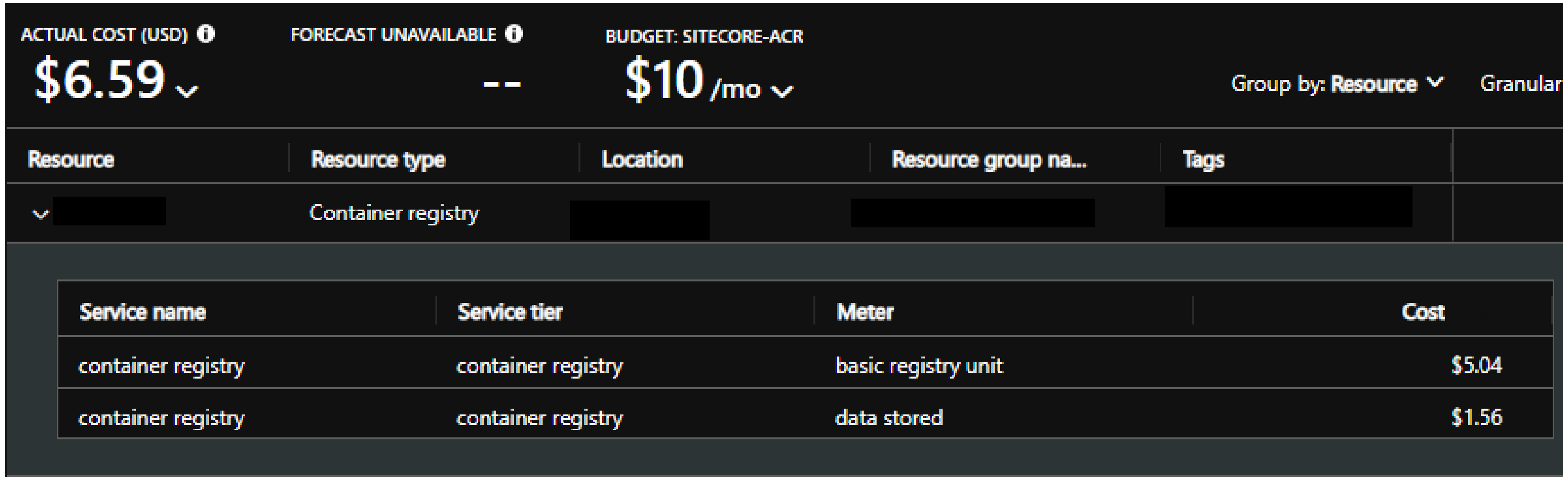
Cost of Azure Container Registry



	BASIC	STANDARD	PREMIUM
Price per day	$0.167	$0.667	$1.667
Included storage (GiB)	10	100	500



ACTUAL COST (USD) $6.59

FORECAST UNAVAILABLE --

BUDGET: SITECORE-ACR $10 /mo

Group by: Resource

Granular

Resource	Resource type	Location	Resource group na...	Tags
[redacted]	Container registry	[redacted]	[redacted]	[redacted]

Service name	Service tier	Meter	Cost
container registry	container registry	basic registry unit	$5.04
container registry	container registry	data stored	$1.56

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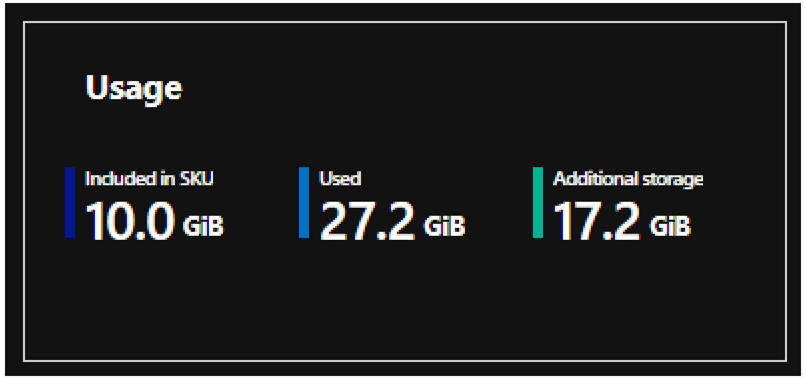
Your Own Container Registry



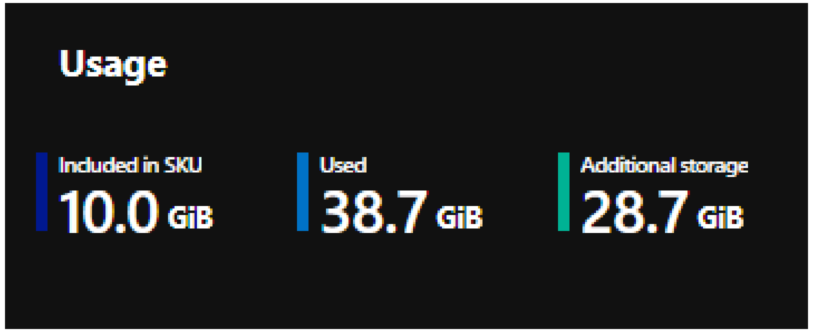
Usage

Included in SKU 10.0 GiB

Used 27.2 GiB

Additional storage 17.2 GiB

- 9.0.2 XM Topology (CM+CD)
- 9.1.1 XM Topology (CM+CD)
- 9.2.0 XP + SPE + SXA + JSS
- 9.3.0 XP + SPE + SXA + JSS
- 10.0.0 XP + SPE + SXA + JSS ☹



Usage

Included in SKU 10.0 GiB

Used 38.7 GiB

Additional storage 28.7 GiB

- 9.3.0 XP + SPE + SXA + JSS + PS

OS Prerequisites

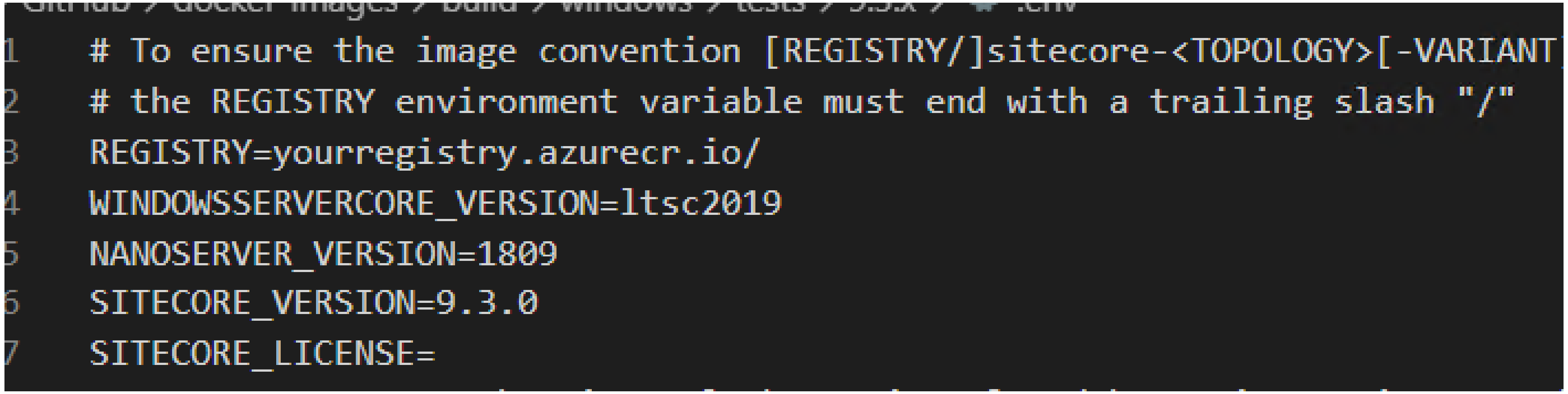
Windows 10 Professional or Enterprise with Anniversary Update (version 1607) or later.

Windows Server (Semi-Annual Channel), Windows Server 2019, or Windows Server 2016.

How to use registry

1. Edit REGISTRY in .env file **yourregistry.azurecr.io/ <SLAHS SLASH SLASH>**

2. Login to registry *docker login yourregistry.azurecr.io --username --password*



```
# To ensure the image convention [REGISTRY/]sitecore-<TOPOLOGY>[-VARIANT
# the REGISTRY environment variable must end with a trailing slash "/"
REGISTRY=yourregistry.azurecr.io/
WINDOWSSERVERCORE_VERSION=ltsc2019
NANOSERVER_VERSION=1809
SITECORE_VERSION=9.3.0
SITECORE_LICENSE=
```

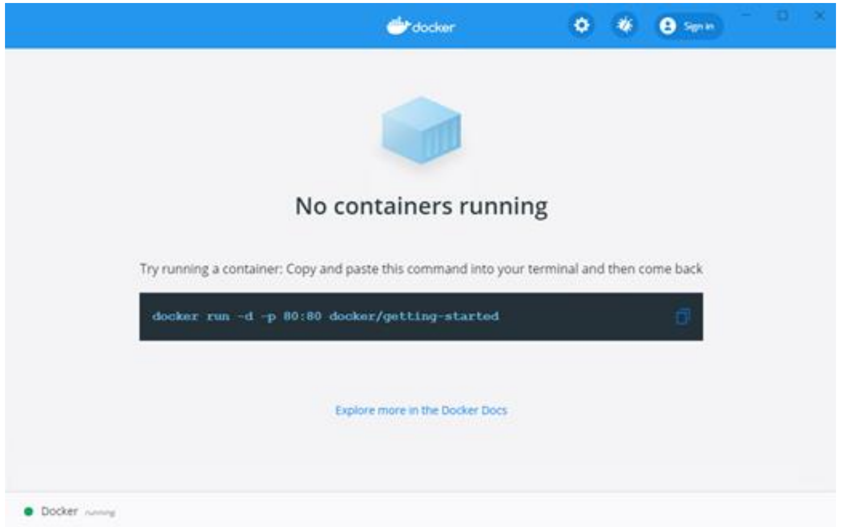
Prerequisites

INSTALLED **DOCKER DESKTOP** FOR WINDOWS

SWITCH DOCKER DESKTOP TO USE **WINDOWS CONTAINERS**

ABOUT 40 GB FREE SPACE ON DISK

Prerequisites

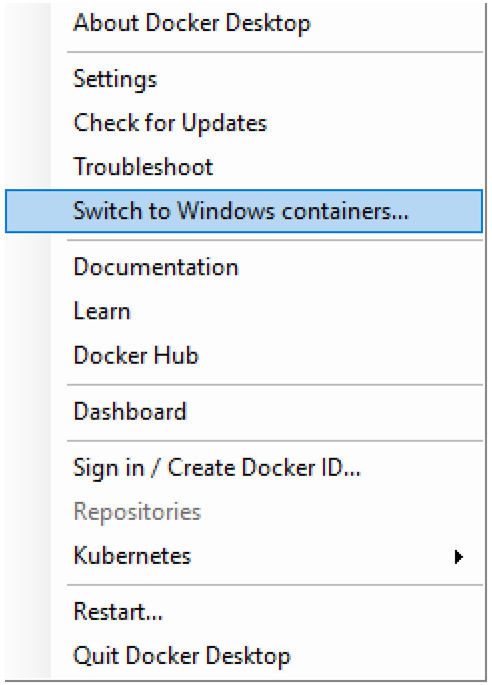


No containers running

Try running a container: Copy and paste this command into your terminal and then come back

```
docker run -d -p 80:80 docker/getting-started
```

Explore more in the Docker Docs



About Docker Desktop

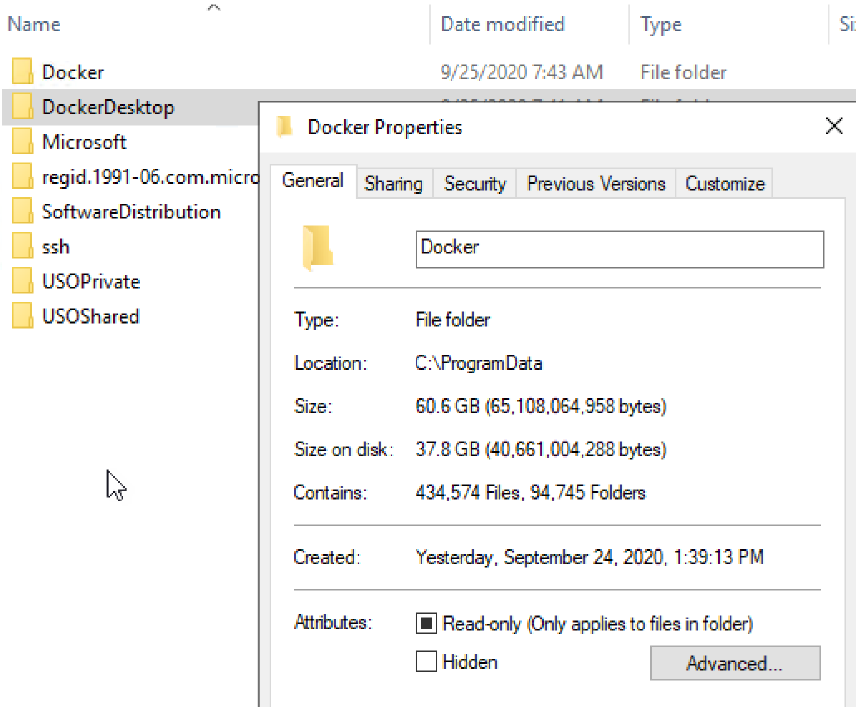
Settings
Check for Updates
Troubleshoot
Switch to Windows containers...

Documentation
Learn
Docker Hub

Dashboard

Sign in / Create Docker ID...
Repositories
Kubernetes

Restart...
Quit Docker Desktop



```
Name                          Date modified        Type         Si
Docker                        9/25/2020 7:43 AM    File folder
DockerDesktop
Microsoft
regid.1991-06.com.micro
SoftwareDistribution
ssh
USOPrivate
USOShared
```

Docker Properties

General | Sharing | Security | Previous Versions | Customize

Docker

Type: File folder

Location: C:\ProgramData

Size: 60.6 GB (65,108,064,958 bytes)

Size on disk: 37.8 GB (40,661,004,288 bytes)

Contains: 434,574 Files, 94,745 Folders

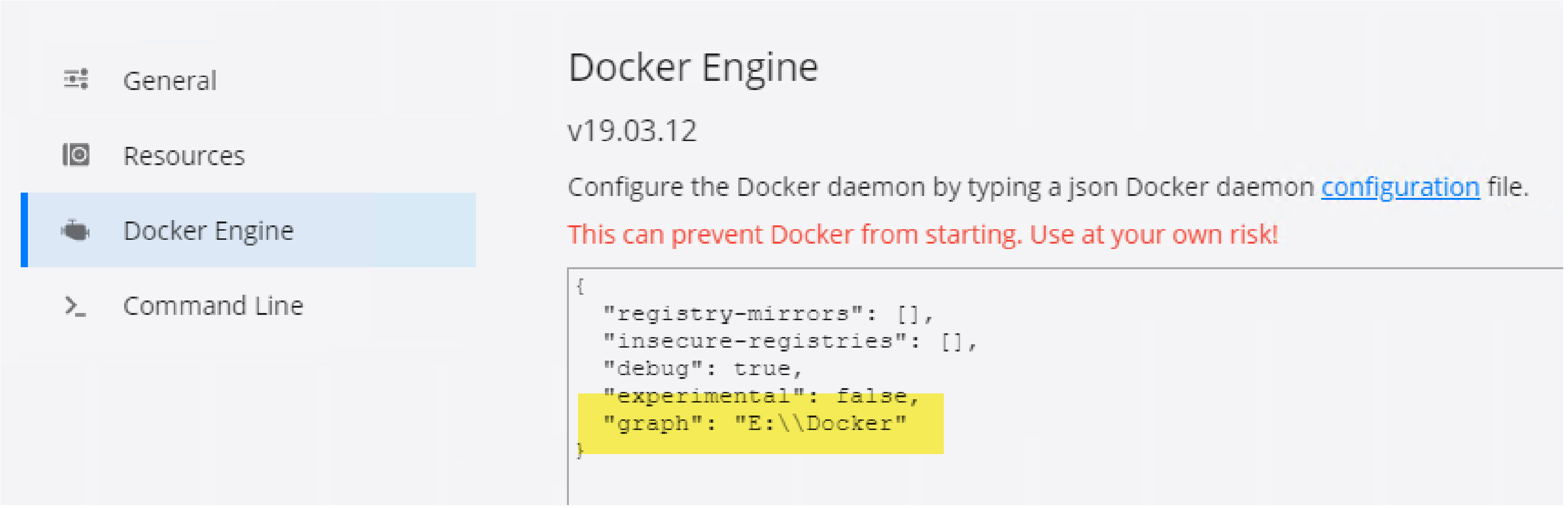
Created: Yesterday, September 24, 2020, 1:39:13 PM

Attributes: ■ Read-only (Only applies to files in folder)
□ Hidden

Advanced...

Worth to consider

Switch Docker demon to a different disk with more space



Docker Engine

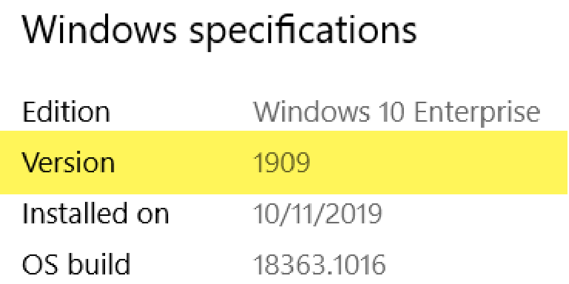
v19.03.12

Configure the Docker daemon by typing a json Docker daemon configuration file.

This can prevent Docker from starting. Use at your own risk!

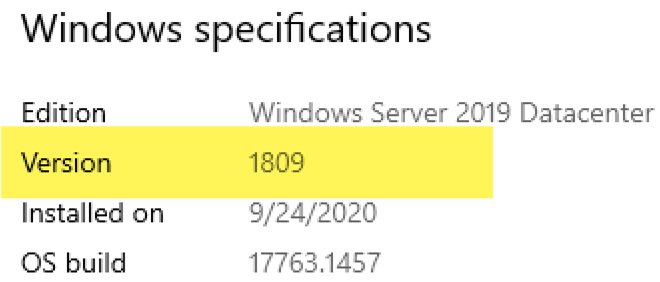
```
{
  "registry-mirrors": [],
  "insecure-registries": [],
  "debug": true,
  "experimental": false,
  "graph": "E:\\Docker"
}
```

Good to know - OS Compatibility



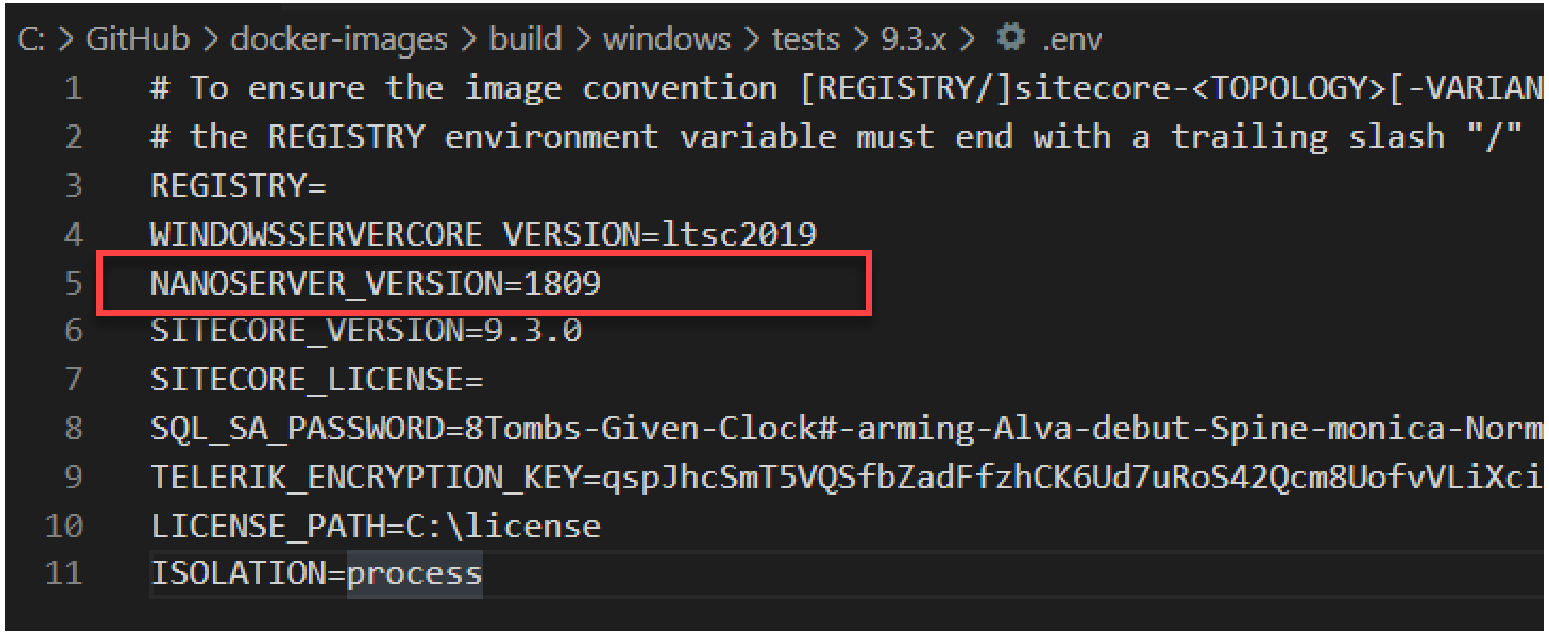
Windows specifications

Edition	Windows 10 Enterprise
Version	1909
Installed on	10/11/2019
OS build	18363.1016



Windows specifications

Edition	Windows Server 2019 Datacenter
Version	1809
Installed on	9/24/2020
OS build	17763.1457



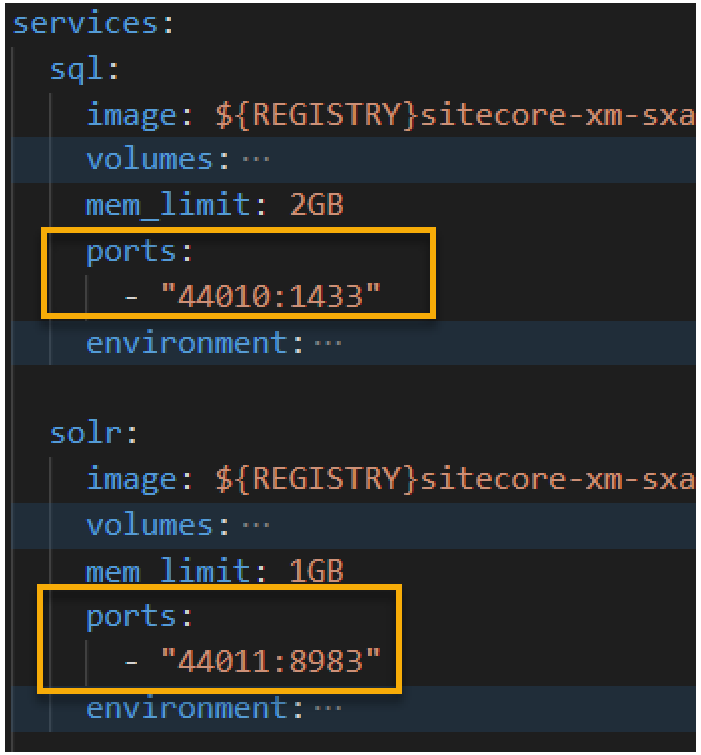
C: > GitHub > docker-images > build > windows > tests > 9.3.x > .env

```
# To ensure the image convention [REGISTRY/]sitecore-<TOPOLOGY>[-VARIAN
# the REGISTRY environment variable must end with a trailing slash "/"
REGISTRY=
WINDOWSSERVERCORE_VERSION=ltsc2019
NANOSERVER_VERSION=1809
SITECORE_VERSION=9.3.0
SITECORE_LICENSE=
SQL_SA_PASSWORD=8Tombs-Given-Clock#-arming-Alva-debut-Spine-monica-Norm
TELERIK_ENCRYPTION_KEY=qspJhcSmT5VQSfbZadFfzhCK6Ud7uRoS42Qcm8UofvVLiXci
LICENSE_PATH=C:\license
ISOLATION=process
```

https://hub.docker.com/_/microsoft-windows-servercore

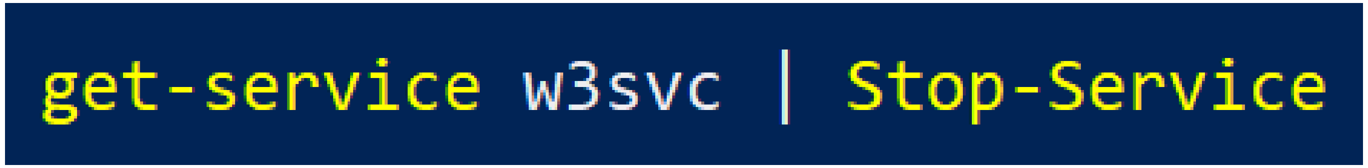
https://docs.microsoft.com/en-us/virtualization/windowscontainers/deploy-containers/version-compatibility

Good to know – ports conflicts

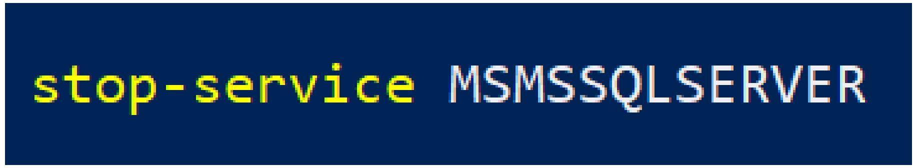


```
services:
  sql:
    image: ${REGISTRY}sitecore-xm-sxa
    volumes: ···
    mem_limit: 2GB
    ports:
      - "44010:1433"
    environment: ···

  solr:
    image: ${REGISTRY}sitecore-xm-sxa
    volumes: ···
    mem_limit: 1GB
    ports:
      - "44011:8983"
    environment: ···
```

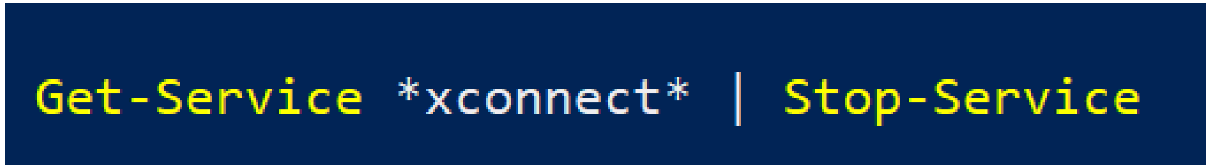
Good to know – stop host resources



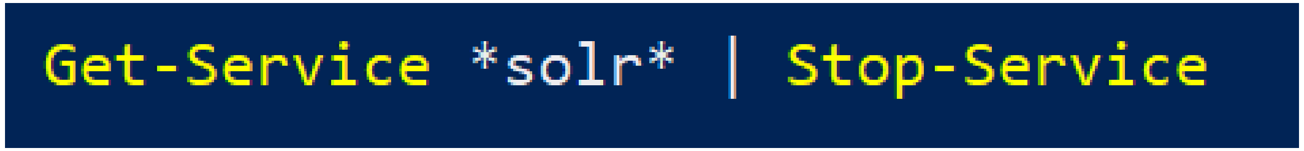
```
get-service w3svc | Stop-Service
```



```
stop-service MSMSSQLSERVER
```

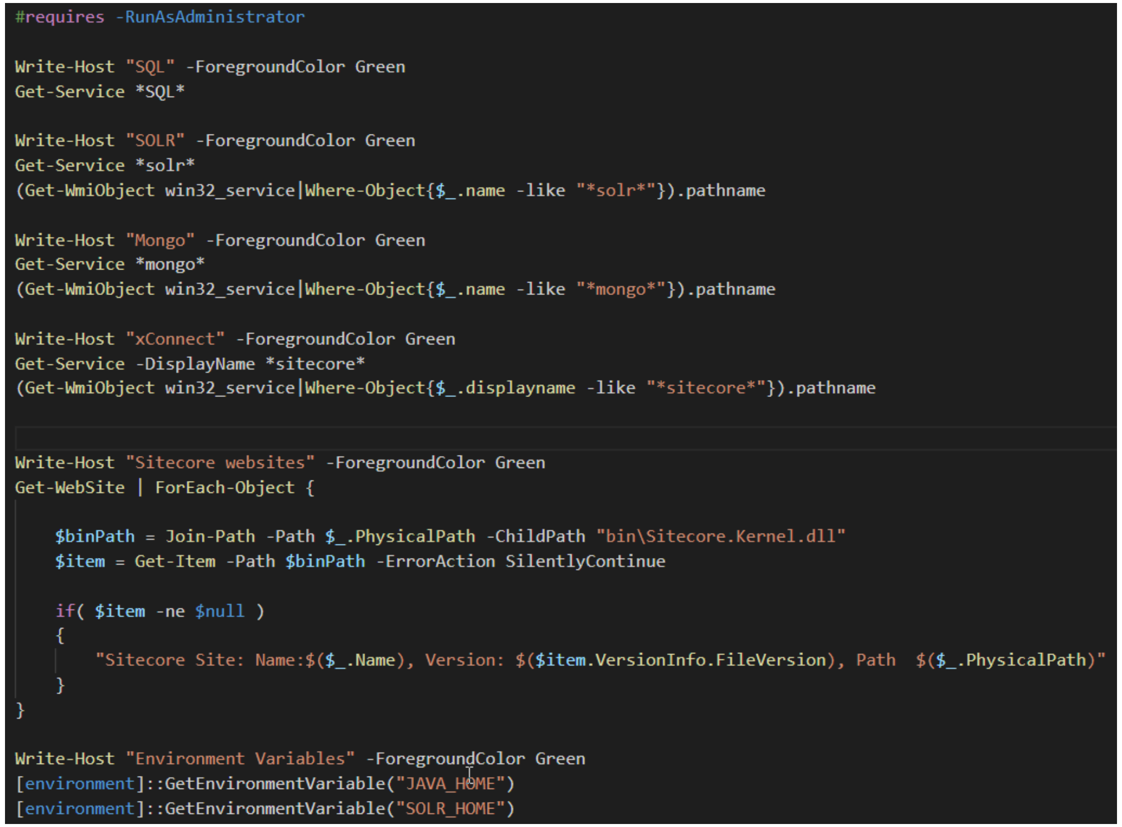


```
Get-Service *xconnect* | Stop-Service
```

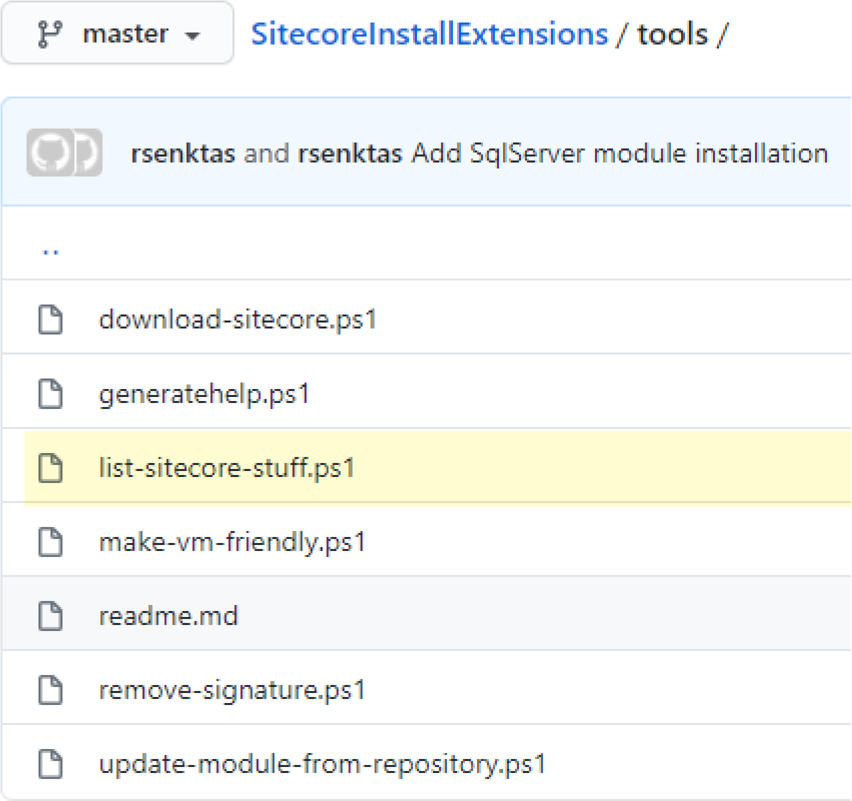


```
Get-Service *solr* | Stop-Service
```

List Sitecore Resources



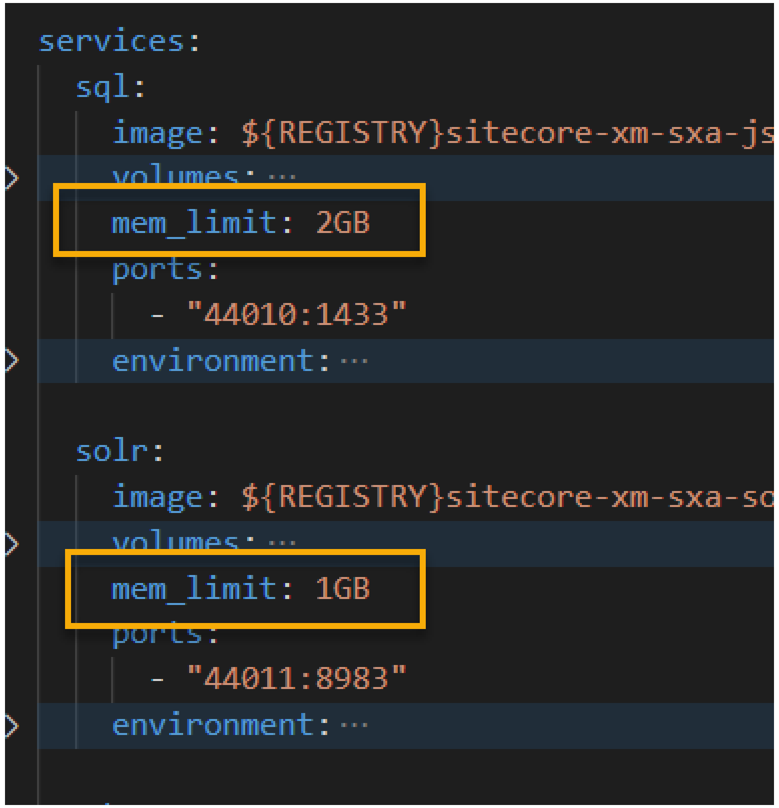
```
#requires -RunAsAdministrator

Write-Host "SQL" -ForegroundColor Green
Get-Service *SQL*

Write-Host "SOLR" -ForegroundColor Green
Get-Service *solr*
(Get-WmiObject win32_service|Where-Object{$_.name -like "*solr*"}).pathname

Write-Host "Mongo" -ForegroundColor Green
Get-Service *mongo*
(Get-WmiObject win32_service|Where-Object{$_.name -like "*mongo*"}).pathname

Write-Host "xConnect" -ForegroundColor Green
Get-Service -DisplayName *sitecore*
(Get-WmiObject win32_service|Where-Object{$_.displayname -like "*sitecore*"}).pathname


Write-Host "Sitecore websites" -ForegroundColor Green
Get-WebSite | ForEach-Object {

    $binPath = Join-Path -Path $_.PhysicalPath -ChildPath "bin\Sitecore.Kernel.dll"
    $item = Get-Item -Path $binPath -ErrorAction SilentlyContinue

    if( $item -ne $null )
    {
        "Sitecore Site: Name:$($_.Name), Version: $($item.VersionInfo.FileVersion), Path  $($_.PhysicalPath)"
    }
}

Write-Host "Environment Variables" -ForegroundColor Green
[environment]::GetEnvironmentVariable("JAVA_HOME")
[environment]::GetEnvironmentVariable("SOLR_HOME")
```



rsenktas and rsenktas Add SqlServer module installation

..
download-sitecore.ps1
generatehelp.ps1
list-sitecore-stuff.ps1
make-vm-friendly.ps1
readme.md
remove-signature.ps1
update-module-from-repository.ps1

Good to know –you can tweak resources



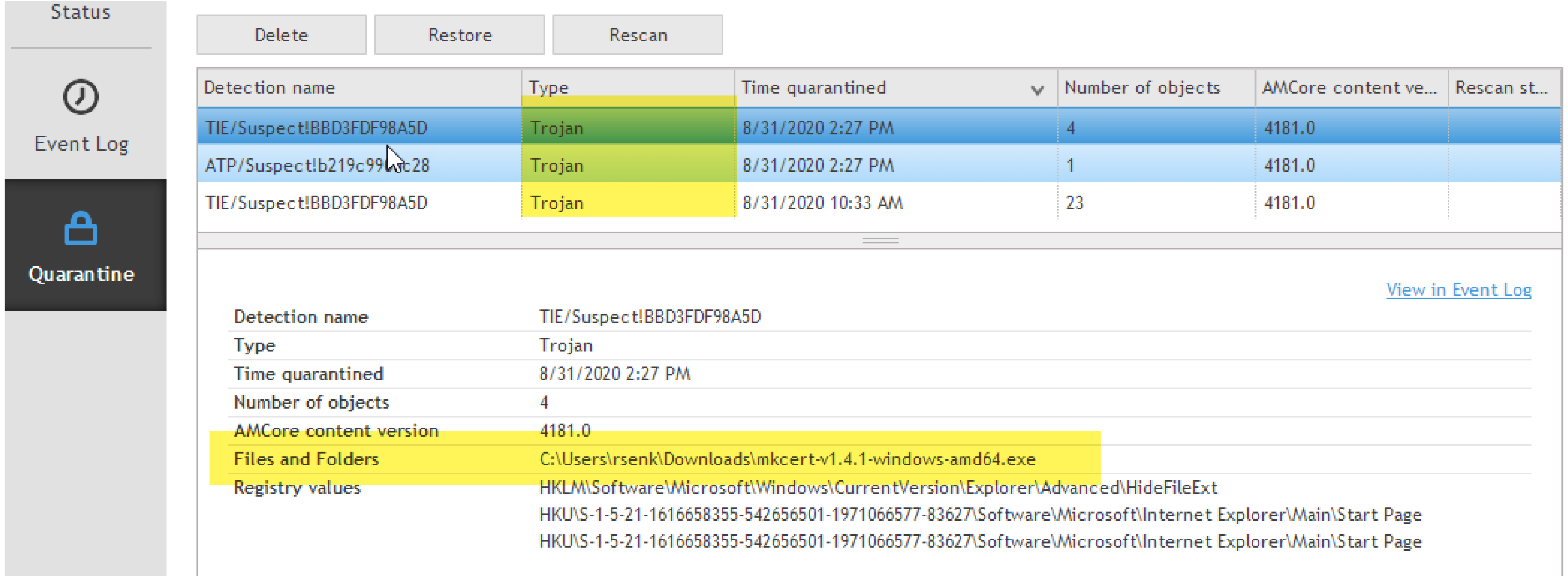
```
services:
  sql:
    image: ${REGISTRY}sitecore-xm-sxa-js
    volumes: ···
    mem_limit: 2GB
    ports:
      - "44010:1433"
    environment: ···

  solr:
    image: ${REGISTRY}sitecore-xm-sxa-sc
    volumes: ···
    mem_limit: 1GB
    ports:
      - "44011:8983"
    environment: ···
```

MKCERT PROBLEM

This repo https://github.com/Sitecore/docker-examples

using mkcert to generate SSL cert for Traefik

Mkcert was identified as a trojan on my laptop.



Detection name	Type	Time quarantined	Number of objects	AMCore content ve...	Rescan st...
TIE/Suspect!BBD3FDF98A5D	Trojan	8/31/2020 2:27 PM	4	4181.0	
ATP/Suspect!b219c99[illegible]c28	Trojan	8/31/2020 2:27 PM	1	4181.0	
TIE/Suspect!BBD3FDF98A5D	Trojan	8/31/2020 10:33 AM	23	4181.0	

Detection name	TIE/Suspect!BBD3FDF98A5D
Type	Trojan
Time quarantined	8/31/2020 2:27 PM
Number of objects	4
AMCore content version	4181.0
Files and Folders	C:\Users\rsenk\Downloads\mkcert-v1.4.1-windows-amd64.exe
Registry values	HKLM\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced\HideFileExt HKU\S-1-5-21-1616658355-542656501-1971066577-83627\Software\Microsoft\Internet Explorer\Main\Start Page HKU\S-1-5-21-1616658355-542656501-1971066577-83627\Software\Microsoft\Internet Explorer\Main\Start Page

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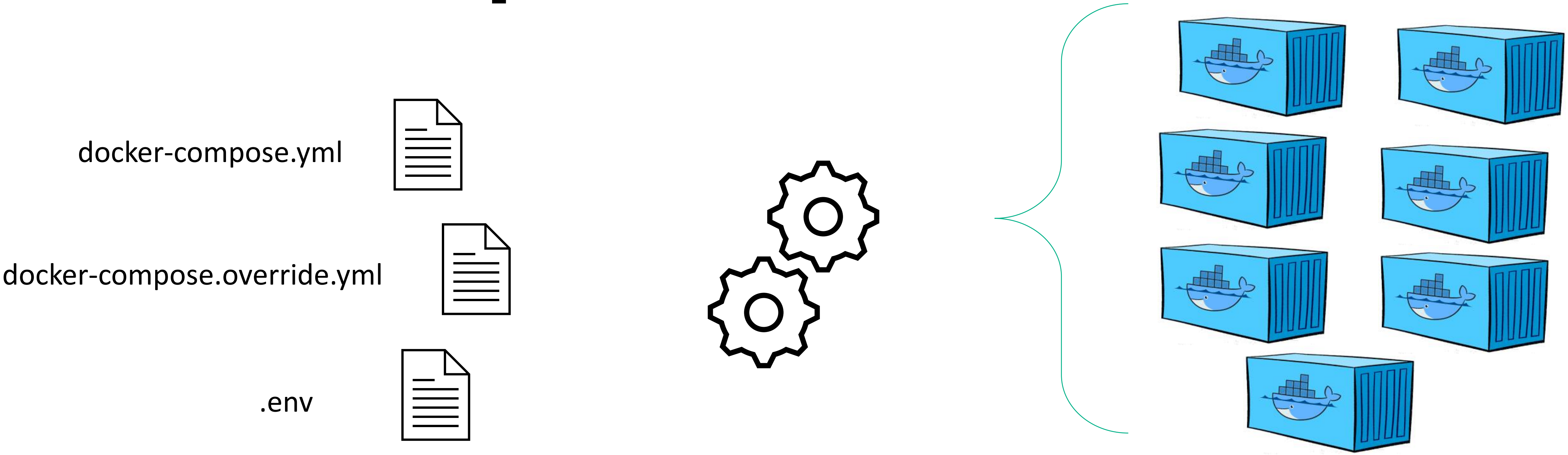
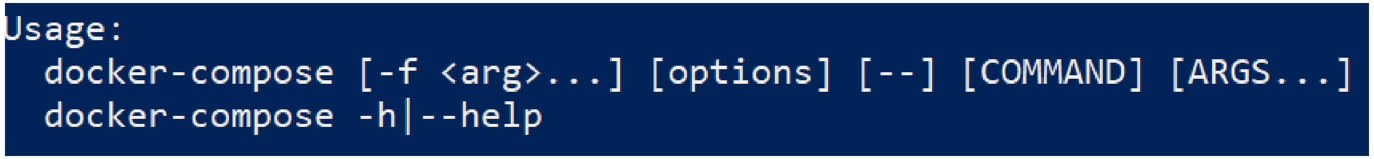
Docker compose



docker-compose.yml

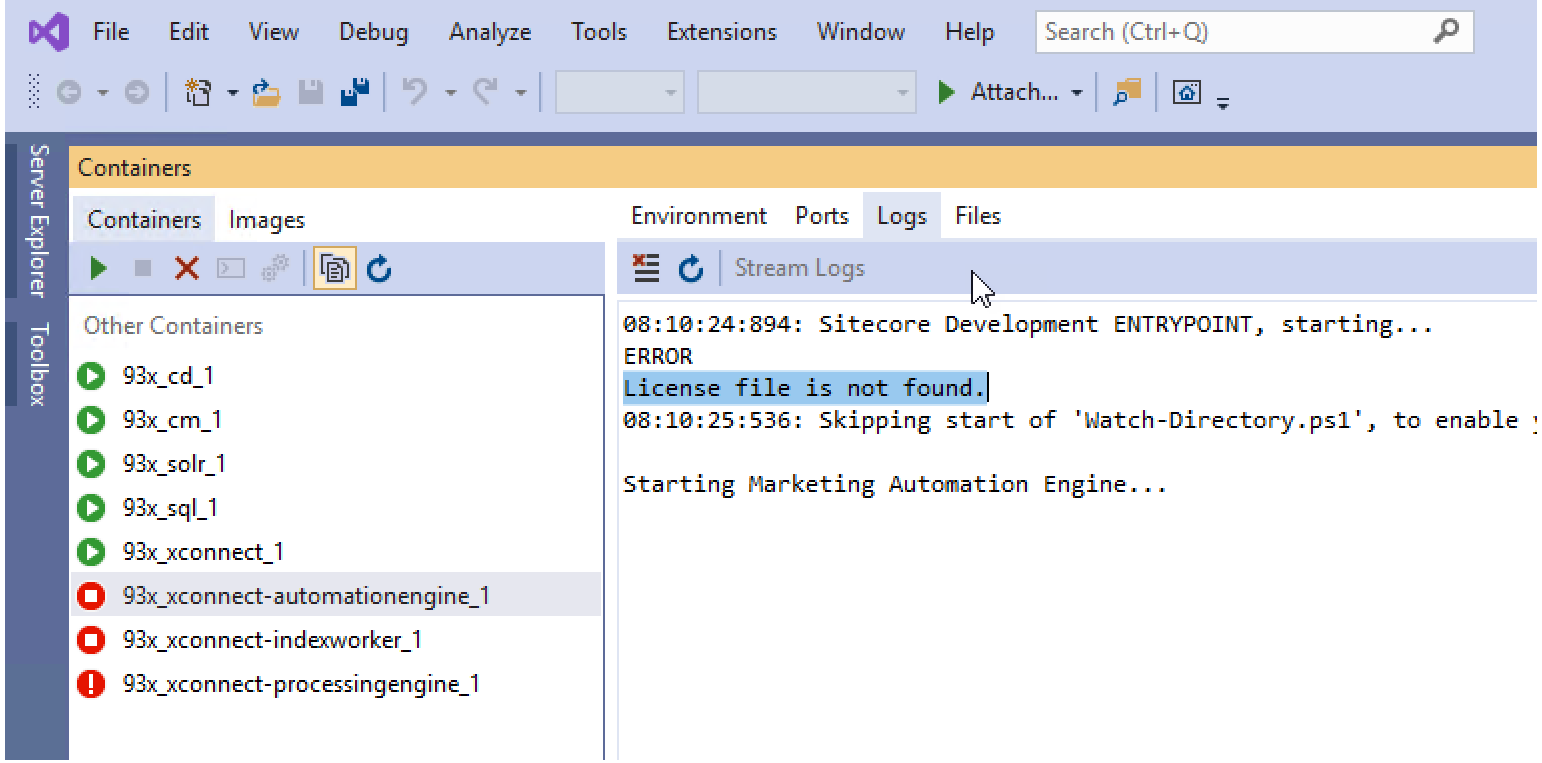
docker-compose.override.yml

.env



```
Usage:
  docker-compose [-f <arg>...] [options] [--] [COMMAND] [ARGS...]
  docker-compose -h|--help
```

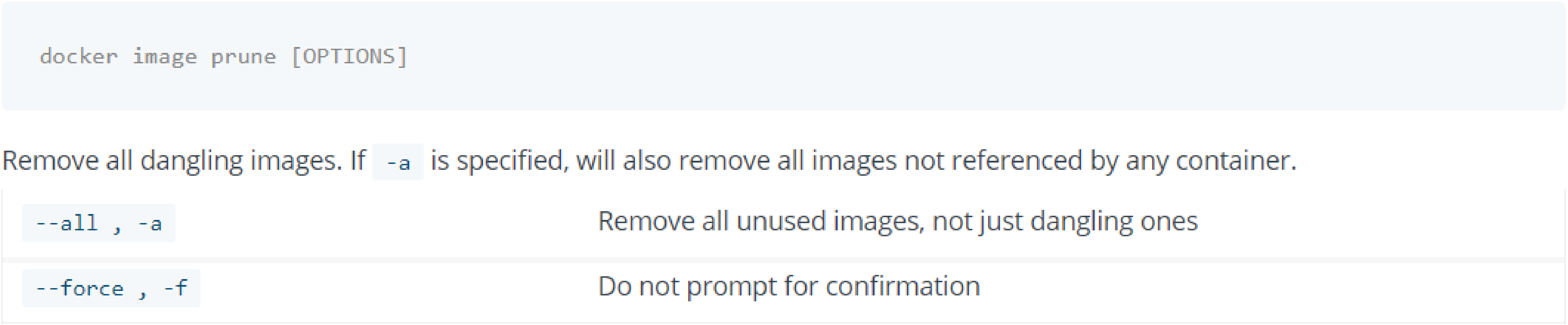
Containers are up and ...?



```
08:10:24:894: Sitecore Development ENTRYPOINT, starting...
ERROR
License file is not found.
08:10:25:536: Skipping start of 'Watch-Directory.ps1', to enable

Starting Marketing Automation Engine...
```

CLEAN UP



```
docker image prune [OPTIONS]
```

Remove all dangling images. If `-a` is specified, will also remove all images not referenced by any container.

`--all , -a`	Remove all unused images, not just dangling ones
`--force , -f`	Do not prompt for confirmation

QUESTIONS???

References

https://www.sitecore.com/knowledge-center/getting-started/docker-a-quick-overview

https://www.sitecore.com/knowledge-center/getting-started/sitecore-docker-images-repository

https://containers.doc.sitecore.com/docs/intro

https://www.sitecore.com/knowledge-center/getting-started/should-my-team-adopt-docker