

# SYSPRO Container Controller

Syspro 8

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# Syspro Container Controller

## Exploring

### Where it fits in?

This application is used to deploy containers using prebuilt images to host multiple “servers”, and therefore supports scaling out the **Syspro Web UI (Avanti)** and **Syspro Point of Sale** solutions.



As the container setup and configuration differs, you can only configure containers for *either* **Syspro Web UI (Avanti)** or **Syspro Point of Sale**.

### Syspro Container Automation Service

The **Syspro Container Automation Service** is used to perform the following tasks:

- Update the **Syspro Application Gateway Service** configuration file with the new endpoints (i.e. IP addresses) of the restarted containers when a server is restarted.
- Continuously monitor the containers and their performance, so that containers are added or removed as required.

### Service Deployment

This service is deployed with a delayed start start-up configuration as it has a dependency on the local Docker engine. This is because the Docker containers must be started and running when the **Syspro Container Automation Service** is initiated.

### Service Configuration

The service is mainly driven by the configuration values defined within the `Monitor_Automation` section of the `application.config` and `custom.config` files.

An important value within these files is the `ConfigureServiceSecondsCheck` key value, as this determines the interval at which the service checks the state of the containers. Any changes in the `custom.config` file are then automatically merged in and applied as part of this check.

### Container Monitoring

The **Syspro Container Automation Service** starts an instance of the **Syspro Container Controller** application which it uses to monitor the containers.

This instance is then automatically removed once the service stops.



# Terminology

## Windows Container

Each container is like a mini-virtual machine, without many of the overheads of a traditional VM.

A container image is a static, lightweight, standalone and executable package of software that includes everything needed to run an application:

- Executable code
- Runtime
- System tools
- System libraries
- Settings

This enables it to run an isolated process on information technology (IT) infrastructure.

# Starting

## Prerequisites

### Technology Requirements

- Syspro Application Gateway Service service

### Operating System Requirements

One of the key requirements for the SYSPRO Web UI scalability solution using containers is that the Host computer must be running **Windows Server 2022**.

The reasons for this include:

- The Web UI Container includes what is known as a Server Image, and the Web UI component requires the latest image that is only supported on **Windows Server 2022**.
- Earlier Windows Server versions don't fully support the technology required to run the SYSPRO Web UI at scale.

#### **Important Licensing and Cost Considerations - Windows Server 2022 Standard vs. Datacenter edition:**

The SYSPRO Web UI Scalability solution using containers allows you to configure the number of containers providing the level of scalability required.

Our validation has shown that you may easily have 10 or 20 containers (or more) running concurrently, depending on the number of users required.

- The **Windows Server 2022 Standard Edition** supports an unlimited number of containers - however, there is a licensing cost depending on your Microsoft commercial agreement.
- The **Windows Server 2022: Datacenter Edition** includes a license that supports an unlimited number of containers on a single server without additional license costs.

The additional, initial cost of the Datacenter edition allows flexibility regarding the number of containers without additional costs – especially if you later decide to add more Web UI users.

We have used **Windows Server 2022: Datacenter Edition** in all our testing of this solution.

It is up to you to decide the most cost-effective deployment and licensing, although the **Datacenter Edition** would be our preferred option.

## Application Server Hardware Requirements

SYSPRO's validation of the Web UI scalability solution using containers took the form of two base server configurations:



The number of users represents the number of unique Web UI processes running on the app server.

### Server A - 100 user configuration

- Azure server: Standard D16s v5
- 15 Containers
- 8 Cores (16 virtual CPUs) Intel Xeon – Platinum 8370C 2.80GHZ
- 64 GB RAM

### Server B - 200 user configuration

- Azure server: Standard D32s v5
- 20 Containers
- 16 Cores (32 virtual CPUs) Intel Xeon – Platinum 8370C 2.80GHZ
- 128 GB RAM

In all cases, the validation had a target CPU load of 40-70% with a maximum of 90% for short intervals.



The number of containers to be configured should be based on the planned number of Web UI users.

For guidelines on how to calculate this, view the **How do I determine the number of containers required** FAQ within this article.

## Deploying

You can access and download the **Syspro Container Controller** application from the following URL:

<https://syspro8install.azureedge.net/containerfiles/SYSPRO.Container.Controller.exe>

Once you have downloaded the install file, proceed with the installation wizard which takes you through the install process.



Follow the step-by-step [Syspro container installation guide](#) for more information on deploying the **Syspro Container Controller**.

## Restrictions and Limits

- As the container setup and configuration differs, you can only configure containers for either **Syspro Web UI (Avanti)** or **Syspro Point of Sale**.

# Solving

## Configuration file


The **Syspro Container Controller** software supports a configuration file named `application.json`. This file passes variables that are used within the deployment process and general functionality.




The application also supports a `custom.json` file that is read in and applied *over* the `application.json` file.


Considerations:


- This file exists in the same folder as the executable.
- The `custom.json` file can have all the settings of the `application.json` file, but takes precedence as the settings are applied over the `application.json` file settings.

This is because every new release of this file will contain a new version of the `application.json` file that overrides the previous one.

Variable	Description
PeakContainers	<p>This indicates the number of containers that you want to use, and enables you to deploy and start containers with a single click in the app.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;">  We have determined that the best performance is achieved by calculating 10 instances of the Syspro Web UI (Avanti) running per container, with an additional 5 containers to ensure peak performance.           <p>In other words, if you want to run 100 instances of the <b>Syspro Web UI (Avanti)</b>, you require 15 containers in total:</p> <div style="border-left: 2px solid #007bff; padding-left: 10px; margin-top: 5px;"> <p>100 instances ÷ 10 instances per container = 10 containers.</p> <p>10 containers + 5 extra containers = 15 containers.</p> </div> </div>
EnvVars (List)	<p>These entries are environmental variables (used by SYSPRO to tweak environments) that will be injected into the container.</p> <p>These can also be used specifically in containers when automating a single deployment process, to ensure ongoing maintenance isn't required.</p>

Variable	Description
Service Credentials	<p>These credentials are used to run the containers.</p> <p>These are important in the sense that bulk insert errors can occur if your SQL server is hosted on a separate server. This user is created as a local user on the container.</p> <p>If you select to use <b>SYSPROServices</b>, then this user is created as <code>.\SYSPROServices</code> on the container.</p> <p>You will then need to create an identical local user (i.e. same username and password) on the SQL server and ensure that this user has full access to the BCP folder that is shared from the SQL server's side.</p>
Tags (List)	<p>These entries indicate the Docker tags associated with the containers.</p> <div data-bbox="619 869 1430 992" style="border: 1px solid green; padding: 5px;"> <p> These are read-only tags and not used by SYSPRO in any way.</p> </div>
PathToClusterJson	<p>This indicates the path to where the configuration file for the <b>Syspro Container Controller</b> resides.</p> <p>This is used to automatically update the <code>.config</code> file with a list of Syspro 8 Avanti Initialization Service endpoints generated from each container's network IP address.</p> <div data-bbox="619 1261 1430 1429" style="border: 1px solid green; padding: 5px;"> <p> This file is dynamically consumed by the <b>Syspro Application Gateway Service</b> and therefore doesn't require a restart of this service in any way.</p> </div>
Mounts (List)	<p>Mounts (similar to mapped drives) are used by each container.</p> <p>The main SYSPRO folder (default <code>C:\SYSPRO</code>) must be mapped here to allow for the <code>SYSPRO.EXE</code> processes to be launched in the container's desktop session.</p> <div data-bbox="619 1697 1430 1868" style="border: 1px solid orange; padding: 5px;"> <p> You can add additional mounts here if required, using the following format:</p> <p>Number: <code>source  destination</code></p> </div>

Variable	Description
ContainersAISPort	<p>This indicates the port on which the <b>Syspro 8 Avanti Initialization Service</b> will be started on.</p> <p>Default = 30190.</p>
ContainerNaming	<p>This tag is used as a naming mask to indicate the container's "machine name".</p> <p>The last 3 characters are used to allocate numbers, with a maximum of 999.</p> <p><b>FOR EXAMPLE:</b></p> <p>If you name this <code>Acme000</code> and you create 5 containers: Each container would then be named <code>Acme001</code> through to <code>Acme005</code>.</p>
MaxContainerSessions	<p>This is used within the container monitor function to determine how many sessions each container can handle and is limited to a maximum of 50 sessions per container.</p> <p>By default, this is set to 15 (i.e. SYSPRO recommended maximum).</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p> We have determined that the best performance is achieved by calculating 10 instances of the Syspro Web UI (Avanti) running per container, with an additional 5 containers to ensure peak performance.</p> <p>In other words, if you want to run 100 instances of the <b>Syspro Web UI (Avanti)</b>, you require 15 containers in total:</p> <div style="border-left: 2px solid #007bff; padding-left: 10px; margin-top: 5px;"> <p>100 instances ÷ 10 instances per container = 10 containers.</p> <p>10 containers + 5 extra containers = 15 containers.</p> </div> </div>

Variable	Description
OutputContainerDeploymentLog	<p>This lets you write out a log file.</p> <p>To use this capability, enter a file name against this entry.</p> <p>The log file is then written out to the application folder of the <b>Syspro Container Controller</b>.</p> <div data-bbox="619 495 1430 622"> Take note that this could be a large file as all outputs are appended.</div>

Variable	Description
Monitor_Automation	<p>This section contains flags specific to the monitor automation process.</p> <p>While the <b>Syspro Container Automation Service</b> is running, these tags are used to verify if the average sessions per container is higher than a set value (i.e. <code>AutoDeployIfContainerAvg</code>).</p> <p>If the number of sessions exceeds this, then the system automatically deploys another container to assist with the load. However, this only happens if the <code>AutoDeployAsNeeded</code> value is set to <b>true</b>. The system then continues to start new containers until such time as the limit of the <code>ContainerDeployedLimit</code> entry is reached.</p> <div style="border: 1px solid green; padding: 10px; margin: 10px 0;"> <p>The <b>Syspro Container Automation Service</b> will update the configuration file in case of a server restart.</p> <p>When a server restarts, all the containers that last ran will be restarted. And because they are assigned new IP addresses, the <b>Syspro Application Gateway Service</b> Service configuration files need to be updated with the new details.</p> <p>This service does exactly that. But, it also runs the same monitoring function as the monitoring screen.</p> </div> <p>The <code>ConfigureServiceSecondsCheck</code> tag, which defaults to 30, indicates the interval (in seconds) that you want the service to perform this validation.</p> <p>While monitoring, the application might start new containers, prefixed with <code>AUTO</code>. These containers are also monitored and if found to be idle and not running any sessions, they are removed gracefully.</p> <p>The <code>AutoContainerZeroSessionsIdleMinutes</code> setting indicates the amount of minutes a container can be idle with no sessions, before it is removed.</p>
IZUsername   IZPassword	<p>These tags can be used to automate your login to the application (i.e. these can be used if you don't want to enter your credentials every time the app starts up).</p>

Variable	Description
Debugging	<p>With debugging enabled, the following is automatically logged:</p> <ul style="list-style-type: none"> <li>■ System trace. This can be viewed using <b>DebugView (Sysinternals)</b> for the <b>Syspro Container Controller</b> application.</li> <li>■ Log file in the application directory. This log file can be viewed for the <b>Syspro Container Automation Service</b> and will be called: <code>SYSPROContainerAutomationService_Log_{DateTimeStamp}.txt</code></li> </ul> <p>The following keys are available for debugging:</p> <ul style="list-style-type: none"> <li>■ <code>debugReqrd</code> This flag enables debugging when it is set as <code>true</code>.</li> <li>■ <code>debugLvl</code> This flag indicates the level of debugging information you require: <ul style="list-style-type: none"> <li>▫ <b>Information</b> The debugging information logged will be quite verbose.</li> <li>▫ <b>Overview</b> The debugging information will only be when new containers are created and/or removed, or when the configuration file values are read in or updated.</li> </ul> </li> </ul>

## FAQs

### How do I configure the maximum Web UI instances per user?

We recommend limiting the number of instances of the Web UI that each user can access concurrently:

- The **MAXIMUM NUMBER OF INSTANCES ALLOWED** setup option (*Setup Options > System Setup > System-Wide Personalization*) enables you to manage how many instances are allowed for your system.

Each instance of the Web UI consumes the same amount of app server resources:

- A single Web UI user with two instances, is identical to two Web UI users, each with a single instance.
- If you allow each user to open two Web UI instances, then each of these is considered a 'User' when it comes to scaling.

### What is "desktop heap"?

Each application utilizes a portion of reserved memory called "desktop heap". As a resource it is finite and so can be exhausted, at which point the following may occur:

- Programs may show erratic behavior and no longer function as expected.
- Processes end for no apparent, obvious or consistent reason (i.e. the error message is not always the same when one is received).
- `Out Of Memory` error messages may appear when you attempt to start new programs or try to use programs that are already running.

Unfortunately there are no longer tools available to monitor this. The last version of **Microsoft Windows** that was capable of monitoring desktop heap usage was **Windows XP/Server 2003**, after which Microsoft deprecated the kernel system driver that could be used to analyse and monitor this (in conjunction with a tool called "dheapmon").

This memory does not relate or change with the addition or removal of physical memory, and so should not be confused with this in any way.

#### Considerations

- 64-bit **Microsoft Windows** has a default interactive desktop heap size of 20MB.
- Lower values increase performance at the risk of crashing any process which can run out of resources.
- Microsoft do not recommend that you set a value that is over 20480 for the interactive desktop heap.

- Because the non-interactive desktop heap is mapped into the address space of each and every process, this value should not be set to an arbitrarily high value, but should only be increased sufficiently to allow all the desired applications to run.
- Many server applications will spawn multiple processes for each user request. SYSPRO is one such application where each client session has one or more processes running on the server for that client.
- Every increment of 512 K will support approximately 2,500 windows, menus, pens, icons, etc.
- **Microsoft Windows** has a system wide memory limit of 48Mb for all the above desktop heaps. If this limit is exceeded there might not be enough memory to create an error message dialog box. As a result, the requested operation fails without any indication.
- It is best to ensure that the number being specified is divisible by 64.
- Once the value is changed the operating system will need to be restarted in order for the changes to take effect.

## Where is desktop heap configured?

The size of each desktop heap allocation is controlled by the following registry value:

HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Control\Session Manager\SubSystems\Windows

The default data for this registry value will look something like the following (all on one line):

```
%SystemRoot%\system32\csrss.exe ObjectDirectory=\Windows
SharedSection=1024,20480,768 Windows=On SubSystemType=Windows ServerDll=basesrv,1
ServerDll=winsrv:UserServerDllInitialization,3 ServerDll=sxssrv,4
ProfileControl=Off MaxRequestThreads=16
```

For the **Syspro Container Controller**, the optimal entries for the desktop heap would be:

- **SharedSection**: 1024 must be the third entry within value
- **MaxRequestThreads**: value of 32

### FOR EXAMPLE:

Taking the above into consideration, the registry value would be:

```
%SystemRoot%\system32\csrss.exe ObjectDirectory=\Windows
SharedSection=1024,20480,1024 Windows=On SubSystemType=Windows
ServerDll=basesrv,1 ServerDll=winsrv:UserServerDllInitialization,3
ServerDll=sxssrv,4 ProfileControl=Off MaxRequestThreads=32
```



Take great care when updating the registry as it could cause catastrophic problems if done incorrectly. Therefore, we recommend that you create a restore point as a backup.

## How do I ensure the certificate used by my Syspro Web UI (Avanti) site is recognized by the containers?

When deploying SYSPRO containers, the system checks for a folder named CertificateStore inside the SYSPRO root directory, which is typically `C:\SYSPRO\CertificateStore`.

If this folder exists, the deployment automatically searches for `.cer` files within that folder and installs them inside the container's **Trusted Root** certificate store.



The `.cer` files can be created by exporting a license without a password from your server's certificate store.

# Using

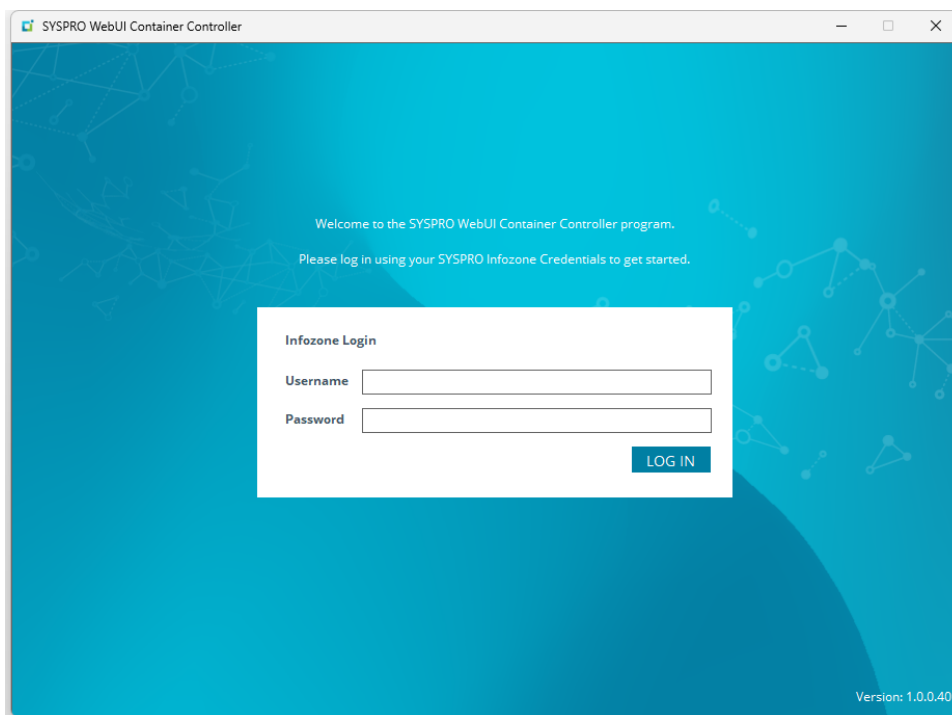
## Hints and Tips

- You can view the current version of the **Syspro Container Controller** application from the bottom right-hand corner of the login screen.

## Process

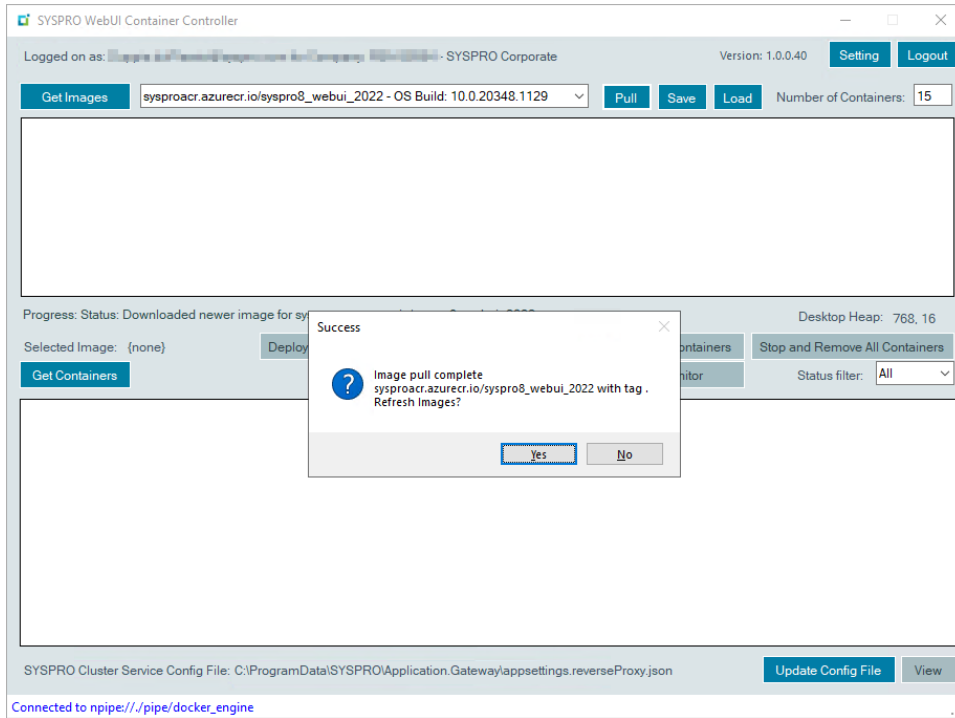
The following explains how to use the **Syspro Container Controller**:

- 1 Launch the application and login using your **InfoZone** credentials.

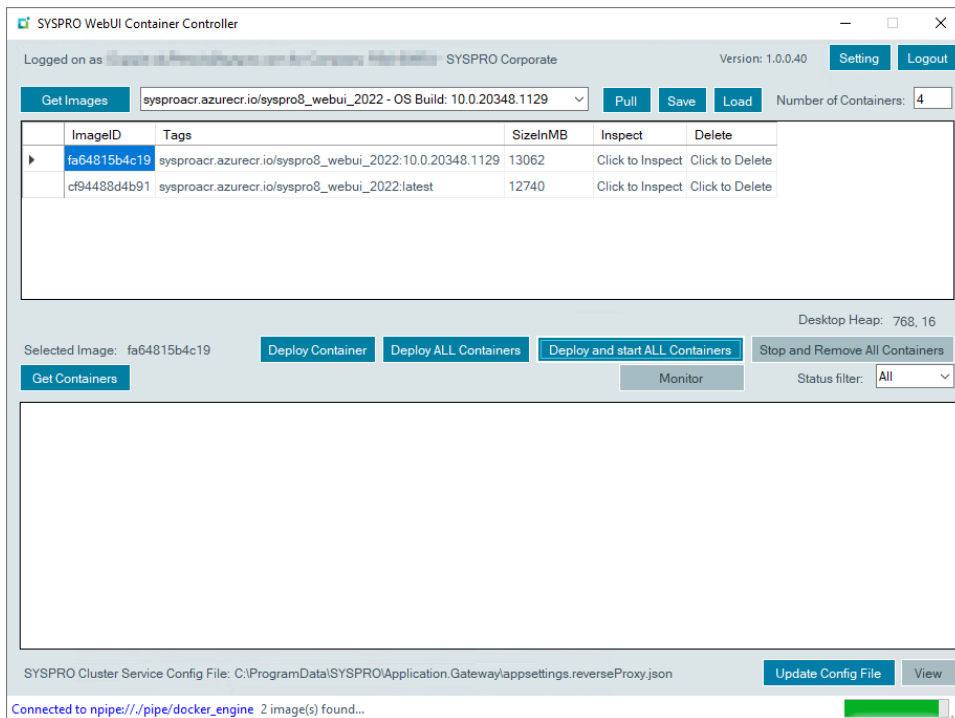


- 2 Once you have logged on, the application retrieves the Docker images. If however you don't have any images as yet, you can select one of the SYSPRO images from the dropdown, followed by the **Pull** function. This retrieves the image so that it can be used for deployment.
- 3 Once the retrieval process has completed, a **Success** message is displayed:

3



From the message box displayed, select **Yes** to refresh the images within the application's listview.



- 4 From here, you can either deploy your containers manually or by using bulk deployment:

### Manual Deployment

- Select the **Deploy Container** function to manually deploy a container using the selected image.

The container is deployed but not started, and placed into a status of **CREATED**.

- Select the **Start** link within the **Action** column to manually start the container.

A confirmation message is displayed once the container has started.

The container is placed into a status of **RUNNING** and an IP address is assigned to the **ContainerID**.



You can use the **Stop** link within the **Action** column to stop the container, which then places it into a status of **EXITED**.

You can use the **Delete** link within the **Action** column to remove this container.

### Bulk Deployment

- Select the **Deploy ALL Containers** function to deploy the number of containers you require using the selected image.

The containers are deployed but not started, and placed into a status of **CREATED**.

You can then select to start each container manually.

- Alternatively, you can select the **Deploy and start ALL Containers** function to deploy and automatically start the number of containers you require using the selected image.

The application performs a check to determine how many containers are running versus how many are required, and then prompts you to confirm the difference.

- A confirmation message is displayed once the containers have started.

The containers are placed into a status of **RUNNING** and IP addresses are assigned to the **ContainerID** of each container.

- 5 Once your containers are running, the application prompts for the configuration file to be updated:

The screenshot shows the SYSPRO WebUI Container Controller interface. At the top, it displays the user 'SYS-PRO Corporate' and the version '1.0.0.40'. Below this, there are buttons for 'Get Images', 'Pull', 'Save', and 'Load', along with a 'Number of Containers' field set to '4'. A table lists two images: 'fa64815b4c19' (13062 MB) and 'cf94488d4b91' (12740 MB). A modal dialog titled 'Update Config' is open, displaying a question: 'Do you want to update the SYSPRO Clustering Service file with the new endpoints from the newly created containers?'. The dialog has 'Yes' and 'No' buttons. Below the dialog, a table shows running containers with columns for ContainerID, Name, State, and Script. The status bar at the bottom indicates 'Connected to npipe://./pipe/docker\_engine 4 container(s) found...'.

Select **Yes** to update the **Syspro Application Gateway Service** with endpoints based on the new containers' IP addresses.

- The `ContainersAISPort` value is used to build the endpoint addresses that are updated in the configuration file.
- The configuration file is then automatically consumed by the **Syspro Container Automation Service** and the containers are used immediately, therefore no restart of the **Syspro Application Gateway Service** is required.

- 6 Select the **Monitor Containers** function for an overview of each container's state in terms of SYSPRO sessions.

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The screenshot shows the SYSPRO WebUI Container Controller interface. At the top, it indicates the user is logged in as 'SYSPRO Corporate' and the version is 1.0.0.40. There are 'Setting' and 'Logout' buttons. Below this, there's a 'Get Images' section with a dropdown menu showing 'sysproacr.azurecr.io/syspro8\_webui\_2022 - OS Build: 10.0.20348.1129' and buttons for 'Pull', 'Save', and 'Load'. A 'Number of Containers' field is set to 15. A table lists two images with columns for ImageID, Tags, SizeInMB, Inspect, and Delete. Below the image list, there are buttons for 'Deploy Container', 'Deploy ALL Containers', 'Deploy and start ALL Containers', and 'Stop and Remove All Containers'. A 'Selected Image' field shows 'fa64815b4c19'. There are also 'Get Containers' and 'Monitor' buttons, and a 'Status filter' dropdown set to 'All'. A table below shows a list of containers with columns for ContainerID, Name, State, Status, ImageID, ContainerIP, Action, and Script. At the bottom, there's a 'SYSPRO Cluster Service Config File' path and buttons for 'Update Config File' and 'View'. A status bar at the very bottom says 'Connected to npipe:///pipe/docker\_engine 4 container(s) found...'.



This is useful to keep track of the container load so that you can reduce or increase the number of containers as the load decreases or increases.

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The **Container Monitor** screen is displayed and provides details about how many sessions are within each container:

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The screenshot shows the SYSPRO WebUI Container Controller interface. At the top, it displays 'Logged on as: [username] - SYSPRO Corporate' and 'Version: 1.0.0.40'. Below this, there are buttons for 'Get Images', 'Pull', 'Save', 'Load', and 'Number of Containers: 15'. A table lists images with columns for ImageID, Tags, SizeInMB, Inspect, and Delete. A 'Container Monitor' window is open, showing 'Automatic Refresh Every: 10 Seconds' and a table of containers with columns for Container, Sessions, and Action. The table shows 4 containers, all with 0 sessions. Below the table, it displays 'Avg sessions per container: 0.0' and 'Total Sessions/Containers: 0 / 4'. The main interface also shows a 'Get Containers' button and a table of containers with columns for ContainerID, Name, State, and S. At the bottom, there is a 'Connected to npipe://pipe/docker\_engine 4 container(s) found...' message.

The **Container Monitor** can also be used to start up new containers as required.

This functionality is driven by the `Monitor_Automation` section of the configuration file, which contains the following settings:

- `AutoDeployAsNeeded`
- `AutoDeployIfContainerAvg`
- `ContainerDeployLimit`

The `AutoDeployAsNeeded` setting enables the automation feature. When this is defined as `True`, the application will start up new containers if it finds that the average sessions per container is higher than the number defined against the `AutoDeployIfContainerAvg` setting. The application will continue to start up new containers (1 at a time per refresh cycle) until such time as the average is within the limits again (i.e. the number defined against the `ContainerDeployLimit` setting).



The new containers will start up with `AUTO` replacing the first 5 characters of the machine name.

Another part of the monitor's function is to monitor the automatically created servers. If the application finds that these servers have no sessions running, then they are automatically removed on the first check after 30 minutes.

# Referencing

## Logon Screen

### Username

Enter your user name for the **InfoZone**.

### Password

Enter your password for the **InfoZone**.

### Log In

Select this to log into the application once you have entered your credentials.

## SYSPRO WebUI Container Controller

The following provides context to the various information and functionality of the application's main screen.

Field	Description
Logged on as...	This indicates your InfoZone user name (i.e. email address) and customer account number.
Version: x.x.x.xx	This indicates the current version of the <b>Syspro Container Controller</b> application.
Setting	This lets you access and maintain the configuration file settings for the <b>Syspro Container Automation Service</b> .
Logout	This logs you out of the application and returns you to the login screen.
Image pane	This top panel of the main screen provides information and functions related to the Docker images.
Container pane	This bottom panel of the main screen provides information and functions related to your containers.
Status	The status bar (at the bottom of the screen) indicates the current status of Docker Engine connection.


## Images

This section is where you can manage your Docker images.



Docker images are prebuilt by SYSPRO for different releases of Windows and are specifically tailored towards a single function.

In the case of the **Syspro Container Controller**, these are used for running the **Syspro 8 Avanti Initialization Service**.

Field	Description
Get Images	This function retrieves all of the images that are already installed against your Docker Engine.
Image selection	This dropdown contains all images built and supported by SYSPRO.
Pull	This function retrieves the selected image from the Docker Engine. <div style="border: 1px solid #ffc107; padding: 5px; margin-top: 10px;">  If the image you are pulling is a larger size (e.g. 2GB+-) a progress update bar is displayed below the Images listview.           </div>
Save	This saves the selected image to your local drive for quicker retrieval in future.
Load	This loads the previously saved image from your local drive.
Number of Containers	This indicates the number of containers required.
Images listview	The Images listview is populated with a list of images retrieved and includes information about each image, such as <b>ID</b> , <b>Tag</b> and <b>Size</b> . <i>Click to Delete</i> This function lets you delete an image from your Docker Engine.
Desktop Heap	This indicates the current desktop heap.
Selected Image	This indicates the image that you have selected within the Images listview.

## Containers

This section is where you can deploy the selected image as containers on the server.





The application also updates the **Syspro Application Gateway Service** files to dynamically use these deployed containers.

Field	Description
Get Containers	This function retrieves a list of containers that have already been deployed.
Deploy Container	This function lets you deploy a container using the selected image. The container is then deployed (but not started) and placed into a status of <b>CREATED</b> .
Deploy ALL Containers	This function lets you deploy the total number of required containers using the selected image.
Deploy and start ALL containers	This function lets you deploy and automatically start the total number of required containers using the selected image. <div data-bbox="539 1093 608 1162" data-label="Image"> </div> <p>The application performs a check to determine how many containers are running versus how many are required, and then prompts you to confirm the difference.</p>
Stop and remove ALL containers	This function stops and deletes all containers.
Monitor	This function launches the <b>Container Monitor</b> screen. The <b>Container Monitor</b> screen is an "always-on-top" modal window that displays an overview of how many sessions are within each container. <div data-bbox="571 1563 608 1632" data-label="Image"> </div> <p>This is useful to keep track of the container load so that you can reduce or increase the number of containers as the load decreases or increases.</p>

Field	Description
Status filter	<p>This lets you filter the view by the current status of the containers.</p> <p><b>FOR EXAMPLE:</b></p> <ul style="list-style-type: none"> <li>▪ Created</li> <li>▪ Running</li> <li>▪ Stopped</li> </ul>
Containers listview	<p>The Containers listview is populated with a list of containers and includes the following information:</p> <ul style="list-style-type: none"> <li>▪ Container ID</li> <li>▪ Name</li> <li>▪ State</li> <li>▪ Status</li> <li>▪ ImageID</li> <li>▪ ContainerIP</li> </ul> <p><i>Action</i></p> <p>This function lets you action the selected container with one of the following tasks:</p> <ul style="list-style-type: none"> <li>▪ Start</li> <li>▪ Stop</li> <li>▪ Delete</li> </ul> <p><i>Script</i></p> <p>This function lets you open a <b>Windows PowerShell</b> session within the container.</p>
SYSPRO Cluster Service Config File	This indicates the location of the <b>Syspro Container Automation Service</b> file which will be updated.
Update Config File	This lets you retrieve all of the IP addresses from the containers and update the configuration file.
View	This lets you view the configuration file in your default text editor.

## Container Monitor

This screen is displayed when you select the **Monitor Containers** function and provides an overview of each container's state in terms of SYSPRO sessions.

Field	Description
Automatic Refresh Every	<p>This lets you configure the monitor screen to automatically refresh every:</p> <ul style="list-style-type: none"> <li>▪ 5 seconds</li> <li>▪ 10 seconds</li> <li>▪ 30 seconds</li> <li>▪ 2 minutes</li> <li>▪ 30 minutes</li> </ul> <div style="border: 1px solid #ffc107; padding: 5px; margin-top: 10px;">  Select <b>Disable</b> if you don't want the monitor to refresh.         </div>
Container   Sessions	<p>This section provides a breakdown of your running containers and their respective SYSPRO sessions.</p> <div style="border: 1px solid #28a745; padding: 5px; margin-top: 10px;">  The <code>MaxContainerSessions</code> configuration setting is used to determine how many sessions are used, with a maximum of 50 sessions per container allowed.         </div>
Summary data	<p>The following overview information is included within the monitor:</p> <ul style="list-style-type: none"> <li>▪ Average sessions per container</li> <li>▪ Total sessions per container</li> </ul>
Refreshing in...	<p>This notification indicates when the next refresh will occur.</p> <p>Unless you selected <b>Disable</b> at the <b>Automatic Refresh Every</b> option, in which case this notification indicates that the refresh is disabled.</p>

## Configuration Settings

This screen is displayed when you select the **Setting** function and enables you to change the settings for the **Syspro Container Automation Service**.



Once you make any changes to the defaults provided, your customized settings are recorded within the `custom.json` file.

### Restore Defaults

This lets you revert any customization of your settings to the defaults provided by SYSPRO.

Field	Description
General Settings	This section lets you change the following settings: <ul style="list-style-type: none"> <li>▪ Default number of containers required.</li> <li>▪ SYSPRO Application Gateway configuration file (<code>appsettings.customer.json</code>) location and name.</li> </ul>
Container Specific Settings	This section lets you change the following settings: <ul style="list-style-type: none"> <li>▪ Container naming convention</li> <li>▪ Container environment variables</li> <li>▪ SYSPRO Services user</li> <li>▪ Container mounts</li> <li>▪ Syspro 8 Avanti Initialization Service port</li> </ul>
Auto Deployment Settings	This section lets you define your preferences for the automatic deployment of containers.
Infozone Settings	This section lets you set your default InfoZone credentials so that you don't have to enter them every time you log into the application.
Debugging Settings	This section lets you define your debugging requirements.



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