

# **24x7 Scheduler™**

## **Web-based Management Console User's Guide**

**Version 7.5**

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## About This Guide

This user's guide describes features of the 24x7 Scheduler Web-based Management Console. Information in this manual applies to the 24x7 Web-based Management Console v7.5 or later for all supported systems. This manual contains information for both beginning and experienced users of the 24x7 Scheduler. Both the print and the on-line documentation assume that you have a working knowledge of standard mouse and keyboard actions and understand basic web-browser concepts. This manual is provided so that the reader can understand how 24x7 Scheduler Management Console functions. It also contains information on the following topics:

- Installation and configuration instructions
- Task-oriented guidelines to all interactive 24x7 Scheduler Management Console functionality

## Conventions Used in This Document

This section describes the style conventions used in this document.

### *Italic*

An *italic* font is used for filenames, URLs, emphasized text, and the first usage of technical terms.

### Monospace

A monospaced font is used for code fragments and data elements.

### **Bold**

A **bold** font is used for important messages, names of options, names of controls and menu items, and keys.

### User Input

Keys are rendered in **bold** to stand out from other text. Key combinations that are meant to be typed simultaneously are rendered with "+" sign between the keys, such as:

#### **Ctrl+F**

Keys that are meant to be typed in sequence will be separated with commas, for example:

#### **Alt+S, H**

This would mean that the user is expected to type the Alt and S keys simultaneously and then to type the H key.

### Graphical marks



- This mark is used to indicate product specific options and issues and to mark useful tips.



- This mark is used to indicate important notes.

## Abbreviations and Terms

This guide uses common abbreviations for many widely used technical terms including ASP, JSP, HTTP, and other.

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# Chapter 1: Getting Started

## Overview

The 24x7 Scheduler web-based Management Console functions are used to manage and monitor jobs run by 24x7 Scheduler Multiplatform Edition software. Jobs can be managed and run both at remote and local computers provided 24x7 Scheduler is running at a given computer and setup to accept incoming network connections.

The 24x7 Scheduler Web-based Management Console enables you to:

- Schedule new and manage already scheduled jobs.
- Stop, start, pause or resume jobs.
- Monitor job execution progress in a real-time as well as forecast job start.
- Organize logically related jobs into logical groups represented by folders.
- Manage database profiles.
- Manage remote agent profiles.
- Manage job queues.
- Manage job templates.
- Manage job calendars.
- Manage job dependencies.
- View job logs and reports.
- Modify scheduler options.

The Web-based Management Console can be installed on a wide variety of web servers and can connect to local and remote instances of 24x7 Scheduler servers. By default on windows systems the web console is installed with a local instance of the Apache Tomcat server configured to run on port 8088. On Linux and Unix systems the console is installed to run on the local web server, which is typically configured to run on port 80 or 8080. Check your web server configuration to find out which port number is being used. See the following topic for specific installation instructions.

Web-based Management Console supports true thin clients. To use the console no client software is needed to be installed on user computers other than their web browsers. There is no need to download any files or any other resources or settings.

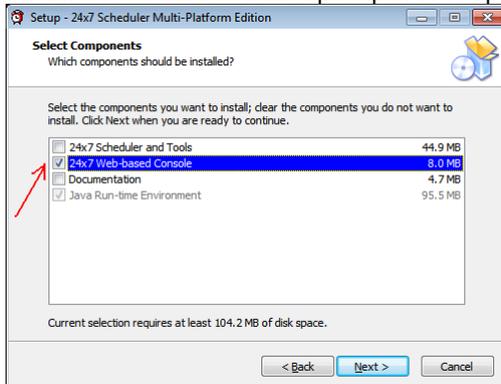
To start the web-based Management Console on your computer open your web browser and enter the URL of your web server where the 24x7 Management Console is installed, for example, <http://server-name:8088>

## Installation

### Installation on Windows Systems

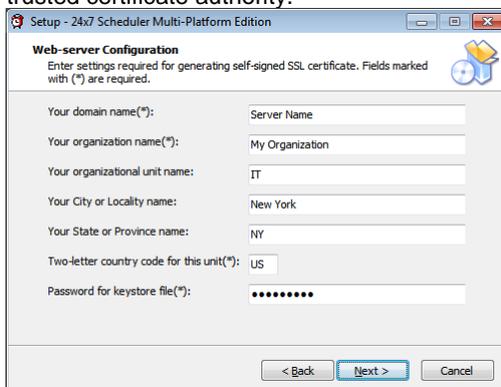
1. Start the 24x7 Scheduler installation program 24x7mp\_setup.exe.

- Follow the installation wizard prompts. When prompted for components, select 24x7 Web-based Console



and then click the Next button twice.

- Complete the required parameters for generating self-signed SSL certificate for the web-server. You can later replace the generated self-signed SSL certificate with a full trusted SSL certificate obtained from a trusted certificate authority.



and then click the Next button and then the finish button.

## Installation on Linux and Unix Systems

Use the **Universal** installer. Unzip 24x7mp\_setup.zip file and execute `setup.sh` script with or without command line parameters. To run the installer you need to have Java 1.8 or later installed on your system. See the next paragraph for more details.

### Graphical installation mode

The Universal installer's graphical interface is similar to the Windows native installer described in the previous topic providing similar prompts and instructions.

- To run the graphical installer, add execute permissions to `setup.sh` script.  
`chmod 775 ./setup.sh`
- Start setup as sudo without any additional parameters  
`sudo ./setup.sh`

### Console mode installation with interactive prompts

- Add execute permissions to `setup.sh` script.  
`chmod 775 ./setup.sh`
- Start setup as sudo with two parameters: `nogui --interactive`  
`sudo ./setup.sh nogui --interactive`

### Console mode installation with default parameters

1. Add execute permissions to setup.sh script.  
`chmod 775 ./setup.sh`
2. Start setup as sudo with a single *nogui* parameter:  
`sudo ./setup.sh nogui`

### Console mode installation with default parameters without the Performance Dashboard options

1. Add execute permissions to setup.sh script.  
`chmod 775 ./setup.sh`
2. Start setup as sudo with two parameters: *nogui -nografana*  
`sudo ./setup.sh nogui -nografana`

## Site Security and SSL Certificates

The web console is installed to accept HTTPS connections only in order to provide secure communications between web browsers and the web console server. HTTPS connections require using a SSL certificate to encrypt the communication between web browsers and the web server.

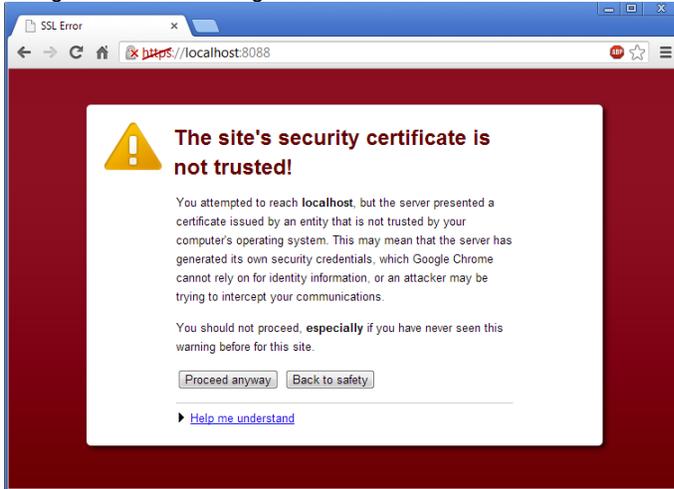
A self-signed certificate is a digital certificate signed by the same entity that created it, meaning there's no external verification of its authenticity, while a "CA-signed certificate" is signed by a trusted third-party called a trusted Certificate Authority (CA), which verifies the identity of the certificate holder, making it inherently more trustworthy for external systems like web browsers; essentially, self-signed certificates are considered less secure for public use due to the lack of third-party validation. Self-signed certificates are typically acceptable for use with internal systems.

### Self-signed SSL Certificates

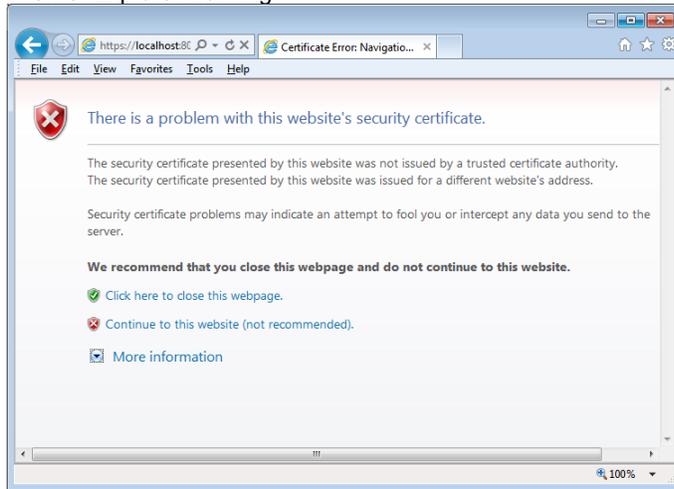
By default the web console is installed with a self-signed SSL certificated generated for your web server during the installation. SSL certificates are required for the HTTPS protocol, but they are not very security and considered untrusted because they are not certified by a well known trusted certificate authority like VeriSign, GeoTrust, GoDaddy, and others. It is recommended that after the installation you purchase full SSL certificate and replace the installed self-signed certificate with the obtained trusted certificate. If you need instructions for how to obtain a trusted SSL certificate, search the Internet or visit website of one the vendors referenced above.

All modern web browsers allow connecting to web sites with self-signed SSL certificates. The browsers typically show a warning screen and allow you to choose whether to continue to the site or cancel the navigation and return to the previous page. The appearance of the warning page is browser type and browser version specific. Here are example screenshots of the warning page in different browsers.

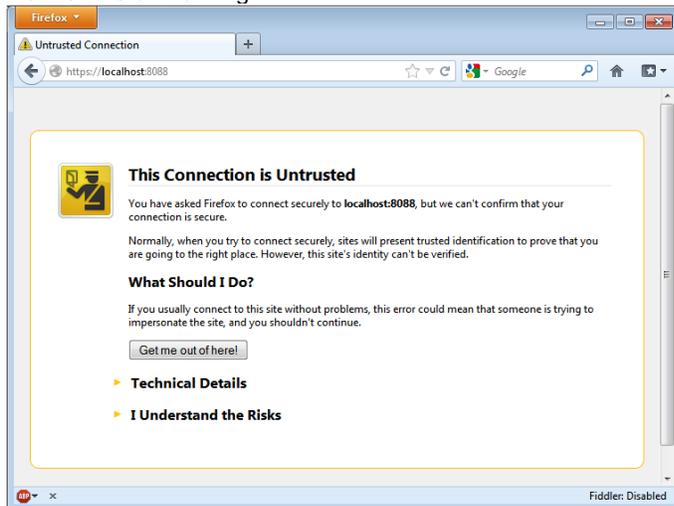
### Google Chrome warning



### Internet Explorer warning



### Mozilla Firefox warning



Choose "Proceed anyway", "Continue to the site" or "I understand the risks" option on the warning page to open the web console login page.



**Important Notes:**

- You should purchase and install trusted SSL certificate issued specifically for the site running 24x7 Web console.
- As a temporary solution, you can add SSL exception to your web browser settings to allow connecting to the web console site without warnings. See the next topic for more details.

**Adding SSL Exception to Your Web Browser Settings**

This is an optional setup, which is required if you choose to stick with using self-signed SSL certificate for your web server and 24x7 Web console and you want to suppress browser's untrusted SSL certificate warnings for the web console site.

Note that different browsers and browser versions require different methods for adding an exception in order to suppress the SSL warnings discussed in the previous topic.

To add an exception in Mozilla Firefox:

1. On the warning page, click the yellow arrow in front of the "I Understand the Risks" link. A new panel will appear below the link.
2. Click "Add Exception..." button
3. Check "Permanently store this exception" box and then click "Confirm Security Exception" button.

To add an exception in Internet Explorer 8 and 9:

1. On the warning page, click "Continue to this website (not recommended)" link.
2. Select Internet Explorer's Tools->Internet Options menu.
3. Select Security->Trusted sites->Sites.
4. Confirm the URL matches, and click the "Add" button then "Close" button.
5. Close the "Internet Options" dialog box with either "OK" or "Cancel" buttons.
6. Refresh the current page.
7. When told "There is a problem with this website's security certificate", choose again "Continue to this website (not recommended)."
8. Click the "Certificate Error" red icon at the right of the browser's address bar. This will bring up a small information panel. On that panel select "View certificates" from the popup panel.
9. Click "Install Certificate..." button, then in the install wizard, click the "Next" button.
10. On the next page, select "Place all certificates in the following store."
11. Click "Browse" and select "Trusted Root Certification Authorities" and then click "OK" button.
12. In the wizard, click "Next", then "Finish" buttons.
13. If you get a "Security Warning" message box, click "Yes" button to confirm and then click "OK" button to dismiss the message box.
14. Internet Explorer's Select Tools->Internet Options menu again.
15. Select Security->Trusted sites->Sites .
16. Select the URL you just added, click "Remove", then "Close".
17. Now shut down all running instances of Internet Explorer, and start up Internet Explorer again. You can point it to the web console URL. The site's certificate should now be trusted and no warning and prompt will appear.

To add an exception in Google Chrome:

The specific instructions depend on the operation system of the computer running your web browser and vary for different systems.

Mac OS systems

1. In the browser's address bar, click the little lock icon with the X symbol. This will bring up a small information panel. On that panel click the "Certificate Information" button.
2. Click and drag the image to your desktop. It looks like a little certificate.
3. Double-click it. This will bring up the Keychain Access utility. Enter your password to unlock it.
4. Be sure you add the certificate to the System keychain, not the login keychain. Click "Always Trust," even though this doesn't seem to do anything.
5. After it has been added, double-click it. You may have to authenticate again.
6. Expand the "Trust" section, set "When using this certificate" option to "Always Trust."

Windows systems

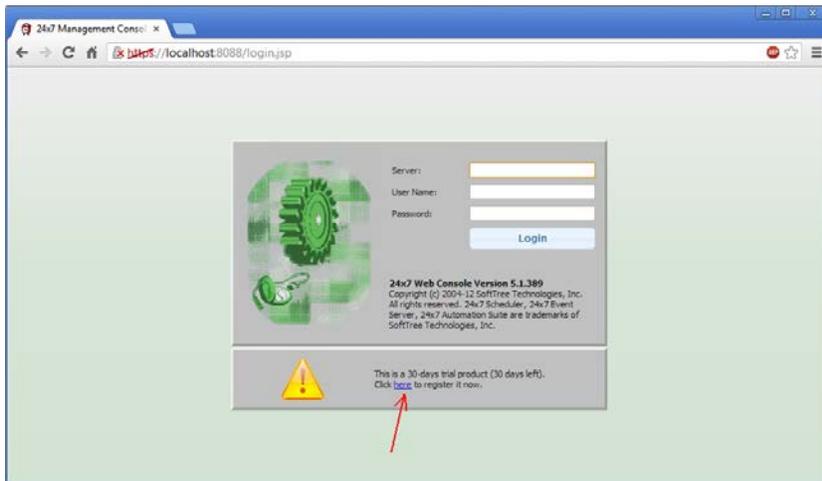
1. In the browser's address bar, click the little lock icon with the X symbol. This will bring up a small information panel. On that panel click the "Certificate Information" button.
2. Switch to "Details" tab, click "Export..." and save certificate file to your local system.
3. Use Chrome's Settings menu -> Advanced Settings link -> Manage Certificates button.
4. On the "Certificate Store" screen "Trusted Root Certification Authorities" tab, and then click "Import..." button.
5. Select the certificate file you saved in step 2. Click "OK" and then "Close" button to close the certificates store dialog.
6. Restart Chrome."

Linux systems

1. Follow the same steps 1 and 2 as described above for Windows to save the certificate file.
2. Use system's **certutil** utility to import the exported certificate to the system SSL store. For specific instructions refer to your Linux system manual.
3. Restart Chrome.

**Post-installation steps**

The web-console is installed in 30-day trial mode. To register the console and unlock the trial mode, click the "Register here" link at the bottom of the login box



then enter you're your name, organization name and the web console license key. If you got 24x7 site license or enterprise license, enter your site or enterprise license key.



## Trusted Certificate Authority Signed Certificates

 **Important Note:** The common name to which an SSL Certificate is issued (e.g., XYZ or xyz.com) must match the server name or a DNS A record for your server. In other words the name you are going to specify in the URL bar to access the 24x7 Web Console server must match the common name in the SSL certificate. Any difference will cause the web browser to display a name mismatch error and block your connection. If you don't have a DNS A record that maps a domain name (like "xyz.com") to an IP address (like 192.0.2.1), you may need to add it to enable users to access the 24x7 Web Console website by typing the domain name instead of the IP address of the server or the hostname name of the server.

### Installing an Existing SSL Certificate

To install an existing SSL certificate in Apache Tomcat used for running the 24x7 Web Console, you need to import the certificate and private key into the Tomcat keystore

1. Upload to Server:

You'll need the SSL/TLS certificate file (usually in PEM or CRT format) and the corresponding private key file (also usually in PEM or KEY format) from your certificate provider.

Upload the certificate and private key files to the server on which you installed the 24x7 Web Console

2. Import Certificate and Private Key into Keystore:

Locate Keystore. For example, if you have 24x7 Scheduler installed in C:\24x7, your Keystore is located in [C:\24x7\WebConsole\cert](#)

Use the keytool command-line tool (part of the Java Development Kit) to import the certificate and private key into the keystore.

Example commands for Windows:

```
C:\24x7\JRE\bin\keytool -import -alias WC -file <certificate_file> -keystore  
C:\24x7\WebConsole\cert\tomcat -storepass <keystore_password>
```

```
C:\24x7\JRE\bin\keytool -import -alias WC -file <private_key_file> -keystore  
C:\24x7\WebConsole\cert\tomcat -storepass <keystore_password>
```

Example commands for Unix and Mac OS:

```
keytool -import -alias WC -file <certificate_file> -keystore  
/home/24x7/WebConsole/cert/tomcat -storepass <keystore_password>
```

```
keytool -import -alias WC -file <private_key_file> -keystore  
/home/24x7/WebConsole/cert/tomcat -storepass <keystore_password>
```

Replace <certificate\_file> with the path to your certificate file, , and <keystore\_password> with the keystore password you entered when installing the Web Console.

Trust the Certificate: When prompted, trust the certificate by entering "yes" or "y".

**IMPORTANT:** Your 24x7 installation path might be different from the example above. Change the path as required.

3. Configure the SSL Connector in server.xml:

Open the server.xml file located in Tomcat's conf directory and find the connector line that handles SSL traffic. If 24x7 Scheduler is installed in C:\24x7, the server.xml file path is [C:\24x7\WebConsole\conf\server.xml](#)

In the server.xml file search for "keystorePass" parameter and set its value to the keystore password you used when importing the certificate.

Add the following line to the Connector section

```
<Certificate certificateKeyFile="<path_to_private_key>"
certificateFile="<path_to_certificate>" certificateChainFile="<path_to_ca_bundle>"
type="RSA" />
```

It should look like example below

```
<Connector
  protocol="HTTP/1.1"
  port="8088" maxThreads="200"
  maxHttpHeaderSize="65536"
  scheme="https" secure="true" SSLEnabled="true"
  keystoreFile="{catalina.home}\cert\tomcat"
  keyAlias="WC"
  keystorePass="<keystore_password>"
  clientAuth="false" sslProtocol="TLS">
  <SSLHostConfig>
    <Certificate certificateKeyFile="<path_to_private_key>"
      certificateFile="<path_to_certificate>"
      certificateChainFile="<path_to_ca_bundle>"
      type="RSA" />
  </SSLHostConfig>
</Connector>
```

Replace <path\_to\_private\_key>, <path\_to\_certificate>, and <path\_to\_ca\_bundle> with the actual paths to your private key, certificate, and CA bundle files (if applicable). If you don't have CA bundle, remove *certificateChainFile="<path\_to\_ca\_bundle>"*

4. Restart the 24x7 Web Console.

## Obtaining and Installing New SSL Certificate

1. Create a certificate signing request (CSR):

Use the keytool command-line tool (part of the Java Development Kit) to create a CSR which you will need to purchase and install new SSL/TSL certificate on your Tomcat server

Example commands for Windows:

```
C:\24x7\JRE\bin\keytool -certreq -alias WC -file csr.txt -keystore
C:\24x7\WebConsole\cert\tomcat
```

Example commands for Unix and Mac OS:

```
keytool -certreq -alias WC -file csr.txt -keystore
/home/24x7/WebConsole/cert/tomcat
```

**IMPORTANT:** Your 24x7 installation path might be different from the example above. Change the path as required.

When prompted, enter the password you entered earlier when installing the 24x7 Web Console (that password was used by the installer to create the Keystore).

2. Order Your SSL/TLS Certificate.

Contact Certificate Authority of your choice and order from them a new SSL certificate. Follow instructions they provide to upload the CSR file created in the previous step.

3. Install the Certificate:

Follow instructions in the previous section [Installing an Existing SSL Certificate](#) to install your new SSL certificate.

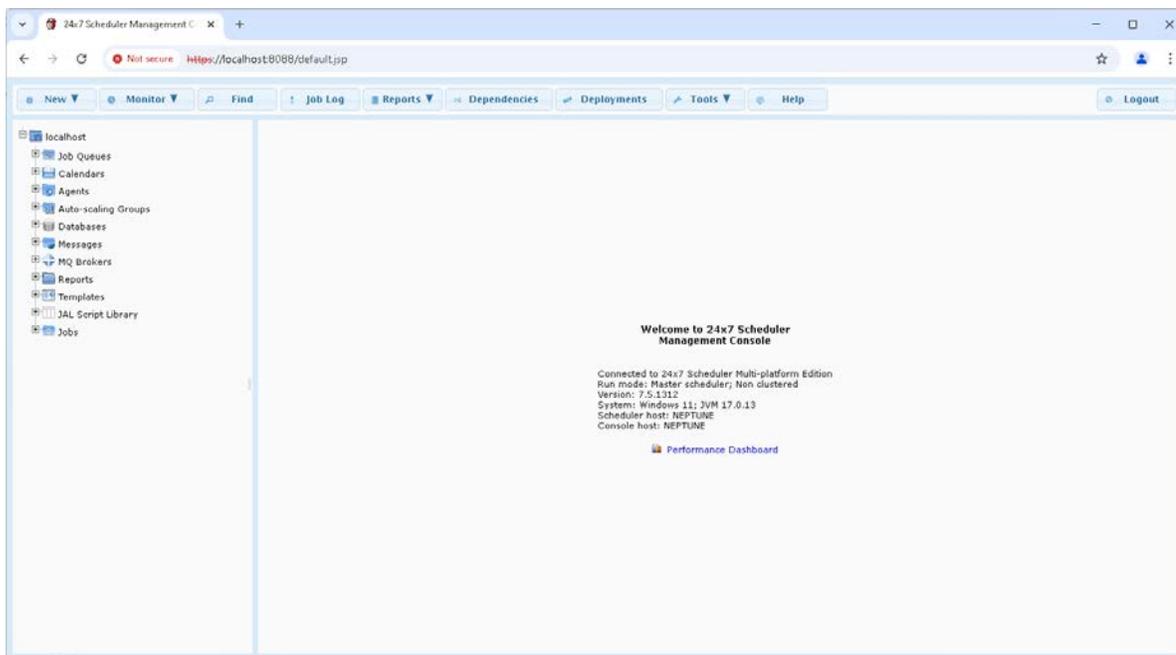
## Scheduler Connectivity and Security

### Connectivity

24x7 Scheduler works with the underlying operation system to authenticate user logins. The authentication mechanism for different operation systems are described in the 24x7 Scheduler User's Guide.

#### To connect to 24x7 Scheduler:

- 1 Start your web browser and navigate to the web site where 24x7 Management Console is installed. The Logon page will appear.
- 2 Enter name or IP address of the computer running the target 24x7 Scheduler. Please note that 24x7 Scheduler does not have to run on the same computer where the web server is run. It can run on any other computer.



- 3 Enter your user name and password. Please note that passwords are case-sensitive. In case if the internal security system is not activated enter your user name and any text for the password.
- 4 Click the Logon button.



#### Tips:

- If the web browser AutoComplete feature is enabled, you can use the browser provided drop-down lists for the server and for user names. To display the drop down list, set the focus to the server field, clear its contents if you already entered some text and then press the Arrow Down navigation key on the keyboard.
- To resize the drop-down list, drag the right-bottom corner of the drop-down box.

## User Groups and Job Database Security

By default 24x7 Scheduler allows any valid local or network user with a valid password to connect to the scheduler instance. If job database security is not activated, every authenticated user is treated as an administrator, this default setup is used to simplify the initial installation and configuration steps. After the initial installations, you should update the Users file on the scheduler's system and choose users that can connect to the scheduler and their security group. See 24x7 Scheduler User's Guide for details on how to update the Users file.

There are 4 predefined user security groups:

- **Administrators** – members of this group have full access to the scheduler and can access any functions and any jobs in the web console.
- **Power Users** - members of this group can access most functions in the web console except the scheduler settings. They can see and manage their own jobs only. They cannot access jobs created by other users.
- **Operators** - members of this group can access all monitoring and log viewing functions available in the scheduler. They can also see all jobs, start them manually, pause, disable and enable jobs
- **Guests** – members of this group have very limited access to the scheduler

## Job Database Privileges

A job database privilege is the right to execute a particular operation or it is the right to access another user's job. A pre-defined set of privileges is granted to each user group. By adding an individual user to a group you effectively grant that user all the privileges granted to the group.

## Changing Passwords

Use your operation system password-change functions or Active Directory management functions to change u7ser passwords

## Job Protection and Job Password

Job access protection is enforced on top of the regular user group access permissions. Password protected jobs can be accessed according to their protection level. For more information see 24x7 Scheduler User's Guide.

### To protect a job:

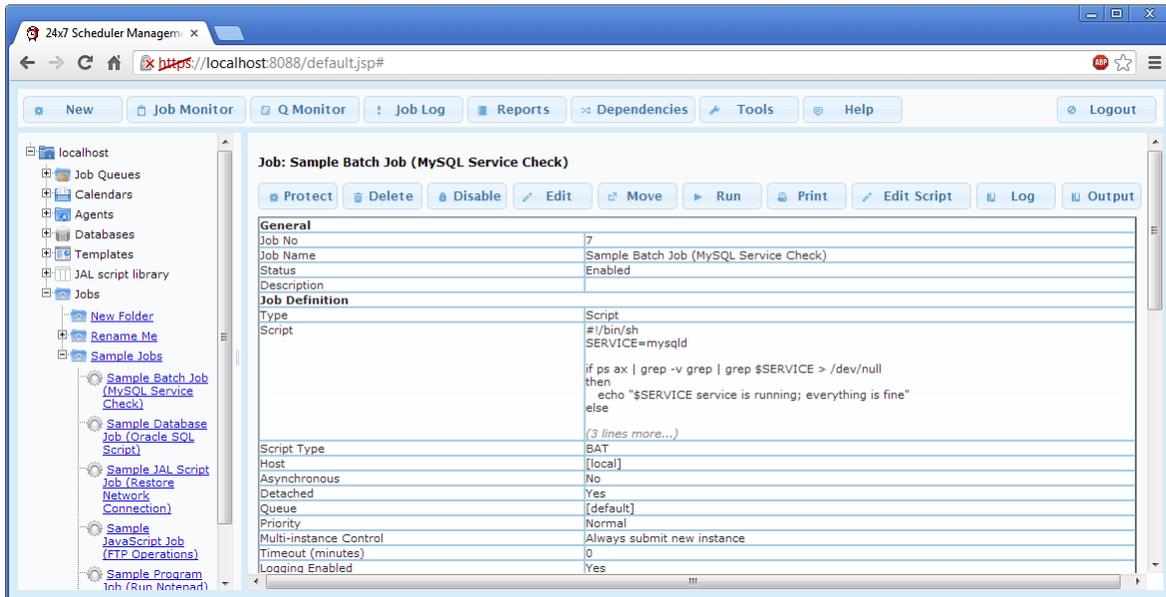
- 1 Select the job you want to protect by password
- 2 Click the Protect button  to setup new protection level, remove existing protection or change protection level for the job. The job protection dialog appears.
- 3 Type your password, select required protection level, and then click the OK button.

For more information about job protection levels see **Protecting/Unprotecting Jobs** topic.

## Chapter 2: Job Management

### Job Explorer

The Job Explorer presents jobs as a hierarchical structure "Tree View" on the left side of the web console window. The left side is filled with settings, job folders, and jobs. The right side "Properties View" displays the properties of an item in the tree view.



Navigating through the various folders and jobs is usually accomplished by clicking links representing individual folders and jobs with the mouse. Users more accustomed to keyboard navigation can use standard navigation keys (TAB, SHIFT+TAB, ENTER, etc...) supported by the Web browser to move between links representing folders and jobs.

To change the size of either side of the window, drag the blue marker to the left of bar separating two sides of the web console screen. Use scroll bars to navigate both sides of the Job Explorer window.

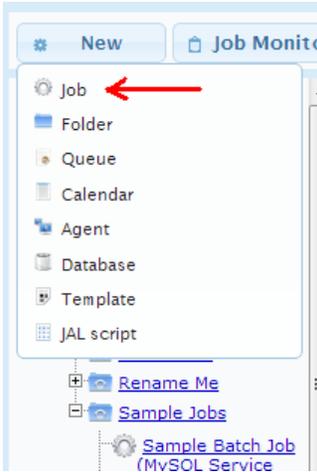
### Adding New Job

**To schedule a new job from scratch:**

1 In the Job Explorer, select the folder in which you want To create new job.

2 Click the **New** button . The **New** menu will appear below the button.

- 3 Click **Job** item in the menu. The **Select Template** dialog will appear.



- 4 Click the **Blank Job** item To create new job from scratch.



- 5 The **Job Wizard** will appear. Follow the instructions provided by the Wizard.

here' and 'To copy properties of an existing job, click [here](#)'. At the very bottom are five buttons: '<<Back', 'Next>>', 'Schedule', 'Finish', and 'Cancel'."/>

Job Properties Wizard Step 1 of 12

Type a name for this job. The job name can best describe task being performed or can be just the same as the program name.

New Job

What do you want this job to do?

Run program or batch file

Run database commands (SQL)

Run script (built-in JavaScript, VBScript, JAL, Batch/shell Script)

Choose target folder: Sample Jobs

To create this job from a template, click [here](#)

To copy properties of an existing job, click [here](#)

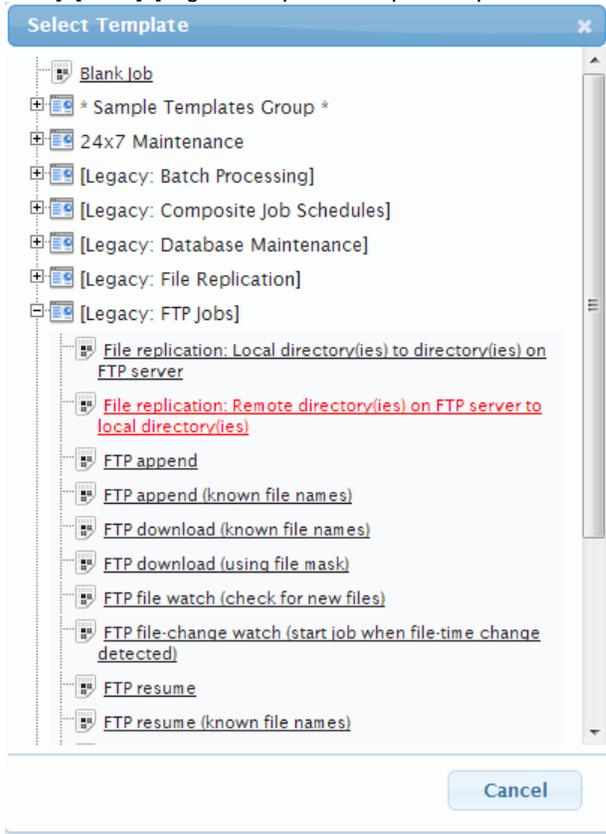
<<Back Next>> Schedule Finish Cancel

 **Note:** When you click the Finish button, the new job will be created and saved to the job database file on the connected job scheduler system.

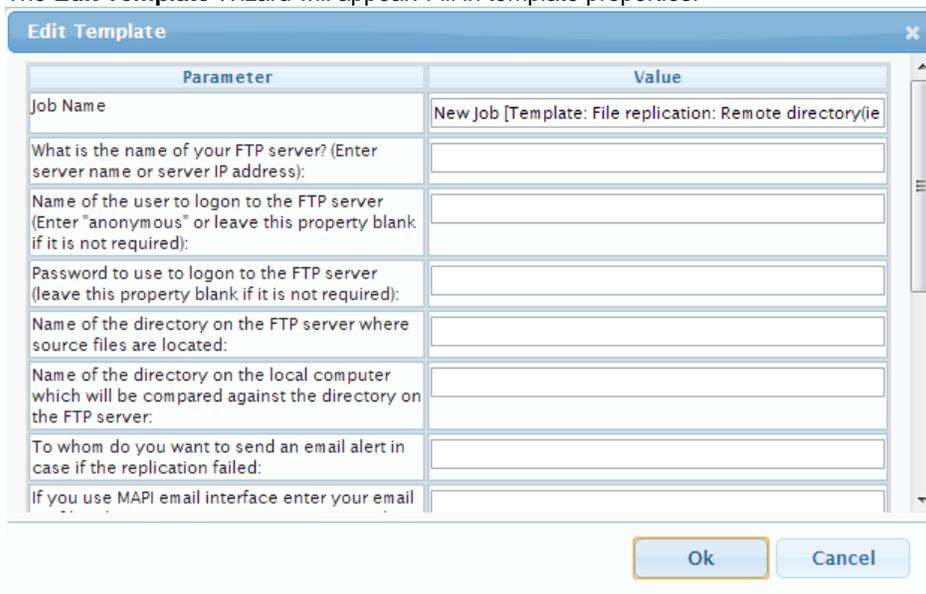
**To schedule a new job from a template:**

- 1 Repeat steps 1 to 3 as described above to open **Select Template** dialog

- Use [+] and [-] signs to expand/collapse template folders. Click the required job template.



- The **Edit Template** Wizard will appear. Fill in template properties.



Click the OK button To create new job using the entered parameters.

## Deleting Job

### To delete scheduled job:

- 1 In the Job Explorer, select the job you that want to delete.
- 2 Click the **Delete** button  .

 **Tip:** The delete function removes job definition from the job database. Any program files associated with that job are not removed from the hard disk.

## Disabling/Enabling Job

A job state is either disabled or enabled. You can toggle the job state by setting the on/off state of the **Disabled** property.

### To temporarily disable a scheduled job:

- 1 In the Job Explorer, select job you want to disable.
- 2 Click the **Disable** button  .

### To enable previously disabled job:

Repeat the steps described above, but click the **Enable** button  .

 **Tip:** Disabling scheduled job does not remove job definition from the job database; it only removes the job from the active job pool.

## Modifying Job

### To modify definition and/or schedule of an existing job:

- 1 In the Job Explorer, select the job you want to modify.
- 2 Click the **Edit** button  .
- 3 In case if the job was created using job template, the **Edit Template** Wizard will appear. Modify template fill-in parameters and click the Finish button to save your changes and update the job.

In case if the job was created from scratch or original job template is not available the Job Wizard will appear. Modify job properties and when done click the Finish button to save your changes and update the job.

### **Tips:**

- User interface and functionality of both Wizards are the same as in the 24x7 Scheduler graphical interface. For detailed description of available properties and functions see 24x7 Scheduler User's Guide.
- In case of script type job, to edit the script without going the Job Wizard, click the Edit Script button



## Protecting/Unprotecting Job

### To protect/unprotect a job:

- 1 In the Job Explorer, select the job whose security settings you want to modify.
- 2 Click the **Protect** button . The job protection dialog box will appear.
- 3 Type your password and select the required protection level.
- 4 Click the **OK** button.



### Notes:

- "Execute" protection does not prevent the job from starting on schedule or from being started by another job. It simply does not allow unauthorized users to execute the job by clicking on the **Run** button.
- Jobs copied using the **Database Manager** tool accessible via 24x7 Scheduler graphical interface retain their protection features.

## Moving Job to Another Folder

### To move a job to a different job folder:

- 1 In the Job Explorer, select job you want to move.
- 2 Click the **Move** button . The **Move To Folder** dialog will appear.
- 3 Select target job folder and then click the OK button.

## Auditing Job Processing

### To view job processing log:

- 1 In the Job Explorer, select the job you want to check.
- 2 Click the **Log** button .
- 3 The right pane of the Job Explorer will display available log records for the selected job. Note that job logging option must be enabled for this job. If not enabled, the scheduler does not generate log records for jobs run and job errors.
- 4 Click the **Output** button  to view archived job output results. Note that job output capturing and archiving options must be enabled for this job. If not enabled, the scheduler does not capture and archive job output results.

### To print the displayed log or job output file;

- 5 Click the **Print** button .

### To refresh the log view:

- 6 Use your Web Browser's page refresh function or pres the F5 key.

## Printing Job Properties and Schedule

**To print job properties, including job triggers, schedule, and notification action:**

- 1 In the Job Explorer, select the job whose properties you want to print. Job properties will appear on right side of the Job Explorer.
- 2 Click the **Print** button  **Print** .

## Chapter 3: Running and Monitoring Jobs

### Running Jobs

#### To run a job:

- 1 In the Job Explorer, select the job that you want to run.
- 2 Click the **Run** button . This will submit the job to the assigned job queue. The position in the queue depends on the job priority. As soon as the queue processor completes already running and queued job with higher priorities it will start running your job.

 **Tip:** See the following topics for information on how to monitor job progress and results.

### Monitoring Jobs Using Logs

Job progress-of-work messages, errors and warnings are written to the main 24x7 Scheduler log file. 24x7 can be also configured to write all these messages to the Windows NT Application event log. In addition to default messages, script type jobs can write user-defined messages to log files.

The web-based interface supports several methods for auditing these logs and monitoring job progress.

#### To view job-specific log records for a particular job:

- 1 In the Job Explorer, select the job you want to audit.
- 2 Click the **Log** button .
- 3 The right pane of the Job Explorer will display available log records for the selected job.

#### To view the entire job log containing messages for all jobs as well as all system-wide messages:

- 1 Click the **Job Log** button  at the top row of the console screen. The **Log Viewer** dialog will appear.
- 2 To refresh the view use the **Refresh** button. To close the Log Viewer dialog click the **Close** button.

 **Tip:** The Log Viewer dialog can be resized as needed by dragging its borders.

#### **Notes:**

- If a job has "Do Not Log" job-level option enabled, the scheduler does not write progress-of-work messages to the log for this job.
- If a job has "Ignore Errors" job-level option enabled and "Do Not Log" job-level option disabled, the scheduler still writes job error messages (if any) to the log as warnings and continues processing. Warning messages are displayed with yellow warning icons rather than red stop error icons.

#### To view the entire job log optimized for a web view with an index by day of week and the entire log history:

- 1 Click the **Reports** button  at the top of the console window. The **Reports** menu will appear below the button.
- 2 Click the **Daily Job Logs** menu item. The browser will open another window containing several frames. An index by day will be displayed in the left frame. Click on any day in the index to view log records for that particular day

- 3 To refresh the view use your web browser **Refresh** function. To close the Day Log Logs window use browser's **File/Close** menu.



**Notes:**

- 24x7 Scheduler must be configured to write "HTML Status Reports" in order for this option to work. For information on how to configure "HTML Status Reports" see **Status Report** topic in 24x7 Scheduler User's Guide.
- The **reports** subdirectory must be created in the root directory of the web-based interface and the **reportDir** parameter must be setup appropriately in the web-interface constants file. The web-based interface copies log files to this subdirectory before opening index.htm file in the default browser. For more information on configuring parameters see the **Installation** topic in this user's guide.

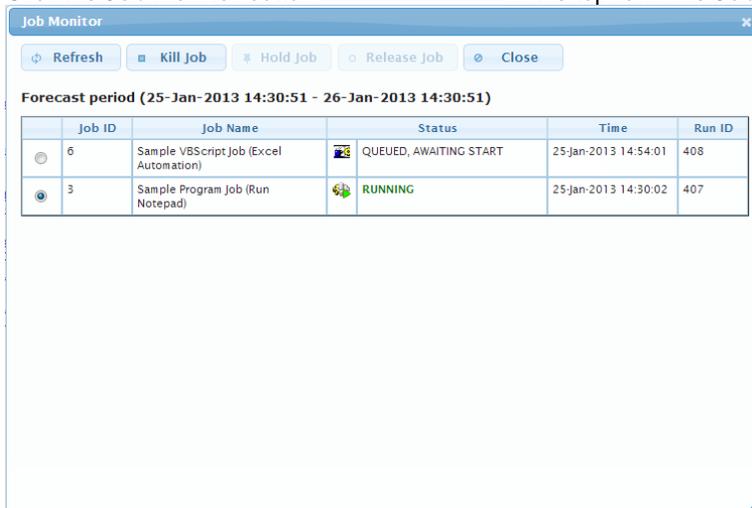
**To view the Windows Application event log file:**

Use **Windows built-in Log Viewer** utility for this purpose

## Monitoring Jobs Using Job Monitor

**To monitor currently running jobs, their status and jobs that are scheduled to start soon:**

- 1 Click the **Job Monitor** button  in the top row. The **Job Monitor** dialog will appear.



- 2 To refresh the view use the **Refresh** button. To close the Job Monitor dialog, click the **Close** button.
- 3 To Terminate a running job, select the required job, and then click the **Kill Job** button.

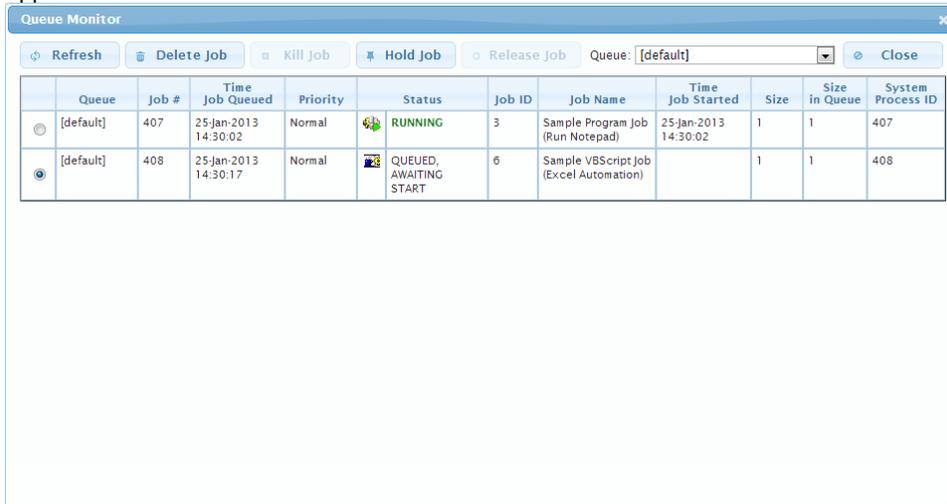


**Tip:** The dialog can be resized as needed by dragging its resizer control in the right bottom corner.

## Monitoring Job Queues

To monitor queued and waiting to run jobs and already running jobs:

- 1 Click the **Q Monitor** button  in the top row. Of the web console. The Queue Monitor dialog will appear



Queue	Job #	Time Job Queued	Priority	Status	Job ID	Job Name	Time Job Started	Size	Size in Queue	System Process ID
[default]	407	25-Jan-2013 14:30:02	Normal	 RUNNING	3	Sample Program Job (Run Notepad)	25-Jan-2013 14:30:02	1	1	407
[default]	408	25-Jan-2013 14:30:17	Normal	 QUEUED, AWAITING START	6	Sample VBScript Job (Excel Automation)		1	1	408

- 2 Select the required job queue in the **Queue** drop-down list at the top of the Queue Monitor dialog and then click
- 3 To refresh the view use the **Refresh** button. To close the Queue Monitor dialog, click the **Close** button.
- 4 To monitor jobs in other queues, select another queue in the drop-down
- 5 Use **Delete Job**, **Hold Job** and **Release Job** button to manipulate already queued jobs, the buttons will delete job from the queue, pause place job on hold, and release previously held job.
- 6 Use **Kill Job** button to terminate already running job.



**Tip:** The dialog can be resized as needed by dragging its resizer control in the right bottom corner.

## Monitoring Active Processes

For your convenience 24x7 web-based interface provides a tool for monitoring active processes running on the 24x7 server.

To monitor active processes:

- 1 Click the **Reports** button  in the top button row. The **Reports** menu will appear below the button.
- 2 Click the **Active Processes** menu item . The Active Processes dialog will appear.
- 3 To refresh the view use the **Refresh** button. To close the Active Processes dialog click the **Close** button.

## Forecasting Job Runs

To run job forecasting report for the next 7 days:

- 1 Click the **Reports** button  in the top button row. The **Reports** menu will appear below the button.
- 2 Click the **7-day Job Forecast** button. The 7-day Job Forecast dialog will appear.
- 3 To refresh the displayed report use the **Refresh** button. To close the dialog, click the **Close** button.



**Tip:** The dialog can be resized as needed by dragging its resizer control in the right bottom corner.

## Custom Job and Process Monitors

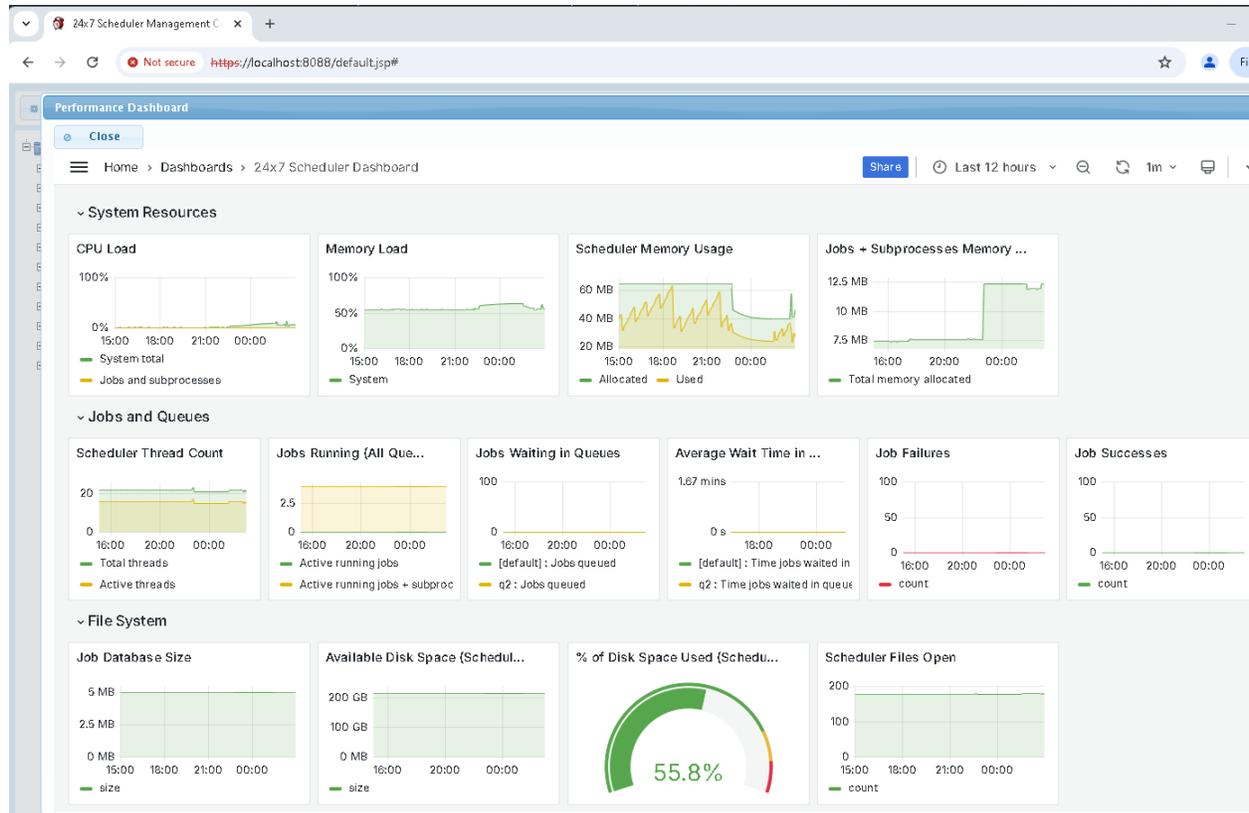
You can create custom monitors using the Custom Reports feature. For more information, see [Managing and Running Custom Reports](#) topic later in this chapter.

## Chapter 4: Performance Dashboard

### Overview

The Performance Dashboard is integrated into the web console. The Performance Dashboard displays real-time scheduler and system performance metrics to help you monitor scheduler's health, and analyze historical resource usage trends. The Performance Dashboard can help identify whether 24x7 Scheduler is experiencing a performance bottleneck or other health condition requiring your attention.

Under the hood the Performance Dashboard uses Grafana server software to render its charts.



To open the Performance Dashboard: In the Web Console click the Performance Dashboard menu in the Monitor drop down menu

## Working with the Performance Dashboard

### Requirements

**Important Note:** The Performance Dashboard requires that port 3000 is opened in the firewall for the local Grafana server connection.

In case you need to change the default port 3000 to something else, update port number in the Web Console's web server and Grafana server configuration files:

1. `http_port` value in `[24x7 home dir]/grafana/conf/custom.ini`
2. `grafana_port` value in `[24x7 home dir]/WebConsole/webapps/ROOT/WEB-INF/web.xml`

3. Restart the Web Console, Scheduler, and Grafana services.

## Available Panels and KPIs

### CPU Load

This panel provides two KPIs: the overall CPU load for the server, and the estimated load from running jobs and all their sub-processes. For example, if a job starts an external program and that program then launches several concurrent child subprocesses, total CPU usage of all of them is aggregated together and accounted for in the load from jobs KPI.

Note that CPU load KPI includes all available CPU cores and averages their usage. Hypothetically speaking, on a system with two CPU cores having one CPU maxed out at 100% and the other CPU unused at 0%, the load chart will show 50%.

### Memory Load

This panel provides the estimated total memory usage for the server as a percentage of the virtual memory usage which includes available space in the swap files.

On Windows systems the memory usage numbers should be similar to what you see in the memory usage performance chart in the Task Manager, though some small differences are to be expected.

On Unix systems the numbers should match numbers returned by the `free -m` command for buffers and vs cache.

### Scheduler Memory Usage

This panel provides the memory usage within scheduler's Java Virtual Machine (JVM), as a ratio of the heap space used vs. total amount of the JVM memory allocated. This KPI doesn't account for the memory usage by running jobs. A separate KPI is provided for in that in the next panel.

This is a very important KPI to watch. If the numbers continuously increase, it indicates some sort of resource usage. For example, non-detached jobs or internal processes leaking memory, not all files getting closed, non-detached recurring jobs loading more and more data into memory on each run, and so on... If you see the numbers increasing over a period several days, you should investigate what causes that and fix the issue.

### Jobs and Subprocess Memory Usage

This panel provides the total memory used by the jobs and their subprocesses. For example, if a job starts an external program and that program then launches several concurrent child sub-processes, total memory usage of all of them is aggregated together and accounted for in this KPI.

### Scheduler Thread Count

This panel provides the thread count within the scheduler's Java Virtual Machine (JVM).

This is a very important KPI to watch. If the numbers continuously increase, it indicates issues with run-away jobs or internal processes. For example, recurring asynchronous jobs never complete and hang in the background, and so on... If you see the numbers increasing over a period several days, you should investigate what causes that and fix the issue.

### Jobs Running (All Queued and Running)

This panel provides the count of all jobs queued or actively running in all queues including asynchronous background jobs

### Jobs Waiting in Queues

This panel provides the count of jobs queued but not yet running, in other words the standing queue length. If you see the numbers going high it may indicate one of the following:

- Not enough number of queues used or uneven queue usage. If too many jobs are assigned to the same queue or queues, they may need to wait in their queues for a long time before they can be picked up and processed.
- Jobs taking longer than expected to run, blocking other jobs in their queues. Perhaps such jobs should be converted to asynchronous jobs and run in the background. Their downstream dependencies can be managed using more advanced job dependencies features instead of using queues for job semaphoring.

 **Tip:** Don't confuse jobs waiting for their scheduled time to start with jobs that already reached their start time or were triggered by an associated event and were sent to their queues, and standing in queues waiting for the queue managers to become available to start executing them.

### Average Wait Time in Queue

This panel provides the average time jobs wait in queues before they can start waiting. This is a different yet related KPI for the scenarios described above.

 **Tip:** Don't confuse jobs waiting for their scheduled time to start with jobs that already reached their start time or were triggered by an associated event and were sent to their queues, and standing in queues waiting for the queue managers to become available to start executing them.

### Jobs Failures

This panel provides the cumulative total of all failed jobs since the last scheduler restart. Ideally this number should be zero or flat

### Jobs Successes

This panel provides the cumulative total of all successfully completed jobs since the last scheduler restart. This number should increase continuously and that is expected.

### Job Database Size

This panel provides the total size of all job database files. Together with the following KPI it can help you monitor disk space usage and ensure you don't run out of space.

 **Tip:** The job database is trimmed automatically by default once a week on the weekends. You control the frequency of this internal maintenance operation and the data retention time in the 24x7 Scheduler settings.

### Available Disk Space (on the Scheduler disk)

This panel provides the percentage of disk space used and remaining on the device where the scheduler is installed.

## Scheduler Files Open

This panel provides the total number of open files. The KPI only accounts for the files open by the scheduler process. Jobs and their subprocesses are not included in this KPI. This is a very important KPI to watch. If the numbers continuously increase, it indicates issues with internal processes or with runaway jobs..

## Custom Dashboards

This topic is for advanced users who are familiar with Grafana dashboard development.

The Grafana server provided with the Web Console enables you to develop your custom dashboards. You can use custom dashboards to complement the 24x7 Scheduler Performance Dashboard and combine metrics, and traces from various sources for enhanced job observability.

1. Edit [24x7 home dir]/grafana/conf/custom.ini file. Change disable\_login\_form value from true to false.
2. Restart all 24x7 services including the scheduler, grafana and web console.
3. Open the Performance Dashboard
4. Click the Arrow down symbol in the top-right corner of the Dashboard. This will open a new panel above.
5. Click the Sign-in link. Login with admin / change\_me credentials.
6. Develop and save your custom dashboard.
7. In the ini file change disable\_login\_form value back to false.
8. Restart all 24x7 services including the scheduler, grafana and web console.

The documentation for dashboard development is available on Grafana Labs web site. See <https://grafana.com/docs/grafana/latest/dashboards/> Multiple free tutorials are widely available on the Internet.

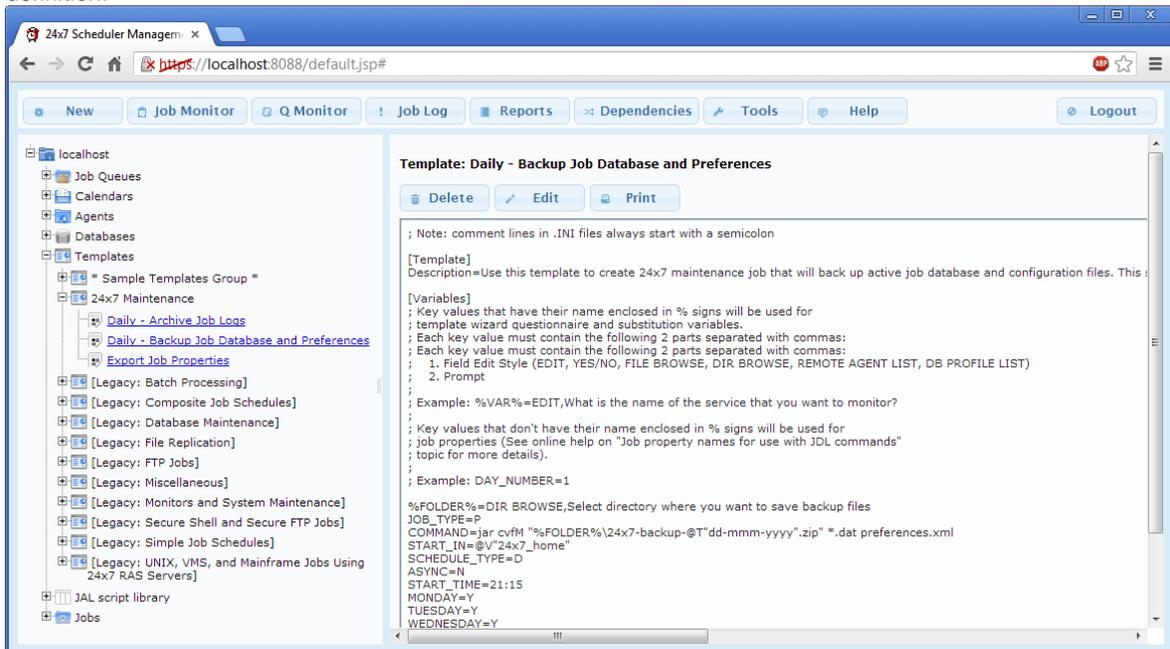
## Chapter 5: Template Management

Job templates provide a quick way to create new jobs. Some templates are installed by default with 24x7 Scheduler Setup, other are created by users. Additional templates are also available on SoftTree Technologies, Inc. web site.

### Working with Templates

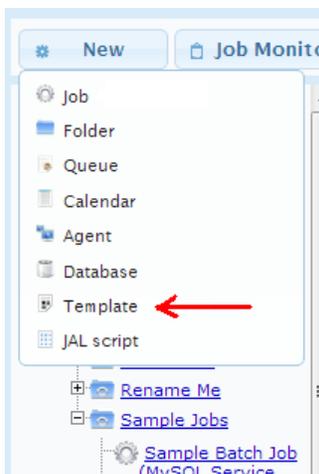
#### To browse available job templates

- 1 Expand the **Templates** branch in the Job Explorer
- 2 Use [+] and [-] signs to expand/collapse template folders. Click the required job template to view template definition.

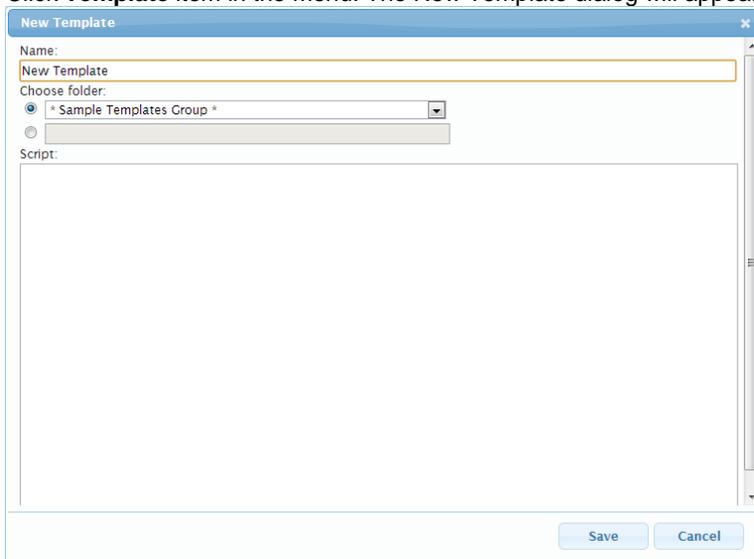


### To create new template

- 1 Click the **New** button . The **New** menu will appear below the button.



- 2 Click **Template** item in the menu. The New Template dialog will appear.



- 3 Enter name of the new template into the **Name** field.
- 4 To place the new template into an existing template folder, choose folder from the **Folder** drop-down box To create new template folder and place the new template into that folder, select second option and type name of the new folder. Be sure to enter unique folder name
- 5 Enter template definition into the **Script** field. For description of available job properties and template variables. See **Job Property Names** topic in 24x7 Scheduler User's Guide or on-line help system.

 **Tip:** To copy text from the Clipboard use CTRL+C hot key or use the right-click popup menu.

- 6 Click the **Save** button to save new template.

#### To create new template from an existing template

- 1 Select an existing template.
- 2 Click the **Edit** button. The **Edit Template** dialog will appear.
- 3 Right-click anywhere in the template definition field. In the popup menu click **Select All** command. This will select the template definition. Right-click again and this time choose **Copy** command. This will copy template definition to the Clipboard.
- 4 Click the Cancel button to close **Edit Template** dialog
- 5 Follow steps described above To create new template. In step 3, paste the existing template definition to the new template.
- 6 Modify template name and copied definition as needed.
- 7 Choose the appropriate template folder from the drop-down box.

#### To modify an existing template

- 1 Select an existing template.
- 2 Click the **Edit** button. The **Edit Template** dialog will appear.
- 3 Modify required job properties and template variables. See **Job Property Names** topic in 24x7 Scheduler User's Guide or on-line help system.
- 4 Click the OK button to save changes.

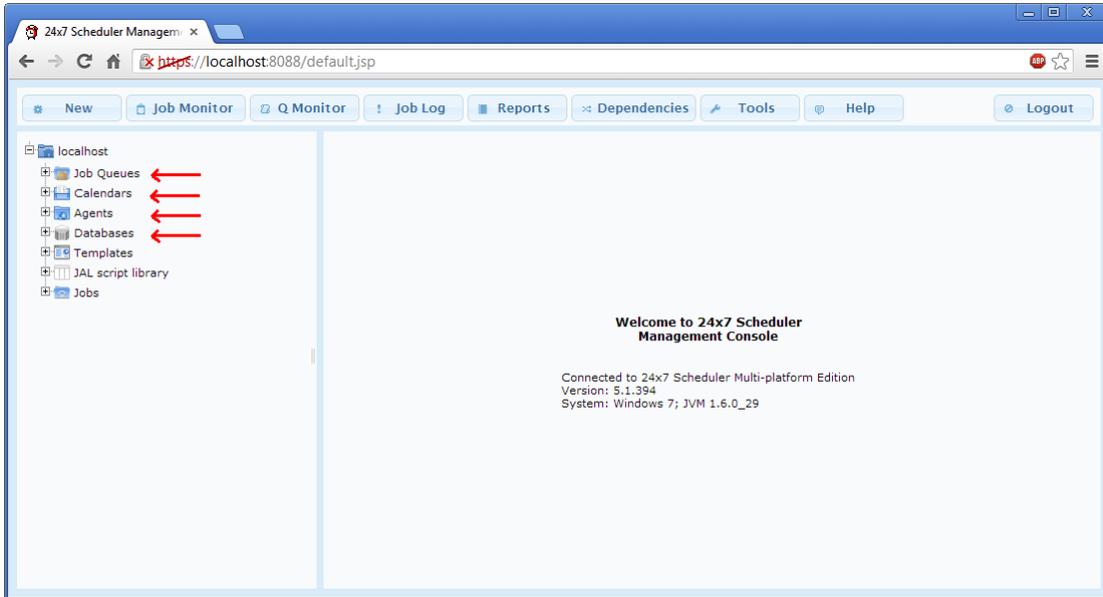


#### Notes:

- Job Templates are not stored in the job database. They are stored in separate .INI files, which are located by default in the Template subdirectory on the computer running 24x7 Scheduler. The template names and group definitions are stored in the TEMPLATE.INI file.
- For description of supported template parameters and variables see **Creating and Modifying Job Templates** topic in 24x7 Scheduler User's Guide.

## Chapter 6: System Management

The Job Explorer tree provides access to various management options including job queues, remote agent profiles, MQ broker profiles, database interfaces and database profiles, job calendars.

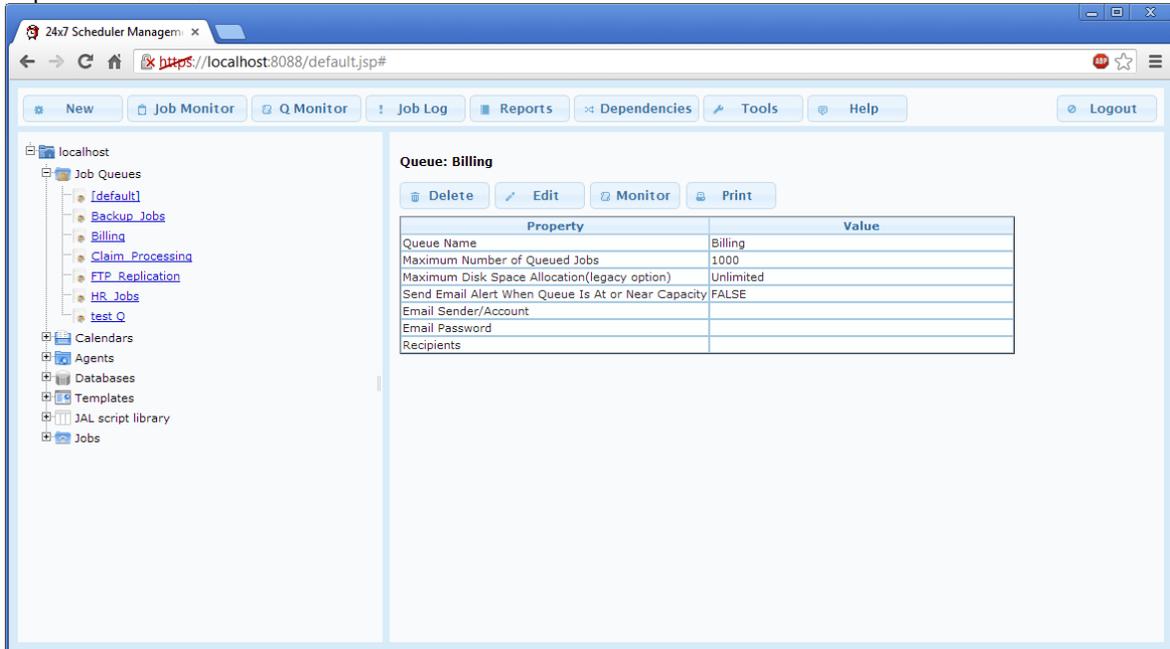


Expand the required tree branch and select the required item.

## Managing and Monitoring Job Queues

To manage the existing queues:

- 1 Expand the **Job Queue** folder



The web console displays configured job queues on the left side of the console window and their properties on the right.

Navigating through job queues is usually accomplished by clicking links representing individual profiles with the mouse. Users more accustomed to keyboard navigation can use standard navigation keys (TAB, SHIFT+TAB, ENTER, etc...) supported by the Web browser to move between links.

To modify job queue properties:

- 1 Select the required queue.
- 2 Click the **Edit** button  displayed on the right side. The **Edit Queue** dialog will appear.

The 'Edit Queue' dialog box is shown with the following fields and controls:

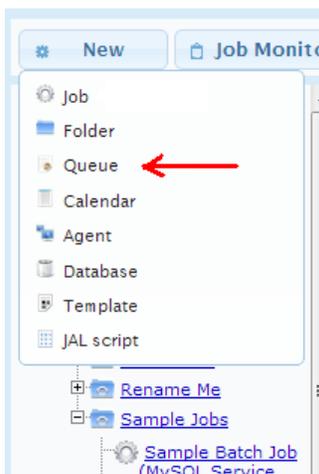
- Queue Name:
- Maximum Number of Queued Jobs:   
Note: 0 value means unlimited number of jobs can be queued.
- Maximum Disk Space Allocation (MB):   
Note: 0 value means unlimited space allocation.
- Send Email Alert When Queue Is At or Near Capacity:
- Email Sender/Account:
- Email Password:
- Recipients:

At the bottom, there are 'Ok' and 'Cancel' buttons.

- 3 Modify properties as needed and then click the **OK** button to save your changes. For details about supported queue properties, see 24x7 Scheduler User's Guide.

### To create new job queue

- 1 Click the **New** button . The **New** menu will appear below the button.



- 2 Click the **Queue** menu item
- 3 Modify properties as needed and then click the **OK** button to save your changes. For details about supported queue properties, see 24x7 Scheduler User's Guide.

### To delete job queue:

- 1 Select the required queue
- 2 Click the **Delete** button  displayed on the right side. A confirmation message will appear.
- 3 Click **OK** button to confirm the deletion.



#### Tips:

- It is a good idea to check if the to-be-deleted queue is running any jobs before deleting it.
- Jobs that are still assigned to the deleted queue will generate warnings in run-time and will be rerouted to the [default] queue.
- The **[default]** queue is required by the system and may not be deleted.

### To print job queue properties:

- 1 Select the required queue
- 2 Click the **Print** button  displayed on the right side.

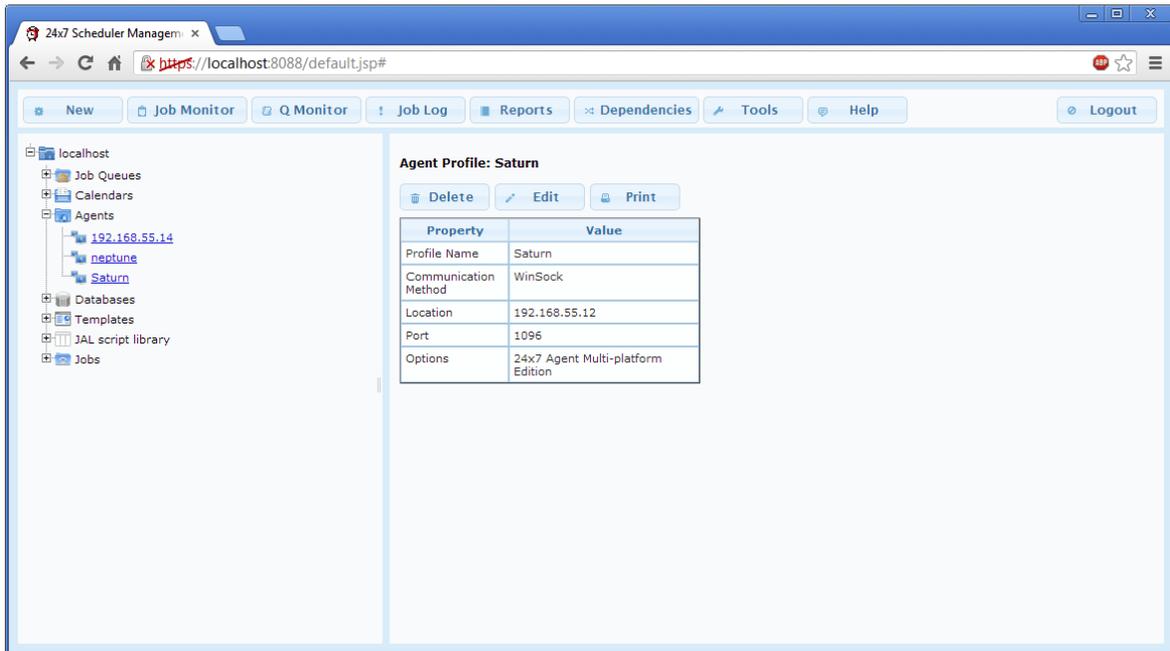
### To monitor jobs already running or submitted and waiting to run in a particular job queue:

- 1 Select the required job queue and then click the **Monitor** button  on the right side of the dialog. The Queue Monitor dialog will appear.
- 2 To refresh the view use the **Refresh** button.
- 3 To monitor jobs in other queues, use the **Queue** drop-down in the Queue Monitor dialog or close the Queue Monitor dialog and then repeat steps 1 and 2.

## Managing Remote Agent Profiles

### To manage Remote Agents Profiles:

- 1 Expand the **Remote Agents** folder

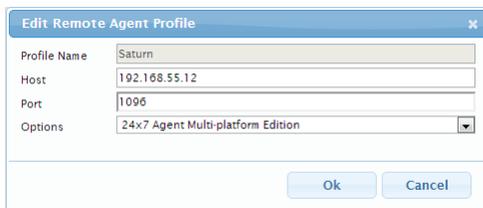


The web console displays configured remote agent profiles on the left side of the console window and their properties on the right.

Navigating through remote agent profiles is usually accomplished by clicking links representing individual profiles with the mouse. Users more accustomed to keyboard navigation can use standard navigation keys (TAB, SHIFT+TAB, ENTER, etc...) supported by the Web browser to move between links.

### To modify agent profile properties:

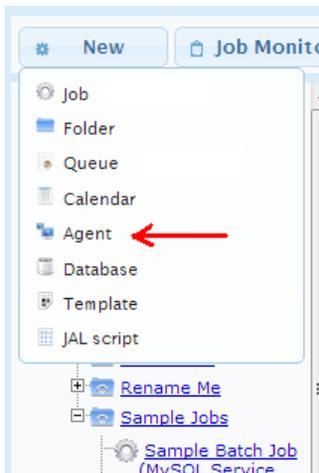
- 1 Select the required profile.
- 2 Click the **Edit** button  displayed on the right side. The Edit Agent Profile dialog will appear



- 3 Modify properties as needed and then click the **OK** button to save your changes. For details about supported remote agent types and properties, see 24x7 Scheduler User's Guide.

### To create new agent profile

- 1 Click the **New** button . The **New** menu will appear below the button.



- 2 Click the **Agent** menu item
- 3 Modify properties as needed and then click the OK button to save your changes. For details about supported remote agent properties, see 24x7 Scheduler User's Guide.

### To delete an agent profile:

- 1 Select the required agent profile.
- 2 Click the **Delete** button  displayed on the right side. A confirmation message will appear.
- 3 Click OK button to confirm the deletion.

 **Tip:** It is a good idea to check if an agent is assigned to any job before deleting it. Check job properties to find which job(s) use this agent. If an agent is deleted for an existing job, the job will fail to run.

### To print an agent profile properties:

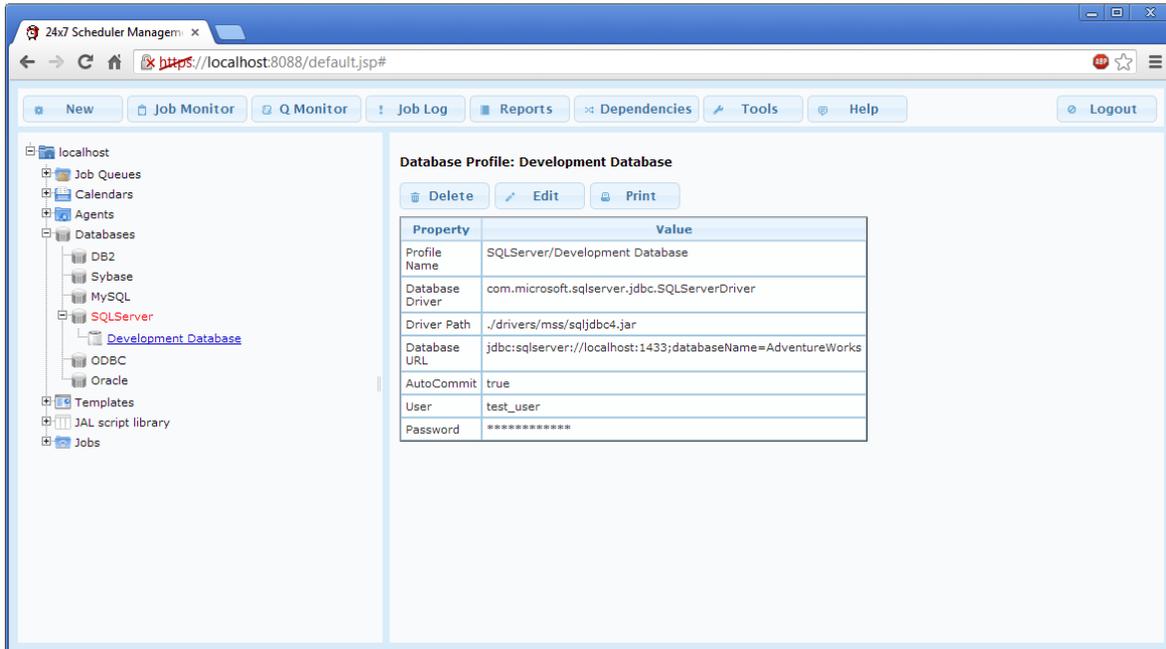
- 1 Select the required profile.
- 2 Click the **Print** button  displayed on the right side.

## Managing Database Interface and Profiles

Database interfaces can be managed using 24x7 Scheduler graphical interface only. They cannot be changed using 24x7 web console. The web console allows managing database profiles only.

## To manage Database Profiles

- 1 Expand the **Database** folder, then expand the required database interface



The web console displays configured database interfaces and profiles on the left side of the console window and their properties on the right

Navigating through database interfaces and profiles is usually accomplished by clicking links representing individual profiles with the mouse. Users more accustomed to keyboard navigation can use standard navigation keys (TAB, SHIFT+TAB, ENTER, etc...) supported by the Web browser to move between links.

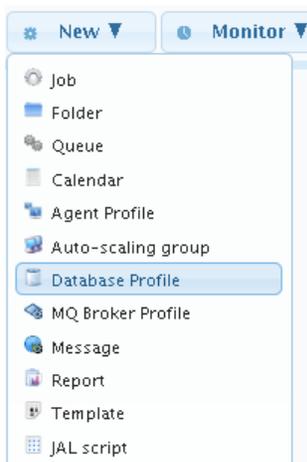
### To modify database profile properties:

- 1 Select the required profile.
- 2 Click the **Edit** button  displayed on the right side. The Edit Database Profile dialog will appear

- 3 Modify properties as needed and then click the **OK** button to save your changes. For details about supported database interfaces and profiles, see 24x7 Scheduler User's Guide.

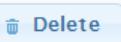
### To create new database profile

- 1 Click the **New** button . The **New** menu will appear below the button.



- 2 Click the **Database Profile** menu item.
- 3 Modify properties as needed and then click the OK button to save your changes. For details about supported database profile properties, see 24x7 Scheduler User's Guide.

### To delete database profile:

- 1 Select the required profile
- 2 Click the **Delete** button  displayed on the right side. A confirmation message will appear.
- 3 Click OK button to confirm the deletion.

 **Tip:** It is a good idea to check if the to-be-deleted database profile is assigned to any job before deleting it. Check job properties to find which job(s) use this profile.

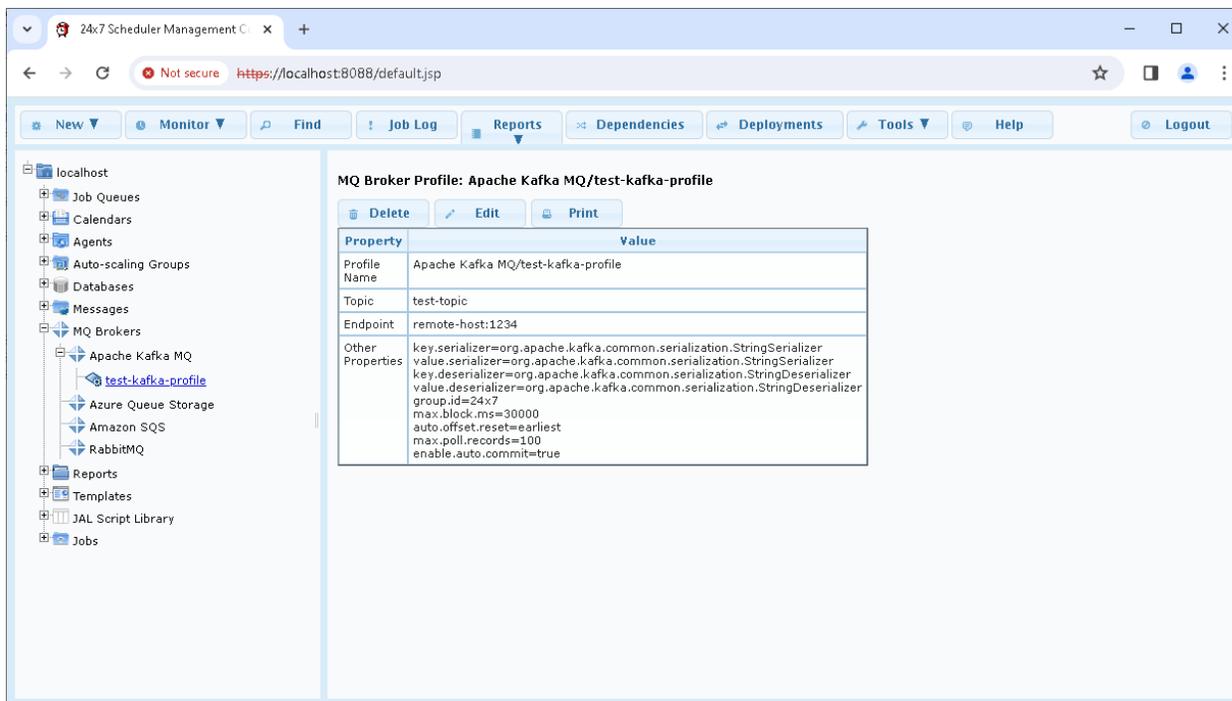
### To print database profile properties:

- 1 Select the required profile
- 2 Click the **Print** button  displayed on the right side.

## Managing MQ Broker Profiles

### To manage MQ Broker Profiles

- Expand the **MQ Brokers** folder, then expand the required MQ broker type



The web console displays configured broker profiles on the left side of the console window and their properties on the right

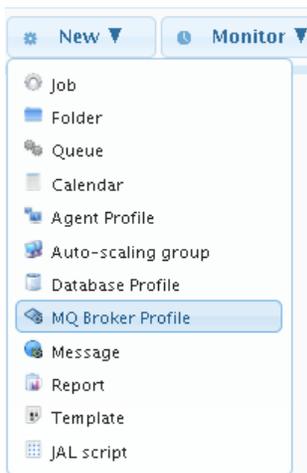
Navigating through MQ interfaces and broker profiles is usually accomplished by clicking links representing individual profiles with the mouse. Users more accustomed to keyboard navigation can use standard navigation keys (TAB, SHIFT+TAB, ENTER, etc...) supported by the Web browser to move between links.

### To modify MQ broker profile properties:

- Select the required profile.
- Click the **Edit** button  displayed on the right side. The Edit MQ Broker Profile dialog will appear. The appearances of the dialog varies for different types of MQ brokers
- Modify properties as needed and then click the **OK** button to save your changes. For details about supported MQ interfaces and broker profiles, see 24x7 Scheduler User's Guide.

### To create new MQ broker profile

- 4 Click the **New** button . The **New** menu will appear below the button.



- 5 Click the **MQ Broker Profile** menu item.
- 6 Modify properties as needed and then click the OK button to save your changes. For details about supported MQ broker profile properties, see 24x7 Scheduler User's Guide.

### To delete broker profile:

- 4 Select the required profile
- 5 Click the **Delete** button  displayed on the right side. A confirmation message will appear.
- 6 Click OK button to confirm the deletion.

 **Tip:** It is a good idea to check if the to-be-deleted broker profile is assigned to any job before deleting it. Check job properties to find which job(s) use this profile.

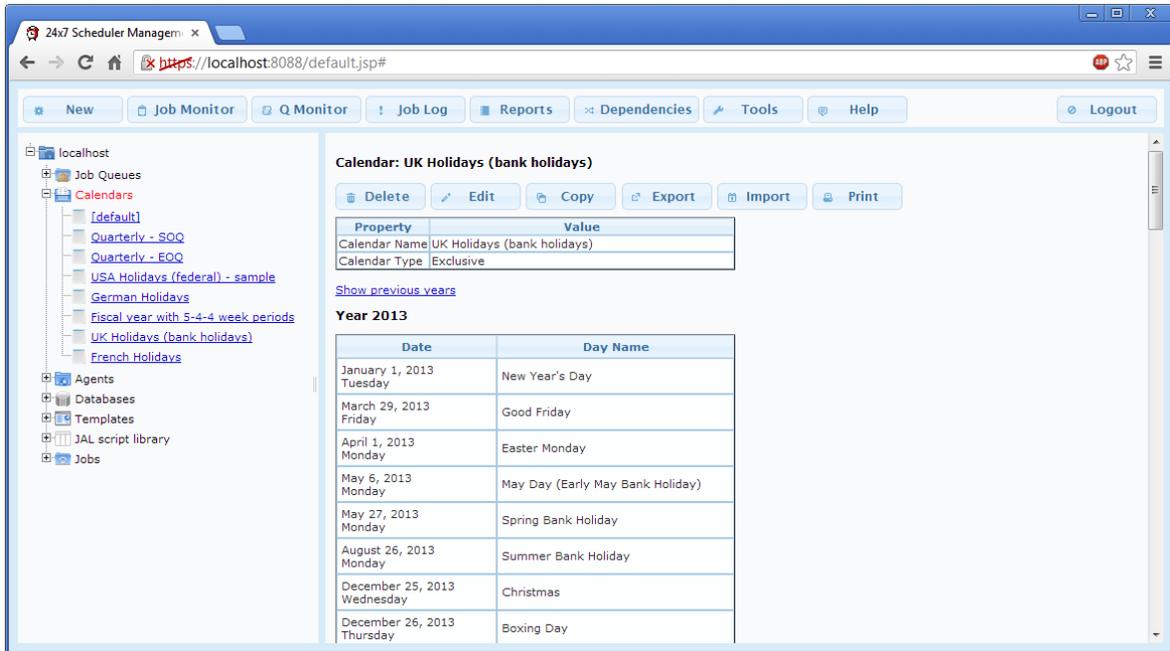
### To print MQ broker profile properties:

- 3 Select the required profile
- 4 Click the **Print** button  displayed on the right side.

## Managing Job Calendars

### To manage Job Calendars

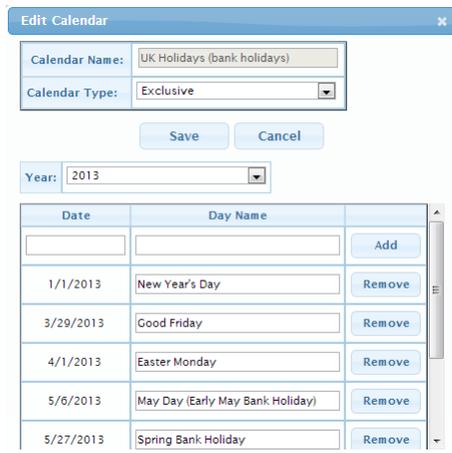
- 1 Expand the **Calendars** folder



Navigating through the calendars is usually accomplished by clicking links representing individual calendars with the mouse. Users more accustomed to keyboard navigation can use standard navigation keys (TAB, SHIFT+TAB, ENTER, etc...) supported by the Web browser to move between links.

### To modify calendar properties:

- 1 Select the required calendar.
- 2 Click the **Edit** button  displayed on the right side. The Edit Calendar dialog will appear

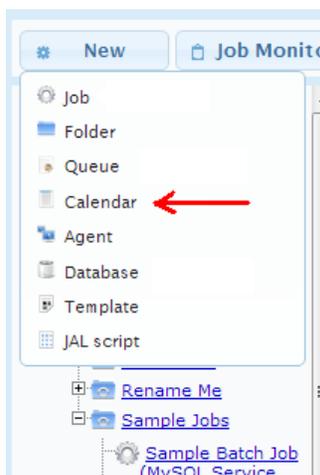


- 3 Modify calendar properties as needed. For details about supported calendar types and calendar, see 24x7 Scheduler User's Guide.
- 4 To add one or more days to an existing calendar, use the top row in dates table, enter day in your default system date format, enter day description and then click the Add button. . Repeat the same procedure to add more calendar days.
- 5 To remove already entered days, click the Remove buttons  next to the days you want to remove.
- 6 Click the **Save** button to save your changes

 **Tip:** Use the Year drop-down to filter days for a specific year. By default the Calendar Properties dialog displays entries for the current year

### To create new job calendar from scratch

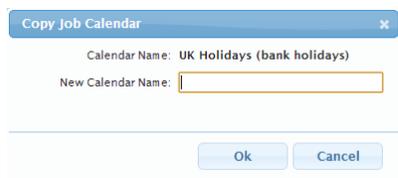
- 1 Click the **New** button . The **New** menu will appear below the button.



- 2 Click the **Calendar** menu item.
- 3 Modify properties as needed and then click the Save button to save your changes. For details about supported job calendar properties, see 24x7 Scheduler User's Guide.

### To quickly create new calendar from another calendar

- 1 Select the required calendar
- 2 Click the **Copy** button  displayed on the right side. **Copy Calendar** dialog will appear.

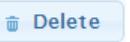


- 3 Enter new calendar name and click the OK button to save it.

**To modify calendar in an external program or quickly modify calendar days**

- 1 Select the required calendar
- 2 Click the **Export** button  displayed on the right side. The web console will stream calendar data to the browser and will make it save it as a file in the browser's Download folder.
- 3 Open the Download folder and double-click the calendar file. The file will open in your default program associated with CSV files, such as Microsoft Excel or similar
- 4 Modify the data as required. Make sure the data and file is valid after changes.
- 5 Click the **Import** button  displayed on the right side. The web console will display standard File Open dialog which you can use to select the updated calendar file. The console will then send the data to the 24x7 Scheduler. Note that importing large files may take several minutes.

**To delete job calendar:**

- 1 Select the required calendar
- 2 Click the **Delete** button  displayed on the right side. A confirmation message will appear.
- 3 Click OK button to confirm the deletion.



**Tip:** It is a good idea to check if the to-be-deleted calendar is assigned to any job before deleting it. Check job properties to find which job(s) use this profile. If you delete calendar which in use, the associated jobs will never run.

**To print calendar properties:**

- 1 Select the required calendar
- 2 Click the **Print** button  displayed on the right side.

## Managing and Running Custom Reports

### To manage Custom Reports

Expand the **Reports** folder

The screenshot shows the 24x7 Scheduler Management Console interface. The left sidebar displays a tree view of the system components, with the 'Reports' folder expanded. The main content area shows the configuration for the 'Jobs Failed in Last 7 Days' report. The configuration is presented as a table with the following data:

Property	Value
Report ID	6
Report Name	Jobs Failed in Last 7 Days
Title	Failed Jobs (Last 7 Days)
Description	Jobs completed with errors in the last 7 days
SQL Query	SELECT l.job_id AS [Job ID], l.job_name AS [Job Name], l.event_time AS [Start Time], CASE j.schedule_type WHEN 'F' THEN 'Semaphore file' WHEN 'D' THEN 'Daily/Weekly' WHEN 'T' THEN 'All day recurring' ELSE 'Other' END AS [Schedule Type], l.message_text AS [Error Details] FROM t24x7_log AS l LEFT JOIN t24x7_job_list AS j ON j.job_id = l.job_id WHERE l.event_severity = 3 AND l.event_time > GETDATE() - 7 -- 7 days ORDER BY 3 DESC, 2
Output Format	PDF
Email Recipients	
Last Modified By	pre-defined
Last Modified Time	2015-11-19 10:11:15.0

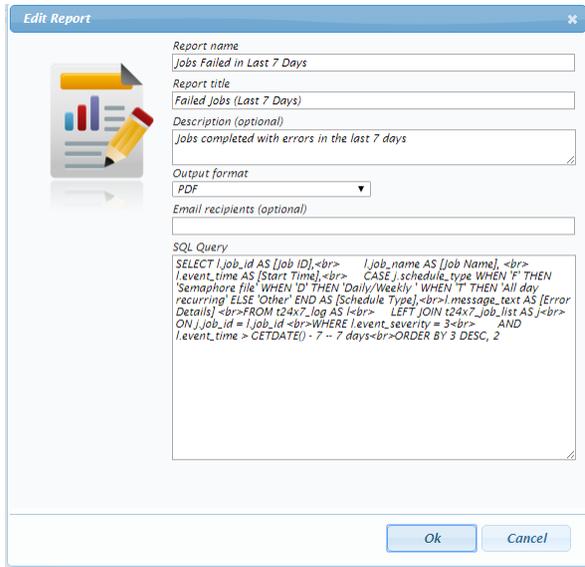
Navigating through the reports is usually accomplished by clicking links representing individual reports with the mouse. Users more accustomed to keyboard navigation can use standard navigation keys (TAB, SHIFT+TAB, ENTER, etc...) supported by the Web browser to move between links. Note that an alternative but functionally comparable report management interface is available in a standalone report management dialog accessible from **Reports -> Custom Reports** menu.

The 'Custom Reports' dialog box is shown. It features a list of reports on the left, with 'Queue Activity' selected. The main area displays the configuration for the 'Queue Activity' report, including a table with properties and values, and a SQL Query. The SQL Query is:

```
SELECT ISNULL(t.queue_name, 'NEW JOB -') AS [Queue Name],
t.job_name AS [Job Name],
t.start_time AS [Start Time],
t.end_time AS [End Time],
DATEDIFF(mi, t.start_time,
t.end_time) AS [Duration (minutes)],
(SELECT TOP 1 DATEDIFF(mi,
l2.event_time, t.start_time) FROM
t24x7_log AS l2 JOIN t24x7_job_list
AS j ON j.job_id = l2.job_id WHERE
l2.event_time < t.start_time AND
j.queue_name = t.queue_name
ORDER BY l2.event_time DESC) AS
[Queue Idle Time (minutes)],
(SELECT TOP 1 DATEDIFF(mi,
l2.event_time, t.start_time) FROM
t24x7_log AS l2 WHERE
l2.event_time < t.start_time ORDER
BY 3 DESC, 2)
```

**To modify report properties:**

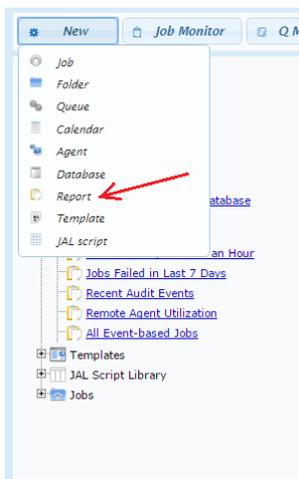
- 1 Select the required custom report.
- 2 Click the **Edit** button  displayed on the right side. The Edit Report dialog will appear



- 3 Modify report properties as needed. For details about supported report properties, see 24x7 Scheduler User's Guide.
- 4 Click the **Ok** button to save your changes

**To create new custom report from scratch**

- 1 Click the **New** button . The **New** menu will appear below the button.



- 2 Slick the **Report** menu item.
- 3 Modify properties as needed and then click the Ok button to save your changes. For details about supported report properties, see 24x7 Scheduler User's Guide.

**To quickly create new custom report from another report**

- 1 Select the required report
- 2 Click the **Copy** button  **Copy** displayed on the right side. **Copy Report** dialog will appear.
- 3 Enter new report name and click the OK button to save it.

**To delete report:**

- 1 Select the required report.
- 2 Click the **Delete** button  **Delete** displayed on the right side. A confirmation message will appear.
- 3 Click OK button to confirm the deletion.

**To print report properties:**

- 1 Select the required report.
- 2 Click the **Print** button  **Print** displayed on the right side.

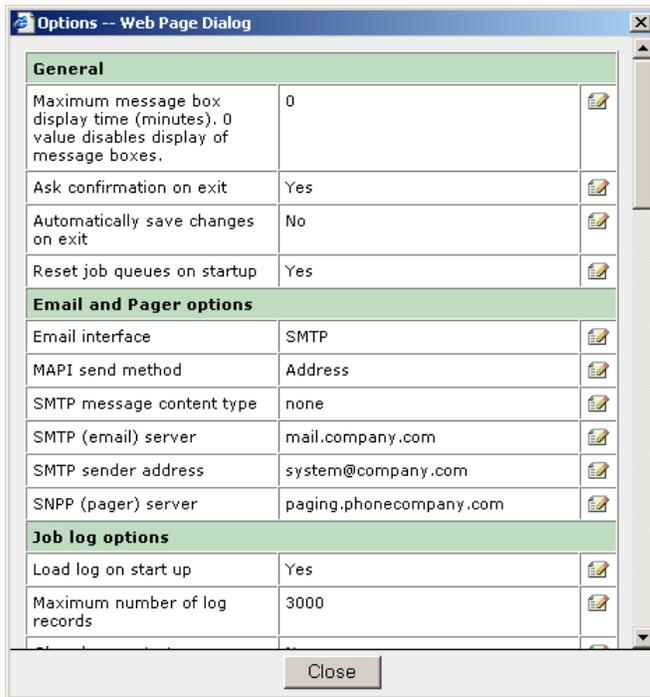
**To run report:**

- 1 Select the required report.
- 2 Click the **Run** button  **Run** displayed on the right side. This will send the report to the default processing queue.

## Configuring System Options

To view and modify 24x7 Scheduler system options:

- 1 Click the **Tools** menu and then click the **Options** menu command. The **Options** dialog will appear. Related options are displayed in groups.



- 2 To modify an option click the **Edit** icon  displayed in the same row. The **Edit Options** dialog will appear.



- 3 Enter new value and click the **OK** button to save changes on the server.

 **Important Note:** Not all changes in options have full immediate effect. Certain options require that the scheduler be restarted before the new settings will take full effect. For more information on how to restart the scheduler remotely see the next topic.

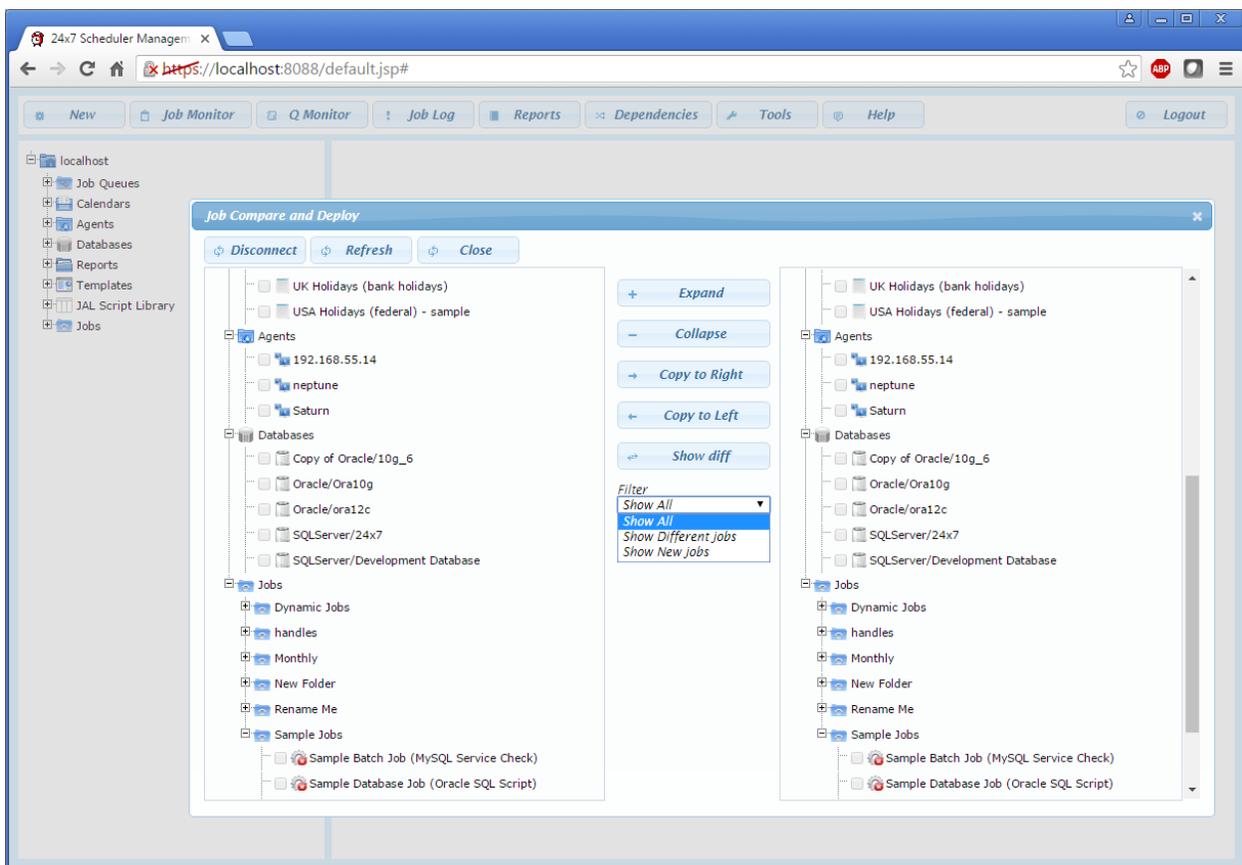
## Chapter 7: Job Deployment to Production Systems

Typically you develop and test new jobs in a separate development environment isolated from the production. In this setup, all development and testing tasks occur in the development environment, and then the job changes are promoted to the production environment. The Web console provides you with the Job Compare and Deploy tool to promote changes from the development to the production environment.

Note that the deployment tool is accessible by the scheduler administrators only. If you are not an administrator and you want to promote your job to production, contact your local scheduler administrator for assistance.

### Job Compare and Deploy Tool

You can access the Job Compare and Deploy tool from the web console's Tools menu.



The Job Compare and Deploy tools enable you to compare two different 24x7 Scheduler systems, it compares jobs and their associated settings such as job calendars, database profiles, queues, and so on. When you start this tool, the currently connected scheduler settings are displayed on the left hand side of the tool's dialog window. Click the **Connect** button in the top left corner of the dialog window. You will be prompted for the connection parameters to the other system. Enter the same parameters that you normally enter on the initial login dialog.

The differences are highlighted using different colors. Blue color is used to show "new" objects on either side of the comparison, red color is used to show "different" objects and regular black color is used for identical objects.

To drill-down to specific differences, select the object of interest, for example, select a different job, and then click the **Show diff** button. A new dialog will appear that will show side by side job properties that do not match. Similarly you can compare properties of other object types.

## Deployment

To deploy a job or other object from development to production:

Assuming that you selected a development system on the left and a production system on the right, on the left side of the dialog tick the checkboxes in front of objects that you want to deploy, and then click **Copy to Right** button.

To restore a job or other object from to production to development:

Assuming that you selected a development system on the left and a production system on the right, on the right side of the dialog tick the checkboxes in front of objects that you want to restore, and then click **Copy to Left** button.

## Helpful Shortcuts

To quickly show differences only, use the **Filter** drop-down. To show all new, missing, and different jobs and objects, select Show Different Jobs item in the **Filter** drop-down list. To show new jobs and objects only, select the Show New Jobs item.

To quickly collapse and expand all folders and containers on both sides of the dialog, use the **Collapse** and **Expand** buttons.

To refresh the content of the dialog without reconnecting to the scheduling systems, use the **Refresh** button at the top of the dialog window.

## Appendix A: Technical Support

Your questions, comments, and suggestions are welcome.

For technical support, e-mail to [support@softtreetech.com](mailto:support@softtreetech.com) or use the on-line support form at <http://www.softtreetech.com/support/>.

When reporting problems, please provide as much information as possible about your problem. Be sure to include the following information:

- 1 Is the problem reproducible? If so, how?
- 2 What browser are you running? For example, Google Chrome v89.0.4389.90.
- 3 What version of the 24x7 Scheduler are you running?
- 4 If a dialog box with an error message was displayed, please include the full text of the dialog box, including the text in the title bar.
- 5 If the problem involves an external program, provide as much information as possible about this program.
- 6 Make sure you include the serial number for your copy of 24x7 Scheduler. Use the **Help/About** menu to look up the correct numbers. Registered users have priority support.

For registration information, purchasing or other sales information, please contact our sales department: [sales@softtreetech.com](mailto:sales@softtreetech.com).

For general information, software updates, the latest information on known problems and answers to frequently asked questions, visit the 24x7 Scheduler home page on the Web: <http://www.softtreetech.com/24x7/>.

We are happy to help in any way we can, but if you are having problems, please check the troubleshooting section first to see if your question is answered there.

## Appendix B: End-user License Agreement and Privacy Statement

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### 24x7 Scheduler End-user License Agreement and Privacy Statement

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- A. Acknowledgement
  - B. End-user license agreement
  - C. Privacy statement
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