



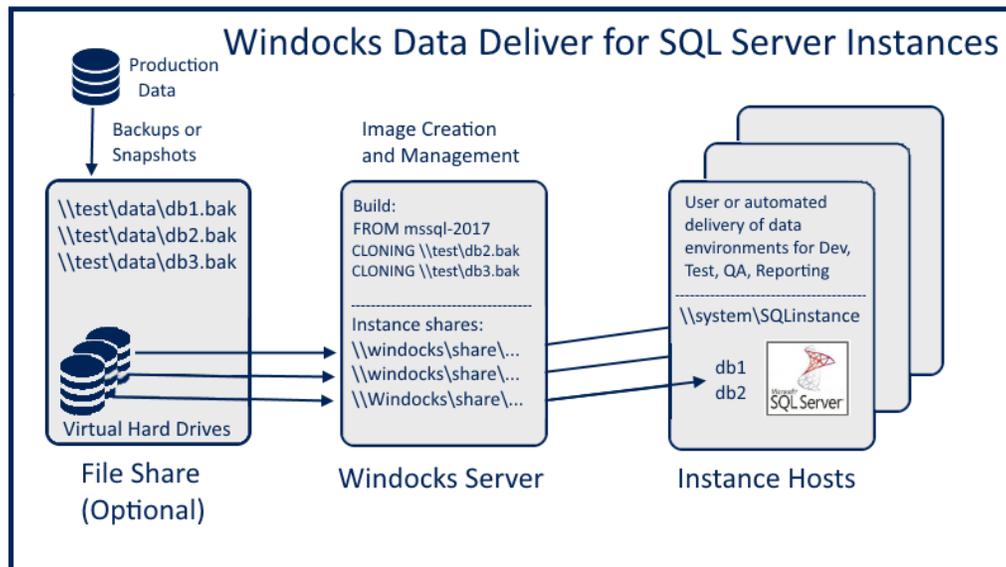
# Windocks: a Modern, Open, Data Delivery Platform

## SQL Server Database Clones for SQL Server Instances

Windocks supports delivery of database clones to Windocks SQL containers, instances, and Microsoft's SQL Server containers. This document provides instructions for use of clones with SQL Server instances.

### Introduction:

Windocks supports the creation and delivery of SQL Server snapshots (database clones) from Pure Storage and other storage arrays, in addition to the Windows file system clones described in this article. Windocks also supports Microsoft's SQL Server containers (both Linux and Windows), which is covered in separate articles. This article focuses on delivery of clones to SQL Server instances.



SQL database clones are built using full or differential backups, or snapshots that are delivered to one or more Windows Server file shares (locally on the Windocks host or on a network file share). VHD images are a full byte copy of the data, and can include scores of databases with SQL Server scripts run during the image build. Once the Virtual Hard Drive is built, clones (differencing disks) are provisioned on demand, and delivered in seconds, with full read/write support. Clones grow dynamically as changes are made, using a COPY on Write design. It is important to manage the Windocks host for uninterrupted operation when supporting use of clones mounted over a LAN.

### Planning and Setup:

Windocks runs on Windows Server 2012 R2 or Windows Server 2016. The target SQL Server instance can run any version of Windows, and all versions and editions of SQL Server 2008 and forward are supported.



# Windocks: a Modern, Open, Data Delivery Platform

The SQL Server target must be configured to run as a domain user with **sysadmin** rights, and support mixed-mode authentication and remote access. For named instances the SQL Browser service should run using the same domain user account. The target SQL instance also requires a SQL user login that is included in the **sysadmin** role.

A sample Dockerfile is included in the `\windocks\samples\TestWindocksClonetoSqlInstance` folder, and defines both the source and target with their required parameters. User account permissions are applied either in the dockerfile (domain\testadmin below), or in the Windocks configuration (`\Windocks\config node.conf`).

```
FROM mssql-20XX
ENV USE_DOCKERFILE_TO_CREATE_CONTAINER=1
RUN SourceClone_Windocks NetworkShareName|$ContainerId$ContainerImageName
NetworkSharePath|C:\Windocks\data|$ContainerId|$ContainerImageName
NetworkShareUsers|domain\testadmin
RUN TargetAttach_SqlWindows InstanceName|$SqlInstanceName SqlUserName|$SqlInstanceUserName
SqlPassword|$SqlInstancePassword
SETUPCLONING FULL customers C:\windocks\dbbackups\customerdatafull.bak
```

The setup involves three steps:

**Step 1:** Confirm that the SQL target instance is configured to run as a domain user with **sysadmin** rights, and supports mixed-mode authentication and remote access. Confirm that a SQL user login used has **sysadmin** rights. For named instances confirm that the SQL Browser service is configured to run using the same domain user account.

**Step 2:** Add the SQL target domain user to the Windocks “permitted users” configuration, or is included in the Dockerfile. User access to Windocks clones are listed in the Windocks configuration `\windocks\config\node.conf` file.

```
CLONE_USERS_PERMITTED="domain.local\UserName, domain.local\Username2"
```

**Step 3:** Following updates of the Windocks node.conf file restart the Windocks service, using the “local services” desktop app.

## Build the image and deliver to instances

Build the image by using the Docker command:

```
>docker build -t <imagename> \path\to\dockerfile
```



# Windocks: a Modern, Open, Data Delivery Platform

Confirm the image is available with **>docker images**, and deliver to the target SQL Server instance using the following command:

```
>docker create -e $SqlInstanceName="servername\sqlinstance" -e $SqlInstanceUserName="username" -e $SqlInstancePassword="strongpassword" <image>
```

## Working with the Web UI

Open either a Chrome or Firefox browser and enter a url "localhost" or the IP address of the Windocks host. The Windocks Management Server should resolve, and enter either the loopback address (127.0.0.1), or the IP address of the remote host. "Get" to refresh the page which displays available images with their respective targets, and their run time parameters.

The database selection can be left blank for delivery of the complete image, or a subset can be selected. Developers commonly work with a subset of databases, and the date/time will be appended to database names to avoid name collisions. Delivery of the complete image does not include the date/time stamp.

Enter the target machine name and SQL instance name (machinename\SQLinstancename). In the case of a default instance, the input will be machinename\ or machinename\mssqlserver. Finish by entering a SQL username and password that has is included in the target machine **sysadmin** role, and select "Deliver."

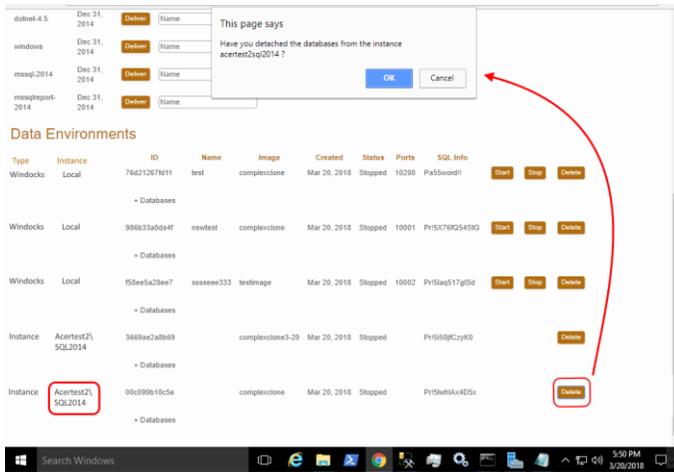
The screenshot shows the Windocks Management Server web interface. At the top, there is a navigation bar with "Images" and "Data Environments" tabs. Below the navigation bar, the title "Windocks Management Server" is displayed. A search bar contains "127.0.0.1" and a "Get" button. The main content area is titled "Images" and contains a table with columns for "Image", "Target", and "Created". Each row in the table has a "Deliver" button and a "Select databases" dropdown menu. The first row is for "operations-5-10-2" (Linux Container) with a "Port" input field and "SQL password" input field. The second row is for "operations-5-1-3" (Sql Server Instance) with "sql2017win/sql" in the "Select databases" dropdown, "SQL user" input field, and "SQL password" input field. The third row is for "operations-5-10-1" (Windocks Container) with "Name" input field, "Optional port" input field, and "Optional SQL password" input field.

Image	Target	Created	Deliver	Select databases	Port	SQL password	
operations-5-10-2	Linux Container	May 3, 2018	Deliver	Select databases	Port	SQL password	
operations-5-1-3	Sql Server Instance	May 3, 2018	Deliver	Select databases	sql2017win/sql	SQL user	SQL password
operations-5-10-1	Windocks Container	May 3, 2018	Deliver	Select databases	Name	Optional port	Optional SQL password

The UI displays the data environments with the most recent at the bottom. To delete an environment the user is prompted to ensure the databases are detached or deleted prior to deleting the cloned databases. The listed database clones are deleted following an "OK" to the dialogue box.



# Windocks: a Modern, Open, Data Delivery Platform



## Technical Support

Refer to the Documents section on [www.Windocks.com](http://www.Windocks.com) for further reading. For Technical Support contact [support@windocks.com](mailto:support@windocks.com). If you encounter problems, check the following:

- 1) The Windocks host and target instance share the same Active Directory domain.
- 2) The target SQL Server instance runs as a domain user, and the same domain user is included in the "Permitted Clone Users" in the \windocks\config\node.conf file, or in the Dockerfile.
- 3) The Windocks service must be restarted following changes in the node.conf configuration.
- 4) Ensure the target SQL Server instance supports mixed-mode authentication and remote access, and that the SQL user account is included in the **sysadmin** role.
- 5) Ensure the target SQL Server instance is compatible with the cloned databases that you are working with. Speak with the image creator to confirm the requirements for each image.

### About Windocks

Windocks combines Docker Windows containers with SQL Server database cloning, for a modern, open data delivery solution. Enterprises modernize application development, testing, reporting and BI with existing licenses and infrastructure, at a fraction the cost of alternatives.

For additional information, visit [www.windocks.com](http://www.windocks.com), or contact Windocks at [info@windocks.com](mailto:info@windocks.com)

## Windocks

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