



# Citrix Synchronizer 5.9.1

## Release Documentation

For IT administrators who want to install, configure and explore the new features in Synchronizer

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## About This Release

This release includes the following updates:

- Enhanced Virtual Machine Name Templates
- Display Virtual Machine Compatibility with a User's Computer
- Problem Reports Now Uploaded to Citrix Insight Services
- Simplified Restoration of a Remote Server
- Remote Server Database Access Using HTTPS
- Configure Drive Letters Used in a Virtual Machine
- User and Computer Searching Behavior Modified For Better Performance
- User Interface Improvements

In addition to the updates above, the following minor releases include:

- 5.8.2: The ability to set the Engine Policy "Network Address Mode" (NAT or bridged) for DesktopPlayer version 2.2+ clients
- 5.8.3: Include Citrix License Server 11.13.1.2, in response to Citrix Security Bulletin (<https://support.citrix.com/article/ctx207824>)
- 5.8.4: Foreign characters (including Chinese) embedded in a computer's uploaded "host operating system" field were not persisted in the database properly and were displayed as "?" in the Synchronizer UI
- 5.8.5: Disallow concurrent processing of most requests from a given client, thereby avoiding "stale object" errors on database transaction commit
- 5.8.7: Update Hyper-V path names when the Central Server's hostname is changed
- 5.8.8: Eliminated NTLM for authentication
- 5.8.8: Upgrades to Third Party components Apache Tomcat 8.5  
Java  
1.8
- 5.8.9: Policy for wireless bridging and support for Windows 2016 Server
- 5.9.1: Policy for auto-start of VMs
- 5.9.1: The ability to submit problems reported from DesktopPlayer to the Citrix Insight Services (CIS). Synchronizer diagnostics and DesktopPlayer diagnostics share the same Citrix credentials.

For more information, see the "New Features" and "Addressed Customer Issues" sections.

## Installation

The installation procedure for installing Synchronizer has not changed.

As a reminder, Synchronizer can be installed only on servers running Microsoft Windows Server 2008 R2, Windows Server 2012 R2, and Windows Server 2016. A server class machine is strongly recommended for example, 16+ Gigabytes RAM, 1+ Terabytes storage), as is a dedicated Microsoft SQL Server 2008 or later installation. A Hyper-V server is required for Virtual Machine creation and maintenance -- it can be co- resident with Synchronizer. Other hypervisors are not supported.

## Upgrades and Downgrades

Only Synchronizer Versions 5.0 and later can be upgraded to Version 5.8.

If Synchronizer Version 4.5 or earlier is installed, first upgrade it to at least Version 5.0. A sequential upgrade of the Central server is recommended, progressing from 4.5 to 5.0 to 5.1, etc. Remote servers might be upgraded directly from Version 5.0 to 5.8.

The Central server must be upgraded prior to any Remote servers. The Apache Tomcat 8 service should be stopped on all servers, Central and Remote, prior to beginning the upgrade of the Central server.

A reboot of the server is no longer required on upgrade. As such, at the completion of the upgrade, the installer will no longer prompt the admin to reboot the computer.

The installer will prevent Synchronizer from being downgraded.

## Pre-Upgrade Synchronizer Backup

Backing up an existing Synchronizer installation is highly recommended before upgrading, especially for the Central server. Guidance on Synchronizer backup strategies is beyond the scope of this document but the Synchronizer resources requiring backup can be identified:

1. Synchronizer installation folder
  - Default location: C:\ProgramFiles\Citrix\Synchronizer
  - This folder can be very large, possibly multiple Terabytes in a large deployment
2. Apache Tomcat installation folder
  - Default location: C:\Program Files\Apache Software Foundation\Tomcat 8.5
  - This folder will rarely grow beyond a few hundred Megabytes
3. Synchronizer database
  - Managed by Microsoft SQL Server
  - Check with the database administrator for guidance on backing up the database.

## Upgrade Process Overview

A general overview of the Synchronizer upgrade process is provided below. For more information, contact Citrix Technical Support for assistance.

1. Verify that the Central and all Remote servers have sufficient free disk space.
  - a. For the purposes of Synchronizer upgrade, 10 GB free disk space is more than sufficient.
  - b. Although in the broader context of Synchronizer operations, 10 GB is quite low.
2. Check the Hyper-V manager to verify there are no running Synchronizer Virtual Machines.
3. Shut down the Apache Tomcat service on all Remote servers.
4. Shut down the Apache Tomcat service on the Central server.
5. Ensure that backups exist
  - a. Remote servers: the C:\Program Files\Citrix\Synchronizer\Repository directory
  - b. the Central server
    - i. the C:\Program Files\Citrix\Synchronizer directory
    - ii. the C:\Program Files\Apache Software Foundation\Tomcat 8.5\ssl directory
  - c. the database
6. Run the Synchronizer installer to upgrade the Central server.
7. After the Central server upgrade is complete, login to the Synchronizer console to verify that:
  - a. The Apache Tomcat web service is running and can accept console connections.
  - b. Synchronizer console login works.
  - c. Synchronizer managed objects (Virtual Machines, Users, Computers, etc.) are still intact.
  - d. Synchronizer Virtual Machines can be started.
  - e. Clients registered to the Central server can check for updates.
8. Run the Synchronizer installer to upgrade a Remote server.
9. After the Remote server upgrade is complete, verify that:
  - a. The Apache Tomcat service is running.
  - b. Clients registered to the Remote server can check for updates.
10. Repeat steps 8 and 9 for any remaining Remote servers.
11. Eventually the Server Health dashboard in Synchronizer console should update and show an

## New Features

### Enhanced Virtual Machine Name Templates

The templates used to generate Virtual Machine (VM) hostnames have been improved as follows:

- Additional replacement tokens have been added (%SERVER\_NAME% and %ASSET\_TAG%) -- select "View tokens help" for more information
- Optional, abbreviated names might be used in place of full VM and server names -- see the "Short Name" field on either the Virtual Machine or Central Server objects
- A variable number of hexadecimal digits can now be specified (%HEX\_NUM:n%) -- select "View tokens help" for more information

Short Name

An optional, potentially shorter name that will be used in VM name templates instead of the full name.

Deployed VM Name Template

The template that defines a Virtual Machine's computer name at the client, the hostname of the deployed image. The resulting length must not exceed 15 characters. Examples include %USER\_NAME%- %OS\_NAME%- %HEX\_NUM% and %COMPUTER\_NAME%- %HEX\_NUM%. Caution: the resulting name must be unique. Use of %HEX\_NUM% is strongly recommended.

[View tokens help](#)

Master VM Name Template

The template that defines a Virtual Machine's computer name at the server, the hostname of the master image. The resulting length must not exceed 15 characters. For example %NAME%- %OS\_NAME%- %HEX\_NUM%

[View tokens help](#)

Figure 1: VM Name Template Fields on the Central Server

### Display Virtual Machine Compatibility with a User's Computer

A "Supported" column has been added to the User's Virtual Machines table. If the User has a registered Computer, this column will indicate if the Computer can support the assigned Virtual Machine. A checkmark character indicates the VM is supported. If the VM is not supported, click "No" to discover one or more reasons why it is not supported. If the User does not have a registered Computer, this column will be blank.

Assign	Staged	Name	Type	Running	Installed	Assigned	Supported	Encrypted	Last Used
<input checked="" type="checkbox"/>	<input type="checkbox"/>	win10 x64 sharec	Shared			4	No	Not Reported	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	win8.1 x64	PVD			20	✓	Not Reported	
<input type="checkbox"/>	<input type="checkbox"/>	clone of XP SP3	Shared				No		
<input type="checkbox"/>	<input type="checkbox"/>	custom xp	Custom				No		

**Figure 2: Supported Column on User's Virtual Machines Table**

## Problem Reports Now Uploaded to Citrix Insight Services

Problem reports are now uploaded to the Citrix Insight Services (CIS) system. A "My Citrix" account ID is needed to both upload and later access problem reports. CIS can be accessed at <https://cis.citrix.com/>

If a Support Case already exists, please enter the Support Case number when submitting the problem report. The uploaded data file will automatically be attached to the Support Case.

If a Support Case does not exist, please log in to CIS, download the uploaded data file, and later attach it to a Support Case.

## Simplified Restoration of a Remote Server

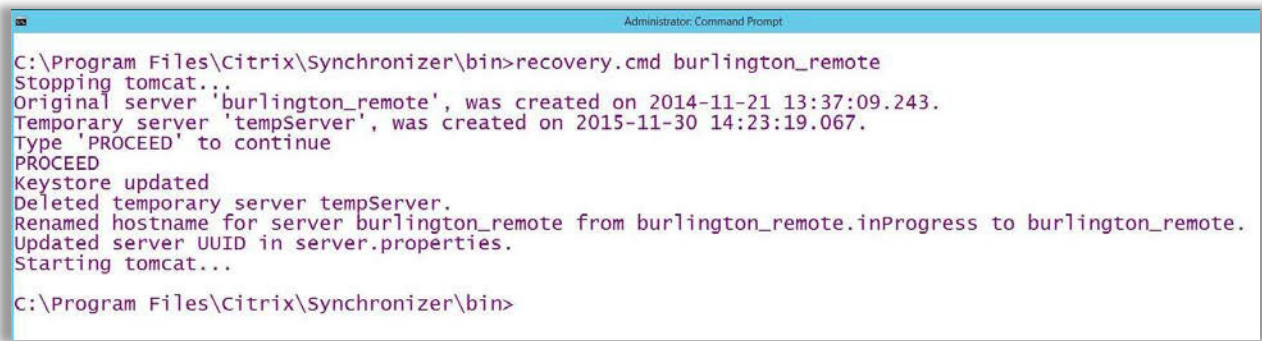
This release introduces a simplified procedure for restoring a Remote Server to production. This procedure can be used:

- When a Remote Server is to be migrated to new hardware
- When a Remote Server is lost to hardware failure
- Whether or not backups of the Remote Server exist

All critical identifying information for a Remote Server is stored in the database, allowing a new Remote Server to take the place of a migrated or lost Remote Server. A backup of the original Remote Server is only needed at restoration if User backups were being uploaded to the server from registered Computers -- see the Virtual Machine Backup Policy applicable to Users' Virtual Machines.

The following procedure should be followed to restore a Remote Server:

- Use the Synchronizer UI to change the hostname of the original Remote Server that is being restored (for example, add ".inRecovery" to the end)
- Build a new Remote Server machine, installing the same version of Windows, etc. Use the hostname of the original Remote Server
- Install a new Remote Synchronizer, using the same version. Give it a temporary name that is different from that of the original Remote Server (for example, "tempServer")
- If a backup of the original Remote Server exists, restore the C:\Program Files\Citrix\Synchronizer\Repository directory
- On the new Remote Server, open a Command Prompt
  - If SQL Server Authentication is being used for database access (the Apache Tomcat service is logged on as Local System), the Command Prompt should be run as Administrator
  - If Windows Authentication is being used for database access, the Command Prompt should be run as the account under which the Apache Tomcat Service is logged on
- Change directory to C:\Program Files\Citrix\Synchronizer\bin
- Run recovery.cmd, passing it the name (not hostname) of the original Remote Server



```
Administrator: Command Prompt
C:\Program Files\Citrix\Synchronizer\bin>recovery.cmd burlington_remote
Stopping tomcat...
Original server 'burlington_remote', was created on 2014-11-21 13:37:09.243.
Temporary server 'tempServer', was created on 2015-11-30 14:23:19.067.
Type 'PROCEED' to continue
PROCEED
Keystore updated
Deleted temporary server tempServer.
Renamed hostname for server burlington_remote from burlington_remote.inProgress to burlington_remote.
Updated server UUID in server.properties.
Starting tomcat...

C:\Program Files\Citrix\Synchronizer\bin>
```

**Figure 3: Use of recovery.cmd**

When the procedure is complete, the new Remote Server will have assumed the identity of the original Remote Server, thereby allowing the restored Remote Server to successfully authenticate and communicate with Computers registered to it.

## Remote Server Database Access Using HTTPS

Remote Server database access can now be proxied over HTTPS, thereby eliminating the need for SQL Server port 1433 to be accessible over the WAN between a Remote and Central server. This eliminates the need to run VPN software on the Remote Server, provided port 443 (HTTPS) has been opened on the firewall protecting the Central Server. Opening port 443 on the Central Server firewall will already have occurred if the system was set up to allow off-site Computers to receive updates from the Central Server.

New Remote Server installations will automatically use database proxying as long as an up-to-date Central Server database.properties file is used when the Remote Server is installed.

Upgraded Remote Server installations will continue to use direct database access over port 1433. Upgraded Remote Servers can be manually converted to use database proxying by doing the following at the Remote Server:

- Complete the upgrade process to Synchronizer 5.8
- Stop the Apache Tomcat service
- Edit C:\Program Files\Citrix\Synchronizer\database.properties
  - Remove "offline-" from "offline-mgmt.srv.database.url.remote" so that it becomes "mgmt.srv.database.url.remote"
  - Ensure the Central Server hostname and port in the "mgmt.srv.database.url.remote" property are accessible from the Remote Server
  - Save the changes
- Start the Apache Tomcat service

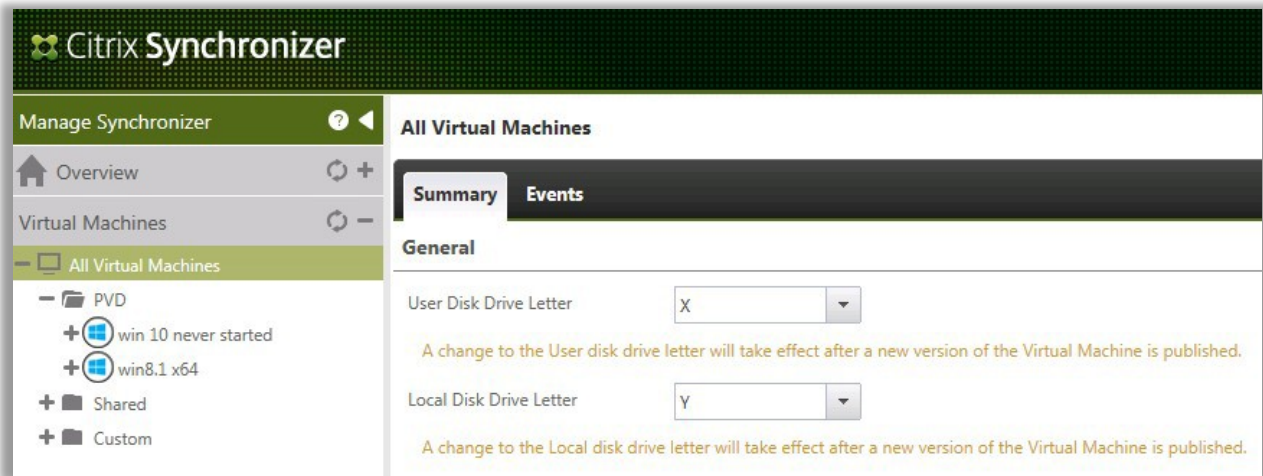
**Note:** To use direct database access on a new Remote Server installation, remove the property "offline-mgmt.srv.database.url.remote" from the database.properties file that will be used during Remote Server installation. If property "mgmt.srv.database.url.remote" is present, remove it as well.

## Configure Drive Letters Used in a Virtual Machine

The Synchronizer user interface can now be used to configure the drive letters used in a deployed Virtual Machine (for example, U for the User Disk, L for the Local Disk). Previously, this required modifying a database table. Visit "All Virtual Machines" to change the drive letters.

**Note:** After a Virtual Machine has been deployed to a User, the drive letters in effect at that time will be remembered for that particular User-Virtual Machine pair and will be used going forward. Changing drive letters will only affect new Virtual Machine deployments.





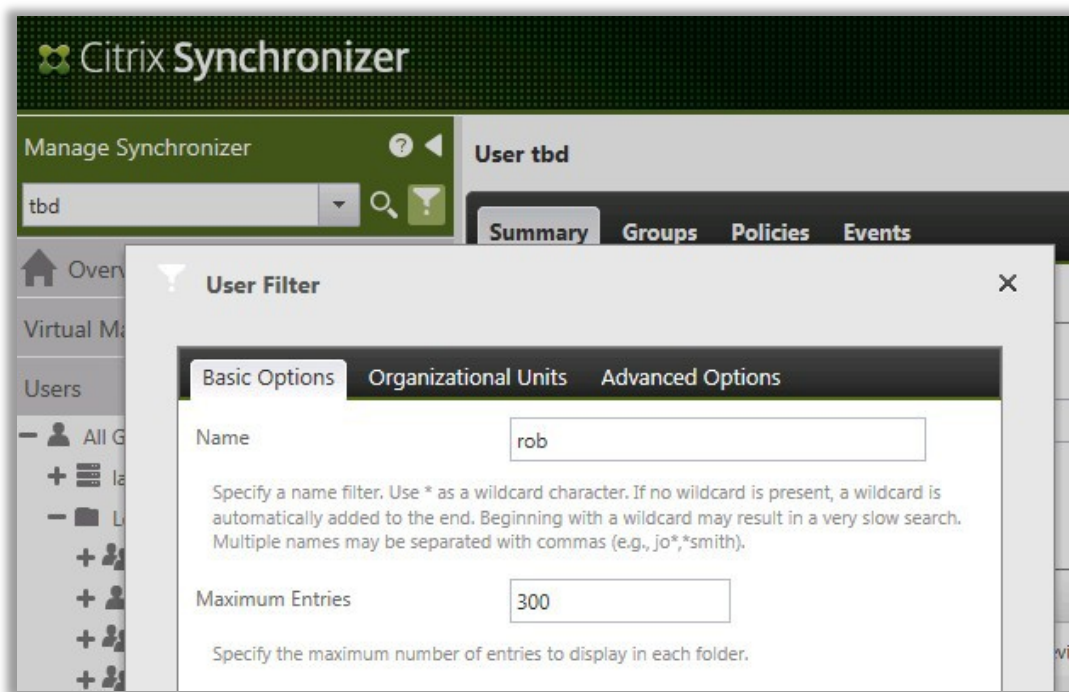
**Figure 4: Changing Virtual Machine Drive Letters**

### User and Computer Searching Behavior Modified For Better Performance

Previously, if a wildcard was not specified when searching / filtering for a User or Computer, Synchronizer automatically added wildcards to both the beginning and end of the search string (for example, "rob" was changed to "\*rob\*"). This resulted in a full text search -- as a result, performance suffered, particularly in large Active Directory environments.

Now, if a wildcard is not specified, a wildcard is only added to the end of the search string. This results in a "starts with" search that takes advantage of Active Directory's name indexing.

Note that an admin can still manually specify wildcards at both the beginning and end of the search string.



**Figure 5: Specifying a User Filter Name Search**

## User Interface Improvements

The following minor improvements were made to the user interface:

- When submitting a problem report, the previously input email address (for the logged in admin) is remembered and auto-filled.
- "Logged In User" and "Host Operating System" fields have been added to the Computer object and are displayed for DesktopPlayer computers.
- The Engine Policy / Network / Internal Network field default has been changed to 10.0.2.0 / 24 and the hint text updated appropriately. This change applies to DesktopPlayer 2.1.6 and later.

## Addressed Customer Issues

The following customer reported issues have been addressed:

- After logon, UI actions fail because cookies not allowed -- the admin is now reminded that cookies must be enabled (in order for the logon session to be preserved)
- After changing Tomcat service account, "Test Active Directory" action fails with error "There was a problem invoking 'whoami', return code 1,314" (support case 70635314) -- the condition of an under-privileged service account is now detected and directions to remedy this are displayed

## Known Issues

There are no known Blocker or Critical issues in this release.

Only PVD Virtual Machines are supported by DesktopPlayer. Assigning a Shared or Custom Virtual Machine to a User or Group will result in the Virtual Machine not being downloaded to DesktopPlayer.

## Supported Browsers

Synchronizer is administered via a web console accessed at <https://server.company.com:8443/MgmtConsole/>

Internet Explorer 8 is no longer supported. Please use Internet Explorer 9 or later, Google Chrome, or Mozilla Firefox.

**Important:** To access a running Virtual Machine from the Console tab (also known as the "glass console"), use Internet Explorer, and **run as administrator**. The console does not work with the Microsoft Edge browser included with Windows 10.

## Third Party Notices

Synchronizer's use of third party software is documented in CitrixSynchronizer-ThirdPartyNotices.docx, installed in the product home directory, typically C:\Program Files\Citrix\Synchronizer.

## About Citrix

Citrix (NASDAQ:CTXS) is leading the transition to software-defining the workplace, uniting virtualization, mobility management, networking and SaaS solutions to enable new ways for businesses and people to work better. Citrix solutions power business mobility through secure, mobile workspaces that provide people with instant access to apps, desktops, data and communications on any device, over any network and cloud. With annual revenue in 2014 of \$3.14 billion, Citrix solutions are in use at more than 330,000 organizations and by over 100 million users globally. Learn more at [www.citrix.com](http://www.citrix.com).

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