

ComTrade Citrix Smart Plug- in for HP Software (SPI for Citrix)

*(This version, Version 03.60, is for use with
HP Operations Manager for Windows)*

User's Guide

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Chapter 1

Document Overview

Edition History

New editions are complete revisions of the manual. The printing dates for each edition are listed below.

Edition	Date
First Edition	September 2006
Second Edition	April 2007
Third Edition	November 2007
Fourth Edition	August 2008
Fifth Edition	January 2009
Sixth Edition	October 2009
Seventh Edition	June 2010
Eighth Edition	December 2010

Conventions

The following typographical conventions are used in this manual:

Font	Definition	Example
<i>Italic</i>	Product names, book or manual titles, man page names, and section, table, and figure titles. Emphasis. Window and dialog box names.	Refer to the <i>SPI for Citrix Installation and Configuration Guide</i> for additional information. You <i>must</i> follow these steps. The <i>Define Configuration</i> window opens.
Bold	Commands on menus and buttons, dialog box titles and options, menu and icon names.	In the menu, first click Actions , and then Agents .
Computer	File and directory names, or text that should be entered on screen or that is displayed on the monitor. Command names Process names	The files with the support information are created in the following directory: <code>%OvAgentDir%\ctxspi\support</code> . Use the <code>grep</code> command. Check to see if <code>opcmona</code> is running.

Product Documentation

With SPI for Citrix, the following documentation is provided:

- *SPI for Citrix Installation and Configuration Guide*
Installation and configuration guide is available in printed and PDF format (*CTXSPI-InstallGuideWIN.pdf*).
- *SPI for Citrix User's Guide*
User's guide is available in printed and PDF format (*CTXSPI-UserGuideWIN.pdf*).
- *SPI for Citrix Quick Reference Guide*
Quick reference guide is available in PDF format (*CTXSPI-QuickReferenceWIN.pdf*).
- *SPI for Citrix - Supported Citrix and HP Software Platforms*
Supported Platforms document is available in PDF format (*CTXSPI-SupportedPlatforms.pdf*).
- Release notes
Release notes are available in TXT format (*ctxspi-release-notes-win.txt*).
- Readme
Readme file is available in TXT format (*ctxspi-readme-win.txt*).
- ComTrade license terms file
License file is available in TXT format (*comtrade_software_license_support_terms_signed.txt*)

Customer Support

Use the following e-mail and Web page addresses if you need help with the licensing process or while using the product, and if you would like additional information about this or other ComTrade products.

Licensing

To obtain the license activation file, visit the ComTrade licensing portal:

<http://spi.comtrade.com/licensing/>

or send e-mail to the following address:

spi-licensing@comtrade.com

For more information on licensing and licensing procedure refer to *SPI for Citrix Installation and Configuration Guide*.

If you encounter any problems with the licensing process, contact the ComTrade licensing department at:

spi-licensing@comtrade.com

Contacting Support

IMPORTANT

Should you require additional assistance or information while using the product, contact the vendor that shipped the software.

If you have purchased the software directly from ComTrade, send e-mail to:

support-ctxspi@comtrade.com

Before Contacting Support

Before you contact the support department, have the following information available so that a technical support analyst can work on your problem more efficiently:

- the support file `ctxspi_supp_<node_name>.zip`
To create the support file, perform the following step:
 1. Go to the **SPI for Citrix/CTXSPI-SPI Maintenance/CTXSPI-SPI Support** tool

group and run the **CTXSPI-Collect Support Information** tool on managed nodes for which you would like to collect the information. The files with the support information are created in the following directory on these nodes:

`%OvAgentDir%\ctxspi\support`

2. Manually zip the contents of the directory hierarchy into the `ctxspi_supp_<node_name>.zip` file, where *<node_name>* is the name of the managed node.

- symptoms
- sequence of events leading to the problem
- commands and options that you used
- messages you have received (a description with the time and date)

General Information

For marketing or business-related issues in reference to this or other ComTrade SPIs, send e-mail to:

spi-info@comtrade.com

Product Web Sites

Visit ComTrade Smart Plug-in Web site at:

http://managementproducts.comtrade.com/smart_plug-in/citrix_xen

and the company Web site at:

<http://www.comtrade.com/>

Chapters Summary

This guide describes how to use SPI for Citrix to monitor and manage Citrix Delivery Center resources from the HP Software environment. It also addresses and troubleshoots some of the possible problems, which may occur while using this product.

NOTE

This document assumes that you are familiar with the HP Operations Manager administration procedures and concepts.

The guide contains the following chapters:

- [“Getting Started” on page 9](#)
This chapter contains the basic information on Citrix Delivery Center environment, and an overview of SPI for Citrix functionality.
- [“Setting Up the Environment” on page 17](#)
This chapter provides procedural instructions for the elementary tasks of setting up and using SPI for Citrix.
- [“Managing Citrix XenApp Servers” on page 25](#)
This chapter provides the instructions for monitoring and managing Citrix XenApp environment.
- [“Managing Citrix Desktop Delivery Controller Servers” on page 67](#)
This chapter provides the instructions for monitoring and managing Citrix Desktop Delivery Controller servers.
- [“Managing Citrix Provisioning Servers” on page 81](#)
This chapter provides the instructions for monitoring and managing Citrix Provisioning Servers.
- [“Managing Citrix License Servers” on page 93](#)
This chapter provides the instructions for monitoring and managing Citrix License servers.
- [“Managing Citrix Web Interface Servers” on page 103](#)
This chapter provides the instructions for monitoring and managing Citrix Web Interface servers.
- [“Managing Citrix Secure Gateway Servers” on page 119](#)
This chapter provides the instructions for monitoring and managing Citrix Secure

Gateway servers.

- [“Maintaining SPI for Citrix” on page 131](#)
This chapter provides the instructions for SPI for Citrix maintenance and administration.
- [“Troubleshooting” on page 141](#)
This chapter includes known problems that can occur when using SPI for Citrix, and procedures for their resolution or workaround.

Chapter 2

Getting Started

About Citrix Delivery Center

Citrix Delivery Center virtualizes servers, desktops and applications, centralizes them in the datacenter and broadcasts them as an on-demand service.

Citrix product suite includes:

- Citrix XenDesktop, a desktop virtualization and Virtual Desktop Infrastructure (VDI) solution that delivers a complete Windows desktop experience as an on-demand service to any user, anywhere.
- Citrix XenApp, an on-demand application delivery solution that enables any Windows application to be virtualized, centralized, and managed in the datacenter and instantly delivered as a service to users anywhere on any device.
- Citrix XenServer, a complete, managed server virtualization platform built on the powerful Xen hypervisor.
- Citrix NetScaler, an all-in-one web application delivery controller that makes applications run five times better. Available as a separate hardware network device or as a virtualized appliance, NetScaler single-handedly offloads servers, accelerates performance, and integrates application security.

About SPI for Citrix

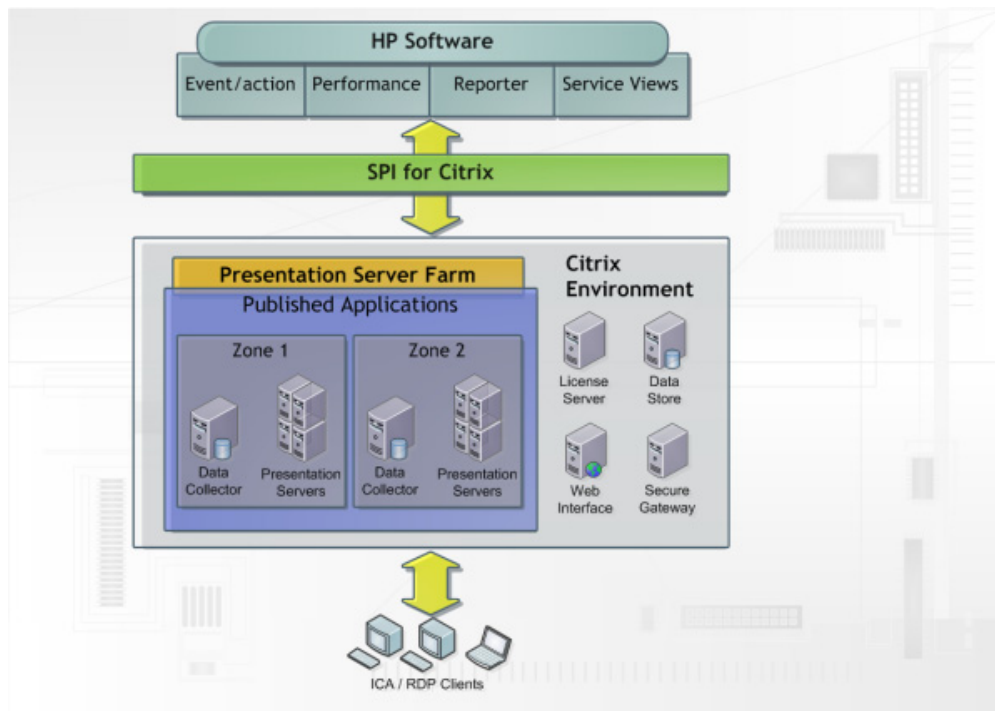
ComTrade Citrix Smart Plug-in for HP Software (SPI for Citrix) is designed specifically for use with Citrix products in HP Software environments. SPI for Citrix in combination with HP Operations Manager provides the first power-user grade management solution. It enables you to monitor and manage the Citrix environment using graphical representations of environment architecture, and service oriented representations of hierarchical dependencies and business impact of Citrix components, their failures, or performance degradations.

With SPI for Citrix, you can proactively and securely manage a distributed Citrix environment from one, centralized point. Additional benefits include the following:

- Non-stop availability - Alerts and alarms measuring availability and performance are displayed, logged, and can be linked to automatic email/paging alerting or automatic counteraction such as rebooting or disabling.
- Latency - Source of this significant user experience problem can be confirmed and isolated to specific components. Trending reports enable proactive solutions before users are impacted. No user/client side agents are required.
- Scalability - SPI for Citrix integrates with the HP Software family, which for large corporate environments. Autodiscovery, Top 10 reports, and Mass Commands all simplify manageability as the Citrix environment increases.
- End-to-end - Citrix management within the HP Software environment covers back-end applications, network equipment, as well as full OS and hardware management. Databases, routers, SAP Applications and XenApp servers are all examples in the chain of service level delivery for an ERP system. The HP Software family of solutions automatically integrates the individual point solutions for each link into a full end-to-end managed service.

High-Level Architecture

Below is the high-level diagram of SPI for Citrix architecture.



Quick Introduction to SPI for Citrix

The main components of SPI for Citrix include the following:

- HP Operations Manager Policies
- HP Operations Manager Tools
- HP Operations Manager Reports
- HP Operations Manager Graphs
- HP Operations Manager Service Map

Although these components are discussed in detail in the chapters that follow, a brief description of each is listed below.

Policies

Policies instruct HP Operations Manager for UNIX engines how to solve system management issues, for example, monitor CPU utilization.

SPI for Citrix policies enable you to define complex rules and instructions for monitoring different systems and services. Policies are instructions for HP Operations Manager (HPOM) agents that monitor your Citrix environment. When an issue is detected, a message is sent to the HP Operations Manager (HPOM) console.

In addition, you can define automated actions to be performed upon detecting a specific issue, or include instructions for operators as part of the message. Every policy can start automatic or operator initiated action when issue is detected. You can check which actions were launched when issue was detected, and check the action outcome in the message annotation.

Tools

SPI for Citrix supplies powerful tools for monitoring and managing your Citrix environment. SPI for Citrix tools enable you to inspect, analyze and manage your Citrix environment, check the current status of the environment, and react to issues in your environment.

SPI for Citrix tools enable you to perform the following tasks:

- manage Citrix sessions
- manage Citrix services

- monitor sessions, services, applications, and all components of your Citrix environment
- perform discovery of your Citrix environment and update the Citrix service model
- troubleshoot the SPI for Citrix installation and configuration
- license SPI for Citrix
- manage Citrix nodes

Reports

SPI for Citrix also offers report functionality, where collected performance data can be represented in web-based reports. SPI for Citrix integrates with the HP Operations Manager for Windows reporting component (Reporter Lite) and with the HP Reporter products. You can generate reports on the following information:

- How much CPU time, physical, and virtual memory Citrix services consume on each XenApp server
- Citrix published application use on farm and server level
- Logon/logoff activity on farm and server level
- Detailed user activity (list of sessions, duration of each session, CPU, memory, and swap usage of each session)
- User and published application accounting information useful for billing purposes
- Top 10 reports on published application resource consumption and server end-user latency
- Threshold assistant reports that help you adjust monitoring policies to your Citrix environment
- Windows user profile size and contents
- Provisioning Services and Desktop Delivery Controller availability and resource consumption checks
- Virtual desktop migrations, desktops with the highest and lowest CPU, memory utilization, and network traffic
- Active Web Interface availability and XML broker connectivity checks
- XenServer pool health and average utilization, individual host resource utilization, hosts with the highest and lowest resource use
- Active XenApp application launch checks, real-user logon process duration in five phases

- License Server availability and license use

Graphs

SPI for Citrix also offers graphing functionality, where collected performance data can be represented in near real-time graphs. SPI for Citrix integrates with the HP Operations Manager for Windows graphing component (Performance Manager Lite) and with the HP Performance Manager products. You can generate graphs on the following information:

- Resource consumption of Citrix sessions (CPU, virtual and physical memory, network traffic and errors, handles, threads)
- The number of active sessions compared to Citrix resource consumption
- The number of active/disconnected/all desktop sessions on a Citrix system
- Percentage of used feature licenses on a Citrix License Server
- User profile information on a Citrix system (size, the number of executable and media files)
- User logon process information (the duration of individual phases and completed logon processes)
- The number of active connections, the number of pending connections, the number of connections per second, and the average client connect time on the Secure Gateway
- The number of failed user logons for each individual user that logged-in to the Web Interface system
- Physical and virtual free space, the total size of the storage repository

Service Map

Service Map is a component of the HP Operations Manager for Windows. This component enables you to manage your IT (information technology) environment while focusing on the IT services that you provide.

SPI for Citrix integrates into the HP Operations Manager for Windows service map component. It automatically generates a Citrix service map of the Citrix enterprise configuration, which offers complete graphical representation of your Citrix environment and its hierarchical organization. All Citrix object types (farms, zones, servers, clients) in your environment are displayed in a tree view, which shows the components and their hierarchical dependencies.

In addition, graphical representation of your Citrix environment clearly indicates relations between Citrix environment components, how they impact one another, and which business services are affected. This enables you to effectively manage services within your information technology framework.

Chapter 3

Setting Up the Environment

Setting Up the Citrix Environment

SPI for Citrix enables you to monitor and manage your Citrix environment from one, centralized point. For this purpose, Citrix XenApp servers are added as managed nodes on the HPOM management server.

Setting up your Citrix environment involves installing, licensing, and configuring SPI for Citrix on the HPOM management server and on the managed nodes. For more information on how to install, license and configure managed nodes refer to *SPI for Citrix Installation and Configuration Guide*.

When you successfully configured your environment, you can start using the SPI for Citrix product. For procedural information on how to:

- perform autodiscovery of Citrix components and update your configuration, refer to [“Autodiscovery of the Citrix Environment” on page 19](#)
- configure SPI for Citrix reporting functionality, refer to [“Configuring Reports” on page 22](#)

Autodiscovery of the Citrix Environment

SPI for Citrix offers autodiscovery of XenApp, Desktop Delivery Controller, and Provisioning Server farms, their members and components, as well as dependencies between them in a farm.

SPI for Citrix offers complete graphical representation of your Citrix environment and its hierarchical organization and allows you to update your service map once a day (this can be configured) to view the changes in your Citrix configuration.

For the autodiscovery functionality, SPI for Citrix uses the HP Operations Manager for Windows service map component. Service map consists of:

- XenApp farms
covers Citrix XenApp servers and published applications
- Desktop Delivery Controller farms
covers Citrix Desktop Delivery Controller servers and published desktops
- Provisioning Server farms
covers Provisioning Servers and storages
- Citrix infrastructure
covers Web interface, Citrix License Server, and Secure Gateway servers

Generating Service Map

To generate a SPI for Citrix service map that runs in the background and is updated daily, perform the following steps:

1. Depending on the type of the node, select one of the following policy groups:

For a Citrix XenApp server:

- CTXSPI-XenApp / CTXSPI-XA Discovery

For a Citrix Desktop Delivery Controller server:

- CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Discovery

For a Citrix Provisioning server:

- CTXSPI-Provisioning Server / CTXSPI-PVS Discovery

For a Citrix Web Interface server:

- CTXSPI-Web Interface / CTXSPI-WI Discovery

For a Citrix Secure Gateway server:

- CTXSPI-Secure Gateway / CTXSPI-SG Discovery

For a Citrix License server:

- **CTXSPI-Citrix License Server / CTXSPI-CLS Discovery**

2. Deploy the **CTXSPI-ChkServiceModel** and **CTXSPI-DscServiceModel2** policies on the managed nodes you want to display in a service map.

If you want to generate a service map instantly, perform the following steps:

1. Depending on the type of the node, select one of the following tool groups:

For a Citrix XenApp:

- **CTXSPI-XenApp / CTXSPI-XA Discovery**

For a Citrix Desktop Delivery Controller:

- **CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Discovery**

For a Citrix Provisioning Server:

- **CTXSPI-Provisioning Server / CTXSPI-PVS Discovery**

For a Citrix Web Interface server:

- **CTXSPI-Web Interface / CTXSPI-WI Discovery**

For a Citrix Secure Gateway server:

- **CTXSPI-Secure Gateway / CTXSPI-SG Discovery**

For a Citrix License server:

- **CTXSPI-Citrix License Server / CTXSPI-CLS Discovery**

2. Run the **CTXSPI-Force Service Model Update** tool.

3. The server is displayed in the service map:

For a Citrix XenApp:

- **SPI for Citrix / Farms:Container**

For a Citrix Desktop Delivery Controller:

- **SPI for Citrix / DDC Farms:Container**

For a Citrix Provisioning Server:

- **SPI for Citrix / PVS Farms:Container**

For a Citrix Web Interface:

- **SPI for Citrix / Infrastructure / web Interface:Container**

For a Citrix Secure Gateway:

- **SPI for Citrix / Infrastructure / Citrix Secure Gateway Servers:Container**

For a Citrix License Server:

. SPI for Citrix / Infrastructure / Citrix License Servers:Container

Configuring Reports

SPI for Citrix reports integrate with HP Operations Manager for Windows and HP Reporter products. SPI for Citrix integration with HP Reporter requires that the following actions have occurred prior to the installation of reports on a system:

- The HP Reporter is installed and the Reporter Service is running.
- An HPOM agent is installed on the Managed Nodes for which you want to generate reports.

Assigning Policies and Collecting Performance Data

To produce reports, performance data collection policies must be deployed to Citrix managed nodes. Policies related to collecting performance data are grouped together as follows:

- reports for Citrix XenApp
Citrix XenApp data collection policies are located in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Data Collection** policy group
- reports for Citrix License Server
Citrix License Server data collection policies are located in the **SPI for Citrix / CTXSPI-Citrix License Serve / CTXSPI-CLS Data Collection** policy group
- reports for Citrix Secure Gateway system
Citrix Secure Gateway data collection policies are located in the **SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Data Collection** policy group
- reports for Citrix Web Interface system
Citrix Web Interface data collection policies are located in the **SPI for Citrix / CTXSPI-Web Interface / CTXSPI-WI Data Collection** policy group
- reports for Citrix Desktop Delivery Controller
Citrix Desktop Delivery Controller data collection policies are located in the **SPI for Citrix / CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Data Collection** policy group
- reports for Citrix Provisioning services
Citrix Provisioning services data collection policies are located in the **SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Data Collection** policy group
- reports for Citrix published application and desktop availability
Published application and desktop availability data collection policies are located in the **SPI for Citrix / CTXSPI-Application Probing Server / CTXSPI-APS Data**

Collection policy group

After the policies are successfully distributed to managed nodes, the Embedded Performance Agent (CODA agent) begins to collect performance data. Reports will be generated for all Citrix systems where CODA agents are collecting data.

Chapter 4

Managing Citrix XenApp Servers

About Managing Citrix XenApp Environment

This chapter contains information for setting up management of Citrix XenApp environment. It provides information on policies and tools, needed to monitor and manage Citrix services, sessions, and each component in Citrix XenApp environment. It also describes how you can employ these policies and tools to get maximum results.

Managing Citrix XenApp environment involves the following:

- [“Managing Citrix XenApp Server Services” on page 27](#)
- [“Managing Citrix XenApp Server Sessions” on page 35](#)
- [“Managing Citrix XenApp Servers” on page 44](#)
- [“Setting Up Citrix XenApp Server Zone Management” on page 49](#)
- [“Managing Citrix XenApp Server Farms” on page 51](#)
- [“Managing XenApp Server User Logon Process” on page 54](#)
- [“Managing Windows User Profiles” on page 59](#)
- [“Managing XenApp Farm Service Map” on page 63](#)
- [“Collecting XenApp Server Performance Information” on page 65](#)

Managing Citrix XenApp Server Services

Managing Citrix XenApp server services involves monitoring and handling the following software items:

- Citrix XenApp server, Terminal Server, and related Windows OS services
- System and Application event-log messages related to the above services

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix XenApp server nodes (refer to [“Setting Up Citrix XenApp Services Management”](#) on page 27)
- which policies are needed for monitoring Citrix XenApp server services (refer to [“Policies”](#) on page 27)
- which tools are needed for managing Citrix XenApp server services (refer to [“Tools”](#) on page 28)

Setting Up Citrix XenApp Services Management

To monitor and manage Citrix XenApp server services, deploy the **SPI for Citrix/CTXSPI-XenApp/CTXSPI-XA Quick Start/CTXSPI-XA Services** policy group to all managed nodes.

Before you deploy the policies, verify that SPI for Citrix is fully configured and licensed on all Citrix XenApp managed nodes. For this purpose, you can use the **CTXSPI-Check Requirements/Configuration** tool.

Policies

To set up management of the Citrix XenApp server services, deploy the following policies:

- CTXSPI-ChkCitrixAServices
- CTXSPI-ChkOsAndTSServices
- CTXSPI-ChkIMAServiceAdvanced
- CTXSPI-FwdCitrixAppWarnError
- CTXSPI-FwdCitrixASysWarnError
- CTXSPI-FwdCitrixRuntimeError
- CTXSPI-FwdOsAndTAppWarnError
- CTXSPI-FwdOsAndTSSysWarnError

Depending on your needs, also consider deploying some of the following policies:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Additional

- . CTXSPI-FwdCitrixXAAppInfo
- . CTXSPI-FwdCitrixXASysInfo
- . CTXSPI-FwdOsAndTSAppInfo
- . CTXSPI-FwdOsAndTSSysInfo

Tools

To manage the Citrix XenApp server services, SPI for Citrix provides the following tools:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Services

- . CTXSPI-Start ADF Installer Service
- . CTXSPI-Start Citrix 64-bit Virtual Memory Optimization Service
- . CTXSPI-Start Citrix CPU Utilization Mgmt/Resource Mgmt Service
- . CTXSPI-Start Citrix CPU Utilization Mgmt/User-Session Sync Service
- . CTXSPI-Start Citrix Diagnostic Facility COM Server Service
- . CTXSPI-Start Citrix Encryption Service
- . CTXSPI-Start Citrix End User Experiencing Monitoring Service
- . CTXSPI-Start Citrix Health Monitoring and Recovery Service
- . CTXSPI-Start Citrix IMA Service
- . CTXSPI-Start Citrix MFCOM Service
- . CTXSPI-Start Citrix Print Manager Service
- . CTXSPI-Start Citrix Services Manager Service
- . CTXSPI-Start Citrix SMA Service
- . CTXSPI-Start Citrix Streaming Service
- . CTXSPI-Start Citrix Virtual Memory Optimization Service
- . CTXSPI-Start Citrix WMI Service
- . CTXSPI-Start Citrix XML Service
- . CTXSPI-Start Citrix XTE Server Service
- . CTXSPI-Start Client Network Service
- . CTXSPI-Start Encryption Service
- . CTXSPI-Start Netlogon Service
- . CTXSPI-Start Resource Manager Mail Service
- . CTXSPI-Start Spooler Service
- . CTXSPI-Start SSL Server Relay Service
- . CTXSPI-Start Terminal Services Configuration Service
- . CTXSPI-Start Terminal Services Service
- . CTXSPI-Start Terminal Services Session Directory Service
- . CTXSPI-Start Terminal Services UserMode Port Redirector Service
- . CTXSPI-Status OS and Terminal Server Services

- . CTXSPI-Status XenApp Server Services
- . CTXSPI-Stop ADF Installer Service
- . CTXSPI-Stop Citrix 64-bit Virtual Memory Optimization Service
- . CTXSPI-Stop Citrix CPU Utilization Mgmt/Resource Mgmt Service
- . CTXSPI-Stop Citrix CPU Utilization Mgmt/User-Session Sync Service
- . CTXSPI-Stop Citrix Diagnostic Facility COM Server Service
- . CTXSPI-Stop Citrix Encryption Service
- . CTXSPI-Stop Citrix End User Experiencing Monitoring Service
- . CTXSPI-Stop Citrix Health Monitoring and Recovery Service
- . CTXSPI-Stop Citrix IMA Service
- . CTXSPI-Stop Citrix MFCOM Service
- . CTXSPI-Stop Citrix Print Manager Service
- . CTXSPI-Stop Citrix Services Manager Service
- . CTXSPI-Stop Citrix SMA Service
- . CTXSPI-Stop Citrix Streaming Service
- . CTXSPI-Stop Citrix Virtual Memory Optimization Service
- . CTXSPI-Stop Citrix WMI Service
- . CTXSPI-Stop Citrix XML Service
- . CTXSPI-Stop Citrix XTE Server Service
- . CTXSPI-Stop Client Network Service
- . CTXSPI-Stop Encryption Service
- . CTXSPI-Stop Netlogon Service
- . CTXSPI-Stop Resource Manager Mail Service
- . CTXSPI-Stop Spooler Service
- . CTXSPI-Stop SSL Server Relay Service
- . CTXSPI-Stop Terminal Services Configuration Service
- . CTXSPI-Stop Terminal Services Service
- . CTXSPI-Stop Terminal Services Session Directory Service
- . CTXSPI-Stop Terminal Services UserMode Port Redirector Service

How It Works

Service Monitoring Policies

Citrix XenApp product employs several Windows services. Not all of them are required for correct operation of the Citrix XenApp server, a few optional services can be turned on only when you want to use a specific Citrix XenApp capability.

Citrix XenApp server services have been changing with the different versions of the product. Some have been removed, and new ones have been added. The table below

shows all Citrix XenApp server services and product versions those services were part of:

Service Name	XA 5.0	PS 4.5	PS 4.0	PS 3.0	PS 1.0
ADF Installer Service	yes	yes	yes	yes	yes
Citrix CPU Utilization Mgmt/Resource Mgmt	yes	yes	yes		
Citrix CPU Utilization Mgmt/User-Session Sync	yes	yes	yes		
Citrix End User Experiencing Monitoring Service	yes				
Citrix Print Manager Service	yes	yes	yes		
Citrix SMA Service	yes	yes	yes		
Citrix SSL Relay					yes
Citrix (64-bit) Virtual Memory Optimization	yes	yes	yes		
Citrix WMI Service		yes	yes	yes	yes
Citrix XML Service	yes	yes	yes	yes	yes
Citrix XTE Server	yes	yes	yes	yes	
Client Network	yes	yes	yes	yes	yes
Diagnostic Facility COM Server	yes	yes	yes	yes	
Encryption Service	yes	yes	yes	yes	yes
Independent Management Architecture	yes	yes	yes	yes	yes
MetaFrame COM Server	yes	yes	yes	yes	yes
Resource Manager Mail	yes	yes	yes	yes	yes
Citrix Streaming Service	yes	yes			
Citrix Health Monitoring and Recovery	yes	yes			
Citrix Services Manager	yes	yes			

As Citrix XenApp server heavily depends on the Terminal Server component of Windows OS, it is important to also monitor the Terminal Server-related services. For correct Citrix XenApp server operation two other components of Windows OS need to run, the Netlogon and Print Spooler services.

The table below lists Windows OS services that are important from the Citrix XenApp server perspective:

Service Name	Windows 2008	Windows 2003	Windows 2000
Net Logon		yes	yes
Print Spooler		yes	yes
Terminal Services		yes	yes
Terminal Services Configuration	yes		
Terminal Services Session Directory		yes	
Terminal Services UserMode Port Redirector	yes		

The following policies implement XenApp and Terminal Server / Windows OS service monitoring:

- CTXSPI-ChkCitrixAServices
Monitors the state of all required and optional Citrix XenApp server services.
- CTXSPI-ChkOsAndTSServices
Monitors mandatory and optional Windows and Terminal Server services.
- CTXSPI-ChkIMAServiceAdvanced
Actively probes the Independent Management Architecture (IMA) service to see whether the service is operational. This is the most important XenApp server service, and this additional probing ensures that status of service health is known.

Windows Event Log Forwarding Policies

Citrix XenApp product logs the internal issues it detects to the Windows Event Log. To early detect issues that may be developing, it is essential to monitor both Application and System Windows Event Logs. The following XenApp server Application event log sources are being monitored:

Application Event Log Source Name	XA 5.0	PS 4.5	PS 4.0	PS 3.0	PS 1.0
Citrix 64-bit Virtual Memory Optimization	yes	yes	yes		
Citrix Configuration Logging	yes	yes			
Citrix EUEM	yes				
Citrix Resource Management		yes			
Citrix Virtual Memory Optimization	yes	yes	yes		
Citrix WMI Service	yes	yes	yes	yes	yes

Application Event Log Source Name	XA 5.0	PS 4.5	PS 4.0	PS 3.0	PS 1.0
Citrix XenApp Streamed Apps	yes				
CitrixHealthMon	yes	yes			
CLTMGR			yes	yes	yes
CTXCPUUtilMgmt	yes	yes	yes		
CtxSbxAppMsg		yes	yes		
InstallationManager		yes	yes	yes	yes
RADE Licensing	yes	yes			
RADEEvents	yes	yes			
MetaframeEvents	yes	yes	yes	yes	yes
Reliability Server	yes	yes	yes	yes	
twpopup	yes	yes	yes	yes	yes
wsxica	yes	yes	yes	yes	yes
XenApp Services	yes				
DSCheck				yes	yes
Citrix SSL Relay					yes
MFSNMPAgent			yes	yes	yes

The following XenApp server system event log sources are being monitored:

System Event Log Source Name	XA 5.0	PS 4.5	PS 4.0	PS 3.0	PS 1.0
Cdm	yes	yes	yes	yes	yes
Citrix Resource Management			yes	yes	yes
CPSLicensing	yes	yes			
CtxSbx	yes	yes	yes		
ICABrowser			yes	yes	yes
IMABrowserSS	yes	yes	yes	yes	yes
IMAService	yes	yes	yes	yes	yes
MetaFrame	yes	yes	yes	yes	yes

As XenApp heavily depends on the Terminal Server component of Windows OS, it is important to also monitor the Terminal Server Event Log messages. For the correct XenApp operation two other components of Windows OS need to run, the Netlogon and Print Spooler services.

The table below lists Terminal Server and Windows OS Application and System event log sources that are being monitored:

Application Event Log Source Name	Windows 2008	Windows 2003	Windows 2000
SpoolerCtrs		yes	yes
TermDD	yes	yes	yes
TermServDevices		yes	yes
TermService	yes		yes
TermServJet	yes		yes
TermServSessDir		yes	yes
Netlogon	yes	yes	yes
Print	yes	yes	yes

Additionally, SPI for Citrix monitors for any Visual C++ Runtime Library errors that may occur in any Citrix service. These errors manifest as application pop-ups that are logged to the Windows Event Log. IMA service is particularly subject to these errors.

System Event Log Source Name	XA 5.0	PS 4.5	PS 4.0	PS 3.0	PS 1.0
Application Popup	yes	yes	yes	yes	yes

The following policies implement Event Log forwarding:

- **CTXSPI-FwdCitrixXAAppWarnError**
Forwards XenApp server-related Warning and Error messages from the Windows Application event log.
- **CTXSPI-FwdCitrixASysWarnError**
Forwards XenApp server-related Warning and Error messages from the Windows System event log.
- **CTXSPI-FwdOsAndTSAppWarnError**
Forwards Terminal Server and OS-related Warning and Error messages from the Windows Application event log.
- **CTXSPI-FwdOsAndTSSysWarnError**
Forwards Terminal Server and OS-related Warning and Error messages from the Windows System event log.
- **CTXSPI-FwdCitrixXAAppInfo**
Forwards XenApp server-related Informational messages from the Windows Application event log.

- CTXSPI-FwdCitrixASysInfo
Forwards XenApp server-related Informational messages from the Windows System event log.
- CTXSPI-FwdOsAndTSAppInfo
Forwards Terminal Server and OS-related Informational messages from the Windows Application event log.
- CTXSPI-FwdOsAndTSSysInfo
Forwards Terminal Server and OS-related Informational messages from the Windows System event log.
- CTXSPI-FwdCitrixRuntimeError
Forwards runtime errors of Citrix services.

Interacting with Services

A number of tools allow interacting with XenApp server and Terminal Server / Windows OS services. These are located in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Services** tool group. They enable you to start, stop, and check the status of relevant services:

- CTXSPI-Start *<service name>* Service
Starts the specified service on the managed node.
- CTXSPI-Stop *<service name>* Service
Stops the specified service on the managed node.
- CTXSPI-Status XenApp Server Services
Shows the status of all XenApp server services.
- CTXSPI-Status OS and Terminal Server Services
Shows the status of Terminal Server-related and Windows OS services.

Managing Citrix XenApp Server Sessions

Managing Citrix XenApp server sessions involves monitoring and managing the following:

- session resource consumption
- session network issues
- session state
- server resources
- end-user experience
- ability to logon to farm's servers

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix XenApp server nodes (refer to [“Setting Up Citrix XenApp Server Sessions Management” on page 35](#))
- which policies are needed for monitoring Citrix XenApp server sessions (refer to [“Policies” on page 35](#))
- which tools are needed for managing Citrix XenApp server sessions (refer to [“Tools” on page 36](#))

Setting Up Citrix XenApp Server Sessions Management

To monitor and manage Citrix XenApp server sessions, deploy the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Quick Start / CTXSPI-XA Sessions** policy group to all XenApp managed nodes.

Policies

To set up management of the Citrix XenApp server sessions, deploy the following policies:

- CTXSPI-ChkICASessionLatencyAverage
- CTXSPI-ChkICASessionLatencyDeviation
- CTXSPI-ChkICASessionLatencyLast
- CTXSPI-ChkProcessesNum
- CTXSPI-ChkSessionHandleCount
- CTXSPI-ChkSessionPageFileBytes

- . CTXSPI-ChkSessionProcessorTime
- . CTXSPI-ChkSessionsActive
- . CTXSPI-ChkSessionsAll
- . CTXSPI-ChkSessionsDisconnected
- . CTXSPI-ChkSessionsListening
- . CTXSPI-ChkSessionThreadCount
- . CTXSPI-ChkSessionTotalBytes
- . CTXSPI-ChkSessionTotalErrors
- . CTXSPI-ChkSessionTotalFrames
- . CTXSPI-ChkSessionTotalTimeouts
- . CTXSPI-ChkSessionTotalTransportErrors
- . CTXSPI-ChkSessionWorkingSet

Depending on your needs, also consider deploying some of the following policies:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Additional

- . CTXSPI-LogOffSessions
- . CTXSPI-LogOffSessionsByUser
- . CTXSPI-DisconnectSessions
- . CTXSPI-ChkSessionsDown
- . CTXSPI-ChkSessionsShadowing
- . CTXSPI-ChkSessionsStale

Tools

To manage the Citrix XenApp server sessions, SPI for Citrix provides the tools in the following tool groups:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information

- . CTXSPI-Display Application Sessions in Farm
- . CTXSPI-Display Session Information
- . CTXSPI-Display Session Information By User
- . CTXSPI-Find User Sessions in Farm

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Session Control / CTXSPI-XA Disconnect

- . CTXSPI-Disconnect All Application Sessions in Farm
- . CTXSPI-Disconnect All Sessions in Farm
- . CTXSPI-Disconnect All Sessions in Zone
- . CTXSPI-Disconnect All Sessions on Server
- . CTXSPI-Disconnect Farm Sessions by Username
- . CTXSPI-Disconnect Server Sessions by Name

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Session Control / CTXSPI-XA Logoff

- . CTXSPI-Logoff All Application Sessions in Farm
- . CTXSPI-Logoff All Sessions in Farm
- . CTXSPI-Logoff All Sessions in Zone
- . CTXSPI-Logoff All Sessions on Server
- . CTXSPI-Logoff Farm Sessions by Username
- . CTXSPI-Logoff Server Sessions by Name

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Session Control / CTXSPI-XA Send Message

- . CTXSPI-Send Message to Application Sessions in Farm
- . CTXSPI-Send Message to Farm Sessions
- . CTXSPI-Send Message to Zone Sessions
- . CTXSPI-Send Message to Server Sessions
- . CTXSPI-Send Message to Session
- . CTXSPI-Send Message to User Sessions

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Session Control / CTXSPI-XA Reset

- . CTXSPI-Reset Session
- . CTXSPI-Reset Session by ID

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Session Control / CTXSPI-XA Logon Control

- . CTXSPI-Enable Application in Farm
- . CTXSPI-Disable Application in Farm
- . CTXSPI-Disable Logons to Server
- . CTXSPI-Disable Logons to Zone
- . CTXSPI-Disable Logons to Farm
- . CTXSPI-Enable Logons to Server
- . CTXSPI-Enable Logons to Zone
- . CTXSPI-Enable Logons to Farm
- . CTXSPI-Status of Logons to Server
- . CTXSPI-Status of Logons to Zone
- . CTXSPI-Status of Logons to Farm

How It Works

Monitoring End-User Experience

SPI for Citrix monitors end-user experience by monitoring ICA Session Latency performance counters on Citrix XenApp server. These counters are provided on a per-session basis on every XenApp server. Thus you receive a good overall view what the end-user experience is.

ICA Session Latency is defined as a measure of the round trip time of a keyboard or mouse event from client to server and back. It is the amount of time that elapses between the user clicking their mouse in an ICA session, and the result of that mouse click being seen on the client.

The following monitoring policies deal with session latency monitoring:

- **CTXSPI-ChkICASessionLatencyAverage**
Monitors average ICA session latency. By monitoring Average ICA Session Latency, you can detect the degradation of end-user experience over longer periods of time. In response you can limit the number of users on a server or add another server to the farm before the end-users start to complain about "slow" system response.
- **CTXSPI-ChkICASessionLatencyDeviation**
Monitors the amount of change in ICA session latency. Many application performance specialists claim this is the most important parameter to monitor. Constant changes in session latency have a very bad impact on user productivity, as users often have to look for visual feedback whether a specific action has been carried out or not.
- **CTXSPI-ChkICASessionLatencyLast**
Monitors last recorded ICA session latency. By monitoring Last ICA Session Latency of each session on a server, you can identify short-term degradations of end-user experience and correlate them to other events on the server/ in a farm for better understanding of the impact that these events have on the overall farm performance in terms of end-user experience.

Session Resource Consumption Policies

Session resource consumption policies are able to detect excessive use of system's resources. These often indicate application faults. In a multi-user environment, such as Citrix XenApp server, excessive use of system resources by only one session can result in bad end-user experience for all other users connected to the same server.

Session resource consumption policies skip all information related to specific sessions. Console, Services, Idle, and Session 0 sessions are ignored as they are not user sessions. To enable monitoring of any of the four sessions, change a session instance behavior from suppress to evaluate and add custom thresholds in the Operations Manager configuration. To monitor session resource consumption, the following policies are provided:

- **CTXSPI-ChkProcessesNum**
Monitors the number of processes currently running on the system.
- **CTXSPI-ChkSessionHandleCount**
Monitors the total number of handles currently opened by processes running in individual session.

- **CTXSPI-ChkSessionPageFileBytes**
Monitors virtual memory consumption of processes running in individual session.
- **CTXSPI-ChkSessionProcessorTime**
Monitors percentage of elapsed processor time used by processes running in individual session.
- **CTXSPI-ChkSessionThreadCount**
Monitors the total number of threads currently active in processes running in individual session.
- **CTXSPI-ChkSessionTotalBytes**
Monitors the total number of bytes transferred over the network between individual Terminal Server client and server.
- **CTXSPI-ChkSessionTotalFrames**
Monitors the total number of frames transferred over the network between individual Terminal Server client and server.
- **CTXSPI-ChkSessionWorkingSet**
Monitors physical memory consumption of processes running in individual session.

Session Network Issue Detection Policies

Session network issues detection policies are able to detect various issues on the network connection between Citrix XenApp server and its clients. These issues usually have very high impact on end-user experience in form of unresponsive applications or even loss of connectivity.

- **CTXSPI-ChkSessionTotalErrors**
The total number of errors detected on the network connection between individual XenApp server client and server. Examples of errors include: lost ACK's, badly formed packets, and similar.
- **CTXSPI-ChkSessionTotalTimeouts**
The total number of time-outs detected on the network connection between individual XenApp server client and server. These are typically the result of a noisy line. On high latency networks, you should consider increasing protocol time-out if these occur often.
- **CTXSPI-ChkSessionTotalTransportErrors**
The total number of transport-level errors on the network connection between individual XenApp server client and server.

Monitoring Session State Information

Session state information monitoring policies monitor session states on a server level.

- **CTXSPI-ChkSessionsActive**
Monitors the number of active sessions on the server. Before deployed, XenApp server systems are often load-tested to determine how much load (active sessions) they can take. This policy can monitor against load-testing established baselines and alert when a system crosses them.
- **CTXSPI-ChkSessionsDisconnected**
Monitors the number of inactive (disconnected) sessions on the XenApp server. Inactive sessions are not connected to any client, but they are still consuming resources on the server. Users can re-connect to these sessions. If the number of inactive sessions increases over time, this can impact system performance. To preserve system resources you can log off sessions that have been inactive for a long time.
- **CTXSPI-ChkSessionsAll**
Monitors the number of all sessions on the server. In addition to active and inactive sessions, these also include sessions in more unusual states, for example, connected, connecting, idle, down, listening, resetting, and so on.
- **CTXSPI-ChkSessionsStale**
Monitors the number of sessions in Stale state on the XenApp server.
- **CTXSPI-ChkSessionsDown**
Monitors the number of sessions in Down state on the XenApp server. Occasionally, sessions do not log off correctly and remain in Down state until the server is rebooted. This policy alerts you if these sessions are accumulating on your server.
- **CTXSPI-ChkSessionsShadowing**
Monitors the number of sessions in Shadowing state on the XenApp server. Session shadowing means being able to interact with end-user sessions. While useful tool for user collaboration, training, and troubleshooting, it can also be a security issue if used by unauthorized users.
- **CTXSPI-ChkSessionsListening**
Monitors the number of sessions in Listening state on the server. On Citrix XenApp server system, there have to be exactly two sessions in Listening state at all times. One is listening for incoming RDP connections (Terminal Services clients), and the other is listening for incoming ICA connections (Citrix clients).

Preserving Server Resources

Lengthy inactive or disconnected sessions consume server resources, making them unavailable to users actively working on a specific server. SPI for Citrix is able to disconnect or logoff such sessions in order to free system resources for other users to use.

- **CTXSPI-LogOffSession**
Logs off sessions that have been disconnected for a long time. Time interval can be configured. This action will free system virtual and physical memory for other users to use.
- **CTXSPI-DisconnectSessions**
Disconnects sessions that have been inactive for a long time. Time interval can be configured. This action will free networking resources allocated by an inactive session.

Viewing Session Information

A set of tools is provided that allows displaying various session information. These tools are located in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information** tool group.

- **CTXSPI-Display Application Sessions in Farm**
Displays all users that are currently running a specific published application in a farm. It is enough to select only one XenApp server from the farm.
- **CTXSPI-Display Session Information**
Displays detailed session information on a XenApp server node.
- **CTXSPI-Display Session Information by User**
Displays detailed session information on a XenApp server, grouped by username.
- **CTXSPI-Find User Sessions in Farm**
Displays detailed session information of a particular user in a farm.

Interacting with Sessions

SPI for Citrix provides a rich set of tools that allow interaction with end-user sessions. These tools are located in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Session Control** tool group.

- **CTXSPI-XA Disconnect**
Tools in this group allow disconnecting selected or all sessions from the farm, zone, server, or user. Sessions can be selected by their session name or published application name.
- **CTXSPI-XA Logoff**
Tools in this group allow logging off selected or all sessions from the farm, zone, server, or user. Sessions can be selected by their session name or published

application name.

- **CTXSPI-XA Send Message**
Tools in this group allow sending messages to selected or all sessions from the farm, zone, server, or user. Sessions can be selected by their session name or published application name.
- **CTXSPI-XA Reset**
Tools in this group allow resetting individual sessions. Sessions can be selected by their session name or ID.

Controlling Session Logons to Servers

SPI for Citrix allows controlling used logons to XenApp farm servers. You can enable or disable logons to individual servers, to all servers in a zone, or to all servers in a farm. All these actions can be carried out as a single atomic operation. Additionally, you can enable or disable published applications in a farm.

Session logon control tools are located in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Session Control / CTXSPI-XA Logon Control** tool group:

- **CTXSPI-Disable Application in Farm**
Disables a published application in a farm. It is enough to select only one XenApp server from the farm.
- **CTXSPI-Disable Logons to Farm**
Disables logons to a farm. You need to execute this tool on a XenApp server that is part of the farm.
- **CTXSPI-Disable Logons to Server**
Disables logons to a server. You need to execute this tool on a XenApp server.
- **CTXSPI-Disable Logons to Zone**
Disables logons to a zone. You need to execute this tool on a XenApp server that is part of the zone.
- **CTXSPI-Enable Application in Farm**
Enables published application in a farm. It is enough to select only one XenApp server from the farm.
- **CTXSPI-Enable Logons to Farm**
Enables logons to a farm. You need to execute this tool on a XenApp server that is part of the farm.
- **CTXSPI-Enable Logons to Server**
Enables logons to a server. You need to execute this tool on a XenApp server.
- **CTXSPI-Enable Logons to Zone**
Enables logons to a zone. You need to execute this tool on a XenApp server that is

part of the zone.

- **CTXSPI-Status of Logons to Farm**
Shows whether logons are enabled or disabled for each XenApp server in a farm. You need to execute this tool on a XenApp server that is part of the farm.
- **CTXSPI-Status of Logons to Server**
Shows whether logons are enabled or disabled on a XenApp server. You need to execute this tool on a XenApp server.
- **CTXSPI-Status of Logons to Zone**
Shows whether logons are enabled or disabled for each XenApp server in a zone. You need to execute this tool on a XenApp server that is part of the zone.

Managing Citrix XenApp Servers

Managing Citrix XenApp servers involves monitoring server availability and reacting to issues occurring on servers.

Servers in XenApp farms are typically load-balanced, meaning their user loads are very similar. With lots of open sessions on each server, a new server that comes online (either through expected or unexpected reboot or start up) can be faced with a large number of logons directed to it by the load-balancing algorithm. Standard logon procedure is demanding on server resources. Very intensive logon activity can cause the new server to become overloaded and slow, even to the point where its IMA service (the primary XenApp server service) stops responding. Such a server is sometimes referred to as being the "black hole", and the farm is said to be experiencing the "black hole effect".

The "black hole effect" can have serious consequences for the farm end-users. The whole farm can become unresponsive to new logon requests until the affected "black hole" server is powered down.

SPI for Citrix provides the logon throttling functionality that can prevent the "black hole effect" in a farm. Logon throttling closely monitors the logon activity on individual XenApp server. If it detects a large number of logons within a short period of time, it temporarily disables logons to the server, allowing the server to process the existing logon requests. After a while, logon throttling re-enables the logons and server is again able to accept new user sessions.

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix XenApp server nodes (refer to [“Setting Up Citrix XenApp Servers Management”](#) on page 45)
- guidelines and instructions for customizing the logon throttler functionality (refer to [“Customizing the Logon Throttling”](#) on page 45)
- which policies are needed for monitoring Citrix XenApp servers (refer to [“Policies”](#) on page 47)
- which tools are needed for managing Citrix XenApp servers (refer to [“Tools”](#) on page 47)

Setting Up Citrix XenApp Servers Management

To monitor and manage Citrix XenApp servers, deploy the `CTXSPI-LogonThrottler` and `CTXSPI-FwdLogonThrottlerEvents` policies from the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Additional** policy group to all managed nodes.

After the first execution of the `CTXSPI-LogonThrottler` policy on the XenApp server (9 minutes by default), the logon throttler functionality gets installed and starts monitoring the server.

NOTE

For optimal performance, the schedule of the `CTXSPI-LogonThrottler` policy should not be modified. If the schedule really needs to be modified, you must set it to execute at least once every 20 minutes.

To remove the logon throttling functionality, remove the distributed logon throttler policies from the managed node. Logon throttler will be disabled and removed in 30 minutes after the policies were removed.

Customizing the Logon Throttling

Default settings are suitable for most XenApp servers.

You can modify values of the following parameters of the `CTXSPI-LogonThrottler` policy:

- `CheckInterval`
- `MaxLogons`
- `SleepDuration`
- `LogoffFactor`

These parameters are located in the logon throttler configuration file `CTXSPIPM.ini`, located on the management server.

Logon throttler parameters work in pairs and complement each other.

MaxLogons [number] (default: 8)

CheckInterval [seconds] (default: 60)

`MaxLogons` and `CheckInterval` parameters determine the criteria for temporary disabling logons to the server.

`MaxLogons` specifies the maximum number of new logons allowed in the time-frame `CheckInterval`. If this number is exceeded, logon throttler will temporarily disable logons to the server. See `SleepDuration` and `LogoffFactor` parameters for details on how long logons will be disabled.

SleepDuration [seconds] (default: 20)

LogoffFactor [%] (default: 50)

SleepDuration and LogoffFactor parameters determine how long the logons to the server will be disabled once disabling criteria has been met.

SleepDuration specifies how much (in seconds) each individual logon contributes to the total amount of time the logons will be disabled on the server. If you have very resource-intensive logon process, you should consider setting this parameter to a higher value.

LogoffFactor specifies how much (in %) each individual logoff contributes to the total duration logons are disabled on the server. LogoffFactor of 50 means that each logoff contributes 50% as much as a logon does. As logoffs also consume server resources, this parameter is used to model their impact. For resource-intensive logoff process you should consider setting this parameter to a higher value.

Example

Take the default parameter values:

```
MaxLogons = 8
CheckInterval = 60
SleepDuration = 20
LogoffFactor = 50
```

There are 9 logons and 4 logoffs within the last 60 seconds. Following the equations below, logon throttler will disable logons to the server for 220 seconds.

$$\left(9 + 4 \frac{50}{100}\right) \times 20 = 220$$

Modifying Logon Throttler Parameters

To modify the logon throttler parameters, perform the following procedure:

1. Using the editor, open the file `CTXSPIPM.ini` on the management server.
2. Locate the following text:

```
[CTXSPI.LogonThrottlerPlugin]
Binary = CTXSPIPLT.exe
Timeout = 30
CheckInterval = 60
MaxLogons = 8
SleepDuration = 20
LogoffFactor = 50
```
3. Modify the values of the parameters `CheckInterval`, `MaxLogons`, `SleepDuration`, and `LogoffFactor` according to your needs and save the file.

4. Deploy instrumentation on the managed node.
5. Restart the SPI for Citrix subagent by consecutively launching the following tools from the **SPI for Citrix / CTXSPI-SPI Maintenance / CTXSPI-SPI Configure** tool group:
 - CTXSPI-Unregister Subagent
 - CTXSPI-Register Subagent

Policies

To set up management of the Citrix XenApp servers, deploy the policies from the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Additional** policy group:

- CTXSPI-LogonThrottler
- CTXSPI-FwdLogonThrottlerEvents

Tools

To manage the Citrix XenApp servers, SPI for Citrix provides the following tools in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information** tool group:

- CTXSPI-Display Application Information
- CTXSPI-Display Streamed Application Information
- CTXSPI-Display Server Mode

How It Works

Monitoring Logon and Logoff Activities

Logon throttler closely monitors all logon and logoff activity on a XenApp server.

When criteria for temporary disabling logons are met, logon throttler will:

- Write a message to the Windows Application Event Log on a XenApp server that logons have been disabled by the **SPI for Citrix - Logon Throttler** component.
- Disable logons for a specific amount of time.

Windows Event Log message is intercepted on the XenApp server by the **CTXSPI-FwdLogonThrottlerEvents** policy and forwarded to the HPOM management server.

When it is time to re-enable logons on a XenApp server, logon throttler will:

- Write a message to the Windows Application Event Log on a XenApp server that logons have been re-enabled by the **SPI for Citrix - Logon Throttler** component.
- Enable logons on a system.

Windows Event Log message is intercepted on the XenApp server by the **CTXSPI-FwdLogonThrottlerEvents** policy and forwarded to the HPOM management server.

If logon throttler disabled logons to the server, it will re-enable logons to the server if any of the following occurs:

- Logons have been disabled for specific amount of time (typical logon throttler operation)
- The HPOM agent has been stopped

These conditions guarantee that logons to the server get re-enabled if they are disabled by the logon throttler.

Viewing Published Application Information

Occasionally, you may need an insight into particular configurational detail of an individual Citrix XenApp server.

The following tools help you to manage XenApp servers:

- **CTXSPI-Display Application Information**
Displays published applications on a server.
- **CTXSPI-Display Application Information in Farm**
Displays published application information in a farm. It is enough to select only one XenApp server from the farm.
- **CTXSPI-Display Server Mode**
Displays data store connection mode (direct or indirect) in which a XenApp server operates.

Viewing Streamed Application information

Occasionally, you may need an insight into the particular configurational detail of an individual Citrix XenApp server.

The following tools help you to manage XenApp servers:

- **CTXSPI-Display Streamed Application Information**
Displays streamed applications in a farm.

Managing Citrix XenApp Server Zones

Managing Citrix XenApp server zones involves monitoring and managing Zone Data Collector servers.

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix XenApp server nodes (refer to [“Setting Up Citrix XenApp Server Zone Management”](#) on page 49)
- which policies are needed for monitoring Citrix XenApp server zones (refer to [“Policies”](#) on page 49)
- which tools are needed for managing Citrix XenApp server zones (refer to [“Tools”](#) on page 49)

Setting Up Citrix XenApp Server Zone Management

To monitor and manage Citrix XenApp server zones, deploy the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Quick Start / CTXSPI-XA Zones** policy group to all managed nodes.

Policies

To set up management of the Citrix XenApp server zones, distribute the following policy:

- CTXSPI-ChkDCChanges

Tools

To manage the Citrix XenApp server zones, SPI for Citrix provides the following tools in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information** tool group:

- CTXSPI-Display Zone Information
- CTXSPI-Display Number of Servers in Zone

How It Works

Data Collector Monitoring

Each zone in a farm contains one server that is designated as the zone Data Collector. Zone Data Collectors store dynamic information about the servers, published tools, server load, and user sessions in their zone. The zone Data Collector tracks, for example, which tools are available, and how many sessions are running on each server in the zone.

In large zones it is recommended to set up a dedicated Data Collector, which can focus on maintaining dynamic zone information.

Citrix zones are designed to be robust. If the Data Collector server fails, a new Data Collector is elected among the remaining servers in a zone.

The following policies implement zone Data Collector monitoring:

- **CTXSPI-ChkDCchanges**
Detects Data Collector change in a zone. As zones are designed to be robust, the election of a new Data Collector can happen automatically without human intervention and generally unnoticed. While not being a critical event, it enables the operators to detect and investigate any issues, occurring in the zone. This is especially important if a dedicated Data Collector has been appointed in a zone.

Displaying Zone Information

Two tools are available for displaying the zone information. These tools are located in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information** tool group:

- **CTXSPI-Display Zone Information**
Displays zone information of the selected XenApp server node.
- **CTXSPI-Display Number of Servers in Zone**
Displays the number of XenApp servers in a zone.

Managing Citrix XenApp Server Farms

Managing XenApp farms involves monitoring and managing:

- Data store consistency.
- Viewing XenApp farm information.

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix XenApp server nodes (refer to [“Setting Up Citrix XenApp Farm Management”](#) on page 51)
- which policies are needed for monitoring Citrix XenApp farms (refer to [“Policies”](#) on page 51)
- which tools are needed for managing Citrix XenApp farms (refer to [“Tools”](#) on page 51)

Setting Up Citrix XenApp Farm Management

To monitor and manage Citrix XenApp farms, deploy the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Additional / CTXSPI-ChkDataStoreConsistency** policy to selected managed nodes.

Policies

To set up management of the Citrix XenApp farms, deploy the following policy:

- CTXSPI-ChkDataStoreConsistency

Tools

To manage the Citrix XenApp farms, SPI for Citrix provides the tools in the following tool groups:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Farm

- CTXSPI-Check Data Store Consistency

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information

- CTXSPI-Display Number of Servers in Farm
- CTXSPI-Display XenApp Server Information
- CTXSPI-Display License Information

How It Works

Monitoring Data Store Consistency

The data store provides a repository of persistent information about the farm that each server can reference. This includes:

- farm configuration information
- published application configuration
- server configuration
- farm administrator accounts
- printer configuration

Data store information is stored in a database. Supported databases are Microsoft Access, Microsoft SQL Server, Oracle, IBM DB2.

The following policy implements XenApp farm monitoring:

- **CTXSPI-ChkDataStoreConsistency**
Data Store information is stored in database in encrypted form. The database itself cannot guard information in Data Store for consistency. SPI for Citrix uses the **DSCheck** tool, used by this policy to regularly check if information in Data Store is still consistent. Inconsistent information in Data Store can in the long run jeopardize farm operations. You can use this policy only on a server with direct connection to the Data Store.

Performing Data Store Consistency Check

SPI for Citrix also provides the tool for initiating data store consistency check. This tool is located in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Farm** tool group:

- **CTXSPI-Check Data Store Consistency**
Performs data store consistency check.

Displaying Farm Information

SPI for Citrix offers tools for displaying farm information. These tools are located in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information** tool group:

- **CTXSPI-Display Number of Servers in Farm**
Displays the number of Citrix servers in a farm to which the selected Citrix server belongs.
- **CTXSPI-Display XenApp Server Information**
Display details of the selected XenApp server.

- **CTXSPI-Display License Information**
Displays Citrix license details (usage and availability).

Managing XenApp Server User Logon Process

User logon is a complex and resource intensive process on a XenApp server. It is initiated when a XenApp farm load balancing algorithm selects the system where the published application, which a user has selected, will be started, and ends when the application is running and the user can interact with it.

SPI for Citrix breaks down the user logon process on a XenApp server into five phases:

- Phase 1: User profile loading
- Phase 2: Applying group policy objects (GPOs)
- Phase 3: User environment initialization and Active Setup
- Phase 4: Logon script execution
- Phase 5: Citrix-specific initialization

For each user logon process phase, SPI for Citrix measures its duration. The duration is also calculated for the complete user logon process.

Managing Citrix XenApp server user logon process involves managing and monitoring the following:

- Monitoring user logon process
- Viewing user logon process information

User Logon Process Phases

Phase 1: User profile loading

The phase starts just after the user credentials are validated and lasts until the profile is downloaded from the profile storage (network share).

Reasons for the slow logon phase are:

- issues with network and profile storage availability,
- high network load,
- big profile size,
- first time use of this profile on the server (the cached version of the roaming profile does not exist), or
- the corrupted profile.

Additionally, SPI for Citrix allows monitoring of Windows user profiles for the presence and amount of the specific file categories. Three file categories can be tracked: executable files, media files, and custom files.

Phase 2: Applying group policy objects (GPOs)

During this phase, the server applies user settings defined on the Domain Controller.

Reasons for the slow logon phase are:

- issues with the required infrastructure (required services and components are either not running or configured as expected),
- issues with network and domain controller availability,
- system time is not configured correctly,
- high network load, or
- the high amount of policy settings.

Phase 3: User environment initialization and Active Setup

During this phase, network connections are restored and profile settings, such as fonts and screen colors, are loaded. Also, if this is the first time this profile is being used, some extra initialization is applied. The default profile is created, first time use settings are applied for the shell (Explorer), Internet Explorer, Office (particularly Outlook), and any other application that uses Active Setup.

Reasons for the slow logon phase are:

- issues with restoring the network connection(s),
- the corrupted profile, or
- the first time use of this profile on the server (Active Setup hasn't been applied yet).

Phase 4: Logon script execution

The phase is measured by how long the `USRLOGON.CMD` script (located in `%SystemRoot%\system32`) is being executed. The script's original function is to address issues with legacy applications that were not written with a multi-user environment, such as Terminal Server, in mind. It uses application compatibility scripts (located in `%SystemRoot%\Application Compatibility Scripts`) in conjunction with the `%ROOTDRIVE%` variable to address these issues. The `USRLOGON.CMD` script is also used as a starting point for custom profile frameworks (that is, not supported by Microsoft), such as Flex or Jumping profiles.

Reasons for the slow logon phase are:

- issues with application compatibility scripts,
- legacy applications, or
- custom profile initialization.

SPI for Citrix differentiates between Terminal Server (RDP client) and Citrix (ICA client) logon. If the user used the RDP connection to log on to the server, this will be the last phase of the logon process.

Phase 5: Citrix-specific initialization

The phase covers Citrix specific activity before it launches the requested application: launching seamless windows engine shell, auto creation of client printers, and ICA client update process.

Reasons for the slow logon phase are:

- issues with the client printer (usually third party printer drivers) or
- issues with retrieving ICA client version and the rest of the update process.

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix XenApp server nodes (refer to [“Setting Up Citrix XenApp Server User Logon Process Management”](#) on page 56)
- which policies are needed for monitoring Citrix XenApp server user logon process (refer to [“Policies”](#) on page 56)
- which tools are needed for managing Citrix XenApp server user logon process (refer to [“Tools”](#) on page 57)

Setting Up Citrix XenApp Server User Logon Process Management

To monitor and manage user logon process on Citrix XenApp servers, deploy the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Quick Start / CTXSPI-XA Logon Process** policy group to all XenApp server managed nodes.

Policies

To set up management of the Citrix XenApp server user logon process, deploy the following policies:

- CTXSPI-ChkXUserLogonProcess
- CTXSPI-ChkXUserLogonProcessCompleted

Depending on your needs, also consider deploying some of the following policies:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Additional

- CTXSPI-ChkXUserLogonProcessPh1
- CTXSPI-ChkXUserLogonProcessPh2

- CTXSPI-ChkXAUserLogonProcessPh3
- CTXSPI-ChkXAUserLogonProcessPh4
- CTXSPI-ChkXAUserLogonProcessPh5

Tools

To monitor and manage Citrix XenApp server user logon process information, SPI for Citrix provides the following tools in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information** tool group:

- CTXSPI-Display Logons by User
- CTXSPI-Display Recent User Logons

How It Works

Monitoring User Logon Process

The following policies implement XenApp server user logon process monitoring:

- CTXSPI-ChkXAUserLogonProcess
Monitors duration of the complete user logon process. User logon process duration is defined as the sum of all individual logon process phase durations.
- CTXSPI-ChkXAUserLogonProcessCompleted
Monitors whether a user logon process has completed in a timely manner. By default, if any phase of the user logon process takes more than 5 minutes, or if the process does not go through all logon process phases, the user logon process is considered to be incomplete.
- CTXSPI-ChkXAUserLogonProcessPh1
Monitors duration of phase 1 of the user logon process. By default, if the phase takes more than 5 minutes to complete, the message is sent to the HPOM console.
- CTXSPI-ChkXAUserLogonProcessPh2
Monitors duration of phase 2 of the user logon process. By default, if the phase takes more than 5 minutes to complete, the message is sent to the HPOM console.
- CTXSPI-ChkXAUserLogonProcessPh3
Monitors duration of phase 3 of the user logon process. By default, if the phase takes more than 5 minutes to complete, the message is sent to the HPOM console.
- CTXSPI-ChkXAUserLogonProcessPh4
Monitors duration of phase 4 of the user logon process. By default, if the phase takes more than 5 minutes to complete, the message is sent to the HPOM console.
- CTXSPI-ChkXAUserLogonProcessPh5
Monitors duration of phase 5 of the user logon process. By default, if the phase

takes more than 5 minutes to complete, the message is sent to the HPOM console.

Viewing User Logon Process Information

A set of tools allow viewing user logon process information that is being collected on XenApp server systems:

- **CTXSPI-Display Logons by User**
Displays logons for a particular user.
- **CTXSPI-Display Recent User Logons**
Displays user logons that occurred within a specific time interval.

Managing Windows User Profiles

A user profile is a collection of settings, configurations, and personal files that are unique to each user. A number of settings can be configured using user profiles, for example, printers, temporary files location, mapped drives, desktop settings, and so on.

In addition to system settings, most of installed applications set up their own user-specific settings into the user profile.

There are basically four different ways user profiles can be used in Citrix XenApp environments:

- Local profiles
- Roaming profiles
- Mandatory profiles
- Hybrid profiles (Flex, Jumping, Simplify, and so on)

For more details on user profiles, refer to Citrix XenApp / Terminal Server-related documentation.

Managing Windows user profiles on a Citrix XenApp involves managing and monitoring the following:

- Windows User profile volume (size, number of files)
- Presence of specific file categories in user profile (for example, executable files, media files, and so on)

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix XenApp server nodes (refer to [“Setting Up Windows User Profile Management”](#) on page 60)
- which policies are needed for monitoring Windows user profiles (refer to [“Policies”](#) on page 60)
- which tools are needed for managing Windows user profiles (refer to [“Tools”](#) on page 60)

Setting Up Windows User Profile Management

To monitor and manage Windows user profiles on Citrix XenApp servers, deploy the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Quick Start / CTXSPI-XA User Profiles** policy group to all XenApp server managed nodes.

Policies

To set up management of the Windows user profiles on Citrix XenApp server systems, deploy the following policies:

- CTXSPI-ChkProfileFullSize
- CTXSPI-ChkProfileRoamingSize
- CTXSPI-ChkProfilesTotalSize
- CTXSPI-ChkProfilesTotalRoamingSize

Depending on your needs, also consider deploying some of the following policies:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Additional

- CTXSPI-ChkProfileFileCount
- CTXSPI-ChkProfileRoamingFileCount
- CTXSPI-ChkProfileExecutableCount
- CTXSPI-ChkProfileMediaCount
- CTXSPI-ChkProfilesTotalFileCount
- CTXSPI-ChkProfilesTotalRoamingFileCount
- CTXSPI-ChkProfilesTotalExecutableCount
- CTXSPI-ChkProfilesTotalMediaCount

Tools

To manage Windows user profiles, SPI for Citrix provides the following tool:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information

- CTXSPI-Display User Profile Information

How It Works

Viewing Windows User Profile Information

SPI for Citrix provides the tool that allows insight into user profiles on a system. It is located in the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Information** tool group:

- CTXSPI-Display User Profile Information
Displays information about user profiles.

Monitoring Windows User Profile Volume

Roaming profiles are by far the most common profile type used in XenApp server environments. They are very easy to set up, and users have the benefit of having the same application / user settings on every XenApp server they connect to.

Roaming profiles are copied from the network share location each time user logs on to the XenApp server system and copied back to the same network location when user logs off from the system. This ensures that any settings user might have changed during the session are preserved and saved.

When users work on a Citrix XenApp server system, a lot of temporary files can get stored to the user profile. Often it does not make sense to copy all those temporary files to the network share location when user logs off. Therefore administrators can limit the set of user profile directories that get preserved.

You can partition roaming profiles in two parts:

- "roaming" part and
- "temporary" part of user's profile.

The following policies implement monitoring of Windows user profiles:

- **CTXSPI-ChkProfileFileCount**
Monitors the number of files in individual user profile.
- **CTXSPI-ChkProfileFullSize**
Monitors the total size of individual user profile.
- **CTXSPI-ChkProfileRoamingFileCount**
Monitors the number of files in the roaming part of individual user profile. "Roaming part" refers to the set of directories that get copied to the user's network share location.
- **CTXSPI-ChkProfileRoamingSize**
Monitors the size of the roaming part of individual user profile. "Roaming part" refers to the set of directories that get copied to the user's network share location.
- **CTXSPI-ChkProfilesTotalFileCount**
Monitors the total number of files in all user profiles on a Citrix XenApp server system.
- **CTXSPI-ChkProfilesTotalRoamingFileCount**
Monitors the total number of files in roaming parts of all user profiles. "Roaming part" refers to the set of directories that get copied to the user's network share location.
- **CTXSPI-ChkProfilesTotalRoamingSize**
Monitors the total size of roaming parts of the user profiles. "Roaming part" refers to the set of directories that get copied to the user's network share location.

- `CTXSPI-ChkProfilesTotalSize`
Monitors the total size of all user profiles on a Citrix XenApp server system.

Monitoring for Presence of Specific File Categories in Windows User Profiles

SPI for Citrix allows monitoring of Windows user profiles for presence and amount of specific file categories. Three file categories can be tracked: executable files, media files, and custom files. The first two file categories are pre-defined by monitoring policies, and the third category can be freely customized.

- Predefined executable files have the following suffixes:
.bat|.btm|.class|.cmd|.com|.exe|.jar|.js|.jse|.msi|.pif|.pl|.ps1|.ps2|.ps3|.py|.pyc|.pyd|.pyw|.scr|.vb|.vbe|.vbs|.wsf|.wsh
- Predefined media files have the following suffixes:
.aac|.aif|.aiff|.aps|.apu|.asf|.ass|.asx|.au|.avd|.avi|.cda|.div|.divx|.dvx|.gvi|.kar|.m2p|.m2v|.m3u|.m4a|.mid|.miz|.mov|.mp1|.mp2|.mp2v|.mp3|.mp4|.mpeg|.mpg|.mpg4|.nsa|.nsv|.ogg|.pls|.rmi|.snd|.voc|.wav|.wma|.xmv

The following policies implement monitoring for presence of specific file categories in Windows user profiles:

- `CTXSPI-ChkProfileExecutableCount`
Monitors the number of executable files in individual user profile.
- `CTXSPI-ChkProfilesTotalExecutableCount`
Monitors the total number of executable files in all user profiles.
- `CTXSPI-ChkProfileMediaCount`
Monitors the number of media files in individual user profile.
- `CTXSPI-ChkProfilesTotalMediaCount`
Monitors the total number of media files in all user profiles.

Managing XenApp Farm Service Map

SPI for Citrix offers autodiscovery of XenApp farms, zones, servers, and published applications, as well as the dependencies between them in a farm.

SPI for Citrix also monitors any Citrix configuration changes, and allows you to update your service map once a day (this can be configured) if changes occur.

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix XenApp server nodes (refer to [“Setting Up XenApp Farm Service Map Management”](#) on page 63)
- which policies are needed for monitoring Citrix XenApp server service map (refer to [“Policies”](#) on page 63)
- which tools are needed for managing Citrix XenApp server service map (refer to [“Tools”](#) on page 63)

Setting Up XenApp Farm Service Map Management

To monitor and manage XenApp farm service map, deploy the **SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Discovery** policy group to up to three XenApp server managed nodes for each farm.

Policies

To set up and manage the XenApp farm service map, deploy the following policies:

- CTXSPI-ChkServiceModel
- CTXSPI-DscServiceModel2

Tools

To manage the XenApp farm service map, SPI for Citrix provides the following tool:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Discovery

- CTXSPI-Force Service Model Update

How It Works

Generating XenApp Farm Service Map

SPI for Citrix uses HP Operations Manager for Windows service map component for autodiscovery of your Citrix environment. Service map consists of two parts. XenApp farms part covers Citrix XenApp server servers and published applications, and Citrix infrastructure part covers Web interface, Secure Gateway, and Citrix License Servers.

For instructions on how to perform autodiscovery and generate the XenApp farm service map, refer to [Chapter 3, "Setting Up the Environment"](#).

Collecting XenApp Server Performance Information

SPI for Citrix graphs and reports require that performance data is being collected on all Citrix XenApp nodes that are being managed. Without these policies deployed, SPI for Citrix graphs and reports for XenApp server will remain empty.

Overview

This section contains the following information:

- which policies are needed for collecting SPI for Citrix performance data (refer to [“Policies” on page 65](#))

Policies

The following policies are required to collect SPI for Citrix XenApp server performance data:

SPI for Citrix / CTXSPI-XenApp / CTXSPI-XA Data Collection

- CTXSPI-ServerConfigLogging
- CTXSPI-ServicesLogging
- CTXSPI-SessionsEXLogging
- CTXSPI-SessionsICALogging
- CTXSPI-SessionsTSSLogging
- CTXSPI-LogProfile
- CTXSPI-LogProfiles
- CTXSPI-LogXAUserLogonProcess
- CTXSPI-LogApps

How It Works

XenApp Server Data Collection

SPI for Citrix reports and graphs rely on performance data being collected on the managed nodes. Performance data is stored in the Embedded Performance Component of the HPOM agent. Another name for this performance component is also the CODA subagent.

The following policies collect data on the Citrix XenApp server managed nodes:

- CTXSPI-ServerConfigLogging
Collects basic server configuration information like server, zone, and farm name.

- **CTXSPI-ServicesLogging**
 Collects performance information about Citrix services. Information collected includes CPU, physical and virtual memory consumption.
- **CTXSPI-SessionsEXLogging**
 Collects extended information about every published application instance running on a XenApp server. Information collected includes session name, session ID, user domain and account name, published application name, CPU and memory consumption of published application, whether this is a desktop or published application session.
- **CTXSPI-SessionsICALogging**
 Collect selected performance counters for every instance of the "ICA Session" performance object. These counters include ICA session latency and deviation.
- **CTXSPI-SessionsTSSLogging**
 Collect selected performance counters for every instance of the "Terminal Services Session" performance object. These counters include CPU and memory consumption, handle and thread count use, network traffic, and so on.
- **CTXSPI-LogProfile**
 Collects user profile information for each individual user that has profile on a XenApp server. Information collected includes size of complete profile and roaming part of the profile, number of executable and media files, and so on.
- **CTXSPI-LogProfiles**
 Collects summary user profile information on a XenApp server. Information collected includes total size of all user profiles and roaming parts of their profiles, number of executable and media files, and so on.
- **CTXSPI-LogXAUUserLogonProcess**
 Collects user logon process information for every user that logs-in to a XenApp server. Information collected includes user domain and account name, duration of logon process phases and of the complete logon process, and so on.
- **CTXSPI-LogApps**
 Collects published application usage information on a XenApp server. Information collected includes application distinguished name and the number of running instances.

Chapter 5

Managing Citrix Desktop Delivery Controller Servers

About Managing Citrix Desktop Delivery Controller Servers

This chapter contains information for setting up management of Citrix Desktop Delivery Controller Servers. It provides information on policies and tools, needed to monitor and manage Citrix Desktop Delivery Controller Servers, and describes how you can employ these policies and tools.

Managing Citrix Desktop Delivery Controller Servers involves the following:

- [“Managing Citrix Desktop Delivery Controller Services” on page 69](#)
- [“Monitoring Citrix Desktop Delivery Controller Desktop Groups” on page 74](#)
- [“Managing Citrix Desktop Delivery Controller Service Map” on page 77](#)
- [“Collecting Citrix Desktop Delivery Controller Performance Information” on page 79](#)

Managing Citrix Desktop Delivery Controller Services

Managing Citrix Desktop Delivery Controller services involves managing and monitoring the following software items:

- Mandatory and optional Desktop Delivery Controller services
- System and Application event-log messages related to the above services

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix Desktop Delivery Controller Server nodes (refer to [“Setting Up Citrix Desktop Delivery Controller Services Management”](#) on page 69)
- which policies are needed for monitoring Citrix Desktop Delivery Controller Server services (refer to [“Policies”](#) on page 69)
- which tools are needed for managing Citrix Desktop Delivery Controller Server services (refer to [“Tools”](#) on page 70)

Setting Up Citrix Desktop Delivery Controller Services Management

To monitor and manage Citrix Desktop Delivery Controller services, deploy the **SPI for Citrix / CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Quick Start / CTXSPI-DDC Services** policy group to all managed nodes.

Policies

To set up management of the Citrix Desktop Delivery Controller services, deploy the following policies:

- CTXSPI-ChkDDCServices
- CTXSPI-FwdCitrixDDCAppWarnError
- CTXSPI-FwdCitrixDDCSysWarnError

Depending on your needs, also consider deploying some of the following policies:

SPI for Citrix / CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Additional

- CTXSPI-FwdCitrixDDCAppInfo
- CTXSPI-FwdCitrixDDCSysInfo

Tools

To manage the Citrix Desktop Delivery Controller services, SPI for Citrix provides the following tools:

SPI for Citrix / CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Services

- . CTXSPI-Start Citrix Desktop Delivery Controller Service
- . CTXSPI-Start Citrix Diagnostic Facility COM Server Service
- . CTXSPI-Start Citrix IMA Proxy Service
- . CTXSPI-Start Citrix IMA Service
- . CTXSPI-Start Citrix Management Server Service
- . CTXSPI-Start Citrix MFCOM Service
- . CTXSPI-Start Citrix Pool Management Service
- . CTXSPI-Start Citrix Services Manager Service
- . CTXSPI-Start Citrix XTE Server Service
- . CTXSPI-Status Desktop Delivery Controller Services
- . CTXSPI-Stop Citrix Desktop Delivery Controller Service
- . CTXSPI-Stop Citrix Diagnostic Facility COM Server Service
- . CTXSPI-Stop Citrix IMA Proxy Service
- . CTXSPI-Stop Citrix IMA Service
- . CTXSPI-Stop Citrix Management Server Service
- . CTXSPI-Stop Citrix MFCOM Service
- . CTXSPI-Stop Citrix Pool Management Service
- . CTXSPI-Stop Citrix Services Manager Service
- . CTXSPI-Stop Citrix XTE Server Service

How It Works

Service Monitoring Policies

Citrix Desktop Delivery Controller product employs several Windows services. Not all of them are required for correct operation of the Citrix Desktop Delivery Controller, a few optional services can be turned on only when you want to use a specific Citrix Desktop Delivery Controller capability.

The table below lists all Citrix Desktop Delivery Controller services and product versions those services were part of:

Service Name	DDC 4.0	DDC 3.0
Citrix Desktop Delivery Controller Service	yes	yes
Citrix Diagnostic Facility COM Server Service	yes	yes
Citrix IMA Proxy Service	yes	yes
Citrix IMA Service	yes	yes
Citrix Management Server Service	yes	yes
Citrix MFCOM Service	yes	yes
Citrix Pool Management Service	yes	yes
Citrix Services Manager Service	yes	yes
Citrix XTE Server Service	yes	yes

The following policy implements Citrix Desktop Delivery Controller service monitoring:

- CTXSPI-ChkDDCServices
Monitors the state of all required and optional Citrix Desktop Delivery Controller services.

Windows Event Log Forwarding Policies

Citrix Desktop Delivery Controller services log the internal issues they detect to the Windows Event Log. To early detect issues that may be developing, it is essential to monitor both Application and System Windows Event Logs. The following Desktop Delivery Controller Application event log sources are being monitored:

Application EventLog Source Name	DDC 4.0	DDC 3.0
XenApp Services	yes	yes
wsxica	yes	yes
Citrix Configuration Logging	yes	yes
Citrix Desktop Delivery Controller	yes	yes
Citrix IMA Proxy Service	yes	yes
Citrix Pool Management Service	yes	yes
CitrixHealthMon	yes	yes
CitrixManagementServer	yes	yes

Application EventLog Source Name	DDC 4.0	DDC 3.0
CtxSbxAppMsg	yes	yes
MetaframeEvents	yes	yes
Reliability Server	yes	yes
twpopup	yes	yes

The following Desktop Delivery Controller System event log sources are being monitored:

System EventLog Source Name	DDC 4.0	DDC 3.0
CPSLicensing	yes	yes
CtxSbx	yes	yes
IMABrowserSS	yes	yes
IMAService	yes	yes
MetaFrame	yes	yes

The following policies implement Event Log forwarding.

- CTXSPI-FwdCitrixDDCAppWarnError
Forwards all Citrix Desktop Delivery Controller Application warning and error event log entries.
- CTXSPI-FwdCitrixDDCSysWarnError
Forwards all Citrix Desktop Delivery Controller System warning and error event log entries.
- CTXSPI-FwdCitrixDDCAppInfo
Forwards all Citrix Desktop Delivery Controller Application informational event log entries.
- CTXSPI-FwdCitrixDDCSysInfo
Forwards all Citrix Desktop Delivery Controller System informational event log entries.

Interacting with Services

A number of tools allow interacting with Citrix Desktop Delivery Controller services. These are located in the **SPI for Citrix / CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Services** tool group. They allow starting, stopping, and checking the status of relevant services:

- CTXSPI-Start <service name> service
Starts the specified service on the managed node.

- CTXSPI-Stop *<service name>* Service
Stops the specified service on the managed node.
- CTXSPI-Status Desktop Delivery Controller Services
Shows the status of installed Desktop Delivery Controller services.

Monitoring Citrix Desktop Delivery Controller Desktop Groups

Managing Citrix Desktop Delivery Controller desktop groups involves managing and monitoring virtual desktops and virtual desktop groups.

Overview

This section contains the following information:

- notes on deploying the policies for monitoring Citrix Desktop Delivery Controller desktop groups (refer to [“Setting Up Citrix Desktop Delivery Controller Desktop Groups Monitoring”](#) on page 74)
- which policies are needed for monitoring Citrix Desktop Delivery Controller desktop groups (refer to [“Policies”](#) on page 74)

Setting Up Citrix Desktop Delivery Controller Desktop Groups Monitoring

To monitor Citrix Desktop Delivery Controller desktop groups, deploy the **SPI for Citrix / CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Quick Start / CTXSPI-DDC Desktops** policy group to all managed nodes.

Policies

To set up monitoring of the Citrix Desktop Delivery Controller desktop groups, deploy the following policies:

- CTXSPI-ChkDesktopUtilization
- CTXSPI-ChkNotRegisteredDesktops

Depending on your needs, also consider deploying some of the following policies:

SPI for Citrix / CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Additional

- CTXSPI-ChkIdleDesktops
- CTXSPI-ChkNumberOfUsers
- CTXSPI-ChkUnassignedDesktops
- CTXSPI-ChkXDSEssionsActive
- CTXSPI-ChkXDSEssionsAll
- CTXSPI-ChkXDSEssionsDisconnected
- CTXSPI-ChkXDSEssionsGroupActive
- CTXSPI-ChkXDSEssionsGroupAll
- CTXSPI-ChkXDSEssionsGroupDisconnected

How It Works

Monitoring Virtual Desktops

When a virtual desktop is started by Desktop Delivery Controller, it takes some time before operating system is fully loaded and desktop can be used by the users. If desktop startup takes too long or something goes wrong during boot, virtual desktop stays powered on and locked in the state *Not Registered*, and should be checked and restarted by the operator.

The following policy implements monitoring of virtual desktops:

- `CTXSPI-ChkNotRegisteredDesktops`
Checks for virtual desktops that are powered up and in the state *Not Registered* for more than one consecutive policy executions.

Monitoring Virtual Desktop Groups

Monitoring Virtual Desktop Groups is very important for the correct configuration and capacity planning in the XenDesktop environment. If all virtual desktops in a group are in use, virtual desktop group becomes unavailable to new users. The `CTXSPI-ChkDesktopUtilization` policy sends an alert before this can happen. Similar problem exists, if the policy group assignment type is set to *Assign on first use*, where all users gets their own virtual desktop and all virtual desktops in a group are already assigned to other users.

The `CTXSPI-ChkNotRegisteredDesktops` policy monitors the state of each virtual desktop that was started by Desktop Delivery Controller. If virtual desktop's operating system does not load successfully, a message is sent to the operator. This can happen because of the communication problem with DHCP or Provisioning server or any other OS-related problem, and in every case requires from operator to resolve the problem.

Another important feature is monitoring Idle Pool for each virtual desktop group. If the idle pool is set to low, new users may have to wait for awhile before a new virtual desktop is started so they can start a session.

Other policies in this group are also useful for capacity planing.

The following policies implement monitoring of virtual desktop groups:

- `CTXSPI-ChkDesktopUtilization`
Monitors desktop utilization for each desktop group in a farm.
- `CTXSPI-ChkIdleDesktops`
Monitors the number of idle desktops in each desktop group in a farm.
- `CTXSPI-ChkNumberOfUsers`

Monitors the number of currently connected users in a farm.

- CTXSPI-ChkUnassignedDesktops
Monitors the number of unassigned virtual desktops in a desktop group.
- CTXSPI-ChkXDSEssionsActive
Monitors the number of active XenDesktop sessions in a farm.
- CTXSPI-ChkXDSEssionsAll
Monitors the number of all XenDesktop sessions in a farm.
- CTXSPI-ChkXDSEssionsDisconnected
Monitors the number of disconnected XenDesktop sessions in a farm.
- CTXSPI-ChkXDSEssionsGroupActive
Monitors the number of active XenDesktop sessions in a group.
- CTXSPI-ChkXDSEssionsGroupAll
Monitors the number of all XenDesktop sessions in a group.
- CTXSPI-ChkXDSEssionsGroupDisconnected
Monitors the number of disconnected XenDesktop sessions in a group.

Customizing Policies for Monitoring Virtual Desktop Groups

Some of the policies for monitoring virtual desktop groups can be customized. This is useful, if you need different thresholds for each desktop group. Those policies are:

- CTXSPI-ChkDesktopUtilization
- CTXSPI-ChkXDSEssionsGroupActive
- CTXSPI-ChkXDSEssionsGroupAll
- CTXSPI-ChkXDSEssionsGroupDisconnected

By default, all policies are monitoring all desktop groups. If you want to monitor a particular desktop group, you should do the following:

1. Make a copy of the policy you want to customize
2. Open a new policy and change the program parameters: replace the last word `all` with the name of the desktop group. If desktop group name contains spaces or special characters, you must put it in quotes.

Managing Citrix Desktop Delivery Controller Service Map

SPI for Citrix offers autodiscovery of Citrix Desktop Delivery Controller servers.

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix Desktop Delivery Controller nodes (refer to [“Setting up Citrix Desktop Delivery Controller Service Map Management”](#) on page 77)
- which policies are needed for monitoring Citrix Desktop Delivery Controller service map (refer to [“Policies”](#) on page 77)
- which tools are needed for managing Citrix Desktop Delivery Controller service map (refer to [“Tools”](#) on page 77)

Setting up Citrix Desktop Delivery Controller Service Map Management

To monitor and manage Citrix Desktop Delivery Controller service map, deploy the **SPI for Citrix / CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Discovery** policy group to all Citrix Desktop Delivery Controller managed nodes.

Policies

To set up and manage the Citrix Desktop Delivery Controller service map, deploy the following policies:

- CTXSPI-ChkServiceModel
- CTXSPI-DscServiceModel2

Tools

To manage the Citrix Desktop Delivery Controller service map, SPI for Citrix provides the following tool:

SPI for Citrix / CTXSPI-Desktop Delivery Controller / CTXSPI-DDC Discovery

- CTXSPI-Force Service Model Update

How It Works

Generating Citrix Desktop Delivery Controller Service Map

For instructions on how to perform autodiscovery and generate the Citrix Desktop Delivery Controller service map, refer to [Chapter 3, “Setting Up the Environment”](#).

Collecting Citrix Desktop Delivery Controller Performance Information

SPI for Citrix graphs and reports for Citrix Desktop Delivery Controller require that performance data is being collected on all Citrix Desktop Delivery Controller nodes that are being managed. Without these policies deployed, SPI for Citrix graphs and reports for Citrix Desktop Delivery Controller will remain empty.

Overview

This section contains the following information:

- which policies are needed for collecting Citrix Desktop Delivery Controller performance data (refer to [“Policies” on page 79](#))

Policies

To collect Citrix Desktop Delivery Controller performance data, deploy the following policies:

SPI for Citrix / CTXSPI-Desktop Deliver Controller / CTXSPI-DDC Data Collection

- CTXSPI-DDCServicesLogging
- CTXSPI-LogDDCConfig
- CTXSPI-LogDDCUtil

How It Works

Citrix Desktop Delivery Controller Data Collection

SPI for Citrix reports and graphs rely on performance data being collected on the managed nodes. Performance data is stored in the Embedded Performance Component of the HPOM agent. Another name for this performance component is also the CODA subagent.

The following policies collect data on the Citrix Desktop Delivery Controller managed nodes:

- CTXSPI-DDCServicesLogging
Collects performance information about Citrix services. Information includes CPU, physical, and virtual memory consumption.

- `CTXSPI-LogDDCConfig`
Collects basic server configuration information.
- `CTXSPI-LogDDCUtil`
Collects current virtual desktop usage for each desktop group in the farm.

Chapter 6

Managing Citrix Provisioning Servers

About Managing Citrix Provisioning Servers

This chapter contains information for setting up management of Citrix Provisioning Servers. It provides information on policies and tools, needed to monitor and manage Citrix Provisioning Servers, and describes how you can employ these policies and tools.

Managing Citrix Provisioning Servers involves the following:

- [“Managing Citrix Provisioning Server Services” on page 83](#)
- [“Monitoring Citrix Provisioning Server Temporary Storage” on page 86](#)
- [“Monitoring Citrix Provisioning Server Network Traffic” on page 88](#)
- [“Managing Citrix Provisioning Server Service Map” on page 89](#)
- [“Collecting Citrix Provisioning Server Controller Performance Information” on page 91](#)

Managing Citrix Provisioning Server Services

Managing Citrix Provisioning Server services involves managing and monitoring the following software items:

- Mandatory and optional Provisioning Server services
- System and Application event-log messages related to the above services

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix Provisioning Server nodes (refer to [“Setting Up Citrix Provisioning Server Services Management” on page 83](#))
- which policies are needed for monitoring Citrix Provisioning Server services (refer to [“Policies” on page 83](#))
- which tools are needed for managing Citrix Provisioning Server services (refer to [“Tools” on page 83](#))

Setting Up Citrix Provisioning Server Services Management

To monitor and manage Citrix Provisioning Server services, deploy the **SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Quick Start / CTXSPI-PVS Services** policy group to all managed nodes:

Policies

To set up management of the Citrix Provisioning Server services, deploy the following policies:

- CTXSPI-ChkPVSServices
- CTXSPI-FwdCitrixPVSApWarnError

Depending on your needs, also consider deploying the following policy:

SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Additional

- CTXSPI-FwdCitrixPVSApInfo

Tools

To manage the Citrix Provisioning Server services, SPI for Citrix provides the tools in the following tool group:

SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Services

- . CTXSPI-Start Citrix PVS BOOTP Service
- . CTXSPI-Start Citrix PVS PXE Service
- . CTXSPI-Start Citrix PVS Ramdisk Server Service
- . CTXSPI-Start Citrix PVS Soap Server Service
- . CTXSPI-Start Citrix PVS Stream Service
- . CTXSPI-Start Citrix PVS TFTP Service
- . CTXSPI-Start Citrix PVS Two-Stage Boot Service
- . CTXSPI-Status Provisioning Server Services
- . CTXSPI-Stop Citrix PVS BOOTP Service
- . CTXSPI-Stop Citrix PVS PXE Service
- . CTXSPI-Stop Citrix PVS Ramdisk Server Service
- . CTXSPI-Stop Citrix PVS Soap Server Service
- . CTXSPI-Stop Citrix PVS Stream Service
- . CTXSPI-Stop Citrix PVS TFTP Service
- . CTXSPI-Stop Citrix PVS Two-Stage Boot Service

How It Works

Service Monitoring Policies

Citrix Provisioning Server product employs several Windows services. Not all of them are required for correct operation of the Citrix Provisioning Server, a few optional services can be turned on only when you want to use a specific Citrix Provisioning Server capability.

The table below lists all Citrix Provisioning Server services:

Service Name	PVS 5.x
Citrix PVS BOOTP Service	yes
Citrix PVS PXE Service	yes
Citrix PVS Ramdisk Server Service	yes
Citrix PVS Soap Server Service	yes
Citrix PVS Stream Service	yes
Citrix PVS TFTP Service	yes
Citrix PVS Two-Stage Boot Service	yes

The following policy implements Citrix Provisioning Server service monitoring:

- CTXSPI-ChkPVSServices
Monitors the state of all required and optional Citrix Provisioning Server services.

Windows Event Log Forwarding Policies

Citrix Provisioning Server services log the internal issues they detect to the Windows Event Log. To early detect issues that may be developing, it is essential to monitor Windows Event Logs. The following Provisioning Server Application event log sources are being monitored:

Application EventLog Source Name	PVS 5.x
SoapService	yes
StreamService	yes
StreamProcess	yes
SoapServer	yes
PVSTSB	yes
BNTFTP	yes
BNPXE	yes
BNBOOTP	yes

The following policies implement Event Log forwarding.

- CTXSPI-FwdCitrixPVSApWarnError
Forwards all Citrix Provisioning Server Application warning and error event log entries.
- CTXSPI-FwdCitrixPVSApInfo
Forwards all Citrix Provisioning Server Application informational event log entries.

Interacting with Services

A number of tools allow interacting with Citrix Provisioning Server services. These are located in the **SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Services** tool group. They allow starting, stopping, and checking the status of relevant services:

- CTXSPI-Start <service name> Service
Starts the specified service on the managed node.
- CTXSPI-Stop <service name> Service
Stops the specified service on the managed node.

Monitoring Citrix Provisioning Server Temporary Storage

Managing Provisioning Server temporary storage involves monitoring device disk cache size and RAM disk cache utilization.

Overview

This section contains the following information:

- notes on deploying the policies for monitoring Citrix Provisioning Server temporary storage (refer to [“Setting Up Citrix Provisioning Server Temporary Storage Monitoring”](#) on page 86)
- which policies are needed for monitoring Citrix Provisioning Server temporary storage (refer to [“Policies”](#) on page 86)

Setting Up Citrix Provisioning Server Temporary Storage Monitoring

To monitor Provisioning Server temporary storage, deploy the **SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Quick Start / CTXSPI-PVS Storage** policy group to all managed nodes.

Policies

To set up monitoring of the Provisioning Server temporary storage, deploy the following policies:

- CTXSPI-ChkDesktopRamCache
- CTXSPI-ChkDiskCacheSize

How It Works

Monitoring Device Disk Cache Size

Every device has to have some sort of disk cache during operation, and because it cannot write to a provisioned system disk, Provisioning Server provides several options of cache implementations. If virtual disk cache type is set to `Cache on server disk` or `Cache encrypted on server disk`, every device is saving its temporary data to a file in the server’s store. Monitoring policy is checking the size of these files.

The following policy implements monitoring of Device disk cache size:

- CTXSPI-ChkDiskCacheSize

Monitors the size of the device disk cache on a server.

Monitoring Device RAM Disk Cache Utilization

Another option for disk caching is to use part of the device's RAM as a RAM disk for temporary files. The size of the RAM disk is set on Provisioning Server. It is important to monitor RAM disk utilization, because if it is 100%, the device may crash.

The following policy implements monitoring of Device RAM Disk cache utilization:

- CTXSPI-ChkDesktopRamCache
Monitors virtual desktop RAM disk utilization.

Monitoring Citrix Provisioning Server Network Traffic

SPI for Citrix offers monitoring of Citrix Provisioning Server network traffic.

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix Provisioning Server nodes (refer to [“Setting up Citrix Provisioning Server Network Traffic Monitoring” on page 88](#))
- which policies are needed for monitoring Citrix Provisioning Server network traffic (refer to [“Policies” on page 88](#))

Setting up Citrix Provisioning Server Network Traffic Monitoring

To monitor Citrix Provisioning Server network traffic, deploy the **SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Quick Start / CTXSPI-PVS Network** policy group to all Citrix Provisioning Server managed nodes.

Policies

To set up and manage the Citrix Desktop Delivery Controller service map, deploy the following policies:

- CTXSPI-ChkNetworkLoad
- CTXSPI-ChkNetworkTraffic

How It Works

Monitoring Citrix Provisioning Server Network Traffic

When Citrix Provisioning Server has many device connections, the most common bottleneck are server’s network connections. It is essential to monitor network throughput and utilization. The following policies implement Provisioning Server network traffic monitoring:

- CTXSPI-ChkNetworkLoad
Checks network load on a system.
- CTXSPI-ChkNetworkTraffic
Checks the number of mega bytes per second which are sent and received over network adapters on a system.

Managing Citrix Provisioning Server Service Map

SPI for Citrix offers autodiscovery of Citrix Provisioning Servers.

Overview

- notes on deploying SPI for Citrix on Citrix Provisioning Server nodes (refer to [“Setting up Citrix Provisioning Server Service Map Management”](#) on page 89)
- which policies are needed for monitoring Citrix Provisioning Server services (refer to [“Policies”](#) on page 89)
- which tools are needed for managing Citrix Provisioning Server services (refer to [“Tools”](#) on page 89)

Setting up Citrix Provisioning Server Service Map Management

To monitor and manage Citrix Provisioning Server service map, deploy the **SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Discovery** policy group to all Citrix Provisioning Server managed nodes.

Policies

To set up and manage the Citrix Provisioning Server service map, deploy the following policies:

- CTXSPI-ChkServiceModel
- CTXSPI-DscServiceModel2

Tools

To manage the Citrix Provisioning Server service map, SPI for Citrix provides the tool in the following tool group:

SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Discovery

- CTXSPI-Force Service Model Update

How It Works

Generating Citrix Desktop Delivery Controller Service Map

For instructions on how to perform autodiscovery and generate the Citrix Provisioning Server service map, refer to [“Autodiscovery of the Citrix Environment” on page 19](#).

Collecting Citrix Provisioning Server Controller Performance Information

SPI for Citrix graphs and reports for Citrix Provisioning Server require that performance data is being collected on all Citrix Provisioning Server nodes that are being managed. Without these policies deployed, SPI for Citrix graphs and reports for Citrix Provisioning Server will remain empty.

Overview

This section contains the following information:

- which policies are needed for collecting Citrix Provisioning Server performance data (refer to [“Policies” on page 91](#))

Policies

The following policies are required to collect Citrix Provisioning Server performance data:

SPI for Citrix / CTXSPI-Provisioning Server / CTXSPI-PVS Data Collection

- CTXSPI-PVSServicesLogging
- CTXSPI-LogNetworkLoad
- CTXSPI-LogPVSCache
- CTXSPI-LogPVSConfig

How It Works

Citrix Provisioning Server Data Collection

SPI for Citrix reports and graphs rely on performance data being collected on the managed nodes. Performance data is stored in the Embedded Performance Component of the HPOM agent. Another name for this performance component is also the CODA subagent.

The following policies collect data on the Citrix Provisioning Server managed nodes:

- CTXSPI-PVSServicesLogging
Collects performance information about Citrix services. Information includes CPU, physical, and virtual memory consumption.
- CTXSPI-LogNetworkLoad

Collects network load and utilization.

- CTXSPI-LogPVSCache
Collects virtual desktop vdisk cache data.
- CTXSPI-LogPVSConfig
Logs a specific configuration information for Provisioning Server.

Chapter 7

Managing Citrix License Servers

About Managing Citrix License Servers

This chapter contains information for setting up management of Citrix License Servers. It provides information on policies and tools, needed to monitor and manage Citrix License Servers, and describes how you can employ these policies and tools.

Managing Citrix License Servers involves the following:

- [“Managing Citrix License Server Services” on page 95](#)
- [“Managing Citrix License Server Licenses” on page 98](#)
- [“Managing Citrix License Server Service Map” on page 100](#)
- [“Collecting Citrix License Server Performance Information” on page 102](#)

Managing Citrix License Server Services

Managing Citrix License Server services involves managing and monitoring the following:

- Citrix License Server-related services
- Citrix License Server-related Windows Event Log entries

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix License Server nodes (refer to [“Setting Up Citrix License Server Services Management” on page 95](#))
- which policies are needed for monitoring Citrix License Server services (refer to [“Policies” on page 95](#))
- which tools are needed for managing Citrix License Server services (refer to [“Tools” on page 95](#))

Setting Up Citrix License Server Services Management

To monitor and manage Citrix License Server services, deploy the **SPI for Citrix / CTXSPI-Citrix License Server / CTXSPI-CLS Quick Start** and **CTXSPI-Citrix License Server / CTXSPI-CLS Additional** policy groups to all Citrix License Server managed nodes.

Policies

To set up management of the Citrix License Server services, deploy the following policies:

- CTXSPI-ChkCitrixLSServices
- CTXSPI-FwdCitrixLSAppWarnError

Depending on your needs, also consider deploying some of the following policies:

SPI for Citrix / CTXSPI-Citrix License Server / CTXSPI-CLS Additional

- CTXSPI-FwdCitrixLSAppInfo

Tools

To manage the Citrix License Server services, SPI for Citrix provides the tools in the following tool group:

SPI for Citrix / CTXSPI-Citrix License Server / CTXSPI-CLS Services

- . CTXSPI-Start Citrix Licensing Service
- . CTXSPI-Start Citrix Licensing WMI Service
- . CTXSPI-Start License Management Console for Citrix Licensing Service
- . CTXSPI-Start Citrix License Server Port Updater Service
- . CTXSPI-Status Citrix License Server Services
- . CTXSPI-Stop Citrix License Server Port Updater Service
- . CTXSPI-Stop Citrix Licensing Service
- . CTXSPI-Stop Citrix Licensing WMI Service
- . CTXSPI-Stop License Management Console for Citrix Licensing Service

How It Works

Service Monitoring Policies

Citrix License Server is manipulated as a single Windows service, although internally it consists of two daemons:

- . license manager daemon
- . Citrix vendor daemon

Citrix Licensing WMI service allows accessing Citrix licensing information through WMI.

A separate service, License Management Console for Citrix Licensing service, allows License Management Console to access licensing information.

The table below lists all Citrix License Server services and versions of XenApp product they are delivered as part of:

Service Name	XA 5.0	PS 4.5	PS 4.0	PS 3.0
Citrix Licensing Service	yes	yes	yes	yes
Citrix Licensing WMI Service	yes	yes	yes	yes
License Management Console for Citrix Licensing Service	yes	yes	yes	yes
License Server Port Updater Service	yes			

The following policy implements Citrix License Server service monitoring:

- . CTXSPI-chkCitrixLSServices
Monitors all Citrix License Server services (listed in the table above) if they are in running state.

Windows Event Log Forwarding Policies

Citrix License Server services log the internal issues they detect to the Windows Event Log. To early detect issues that may be developing, it is essential to monitor the Application Windows Event Log. The following Citrix License Server Application event log sources are being monitored:

Application EventLog Source Name	XA 5.0	PS 4.5	PS 4.0	PS 3.0
CITRIX_LicenseServer	yes	yes	yes	yes
CTXLMC	yes	yes	yes	yes
lmgrd_LicenseServer	yes	yes	yes	yes

The following policies implement Event Log forwarding.

- CTXSPI-FwdCitrixLSAppWarnError
Forwards Citrix License Server-related warning and error messages from the Windows Application event log.
- CTXSPI-FwdCitrixLSAppInfo
Forwards Citrix License Server-related informational messages from the Windows Application event log.

Interacting with Services

A number of tools allow interacting with Citrix License Server services. These are located in the **SPI for Citrix / CTXSPI-Citrix License Server / CTXSPI-CLS Services** tool group. They allow starting, stopping, and checking the status of relevant services:

- CTXSPI-Start *<service name>* Service
Starts the specified service on the managed node.
- CTXSPI-Status Citrix License Server Services
Shows the status of all Citrix License Server services.
- CTXSPI-Stop *<service name>* Service
Stops the specified service on the managed node.

Managing Citrix License Server Licenses

Managing Citrix License Server licenses involves managing and monitoring the following:

- Monitoring Citrix license use
- Viewing Citrix license use information
- Performing license check-out diagnostics

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix License Server nodes (refer to [“Setting Up Citrix License Server Licenses Management” on page 98](#))
- which policies are needed for monitoring Citrix License Server licenses (refer to [“Policies” on page 98](#))
- which tools are needed for managing Citrix License Server licenses (refer to [“Tools” on page 98](#))

Setting Up Citrix License Server Licenses Management

To monitor and manage Citrix License Server licenses, deploy the **SPI for Citrix / CTXSPI-Citrix License Server / CTXSPI-CLS Quick Start** policy group to all Citrix License Server managed nodes.

Policies

To set up management of the license on Citrix License Server systems, deploy the following policies:

- CTXSPI-ChkCitrixLSLicenseUse

Tools

To monitor and manage Citrix License Server licenses, SPI for Citrix provides the following tools:

SPI for Citrix / CTXSPI-Citrix License Server / CTXSPI-CLS Information

- CTXSPI-Display License Use Information
- CTXSPI-Display License Use Details
- CTXSPI-Display License Checkout Diagnostics

How It Works

Monitoring Citrix License Use

Citrix License Server is responsible for maintaining licenses for a variety of Citrix products. For Citrix XenApp product, it typically maintains information on two types of licenses:

- server licenses (also called Citrix Start-up License)
- concurrent user licenses (their name depends on the product for which they can be used)

The following policy implements monitoring of Citrix License Server license use:

- `CTXSPI-ChkCitrixLSLicenseUse`
Monitors the license utilization for all Citrix License Server license types.

Viewing Citrix License Use Information

The following tools allow viewing of the Citrix License Server license use information:

- `CTXSPI-Display License Use Information`
Displays Citrix License Server license use information.
- `CTXSPI-Display License Use Details`
Displays detailed Citrix License Server license use information.

Performing License Check-out Diagnostics

The following tool allows performing the Citrix License Server license check-out diagnostics:

- `CTXSPI-Display License Checkout Diagnostics`
Displays Citrix License Server license check-out diagnostics.

Managing Citrix License Server Service Map

SPI for Citrix offers autodiscovery of Citrix License Servers.

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix License Server nodes (refer to [“Setting Up Citrix License Server Service Map Management” on page 100](#))
- which policies are needed for monitoring Citrix License Server service map (refer to [“Policies” on page 100](#))
- which tools are needed for managing Citrix License Server service map (refer to [“Tools” on page 100](#))

Setting Up Citrix License Server Service Map Management

To monitor and manage Citrix License Server service map, deploy the **SPI for Citrix / CTXSPI-Citrix License Server / CTXSPI-CLS Discovery** policy group to all Citrix License Server managed nodes.

Policies

To set up and manage the Citrix License Server service map, deploy the following policies:

- CTXSPI-ChkServiceModel
- CTXSPI-DscServiceModel2

Tools

To manage the Citrix License Server service map, SPI for Citrix provides the following tool:

SPI for Citrix / CTXSPI-Citrix License Server / CTXSPI-CLS Discovery

- CTXSPI-Force Service Model Update

How It Works

Generating Citrix License Server Service Map

For instructions on how to perform autodiscovery and generate the Citrix License Server service map, refer to [Chapter 3, “Setting Up the Environment”](#).

Collecting Citrix License Server Performance Information

SPI for Citrix graphs and reports for Citrix License Servers require that performance data is being collected on all Citrix License Server nodes that are being managed. Without these policies deployed, SPI for Citrix graphs and reports for Citrix License Servers will remain empty.

Overview

This section contains the following information:

- which policies are needed for collecting Citrix License Server performance data (refer to [“Policies” on page 102](#))

Policies

The following policy is required to collect Citrix License Server performance data:

SPI for Citrix / CTXSPI-Citrix License Server / CTXSPI-CLS Data Collection

- CTXSPI-LogCitrixLSLicenseUse

How It Works

Citrix License Server Data Collection

SPI for Citrix reports and graphs rely on performance data being collected on the managed nodes. Performance data is stored in the Embedded Performance Component of the HPOM agent. Another name for this performance component is also the CODA subagent.

The following policy collects data on the Citrix License Server managed nodes:

- CTXSPI-LogCitrixLSLicenseUse
Collects Citrix License Server license use information like number of available and used licenses, and license utilization for each license feature installed.

Chapter 8

Managing Citrix Web Interface Servers

About Managing Citrix Web Interface Servers

The Web Interface provides users with access to XenApp applications and content and XenDesktop virtual desktops. Users access their published resources through a standard Web browser or through Citrix XenApp (formerly Program Neighborhood Agent).

This chapter contains information for setting up management of Citrix Web Interface Servers. It provides information on policies and tools, needed to monitor and manage Citrix Web interface Servers, and describes how you can employ these policies and tools.

Managing Citrix Web Interface Servers involves the following:

- [“Setting Up Web Interface Monitoring” on page 105](#)
- [“Managing Citrix Web Interface User Logons” on page 106](#)
- [“Managing Citrix Web Interface Availability” on page 109](#)
- [“Managing Citrix Web Interface Service Map” on page 114](#)
- [“Collecting Citrix Web Interface Server Performance Information” on page 116](#)

Setting Up Web Interface Monitoring

Before you can use any Web Interface passive monitoring policies or tools, you need to correctly set up monitoring of the Citrix Web Interface systems. Web Interface monitoring integrates with IIS web server using the IIS filter and IIS extension in order to intercept user interaction with the Citrix Web Interface web pages.

NOTE

Only execute these tools as part of the installation/uninstallation procedure described in the *SPI for Citrix Installation and Configuration Guide*.

IMPORTANT

Installing and uninstalling Web Interface monitoring restarts Internet Information Server (IIS) on the managed node, so plan the running of tools carefully.

Tools for setting up Web Interface Monitoring are located in the **SPI for Citrix / CTXSPI-Web Interface / CTXSPI-WI Configure** tool group:

- **CTXSPI-Install WI Monitoring**
Installs CTXSPI Web Interface Monitoring components. This operation needs to restart IIS. You must provide an `allow_iis_restart` parameter to allow it. Otherwise, WI Monitoring components are not going to be installed.
- **CTXSPI-Uninstall WI Monitoring**
Uninstalls CTXSPI Web Interface Monitoring components. This operation needs to restart IIS. You must provide `allow_iis_restart` as a parameter to allow it. Otherwise, WI Monitoring components are not going to be uninstalled.

Managing Citrix Web Interface User Logons

Managing Citrix Web Interface user logons involves managing and monitoring the following:

- Failed logons
- Logon process duration

IMPORTANT

Only Citrix Web Interface "Explicit" login types can be managed. "Pass-through" login type is not supported.

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix Web Interface Server nodes (refer to [“Setting Up Citrix Web Interface User Logons Management” on page 106](#))
- which policies are needed for monitoring Citrix Web Interface user logons (refer to [“Policies” on page 106](#))
- which tools are needed for managing Citrix Web Interface user logons (refer to [“Tools” on page 107](#))

Setting Up Citrix Web Interface User Logons Management

To monitor and manage Citrix Web Interface user logons, deploy the **SPI for Citrix / CTXSPI-Web Interface / CTXSPI-WI Quick Start** policy group to all Citrix Web Interface Server managed nodes.

Policies

To set up management of the Citrix Web Interface user logons, deploy the following policies:

- CTXSPI-ChkwebInterfaceFailedLogons
- CTXSPI-ChkwebInterfaceLogonTime
- CTXSPI-FwdCitrixWIAppwarnError

Depending on your needs, also consider deploying the following policy:

SPI for Citrix / CTXSPI-Web Interface / CTXSPI-WI Additional

- CTXSPI-FwdCitrixWIAppInfo

Tools

To manage the Citrix Web Interface user logons, SPI for Citrix provides the following tools:

SPI for Citrix / Web Interface / CTXSPI-WI Information

- CTXSPI-WI Display Last Failed Logins
- CTXSPI-WI Display Last Logins
- CTXSPI-WI Display Last Successful Logins

How It Works

Monitoring User Logons

Explicit login type on Citrix Web Interface requires users to enter the username and password in order to access Citrix published applications. Using this information, Web Interface is able to authenticate the user and obtain list of published applications a specific user is allowed to use. After successful authentication, the list of published applications is most of the time provided instantly. But sometimes this can take quite some time (if completed at all) and can get users frustrated.

The following policies help monitoring Citrix Web Interface user logons:

- CTXSPI-ChkWebInterfaceFailedLogons
Monitors for presence of a number of subsequent failed user logons. Failed user logon means that user was not able to logon to the Web Interface after providing username and password. A large number of subsequent failed user logons can indicate an issue with Web Interface or its connectivity to farm.
- CTXSPI-ChkWebInterfaceLogonTime
Monitors user logon duration for each user that logs on to the Web Interface.

Displaying User Logons

Besides monitoring, it can often be useful to inspect the user logon history on individual Citrix Web Interface.

The following tools can be used to view Web Interface user logons:

- CTXSPI-WI Display Last Failed Logins
Displays users that failed to authenticate to Web Interface in the last x seconds (x is a configurable parameter).
- CTXSPI-WI Display Last Logins
Displays all users that logged in to Web Interface in the last x seconds (x is a configurable parameter).

- **CTXSPI-WI Display Last Successful Logins**
Displays users that successfully logged in to Web Interface in the last x seconds (x is a configurable parameter).

Windows Event Log Forwarding Policies

Citrix Web Interface logs the internal issues it detects to the Windows Event Log. To early detect issues that may be developing, it is essential to monitor the Application Windows Event Log. The following Citrix Web Interface server Application event log sources are being monitored:

Application EventLog Source Name	WI 5.x	WI 4.x
Citrix Web Interface	Yes	Yes
Web Interface	Yes	Yes
Citrix Web Interface XenApp Services	Yes	No
Citrix Delivery Services Protocol Transition Service	Yes	No

The following policies implement Event Log forwarding:

- **CTXSPI-FwdCitrixWIAppInfo**
Forwards Citrix Web Interface-related informational messages from the Windows Application event log.
- **CTXSPI-FwdCitrixWIAppWarnError**
Forwards Citrix Web Interface-related warning and error messages from the Windows Application event log.

Managing Citrix Web Interface Availability

The Web Interface provides users with access to the Citrix XenApp applications and content through a standard Web browser by exchanging information with the XML brokers. XML broker is any Citrix XenApp server configured to handle XML requests via XML Service (the default behavior of any Citrix XenApp server). It is a link between the farm it belongs to and the outer world (Web Interface). One Web Interface site can aggregate applications from many farms and more than one XML broker can be configured for one farm.

SPI for Citrix is able to actively monitor the availability of Web Interface and its dependant components by simulating end-user's activity on it. For this purpose, a special user account that is used for availability probing is required. See the *SPI for Citrix Installation Guide*, chapter *Setting Up Web Interface Availability User Account* on how to set up this account.

SPI for Citrix is also able to monitor for potential issues by probing all members of the configured Web Interface infrastructure. For example, if there are more than one XML brokers defined for one farm and one of them is not responding to the Web Interface, the end-user might only experience longer logon time. But from the infrastructural point of view, the administrator should be notified if any XML broker is experiencing problems, therefore the probing process covers three availability types:

- Web Interface site availability
- farm availability
- broker availability

Web Interface site availability represents end-user's experience and is divided into two phases:

- Accessing the Web Interface logon page
- User authentication and authorization (enumeration of user's published applications across all configured farms)

Farm availability represents end-user's experience in a context of a single farm and is divided into two phases:

- Enumeration of user's published applications in the farm
- Requesting the published application and receiving the ICA file. This is further divided into:
 - Host address request (farm load balancing)
 - Ticket request

Broker availability is used for pinpointing infrastructural issues. It has only one phase - enumeration of user's published applications.

For each phase, SPI for Citrix measures its duration. Duration is also calculated for the complete probing process.

Managing Citrix Web Interface availability involves managing and monitoring the following:

- Monitoring the availability probing process
- Viewing availability information
- Manually executing probe to get immediate availability results

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix Web Interface Server nodes (refer to [“Setting Up Citrix Web Interface Availability” on page 110](#))
- which policies are needed for monitoring Citrix Web Interface availability (refer to [“Policies” on page 110](#))
- which tools are needed for managing Citrix Web Interface availability (refer to [“Tools” on page 111](#))

Setting Up Citrix Web Interface Availability

Before you can use Web Interface availability monitoring policies or tools, you need to correctly set up the Web Interface availability user account. See the *SPI for Citrix Installation Guide*, chapter *Setting Up Web Interface Availability User Account* on how to set up this account. Then deploy the **SPI for Citrix / CTXSPI-Web Interface / CTXSPI-WI Quick Start** policy group to the Web Interface manages nodes that will execute availability probing:

Policies

To set up management of the Citrix Web Interface availability, deploy the following policies:

- CTXSPI-ChkBrokerAvail
- CTXSPI-ChkBrokerAvailCompleted
- CTXSPI-ChkFarmAvail
- CTXSPI-ChkFarmAvailCompleted
- CTXSPI-ChkSiteAvail
- CTXSPI-ChkSiteAvailCompleted

Depending on your needs, also consider deploying some of the following policies:

SPI for Citrix / CTXSPI-Web Interface / CTXSPI-WI Additional

- CTXSPI-ChkBrokerAvailAppEnum
- CTXSPI-ChkFarmAvailAppEnum
- CTXSPI-ChkFarmAvailAppLB
- CTXSPI-ChkSiteAvailAppEnum
- CTXSPI-ChkSiteAvailAppLB
- CTXSPI-ChkSiteAvailLogonPage

Tools

To manage the Citrix Web Interface availability, SPI for Citrix provides the following tools:

SPI for Citrix / Web Interface / CTXSPI-WI Information

- CTXSPI-WI Display Recent Broker Availability
- CTXSPI-WI Display Recent Farm Availability
- CTXSPI-WI Display Recent Site Availability
- CTXSPI-WI Execute Site Availability Test

How It Works

Monitoring Availability

The following policies help monitoring Citrix Web Interface site availability:

- CTXSPI-ChkSiteAvail
Monitors the duration of Web Interface site availability.
- CTXSPI-ChkSiteAvailCompleted
Monitors whether all phases of Web Interface site availability have completed successfully.
- CTXSPI-ChkSiteAvailLogonPage
Monitors the time required for the Web Interface logon page to be delivered.
- CTXSPI-ChkSiteAvailAppEnum
Monitors the time required for the end-user published applications to be enumerated for all configured farms.
- CTXSPI-ChkSiteAvailAppLB
Monitors the time required for the end-user published applications to be load-balanced for all configured farms.

The following policies help monitoring farm (configured for particular Web Interface site) availability:

- `CTXSPI-ChkFarmAvail`
Monitors the duration of farm availability.
- `CTXSPI-ChkFarmAvailCompleted`
Monitors whether all phases of farm availability have completed successfully.
- `CTXSPI-ChkFarmAvailAppEnum`
Monitors the time required for the end-user published applications to be enumerated.
- `CTXSPI-ChkFarmAvailAppLB`
Monitors the time required for a published application to be load-balanced.

The following policies help monitoring XML broker (configured for particular farm) availability:

- `CTXSPI-ChkBrokerAvail`
Monitors the duration of broker availability.
- `CTXSPI-ChkBrokerAvailCompleted`
Monitors whether all phases of broker availability have completed successfully.
- `CTXSPI-ChkBrokerAvailAppEnum`
Monitors the time required for end-user published applications to be enumerated by individual XML broker.

Displaying Availability Probing Results

Besides monitoring, it can often be useful to inspect the availability probing history on the individual Citrix Web Interface server.

The following tools can be used to view Web Interface availability results:

- `CTXSPI-WI Display Recent Broker Availability`
Displays results of the recent broker availability measurements. Requires one of `ChkBrokerAvail` or `LogBrokerAvail` policies to be deployed.
- `CTXSPI-WI Display Recent Farm Availability`
Displays results of the recent farm availability measurements. Requires one of `ChkFarmAvail` or `LogFarmAvail` policies to be deployed.
- `CTXSPI-WI Display Recent Site Availability`
Displays results of the recent Web Interface site availability measurements. Requires one of `ChkSiteAvail` or `LogSiteAvail` policies to be deployed.

The following tool can be used to perform the probe of the site, farm, and broker availability and display its results:

- `CTXSPI-WI Execute Site Availability Test`

Executes a site availability test and displays test results.

Managing Citrix Web Interface Service Map

SPI for Citrix offers autodiscovery of Citrix Web Interface systems.

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix Web Interface Server nodes (refer to [“Setting Up Citrix Web Interface Server Service Map Management” on page 114](#))
- which policies are needed for monitoring Citrix Web Interface Server service map (refer to [“Policies” on page 114](#))
- which tools are needed for managing Citrix Web Interface Server service map (refer to [“Tools” on page 114](#))

Setting Up Citrix Web Interface Server Service Map Management

To monitor and manage Citrix Web Interface Server service map, deploy the **SPI for Citrix / CTXSPI-Web Interface / CTXSPI-WI Discovery** policy group to all Citrix Web Interface Server managed nodes.

Policies

To set up and manage the Citrix Web Interface Server service map, deploy the following policies:

- CTXSPI-ChkServiceModel
- CTXSPI-DscServiceModel2

Tools

To manage the Citrix Web Interface Server service map, SPI for Citrix provides the following tools:

SPI for Citrix / CTXSPI-Web Interface / CTXSPI-WI Discovery

- CTXSPI-Force Service Model Update

How It Works

Generating Citrix Web Interface Server Service Map

For instructions on how to perform autodiscovery and generate the Citrix Web Interface Server service map, refer to [Chapter 3, "Setting Up the Environment"](#).

Collecting Citrix Web Interface Server Performance Information

SPI for Citrix graphs and reports for Citrix Web Interface Server require that performance data is being collected on all Citrix Web Interface Server nodes that are being managed. Without these policies deployed, SPI for Citrix graphs and reports for Citrix Web Interface Servers will remain empty.

Overview

This section contains the following information:

- which policies are needed for collecting SPI for Citrix Citrix Web Interface Server performance data (refer to [“Policies” on page 116](#))

Policies

The following policies are required to collect SPI for Citrix Citrix Web Interface Server performance data:

SPI for Citrix / CTXSPI-Web Interface / CTXSPI-WI Data Collection

- CTXSPI-LogSiteAvail
- CTXSPI-LogWIFailedLogons
- CTXSPI-LogWIUserLogonProcess

How It Works

Citrix Web Interface Server Data Collection

SPI for Citrix reports and graphs rely on performance data being collected on the managed nodes. Performance data is stored in the Embedded Performance Component of the HPOM agent. Another name for this performance component is also the CODA subagent.

The following policies collect data on the Citrix Web Interface Server managed nodes:

- CTXSPI-LogSiteAvail
Collects data about Web Interface site availability. Data collected includes Web Interface URL, probing start time, the duration of the Web Interface logon page response, the duration of the application enumeration of all farms that are

configured for this site.

Collects data about farm availability. Data collected includes farm name, probing start time, the name of the XenApp server that was selected by the application load-balancing, the name of the requested application, the duration of the application enumeration, the duration of handing the application request, the duration of handling the host address request, the duration of handling the ticket request.

Collects data about XML broker availability. Data collected includes broker name, the name of the farm this broker belongs to, probing start time, the duration of the application enumeration.

- **CTXSPI-LogWIFailedLogons**
Collects data about failed logons on a Web Interface. Data collected includes username, Web Interface URL, and number of failed user logons that occurred since the last data collection.
- **CTXSPI-LogWIUserLogonProcess**
Collects data about user logons process duration for each user that logged-in to a Web Interface. Data collected includes username, Web Interface URL, logon start time and duration.

Chapter 9

Managing Citrix Secure Gateway Servers

About Managing Citrix Secure Gateway Servers

Citrix Secure Gateway is a Citrix infrastructure component you can use to secure access to server farms and access centers. It transparently encrypts and authenticates all user connections to protect against data tampering and theft.

Citrix Secure Gateway eases firewall traversal and provides a secure Internet gateway between Citrix servers and client devices. Typically, it is installed in the demilitarized zone on the network.

This chapter contains information for setting up management of Citrix Secure Gateway servers. It provides information on policies and tools, needed to monitor and manage Citrix Secure Gateway servers, and describes how you can employ these policies and tools.

Managing Citrix Secure Gateway servers involves the following:

- [“Managing Citrix Secure Gateway Services” on page 121](#)
- [“Managing Citrix Secure Gateway Sessions” on page 124](#)
- [“Managing Citrix Secure Gateway Service Map” on page 127](#)
- [“Collecting Citrix Secure Gateway Server Performance Information” on page 129](#)

Managing Citrix Secure Gateway Services

Managing Citrix Secure Gateway services involves managing and monitoring the following:

- Citrix Secure Gateway-related services
- Citrix Secure Gateway-related Windows Event Log entries

Overview

This section contains the following information:

- notes on deploying the SPI for Citrix on Citrix Secure Gateway Server nodes (refer to [“Setting Up Citrix Secure Gateway Services Management”](#) on page 121)
- which policies are needed for monitoring Citrix Secure Gateway services (refer to [“Policies”](#) on page 121)
- which tools are needed for managing Citrix Secure Gateway services (refer to [“Tools”](#) on page 121)

Setting Up Citrix Secure Gateway Services Management

To monitor and manage Citrix Secure Gateway services, deploy the **SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Quick Start** and **SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Additional** policy groups to all Citrix Secure Gateway managed nodes.

Policies

To set up management of the Citrix Secure Gateway services, deploy the following policies:

- CTXSPI-ChkCitrixSGService
- CTXSPI-FwdCitrixSGSecGwyWarnError

In addition, deploy the following policy:

SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Additional

- CTXSPI-FwdCitrixSGSecGwyInfo

Tools

To manage the Citrix Secure Gateway services, SPI for Citrix provides the following tools in the following tool group:

SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Services

- CTXSPI-Start Secure Gateway Service
- CTXSPI-Status Secure Gateway Service
- CTXSPI-Stop Secure Gateway Service

How It Works

Service Monitoring Policies

Citrix Secure Gateway is implemented as a single Windows service. The following policy implements Citrix Secure Gateway service monitoring:

- CTXSPI-ChkCitrixSGService
Monitors Citrix Secure Gateway service to check if it is in running state.

Windows Event Log Forwarding Policies

Citrix Secure Gateway service logs the internal issues it detects to the Windows Event Log. When installed, it introduces its own Event Log. To early detect issues that may be developing, it is essential to monitor the Secure Gateway Event Log. The following Citrix Secure Gateway event logs are being monitored:

Event Log Name	SG 3.2	SG 3.1	SG 3.0
Secure Gateway			yes
CitrixSecureGateway	yes	yes	

The following policies implement Event Log forwarding:

- CTXSPI-FwdCitrixSGSecGwyWarnError
Forwards Citrix Secure Gateway-related Warning and Error messages from the Windows Secure Gateway event log.
- CTXSPI-FwdCitrixSGSecGwyInfo
Forwards Citrix Secure Gateway-related Informational messages from the Windows Secure Gateway event log.

Interacting with Services

A set of tools allows interacting with Citrix Secure Gateway service. These are located in the **SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Services** tool group. They allow starting, stopping, and checking status of Citrix Secure Gateway service:

- CTXSPI-Start Secure Gateway Service

Starts a Citrix Secure Gateway service. The Citrix Secure Gateway service provides secure access to Citrix Presentation Server farms.

- **CTXSPI-Stop Secure Gateway Service**
Stops a Citrix Secure Gateway service. The Citrix Secure Gateway service provides secure access to Citrix Presentation Server farms.
- **CTXSPI-Status Secure Gateway Service**
Shows the status of a Citrix Secure Gateway service. The Citrix Secure Gateway service provides secure access to Citrix Presentation Server farms.

Managing Citrix Secure Gateway Sessions

Managing Citrix Secure Gateway sessions involves managing and monitoring the following:

- Citrix Secure Gateway-related sessions
- Citrix Secure Gateway-related Windows Event Log entries

Overview

This section contains the following information:

- notes on distributing the SPI for Citrix on Citrix Secure Gateway nodes (refer to [“Setting Up Citrix Secure Gateway Session Management”](#) on page 124)
- which policies are needed for monitoring Citrix Secure Gateway sessions (refer to [“Policies”](#) on page 124)

There are no tools available in SPI for Citrix to manage Citrix Secure Gateways sessions.

Setting Up Citrix Secure Gateway Session Management

To monitor and manage Citrix Secure Gateway sessions, deploy the **SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Quick Start** policy group to all Citrix Secure Gateway managed nodes.

Policies

To set up management of the Citrix Secure Gateway sessions, deploy the following policies:

SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Quick Start

- CTXSPI-ChkBytesSecFromClients
- CTXSPI-ChkBytesSecToClients
- CTXSPI-ChkClientConnectTimeAvg
- CTXSPI-ChkConnectionsSec
- CTXSPI-ChkSSLHandshakesSec
- CTXSPI-ChkSSLHandshakeTimeAvg
- CTXSPI-ChkTotalActiveConnections

Depending on your needs, also consider deploying some of the following policies:

SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Additional

- CTXSPI-SG32-ChkSSLHandshakesPending
- CTXSPI-SG32-ChkTotalPendingConnections
- CTXSPI-SG3-ChkSSLHandshakesPending
- CTXSPI-SG3-ChkTotalPendingConnections

How It Works

Network Resource Consumption

Network resource consumption can be monitored cumulatively across all active sessions.

Policies that monitor network resource consumption:

- CTXSPI-ChkBytesSecFromClients
Monitors the amount of bytes per second transferred from all connected clients to the Citrix Secure Gateway.
- CTXSPI-ChkBytesSecToClients
Monitors the amount of bytes per second transferred from the Citrix Secure Gateway to all connected clients.

Connection Process

Monitoring Citrix Secure Gateway connection process can give an insight into the ability of Citrix Secure Gateway to handle incoming connection requests. Under high load, the number of pending connections and the client connect time will typically increase.

Policies that monitor connection process on Citrix Secure Gateway:

- CTXSPI-ChkClientConnectTimeAvg
Monitors the average amount of time (in milliseconds) it takes for a client connection request to complete the connection process.
- CTXSPI-ChkConnectionsSec
Monitors the number of successfully completed client connection requests per second.
- CTXSPI-SG3-ChkTotalPendingConnections
Monitors the number of client connection requests that have not yet completed the connection process. The policy is designed for Citrix Secure Gateway 3.0 and 3.1.
- CTXSPI-SG32-ChkTotalPendingConnections
Monitors the number of client connection requests that have not yet completed the connection process. The policy is designed for Citrix Secure Gateway 3.2.

- `CTXSPI-SG3-ChkSSLHandshakesPending`
Monitors the number of SSL handshakes currently in progress between clients and the Citrix Secure Gateway. The policy is designed for Citrix Secure Gateway 3.0 and 3.1.
- `CTXSPI-SG32-ChkSSLHandshakesPending`
Monitors the number of SSL handshakes currently in progress between clients and the Citrix Secure Gateway. The policy is designed for Citrix Secure Gateway 3.2.
- `CTXSPI-ChkSSLHandshakesSec`
Monitors the number of successful SSL handshakes per second.
- `CTXSPI-ChkSSLHandshakeTimeAvg`
Monitors the average time (in milliseconds) for an SSL handshake to complete.

Active Connections

Monitoring the number of active sessions in correlation with other Citrix Secure Gateway performance metrics helps determine if and when the server is becoming overloaded.

Policies that monitor active session connections on Citrix Secure Gateway:

- `CTXSPI-ChkTotalActiveConnections`
Monitors the number of currently active Citrix Secure Gateway connections.

Managing Citrix Secure Gateway Service Map

SPI for Citrix offers autodiscovery of Citrix Secure Gateway servers.

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix Secure Gateway Server nodes (refer to [“Setting Up Citrix Secure Gateway Server Service Map Management” on page 127](#))
- which policies are needed for monitoring Citrix Secure Gateway Server service map (refer to [“Policies” on page 127](#))
- which tools are needed for managing Citrix Secure Gateway Server service map (refer to [“Tools” on page 127](#))

Setting Up Citrix Secure Gateway Server Service Map Management

To monitor and manage Citrix Secure Gateway Server service map, deploy the **SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Discovery** policy group to all Citrix Secure Gateway Server managed nodes.

Policies

To set up and manage the Citrix Secure Gateway Server service map, deploy the following policies:

- CTXSPI-ChkServiceModel
- CTXSPI-DscServiceModel2

Tools

To manage the Citrix Secure Gateway Server service map, SPI for Citrix provides the tools in the following tool group:

SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Discovery

- CTXSPI-Force Service Model Update

How It Works

Generating Citrix Secure Gateway Server Service Map

For instructions on how to perform autodiscovery and generate the Citrix Web Interface Server service map, refer to [Chapter 3, "Setting Up the Environment"](#).

Collecting Citrix Secure Gateway Server Performance Information

SPI for Citrix graphs and reports for Citrix Secure Gateway Server require that performance data is collected on all Citrix Secure Gateway Server nodes that are being managed. Without these policies deployed, SPI for Citrix graphs and reports for Citrix Secure Gateway Servers will remain empty.

Overview

This section contains the following information:

- which policies are needed for collecting SPI for Citrix Citrix Secure Gateway Server performance data (refer to [“Policies” on page 129](#))

Policies

The following policy is required to collect SPI for Citrix Citrix Secure Gateway Server performance data:

SPI for Citrix / CTXSPI-Secure Gateway / CTXSPI-SG Data Collection

- CTXSPI-LogSGActivity

How It Works

Citrix Secure Gateway Server Data Collection

SPI for Citrix reports and graphs rely on performance data being collected on the managed nodes. Performance data is stored in the Embedded Performance Component of the HPOM agent. Another name for this performance component is also the CODA subagent.

The following policy collects data on the Citrix Secure Gateway Server managed nodes:

- CTXSPI-LogSGActivity
Collects data about Citrix Secure Gateway connection activity, including network traffic from and to clients, number of active and pending connections, connection attempts per second and average client connect time, and number of pending SSL handshakes, number of SSL handshakes per second, and average SSL handshake time.

Chapter 10

Maintaining SPI for Citrix

About Maintaining SPI for Citrix

SPI for Citrix requires some maintenance and administration, and a number of tools and policies is provided to help you with this tasks.

SPI for Citrix maintenance involves the following:

- [“SPI for Citrix Requirements and Configuration” on page 135](#)
- [“Licensing SPI for Citrix” on page 136](#)
- [“Configuring SPI for Citrix” on page 137](#)
- [“Determining Citrix Node-Type Version” on page 138](#)
- [“Generating SPI for Citrix Support Information” on page 139](#)
- [“Removing SPI for Citrix from the Managed Node” on page 140](#)

Overview

This section contains the following information:

- notes on deploying SPI for Citrix on Citrix nodes (refer to [“Setting Up SPI for Citrix Maintenance” on page 133](#))
- which policies are needed for maintaining SPI for Citrix (refer to [“Policies” on page 133](#))
- which tools are needed for maintaining SPI for Citrix (refer to [“Tools” on page 133](#))

Setting Up SPI for Citrix Maintenance

For SPI for Citrix maintenance, deploy the policies to all Citrix managed nodes. Policies needed for maintaining SPI for Citrix are located in the following policy group:

- **SPI for Citrix / CTXSPI-SPI Licensing**

SPI for Citrix also provides tools for administration and maintenance of Citrix managed nodes. These tools are located in the following tool group on the management server:

- **SPI for Citrix / CTXSPI-SPI Maintenance**

Policies

The following policy is required to carry out specific SPI for Citrix maintenance tasks:

CTXSPI-SPI Licensing

- CTXSPI-LicOpMsg

Tools

To maintain SPI for Citrix, the following tools are provided:

SPI for Citrix / CTXSPI-SPI Maintenance / CTXSPI-SPI Configure

- CTXSPI-Configure Application Availability User Accounts
- CTXSPI-Configure Desktop Delivery Controller Farm Administrator Accounts
- CTXSPI-Configure Provisioning Server Farm Administrator Accounts
- CTXSPI-Configure WI Site, Farm, and Broker Availability User Account
- CTXSPI-Configure XenApp Farm Administrator Accounts

- . CTXSPI-Display Citrix Node Type Version
- . CTXSPI-Register Subagent
- . CTXSPI-Unregister Subagent

SPI for Citrix / CTXSPI-SPI Maintenance / CTXSPI-SPI Licensing

- . CTXSPI-1. Clear License Request File on Mgmt Server
- . CTXSPI-2. Generate License Request for Node
- . CTXSPI-3. Merge License Activation Codes on Mgmt Server
- . CTXSPI-List License Activation Codes

SPI for Citrix / CTXSPI-SPI Maintenance / CTXSPI-SPI Support

- . CTXSPI-Check Requirements/Configuration
- . CTXSPI-Check APS Requirements/Configuration
- . CTXSPI-Collect Support Information

SPI for Citrix / CTXSPI-SPI Maintenance / CTXSPI-SPI Uninstall

- . CTXSPI-Remove SPI from Managed Node

SPI for Citrix Requirements and Configuration

Typically, when installing and configuring SPI for Citrix to work on the managed node, you can use the **CTXSPI-Check Requirements/Configuration** tool to verify that SPI for Citrix is correctly installed and configured on the managed nodes. The tool also reports configuration problems, enabling you to quickly resolve any deficiencies in installation and configuration.

NOTE

For information about the SPI for Citrix requirements and configuration, refer to *SPI for Citrix Installation and Configuration Guide*.

Licensing SPI for Citrix

For SPI for Citrix to operate correctly on the Citrix managed node, a valid product license needs to be available for that node.

The following policy implements SPI for Citrix licensing related activities:

- `CTXSPI-LicOpCMsg`
Intercepts and processes licensing related `opcmsg` messages generated on the managed node.

The following tools implement SPI for Citrix licensing related tasks:

- `CTXSPI-1. Clear License Request File on Mgmt Server`
Clears a SPI for Citrix license request file on a management server. Usually, this is the first step when requesting SPI for Citrix licenses.
- `CTXSPI-2. Generate License Request for Node`
Generates SPI for Citrix license request information for a managed node. Usually executed on many nodes at once to speed-up generation of license requests. License request information for all nodes is collected on a management server in a single license request file.
- `CTXSPI-3. Merge License Activation Codes on Mgmt Server`
Merges newly obtained SPI for Citrix license activation codes with the existing license activations. After a successful license merge, the license activation codes are ready to be deployed to Citrix managed nodes.
- `CTXSPI-List License Activation Codes`
Lists and counts the existing SPI for Citrix license activation codes on the management server.

NOTE

For detailed description of the licensing procedure, refer to *SPI for Citrix Installation and Configuration Guide*.

Configuring SPI for Citrix

When configuring SPI for Citrix, one of the essential tasks is the registration of the SPI subagent with the HPOM agent. SPI for Citrix subagent is the principal component of SPI for Citrix, capable of performing advanced Citrix management features.

Another important configuration task for managing XenApp, Desktop Delivery Controller, and Provisioning Server farm members is to define a farm administrator account for each farm.

If you want to use the active monitoring functionality, you must also set up accounts for web interface and application availability.

The following tools implement SPI for Citrix configuration related tasks:

- **CTXSPI-Configure Application Availability User Accounts**
Configures user accounts that SPI for Citrix uses to probe Application availability in Citrix farms. At least one user account is needed for probing.
- **CTXSPI-Configure Desktop Delivery Controller Farm Administrator Accounts**
Configures Administrator accounts for each Desktop Delivery Controller farm.
- **CTXSPI-Configure Provisioning Server Farm Administrator Accounts**
Configures Administrator accounts for each Provisioning Server farm.
- **CTXSPI-Configure WI Site, Farm, and Broker Availability User Account**
Configures a WI user account that SPI for Citrix uses to probe Web Interface, farm, and XML broker availability. Only one user account is needed for probing.
- **CTXSPI-Configure XenApp Farm Administrator Accounts**
Configures XenApp farm administrator accounts that SPI for Citrix uses to interact with Citrix farms. Each farm that is managed needs to have exactly one account configured.
- **CTXSPI-Register Subagent**
Registers a SPI for Citrix subagent with a HPOM agent.
- **CTXSPI-Unregister Subagent**
Unregisters a SPI for Citrix subagent with a HPOM agent.

NOTE

For more details on configuring SPI for Citrix, refer to *SPI for Citrix Installation and Configuration Guide*.

Determining Citrix Node-Type Version

Before you deploy SPI for Citrix policies to Citrix managed nodes, you should know exactly which version of Citrix XenApp server, Desktop Delivery Controller, Provisioning Server, Citrix Web Interface, Citrix License Server, and Citrix Secure Gateway is installed on the managed node.

The following tool is able to determine node-type version:

- `CTXSPI-Display Citrix Node Type Version`
Displays the installation status and version of the Citrix product or component on the managed node. Supported node types are: XenApp, Desktop Delivery Controller, Provisioning Server, Web Interface, License Server, and Secure Gateway.

Generating SPI for Citrix Support Information

Should something go wrong when installing or using the SPI for Citrix product, the SPI for Citrix support engineers will most likely want to get the specific pieces of information from the node that will help them troubleshoot the issue.

The following tool helps generate SPI for Citrix support information:

- **CTXSPI-Collect Support Information**
Collects various support information about a Citrix managed node.

To generate SPI for Citrix support information, perform the following step:

1. Go to the **SPI for Citrix / CTXSPI-SPI Maintenance / CTXSPI-SPI Support** tool group and run the **CTXSPI-Collect Support Information** tool on managed nodes for which you would like to collect the information. The files with the support information are created in the following directory on these nodes:

`%OvAgentDir%\ctxspi\support`

2. Manually zip the contents of the directory hierarchy into the `ctxspi_supp_<node_name>.zip` file, where `<node_name>` is the name of the managed node.

Removing SPI for Citrix from the Managed Node

Detailed procedure for uninstalling SPI for Citrix from the managed nodes is described in the *SPI for Citrix Installation and Configuration Guide*.

One of the last steps of this procedure is also removing the SPI for Citrix files and directories from the managed node.

The following tool helps to remove SPI for Citrix files from the managed node:

- **CTXSPI-Remove SPI from Managed Node**
Removes all SPI for Citrix files from a managed node and performs all necessary cleanup steps. Run this tool only after you have removed all SPI for Citrix policies from the managed node, properly uninstalled Web Interface monitoring, and unregistered SPI for Citrix subagent.

Chapter 11

Troubleshooting

Troubleshooting Assistance

This chapter describes the possible errors that can occur when using SPI for Citrix and gives instructions on how to solve them.

Reporter does not Collect Multi-Instance DSI Data from the Managed Nodes with HPPA.

Reporter collects partial data - only the first instance is collected. This is a well-known issue filed under QXCR1000026531.

Since the majority of SPI for Citrix data sources are multi-instance, reports are lacking data and are mostly empty.

Workaround:

This behavior does not exhibit if the data sources are set to `unsummarized`. SPI for Citrix data sources are mostly set to 5 minute summarization to align the data to 5 minute intervals, which is only required for CODA.

If you execute the `CTXSPI-unSummarise.vbs` script in a Reporter's `bin` directory, you will set all SPI for Citrix data sources to `unsummarized`. This will result in proper data gathering.

NOTE

This workaround will not work in mixed environments (HPPA + CODA).