



WHITE PAPER

Best Practices for Implementing SAP GUI 6.40 for Windows Using Citrix Presentation Server 4

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About This White Paper

Many organizations choose to implement SAP GUI for Windows® with Citrix Presentation Server™ to gain the benefits of centralized application management and deployment, lower TCO and on-demand access to information anytime, from anywhere, on any device, over any connection.

This white paper covers important technical information about installing and configuring SAP GUI 6.40 for Windows on Citrix Presentation Server 4. Please always heed SAP and Citrix product documentation and the latest Citrix Knowledge Base articles.

Please visit the websites referenced in the white paper, consult SAPNotes listed at the end, or contact your Citrix and SAP partner for the latest information.

SAP GUI Overview

When SAP GUI is referenced in this whitepaper, we are talking about SAP GUI for Windows.

	SAP GUI for Windows	SAP GUI for Java	SAP GUI for HTML
Windows platforms / browser	✓	✓	Internet Explorer, Mozilla & Firefox
Other supported platforms / browser	Terminal Server / Citrix Presentation Server incl. mobile devices	✓	Mozilla & Firefox on Linux / Mac OS
Platform List	Windows 2000, XP and 2003, Tablet PC	Windows, Linux, Mac OS X, and Unix selection	Server platforms: Windows / Linux

This picture shows the different SAP GUI versions and the SAP platform strategy.

NEW WITH SAP GUI 6.40 FOR WINDOWS 6.40

Condensed SAP Note: 710720.

Improved support of Unicode scenarios

Scenarios that require the display of several non-Latin1 code pages (especially in the Asian countries) are supported more extensively in SAP GUI for Windows 6.40 than in previous releases. Therefore, we recommend that all Unicode customers use Release 6.40 of the SAP GUI for Windows.

For more information on this topic, see Note 740785.

Improved usability

In addition to various minor improvements to the usability of UI elements, we have enhanced the usability of lists.

New SAP logon design

The SAP logon was redesigned completely and its usability was improved in many ways. We have also added new functions, such as filtering with existing SAP systems.

Revised icons

The designs for both of the program icons of the SAP GUI and the icons used by applications within the SAP GUI were optimized.

Support of the "Windows XP Theme"

If you are working on Windows XP and using the "Windows Theme," you can also activate this "Windows Theme" for the SAP GUI with Release 6.40 (provided that you are using the Classic Design of the SAP GUI).

Web SAP Console

The Web SAP Console is the successor of the SAP Console and is delivered for the first time together with the SAP GUI 6.40. In addition to the functions above, the SAP GUI for Windows 6.40 contains functions that were introduced with Compilation 6 of the SAP GUI for Windows 6.20.

Installation compression

SAPSetup no longer transfers individual files to the clients but instead transfers entire archives. This reduces the dataset that is to be transferred.

Inclusion of Adobe Template Designer in the SAP GUI installation

To simplify the development of form-based applications, Adobe Template Designer is delivered with the SAP GUI

SAP GUI 6.40 FOR WINDOWS PATCHES AND UPGRADES

Because of the modular SAP GUI for Windows architecture, there are many different types of patches available. All of them can be found in the SAP Support Portal at <http://service.sap.com/patches>

The most common are the SAP GUI for Windows Patch and the SAP GUI for Windows Setup Patch. But there are also hotfixes for different business modules available within the SAP Support Portal. We recommend checking the Support Portal for all available updates for SAP GUI-related modules utilized in your environment.

To install SAP GUI for Windows with Citrix Presentation Server 4, we recommend using at least Patch Level 15 and SAP Setup Patch 22 for your deployment. But please always check the SAP website for additional information and updates published after the release of this document.

SAP GUI 6.40 for Windows Installation on Citrix Presentation Server 4

The installation of SAP GUI for Windows on Citrix Presentation Server 4 is similar to a local SAP GUI for Windows installation.

There are different ways to start the installation.

For example:

SAP Installation Server

Installation CD / Network Setup

Repackaging with Citrix Installation Manager

We recommend installing an SAP Installation Server first. But you don't need to install the Install Server services; you only need the Install Server Fileshare. The benefit here is that all necessary SAP GUI for Windows and SAP Setup patches can be integrated into the Installation Server. This is the only way to use the latest installer patch.

When you install from an SAP Installation Server, please disable the following registry key:

"HKLM\SOFTWARE\SAP\SAPSetup\SAPstart\AutoUpdate"

on your Citrix server after the installation. If this key is present, SAP GUI will try to connect to the update server each time it is started. And if updates are available, they will be automatically installed on the environment. Citrix does not recommend allowing auto-update functionalities. All updates should be tested and validated prior to final installation in the Citrix environment, and this task should be performed by an administrator, not a user. Also, if the user doesn't have administrative rights, this still could have performance impacts.

APPLICATION ISOLATION ENVIRONMENT

The Application Isolation Environment (AIE) feature is available in Citrix Presentation Server 4, Enterprise Edition. This feature enables you to install applications together on one system that normally would cause compatibility issues due to DLL or resource conflicts.

For example, with this feature it is possible to install SAP GUI 6.40 for Windows together with SAP GUI 6.20 for Windows on the same system. However, it is still necessary to ensure that each version of SAP GUI has its own SapWorkdir and separate Ini Files defined per user.

Please take a look at the Citrix Presentation Server Installation Guide and Advanced Concepts Guide for additional information about AIE.

UPGRADING TO SAP GUI 6.40 ON PRESENTATION SERVER 4

To update an older SAP GUI for Windows version to 6.40, it is important to avoid installing the new version on top of an older version. The preferred method in a Citrix environment is to begin with a clean drive.

A setup scenario with unattended setup routines is very helpful to deploy updates and maintain the whole environment. A lot of problems and issues have occurred in the past because of uninstalling and reinstalling applications.

SAP GUI FOR WINDOWS INI FILES

The configuration of SAP GUI for Windows is stored within four Ini Files:

SAPlogon.ini

SAPshortcut.ini

SAProute.ini

SAPmsg.ini

SAPlogon.ini and SAPshortcut.ini are the most important Ini Files on a Citrix environment because all connection configurations are stored within them. The challenge here is to deploy the right configuration file to your users.

The search order for the Ini Files is:

Command line Parameter /INI_FILE=

Environment Variable SAPLOGON_INI_FILE

SAPlogon.ini File stored in the SAP GUI for Windows Installation Directory

SAPlogon.ini File stored in the Windows Directory

To deploy the right Ini Files to your users, there are different scenarios available. If you only need one SAPlogon.ini File, the most frequently used scenario is to place it on a central file server that all users can access, and set the environment variable on all your Presentation Servers to point to the central file.

If you need different Ini Files for users or user groups, you can deploy the right Ini Files to the users' home directory with a login script, and set the environment variable to point to the userhomedrive (f.e. h:\sapini\saplogon.ini)

SAPlogon.ini and SAPshortcut.ini have to be in the same directory. After deploying your Ini File Scenario, please be sure, for example, that SAPlogon.ini is not stored in another location on your server. So it is recommended to search all server hard drives.

If you store the SAPlogon.ini file in the Windows directory, which is not recommended by Citrix, please be aware that Terminal Server copies Ini Files from the system's Windows directory to a user-specific Windows directory (%userprofile%\windows). This is another function of the Terminal Server Install Mode (Shadow Key). But this Ini File is only deployed once, so changing the Ini on the system drive does not automatically update the user's Ini File.

SAP GUI 6.40 for Windows Configuration and Tuning

In this chapter we talk about possible SAP configurations on the Citrix server. This doesn't mean that all of them are right for your environment and the list does not include everything you can configure with SAP GUI for Windows. However, these configurations and settings are based on Citrix's experiences in implementing numerous projects, and reflect questions that customers often ask.

IMPORTANT SAP GUI 6.40 FOR WINDOWS REGISTRY SETTINGS

Turning off the SAP GUI for Windows splash screen

HKLM\SOFTWARE\SAP\General\Appearance

Key: SplashOff

Value: 1

Switching off the waiting time animation in Enjoy mode

HKLM\SOFTWARE\SAP\General\Appearance

Key: Animation

Type: REG_SZ

Value: Off

As of Patch 2 for SAP GUI 6.40 for Windows, you can display the additional windows title by setting the "ShowAdditionalTitleInFo" registry key. This is necessary to allow Citrix Password Manager™ to distinguish between different SAP back ends.

HKCU\Software\SAP\SAPGUI Front\SAP Frontend Server\Administration

Key: ShowAdditionalTitleInFo

Type: REG_DWORD

Value: 1

Close SAPLogon when the last SAP connection is closed.

HKCU\SOFTWARE\SAP\SAPLogon

Key: Autoclose

Type: REG_DWORD

Value:1

SAPgui.exe starts SAPlogon.exe

HKCU(HKLM)\SOFTWARE\SAP\SAPGUI

Key: StartSAPlogon

Type: REG_DWORD

Value:0

The most critical part of the SAP GUI for Windows installation process on Citrix Presentation Server 4 is the multi-user configuration. This means that all configurations are user-specific. So each user has to have his or her own configuration.

How to deploy the necessary configurations to your users depends on your environment and how you use user profiles, login scripts and policies.

Please take a look at the Citrix documentation and also the Advanced Concepts Guide. You will find a lot of information about user profiles, policies, the shadow key, etc.

SAPWORKDIR

The SAPWorkdir is the SAP GUI for Windows Temp Directory. All temp files and history files are stored within the SAPWorkdir. It is not possible to separate the content of the SAPWorkdir. For example, you cannot save the SAP GUI for Windows History at one location and the Temp files at another.

We recommend using a centralized SAPWorkdir for each user. It should be located on the user's home drive on a centralized fileshare. This prevents uploading and downloading during logon and logoff. Also, having only one SAPWorkdir per user is a great benefit in a Citrix farm with more than one server.

You can configure the SAPWorkdir in the Registry:

HKLM\Software\SAP\SAP Shared

Key: SAPworkdir

Type: REG_EXPAND_SZ

This key has to be user-independent (For example, %userhome%\sapworkdir or h:\sapworkdir dependent on your infrastructure).

TUNING

When we talk about application tuning in a Citrix / Terminal Server environment we talk about performance enhancements. This means better usage of CPU and memory, and lower bandwidth consumption.

Currently there are no special configurations known to change the memory and CPU consumption of SAP GUI for Windows.

The new CPU and DLL management functions of Presentation Server 4 are able to enhance the performance and scalability of Citrix Presentation Server.

But results also depend also on the number of users and their work behavior in your environment.

Another tuning field is the network traffic traveling between users running the ICA® client and Citrix Presentation Server. Here you have to decide which graphic depth and resolution you need. Less color depth and lower resolution reduce the traffic sent between the ICA client and the Citrix server.

The new visual design of SAP GUI 6.40 for Windows has some more memory overhead than the classic design. But normally only the Enjoy mode has a good user acceptance.

ICA Virtual Channels also consume network bandwidth, so we recommend disabling all virtual channels you don't need. We also recommend restricting the printing virtual channel to a defined value. This prevents printing from using up all available bandwidth for the user's ICA connection.

SAP GUI 6.40 for Windows Printing

SAP GUI for Windows printing within a Presentation Server 4 environment usually means SAP front-end printing. There are other SAP printing possibilities like host / back-end printing. But the SAP GUI for Windows front-end printing is the only print scenario in which printer traffic is sent to the Citrix server and has to be processed by the server. This chapter will discuss SAP GUI for Windows front-end printing.

As of Patch Level 10 for SAP GUI 6.40 for Windows, it is possible to distinguish between two front-end printing solutions, as described below.

SAPLPD

SAPLPD is the SAP front-end printing tool that is frequently used in Terminal Server environments. For a long time it was the only front-end printing solution available from SAP. The problem with SAPLPD is that it was not designed for a multi-user environment like Presentation Server. It was designed as a standalone print service. But because of customer requests for a front-end printing solution, it was used.

If you have to use SAPLPD because your environment is not at the necessary patch level to use the recommended control printing, please heed the following recommendations.

The printer name has a limitation of 40 characters. This is an SAP back-end database limitation. So if you use Citrix client printer mapping and SAP GUI for Windows, it could be that your printer name is too long, and that you will have SAPLPD errors. Also, the new printer names used with the Presentation Server 4 Universal Printer Driver (UPD) could raise issues here.

In addition to the normal SAP GUI for Windows patches, there are SAPLPD patches available from SAP. Please take a look at the <http://service.sap.com> for information.

The following things have to be done to configure SAPLPD on your Presentation Server. Please take a look at SAPNote 150533 for updates.

- If it exists, delete the entry `LPRINT_DEST` in Table `TSPOPTIONS`.

- On the Presentation Server, set the system-wide environment variable `LP_CMD` to the value `<GUI_path>\saplpd\saplpd -f&F -c&C -p&P (-P&P as of SAPLPD 4.24)`.

IMPORTANT: The word "saplpd" must not appear in uppercase letters in the above-mentioned command. If the GUI path contains blanks, set the entire expression - excluding the arguments in quotes - for example: "c:\program files\sappc\sapgui\saplpd\saplpd" -f&F -c&C -P&P.

- `SAPLPD` must not be entered as a service on the server, since the `SAPLPD` print program must be restarted for every user for every print output.

FRONT-END PRINTING WITH CONTROL TECHNOLOGY

We highly recommend using the new SAP front-end printing technology for your Citrix environment.

(SAPNote 821519)

From a technical point of view, the new front-end printing is based on the controls that have already been used in SAP GUI for a long time. Controls are DLLs that run in the process context of SAP GUI. The new print control receives the print data and transfers it to the underlying printing system of the operating system. When you work with SAP GUI for Windows, you can continue to use the `SAPWIN` device type that allows you to use any printer with a Windows driver. `SAPLPD` no longer exists as a separate process. This eliminates the Terminal Server environment problems mentioned at the start.

Differences from the old front-end printing:

`SAPLPD` is no longer required as a separate process.

There is no longer a printer selection box in the SAP system. Instead, a Windows printer selection box is called directly from the control. The length restriction for printer names therefore no longer applies.

The environment variable `LP_CMD` is no longer required in Terminal Server environments.

Import the support package or implement the correction instructions. Import the relevant kernel patch. Import the relevant GUI patch.

Kernel patch for Release 6.20: dw Patch 1942 (see Note 854044)

for Release 6.40: dw Patch 63

SAP GUI 6.20 Patch 56

SAP GUI 6.40 Patch 10

In your Citrix environment you don't need to do configurations. After installing the necessary back-end and front-end patches, you can directly use the new printing subsystem.

FRONT-END PRINTING WITH CITRIX UNIVERSAL PRINTER DRIVER

Because of the new design of the Citrix Universal Printer Driver, only the EMF format is supported. Normally the SAP GUI sends all print data as RAW. This results in a printer issue, with the print job stuck in the print spooler on your server. To change the data format of the SAP GUI you have to implement the following registry key.

(SAPNote 858883)

It occurs with SAPLPD used for front-end printing services as well as with the new control printing technology.

Before you implement the registry key below, please make sure that you can print to a printer using the native driver instead of the UPD driver. And that the problem only occurs while printing to a printer using the Universal Printer Driver in Presentation Server 4.

Don't be confused: the SAPLPD Registry Key is right for SAPLPD printing as well as for control technology printing. The new control printing uses the "old" SAPLPD registry keys for compatibility reasons.

To force the SAP GUI to send the data as EMF data, please add the following registry key:

HKEY_CURRENT_USER\Software\SAP\SAP\pd\SAPLPD

Type: String

Name: SwinDataType

Value: EMF

SAP GUI 6.40 as a Published Application

To run SAP GUI as published application, you have different options. You can deploy a full server desktop, but your users will have to start SAP GUI manually. A better approach is to deploy applications in seamless mode. This is a very good way to integrate published applications running on Citrix Presentation Server into the user's desktop environment.

You can publish the following SAP executables:

SAPlogon.exe (This is the executable for the SAP Logon Launchpad.)

SAPlgpad.exe (This is the best choice for a published application.)

SAPshcut.exe (This is the executable for SAP Shortcuts if you want to access transactions directly.)

For all published applications you need a configured SAPlogon.ini file for your users.

For the SAPshcut.exe you also need to have the SAPshortcut.ini.

Troubleshooting

In the past Citrix has been able to identify and fix some graphic issues while running SAP GUI for Windows as a published application in seamless mode. Before attempting to fix any issues, please install the latest SAP GUI for Windows patch and the latest ICA client.

To identify a SAP GUI for Windows issue on a Citrix Presentation Server we recommend first trying to reproduce the problem with the following scenarios:

Published desktop instead of seamless mode

Win32 ICA client instead of other ICA clients

SAP GUI for Windows Classic Mode instead of Enjoy Mode

Logon at the server console

Logon via RDP (desktop and initial program SAP GUI for Windows)

If you can reproduce the problem at the server console or over RDP, please open a support case with SAP. If the problem only occurs with ICA®, please open a support case with Citrix Technical Support.

Additional Information

SAPNotes are available from the SAP Service Marketplace, which is only accessible to SAP customers and partners.

Link: <http://service.sap.com/notes>

SAPNote Number	Summary
0026417	SAP GUI for Windows Resources: Hardware and Software
0030478	Service Packs on Windows NT®/Windows 2000
0066971	Supported Front-end Platforms
0138869	SAP GUI on Windows Terminal Server (WTS)
0146505	SAP GUI for the Java Environment (Platform-Independent GUI)
0150533	Printing under Windows Terminal Server (WTS)
0177626	IS-H with Terminal Server: Restrictions
0196998	SAP GUI for Windows Resources (APO): Hardware and Software
020069	Notes on SAP GUI for Windows for Use Via Terminal Server
0210274	Additional Information for SQL or MSDE on Terminal Server
0215529	SAP GUI for Windows in the Workplace Using WTS
0304112	Workplace Collective Note: SAP GUI on Terminal Server
0355426	Workplace: SAP GUI for Windows Recommendations
038119	SAPlogon.ini
0407258	Hard-copy Functions in New Visual Design
0424307	Citrix Client and EBP: Problems at Catalog Call
0431163	Troubleshooting Citrix Presentation Server Issues
0441583	License Mechanism for ActiveX Controls inside Bluebox
0448529	Performance Problems with SAPLPD in Terminal Server Environment
0480149	SAP Scripting Kernel Patches
0519852	SAPWorkdir
0578944	Release Date Patches
0757964	Additional Information in the SAP GUI Window Title

0798710	Print Output on Incorrect Printer with Front-end Printing
0821519	New Front-end Printing
0844207	SAP GUI for Windows Crash
0858883	Citrix Presentation Server 4.0 Printing Issue

The Citrix Value-Add for SAP Solutions

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Citrix enables the SAP user interface (SAP GUI or the browser) to be installed, managed and deployed from central server farms, enabling users to enjoy high-performance access over any network. Besides providing increased IT control, greater data security and improved service levels for end users, Citrix access infrastructure solutions enable SAP deployments and upgrades to be accomplished much faster.

In addition, customers benefit from seamless integration between Citrix Presentation Server and SAP Enterprise Portal. The SAP iView for Citrix enables customers to extend their current SAP solutions to include any available application resource, regardless of where it originates. Finally, Citrix can add value to SAP deployments in other ways, such as improved user collaboration for training, support or customer interaction; increased security and regulatory compliance; better application performance; “built-in” business continuity; and fast and efficient connectivity for remote offices and mobile users.

THE SAP/CITRIX PARTNERSHIP

Citrix and SAP are strategic partners that work closely together for the benefit of mutual customers.

Citrix is an SAP Global Technology Partner and member of the SAP NetWeaver Partner Initiative.

SAP is a Premier Plus Citrix® Alliance Partner.

Citrix has a global SAP Competence Center, including on-site support resources, at SAP headquarters in Walldorf, Germany.

SAP AG uses Citrix technology to manage and deliver more than 40 applications (including the mySAP ERP Suite) to its employees, while Citrix runs its global business on SAP.

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