

Microsoft®
Desktop Optimization Pack
for Software Assurance

Application Virtualization
Summary Report

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Date: Thursday, October 01, 2009



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Executive Overview

Microsoft Application Virtualization (App-V) allows you to deploy applications to users without installing the applications on the users' computers. The virtualized application executes locally, uses local system resources, can print, save data, and act as if it's locally installed, even though it is not. App-V is available through the Microsoft Desktop Optimization Pack for Software Assurance customers. For more information about the [Microsoft Desktop Optimization Pack](http://go.microsoft.com/fwlink/?LinkId=106729) and the technologies it provides, see <http://go.microsoft.com/fwlink/?LinkId=106729>.

This summary report describes the results of the Application Virtualization Assessment performed by the Microsoft Assessment and Planning Toolkit. In addition to the assessment results, this report provides additional information about the virtualization and management technologies that complement the assessment recommendations.

The accompanying Microsoft Office Excel® workbook, the Application Virtualization Assessment Report, identifies the applications and computers within your environment that are capable of supporting an App-V environment. Inventory results (data, charts, and tables) shown in this summary document are based on computers that are already running a Microsoft Windows operating system. The assessment and recommendations are based on Microsoft Application Virtualization 4.5.

Where Is Your Organization Now?

This section of the proposal highlights overall assessment results and key discoveries from the assessment that could affect your decision to adopt App-V. The following table summarizes the overall discovery and assessment of your computers.

Table 1. Inventory Results Overall Summary

Description	Computer Count
Total inventoried computers	908
Inventoried client computers	779
Inventoried servers	129
Inventory could not be completed	199

There are aspects of the IT environment as a whole and your client computers that could affect your decision to adopt App-V. The summary and details provided in the assessment results assume that the assessment includes your client computers and servers.

Information Technology Environment

The assessment discovered that you have Active Directory Domain services (AD DS) deployed in your environment. App-V can be configured to use Active Directory to both manage the distribution and to provide access control over virtual application packages used by your clients.

The assessment also discovered that you have Certificate Services deployed in your environment. You can use a Public Key Infrastructure (PKI) to secure the distribution of packages and sign your virtual application packages.

One of the key opportunities for App-V is consolidation of terminal servers. App-V enables consolidation by helping you deal with the application compatibility issues that require you to isolate applications on different terminal servers. The assessment found 8 servers deployed with the Terminal Services application role.

The assessment also identified 123 servers in your environment that can be used to install the App-V system server and platform components. When assessing a particular server for deployment of Microsoft Application Virtualization server and platform components, consider that you will need to provide access

from that server to a Microsoft SQL Server 2000 (SP3 or SP4), SQL Server 2005 (SP1 or SP2) or SQL Server 2008 database instance, preferably in the same location, or deploy SQL Server on the same server. We recommend that all deployments be implemented first in a test environment on isolated servers before migrating into a production environment.

Client Computers

This part of the assessment looks at the currently installed operating system, service pack level, and hardware profile of your client computers. Many or all of your client computers can be configured so they support installation of the virtualization client. Detailed configuration recommendations are provided in the "Assessment Results" section of this document. The following table and figure summarize the results of the client compatibility assessment.

Table 2. Client Compatibility Summary

Microsoft Application Virtualization Client	Compatible Before Upgrades
Support installation of the Application Virtualization Client	777
Virtualization client not supported	2
Inventory could not be completed (Insufficient Data)	193

The following figure describes the percentage of client computers that support installation of the virtualization client before and after recommended configurations have been made. More details on why they do or do not support installation (and what you can do about it) are provided in the "Assessment Results" section of this document.

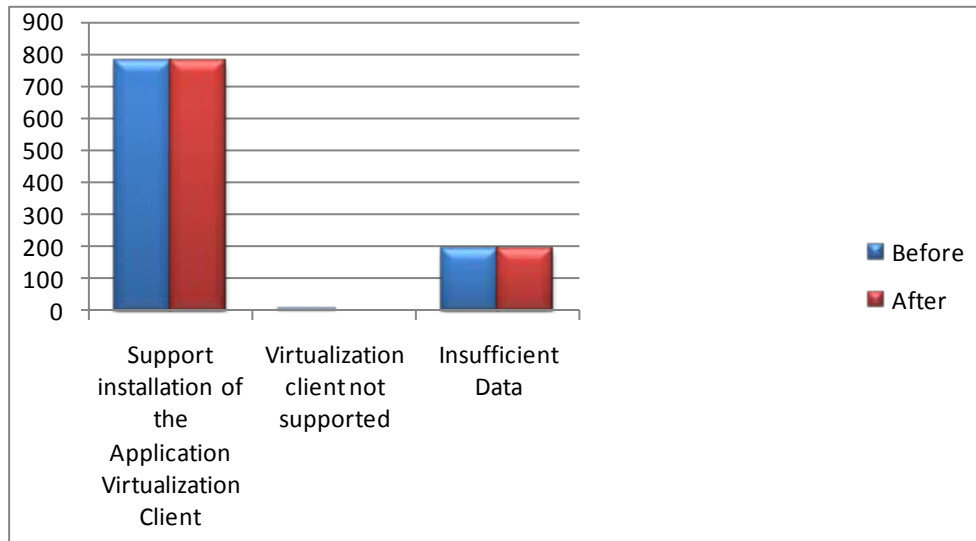


Figure 1. Client computers that support installation of the virtualization client

The MAP toolkit found 18068 installed applications on 779 client computers. If you are considering adopting application virtualization together with a client migration to Windows Vista, Microsoft Application Virtualization can help you deal with possible application compatibility issues associated with Windows Vista migration.

Why Virtualize Applications?

Application virtualization helps you with the distribution, license compliance, and operating system compatibility of applications. Users can run the virtualized application as if it were installed on the local computer. For this reason you can use application virtualization to deploy multiple versions of the same software, support and perform upgrades with little impact, and control access to those applications.

Microsoft Application Virtualization (App-V) supports many different application deployment scenarios, which means you can take advantage of the benefits of virtualization while using your existing deployment tools and services. The following scenarios are supported:

- Stand-alone delivery of virtualized applications, packaged as Windows Installer files.
- Dynamic delivery and update of applications using the System Center Application Virtualization Management Service.
- Dynamic delivery and updates using System Center Configuration Manager or with your current electronic software distribution (ESD) solution.
- Deployment of virtual applications to Terminal Services users.

There are many reasons why application virtualization with App-V is the right fit for your organization. The following sections describe the key benefits.

Easier Systems Management

Every client operating system that you need to support increases your costs for supporting and managing your client computers. Furthermore to enable the provisioning of client computers, you need to create and support images for each operating system and the applications that are provided to those users.

Application virtualization provides the following benefits to reduce your systems management costs:

- Create a more simplified desktop image, with fewer applications in the image.
- Standardize on a particular operating system while avoiding operating system compatibility issues.
- Deploy applications to clients without needing to install, repair, or upgrade the software on the client computer.
- Manage the deployment of software both in your main and branch offices.
- Control access to applications through Group Policy.

License Control and Compliance

App-V makes it easy to grant and revoke access to software based upon the licensing mechanism used for your applications. It gives you the following tools for managing client licenses and enforcing compliance:

- Grant application access to specific users or groups.
- Control over concurrent license use.
- Control over custom and site licensed software by preventing the distribution of that software outside your environment.

Improved Security

With App-V, you can provision applications to users dynamically and securely. You can integrate App-V with Active Directory and your PKI implementation. The security benefits are as follows:

- Control access to applications using Group Policy settings.
- Grant and revoke access to specific user accounts or security groups.
- Reduce risk of spoofing and information disclosure through encryption and signing of application data streamed to the user.
- Reauthorize application access if the virtual application package is cached on the local computer.
- Sign virtual application packages to prevent someone from tampering with the application package.

Terminal Services Server Consolidation

App-V supports the deployment of virtual application packages to Terminal Services clients. Typically, Terminal Services servers are underutilized because they must each be locked into a specific configuration, capable of serving only a limited set of non-conflicting applications. With Microsoft Application Virtualization for Terminal Services this situation is completely different. You can consolidate your servers, increase their utilization, avoid application conflicts, and reduce the cost of the service.

Dynamic Data Center

The Infrastructure Optimization (IO) Model at Microsoft groups IT processes and technologies across a continuum of organizational maturity. App-V helps you move to a much more dynamic data center, allowing administrator control over application distribution, giving users on-demand access to their applications regardless of the computer they are using, and enabling much more flexibility in the delivery of services.

Assessment Results

With the results of the Application Virtualization Assessment, you can now make informed decisions about the investments required for deploying Microsoft Application Virtualization 4.5 (App-V). The information in this section summarizes the results of the assessment conducted on your network and suggests potential updates to enable the application virtualization scenario.

Current Server Environment

This section highlights the server environment and makes recommendations for deploying and using App-V and its server components. It focuses on elements of your server infrastructure found during assessment. If you did not include servers in the assessment, substitute the values in the subsequent table with actual values based on your knowledge of your server infrastructure.

Table 3. Current Server Environment

Infrastructure Roles	Found	Recommendations
Active Directory Domain Services	Yes	You should deploy the Application Virtualization Management Server and use Active Directory and group policies to control access to client applications. You could also use Active Directory to distribute client applications and install the application virtualization client.
Microsoft Certificate Services (PKI)	Yes	You should use your PKI to enable Real-Time Streaming Protocol Secure (RTSPS) streaming with the application virtualization streaming server and sign your virtual application packages. This will ensure the highest level of security for your virtual application infrastructure.
Terminal Services	Yes	With the availability of Microsoft Application Virtualization for Terminal Services, you now have the opportunity to consolidate your Terminal Services servers and lower the cost of providing this service.

For more help planning your deployment of App-V, use the Microsoft Application Virtualization 4.5 guide in the Infrastructure Planning and Design (IPD) guide series. This guide provides process and design recommendations for deploying App-V and considers scalability, availability, and role placement. You can download the [IPD guides](http://go.microsoft.com/fwlink/?LinkId=106686) from the Microsoft Download Center at <http://go.microsoft.com/fwlink/?LinkId=106686>.

Client Configurations

In order to deploy the virtualization client throughout your organization, you need to make sure that the client computers support installation of the App-V client. The following figure summarizes the types of issues discovered in the assessment of the client computers in your environment. To identify the specific issues for each client computer, refer to the Application Virtualization Assessment Report.

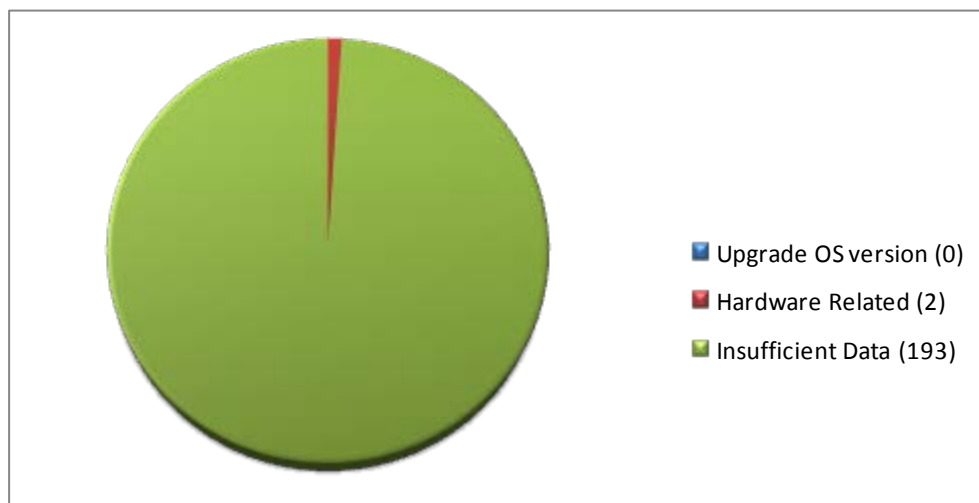


Figure 2. Configuration issues for installation of the virtualization client

Configuration Types

To understand what configuration changes can be implemented you need to know exactly what the specific issues are and which issues you can resolve through upgrades. For more information, see [Application Virtualization System Requirements](http://go.microsoft.com/fwlink/?LinkId=130601) at <http://go.microsoft.com/fwlink/?LinkId=130601>.

The following table describes the specific configurations that you can complete to support the installation of the App-V client. This guide only recommends lower cost and practical configurations.

Table 4. Recommended Configurations

Configuration	Computers Affected	Recommended
Upgrade OS version	0	Yes
Add RAM	0	Yes
Upgrade Hard Disk	2	Yes
Upgrade CPU	0	No

Clients That Can Support the Virtualization Client

Figure 1 shows a visual representation of the percentage of client computers that support installation of the App-V client before and after recommended configuration changes. The following table provides more detail and summarizes the total number of computers in each category.

Table 5. Client Computer Ability to Support App-V Client Installation

Configuration	Before	After
Supports Installation of the Microsoft Application Virtualization Client	777	779
Virtualization client not supported	2	0
Insufficient Data	193	193

Software Analysis

The software analysis provides the following information:

- Current client operating systems discovered during the assessment.
- Summary of the most prevalent software applications discovered during assessment on the client computers.

Operating System Analysis

The following table shows the client operating systems that the assessment found in your environment and indicates the number of installations for each operating system. You can use this information to determine the supported platforms for virtualized applications. If you are considering client migration and standardizing your environment on a single operating system, you can use this information to understand your current environment, map the applications used on client computers, and identify applications that need to be virtualized to enable compatibility with your chosen client operating system.

Table 6. Operating Systems Found Through the Assessment

Operating System Name and Version	Computer Count	Percentage
Insufficient Data	1	0%
Microsoft Windows XP Professional Service Pack 2	3	0%
Microsoft Windows XP Professional Service Pack 3	53	5%
Samba Unknown Service Pack Level	2	0%
Windows 2000 Professional Service Pack 4	4	0%
Windows 2000 Professional Unknown Service Pack Level	1	0%
Windows 2000 Unknown Service Pack Level	1	0%
Windows 7 Enterprise Unknown Service Pack Level	1	0%
Windows 7 Ultimate	1	0%
Windows 7 Ultimate Unknown Service Pack Level	1	0%
Windows Vista™ Enterprise Unknown Service Pack Level	2	0%
Windows XP Professional Service Pack 2	40	4%
Windows XP Professional Service Pack 3	678	70%
Windows XP Professional Unknown Service Pack Level	180	19%
Windows XP Unknown Service Pack Level	4	0%
Total	972	100%

Application Summary

The following table lists the most prevalent software installed on the client computers on the network and indicates the number of installations. The Application Virtualization Assessment Report provides a complete list of all of the applications that the assessment found, the application version, and the number of installations.

Table 7: Most Prevalently Installed Software (Maximum 25)

Application Name	Application Version	Number of Installations
WebFldrs XP	9.50.7523	766
Microsoft .NET Framework 1.1	1.1.4322	713

Application Name	Application Version	Number of Installations
MSXML 4.0 SP2 (KB936181)	4.20.9848.0	710
Microsoft Office Professional Edition 2003	11.0.8173.0	670
Microsoft .NET Framework 2.0	2.0.50727	639
2007 Office system 互換機能パック	12.0.6021.5000	603
Adobe Reader 9.1 - Japanese	9.1.0	586
Microsoft .NET Framework 1.1 Japanese Language Pack	1.1.4322	558
管理会計SetUp	1.0.0	524
SMS アドバンスドクライアント	2.50.4160.2000	482
Microsoft .NET Framework 2.0 Language Pack - JPN	2.0.50727	450
Windows Genuine Advantage v1.3.0254.0	1.3.0254.0	431
MSChartSetup	1.0.0	423
Symantec AntiVirus	10.0.359.0	333
Windows Presentation Foundation	3.0.6920.0	259
Microsoft .NET Framework 3.0	3.0.04506.30	193
Windows Workflow Foundation	3.0.4203.2	193
Windows Communication Foundation	3.0.04506.30	192
Symantec AntiVirus	10.1.5000.5	188
MSXML 6.0 Parser (KB927977)	6.00.3890.0	175
Microsoft .NET Framework 3.0 Japanese Language Pack	3.0.04506.30	153
Windows Communication Foundation Language Pack - JPN	3.0.04506.30	153
SMS アドバンスドクライアント	2.50.4253.3000	152
Windows Workflow Foundation JA Language Pack	3.0.4203.2	152
Windows Presentation Foundation Language Pack (JPN)	3.0.6920.0	152

We recommend using the [Microsoft Application Compatibility Toolkit 5.0](http://go.microsoft.com/fwlink/?LinkID=79963) to complete a full application compatibility assessment. Using this toolkit, you can discover the applications run and installed on all of your client computers, identify compatibility issues, and develop a list of applications that would need to be virtualized to enable a client migration project. You can download the toolkit from Microsoft TechNet at <http://go.microsoft.com/fwlink/?LinkID=79963>.

Next Steps

With the results of the Application Virtualization Assessment, you can determine the level of investment in client hardware that is required to support the App-V client. You have identified the related characteristics of your environment and their impact, and you have a list of candidate servers for deploying the App-V components. This summary report and the accompanying Excel Workbook can be valuable tools for making the required decisions.

To prepare for your deployment of Microsoft Application Virtualization, you will need to do the following:

1. Learn more about Microsoft Application Virtualization:
 - a) [Microsoft Application Virtualization](http://go.microsoft.com/fwlink/?LinkId=106847) on TechNet at <http://go.microsoft.com/fwlink/?LinkId=106847>.
 - b) [Virtualization Solution Accelerators](http://go.microsoft.com/fwlink/?LinkId=106523) site on TechNet at <http://go.microsoft.com/fwlink/?LinkId=106523>.
2. Identify the group of clients who will be using application virtualization.
3. For desktop migration projects, perform a full application compatibility analysis and determine the compatibility of commercial software, custom-developed applications, and Microsoft Office–based applications for Windows Vista.
 - c) The [Application Compatibility Toolkit](http://go.microsoft.com/fwlink/?LinkId=79963) can help you create a complete list of all of the applications in use in the organization and determine their compatibility with Windows Vista. The Application Compatibility Toolkit is available at <http://go.microsoft.com/fwlink/?LinkId=79963>.
 - d) The [Office Migration Planning Manager](http://go.microsoft.com/fwlink/?LinkId=80716) can help you determine the best way to upgrade to Office 2007 or plan for virtual Office installations that may be required. It is available at <http://go.microsoft.com/fwlink/?LinkId=80716>.
4. Identify the applications you intend to virtualize. Determine which applications can be sequenced and test the sequenced applications on the targeted operating systems.
5. Plan and design the App-V infrastructure by using the [Infrastructure Planning and Design Guide for App-V](http://go.microsoft.com/fwlink/?LinkId=106686), available at <http://go.microsoft.com/fwlink/?LinkId=106686>.
6. Perform any configuration changes that may be required on client computers. After completing the upgrades, you can run the Application Virtualization Assessment again to verify that computers are ready for the virtualization client deployment.
7. Deploy the virtual application service and clients, per your testing, change management, or operations best practices.

Appendix A: Application Virtualization Assessment Report Worksheets

The following information is provided in the detailed Application Virtualization Assessment Report (Microsoft Excel workbook).

- **Discovered Applications.** This worksheet shows the discovered applications, software version, and the number of installed copies.
- **App Virtual Stream Server.** This worksheet identifies existing servers that could support a standard implementation of System Center Virtualization Application Server. Available hard disk space requirements will vary due to application storage needs.
- **Microsoft Application Virtualization Management System.** This worksheet provides a list of servers that can support an installation of the System Center Application Virtualization Management Server.
- **Microsoft Application Virtualization Management Web Service.** This worksheet provides a list of servers that can support an installation of the Microsoft Application Virtualization Management Web service.
- **Microsoft Application Virtualization Management Console.** This worksheet describes the clients and servers that support installation of the Microsoft Application Virtualization Management Console.
- **Microsoft Application Virtualization Sequencer.** This worksheet shows all of the computers that support installation of the Microsoft Application Virtualization Sequencer component.
- **Microsoft Application Virtualization for Desktops.** This worksheet shows all of the computers that support installation of the Microsoft Application Virtualization client.
- **Microsoft Application Virtualization for Terminal Services.** This worksheet shows all of the computers that could support a standard implementation of Microsoft Application Virtualization for Terminal Services.
- **Savings Calculator.** This worksheet provides a calculator for estimating the savings that would be generated by virtualizing your applications.