The Power of Policy

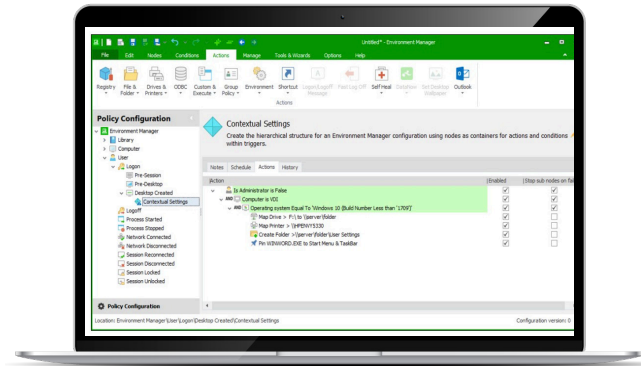Ivanti Environment Manager Policy

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Executive Summary

Despite the growth in mobile and cloud technologies and applications, many organizations still depend on delivering traditional Windows applications successfully to conduct their business, and this necessitates the smooth delivery of high-performance Windows environments to end users.

Traditional methods for optimizing Windows include the use of logon scripts and Group Policy, which are complex to configure and maintain. In addition, they fail to provide IT with the necessary audit and version-control requirements to ensure the maintenance of operational safeguards.

These methods also lack flexibility in catering to the diversity of modern users in terms of how and from where they access their desktop and applications. Furthermore, all settings are applied to the user desktop sequentially, one after the other, resulting in slow logons and poor user experience.

Ivanti® Environment Manager Policy provides an alternative solution that simplifies configuring and maintaining user desktops using an intuitive console, negating the need for scripting skills, and liberating skilled IT employees to concentrate on other, more urgent tasks. Logon times can be reduced by up to 90 percent, resulting in higher user satisfaction and increased productivity.

Additionally, Ivanti Environment Manager Policy empowers organizations with effortless migration to Windows 10; delivers a fast, full-featured Office 365 experience on virtual desktops; and enables personalized, non-persistent VDI desktops with reduced storage costs.

The Perils of IT Policy

While IT teams strive constantly to simplify their processes and reduce the number of assets they support, the reality is that today's enterprise computing environment is more complex than ever.

"[Generation Z] will constitute a fifth of the workforce by 2021.

Glassdoor, Feb 2017

Typical users have become far more IT savvy. Millennials, or Generation Y, have more recently been the focus of most organizations' recruitment, impacting the way IT services are consumed and adapting those services accordingly.

Those people just now entering the workforce, Generation Z, the post-Millennial generation, have literally grown up with technology, the Internet, and social media, and are far more expectant when it comes to being provided with fast access to their desktops, applications, and data.

Glassdoor reports that Generation Z "will constitute a fifth of the workforce by 2021." [1]

According to Nielson's Total Audience Report[2] from Q1 2017, 97 percent of Generation Z users make use of a smartphone, 82 percent employ a PC, and 78 percent also use a tablet.

This reliance on technology, and a dependence on continually being connected, pressures modern IT teams to deliver consistent service quality to users of corporate resources while ensuring a high level of security, control, and compliance, typically within decreasing IT budgets.

Use of cloud services and mobile devices is exploding, however most organizations still have at least one foot firmly planted in the PC era as well, with a heavy dependence on Line-of-Business Windows applications.

Throw in the added intricacy of delivering cloud-based mail services, such as those provided by Office 365, especially in server-based or non-persistent VDI environments, and the challenge of satisfying user acceptance increases exponentially.

Therefore, managing and delivering corporate desktops that meet end-user expectations while enforcing policy is, and will continue to be, an ongoing struggle for IT.

Traditional methods for applying IT policy haven't kept up with the evolution of the modern computing environment. Two such methods are:

- Logon scripts, a series of coded instructions to set up a Windows desktop. Are applied each time a user logs on to their device and are typically written in legacy VBscript or KiXtart code.
- Group Policy Objects, a collection of IT settings that define what a Windows desktop will look like and how it will behave for a defined group of users.

Why Logon Scripts Don't Cut the Mustard

The use of scripts and batch files have been a method for configuring user desktops at logon for many years, yet they haven't kept up with the expectations and complexity of today's IT landscape.

Complex to configure

Logon scripts are typically complex to write and require a skilled IT employee, with coding skills in either VBScript or KiXtart, to produce many hundreds or thousands of lines of code to configure the users' desktops. This can often lead to organizations hiring expensive resources to meet scripting requirements, or can result in more experienced IT employees being pulled away from other, more urgent tasks, to satisfy coding requirements.

Difficult to maintain

Once written and in place, logon scripts have no built-in version control. Therefore, if an IT team member makes a change to the script that breaks something, there is no way to identify what the change was or how to revert it. In addition, it's very difficult for another IT employee to come in and pick up someone else's logon script as code can be written in many ways to achieve the same outcome.

Run sequentially

Logon scripts execute their actions sequentially, i.e., one after the other. Therefore, if a logon script contains many hundreds or thousands of lines of code, it will take a long time to iterate through the script, and user logon times can be very long.

Only apply at logon

Logon scripts can only configure settings to the user desktop at logon. Therefore, every setting a user may or may not need must be configured at logon, even if the user won't need that setting during their intended session. This makes logon scripts even more inefficient as, for example, items such as printers and drivers that will never be used must all be mapped at logon, lengthening the logon time.

No audit controls

With logon scripts, there is no way of knowing who made a change to a logon script, or what that change was, should something have been broken by an IT employee. This makes troubleshooting difficult and prolongs IT administration, which could have an adverse effect on user productivity.

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Going Down Swinging with Group Policy Objects (GPOs)

Group Policies (GPOs) have been a convenient method of applying IT policy organization-wide for some time, however, they aren't necessarily the best solution when it comes to providing context-aware, tailored desktops for individual users who roam between varying platforms and devices.

Run sequentially

Similar to logon scripts, GPOs process their actions sequentially, one after the other. Therefore, if many GPOs need to be configured, user logon times can be very long.

Limited flexibility

GPOs can only be applied to users (with Active Directory Organizational Units) or computers. Therefore, they are very limited when it comes to applying settings based on context, for example, based on location, operating system, or device type.

Limited triggers

GPOs can only be applied at computer startup, user logon, or on a set periodic basis. They cannot react to changes in environment, for example, when a network is disconnected or reconnected.

Difficult to maintain

With GPOs, there is no built-in search or filter option to find a specific setting that needs configuring or editing. This makes initial configuration and troubleshooting cumbersome and slow. In addition, GPOs can be nested and inherited, making it very difficult to find or fix issues with existing settings.

No audit controls

Any changes made to settings within GPOs are not audited. If an incorrect change is made, it's impossible to tell what the change was or who made it, making troubleshooting tough.

Agony to Achieve Non-persistent Ecstasy

Many organizations are lured towards the promise of both capital-expenditure and operational-expenditure savings associated with delivering non-persistent VDI desktops at scale. These could be virtual desktops hosted on-premises or delivered as Desktop-as-a-Service (DaaS) from the Cloud. Here, each user is provided with a desktop based on a common image, spun up each time a user connects to the desktop, and then torn down when the user logs off. This allows IT to manage and host just a single image, vastly reducing storage and management costs.

However, user dissatisfaction is usually the cause of most failed non-persistent VDI implementations. Slow logon times, poor desktop and application response times, and, more importantly, the inability to persist personal settings and files between sessions, are the common causes of poor user acceptance.

What's great from an IT perspective isn't necessarily great for the user, so IT must compromise to deliver a non-persistent VDI environment that will also satisfy its consumer.

Shrouded in Clouds – Office 365 in Non-persistent Environments

There are now 120 million active commercial users of Office 365[3] as businesses flock to deliver cloud-hosted mail services to users. To improve user experience and overcome network latency, IT departments typically enable Outlook's Cached Exchange mode, which allows a user's mailbox to be cached locally in their session or virtual desktop. However, this option introduces challenges when Outlook is used in a virtual desktop.

100M

Active commercial users of Office365

Outlook Cached Exchange requires large OST files to remain resident within a user's profile. Unfortunately, in non-persistent VDI and Remote Desktop Server Host (RDSH) environments, the profile is typically rebuilt at logon, resulting in the loss of users' OST files. Consequently, at the next logon, Outlook has limited functionality while it downloads and rebuilds the OST cache since an OST file can be multiple gigabytes in size.

As an alternative, organizations could use a Group Policy setting to redirect the Outlook OST file to a file share, or utilize roaming profiles, but these approaches are prone to corruption and latency. They also introduce a huge hit to logon performance and productivity as OST files grow.

The Panacea of IT Policy

To address the IT policy challenges already discussed, Ivanti Environment Manager Policy offers a comprehensive, yet simple solution that can simplify IT administration, save organizations money, and deliver an elevated level of user satisfaction.

Environment Manager Policy offers an alternative, or enhancement, to existing logon scripts or GPOs and requires no additional server or database infrastructure to install and run. Through use of a simple graphical user interface, IT departments can set up comprehensive and flexible configurations, without the need for scripting knowledge, that eases desktop configuration and improves the end-user experience.

## The Components of a Successful Solution

Through the use of flexible actions and conditions, desktops can be tailored to individual users or environmental scenarios, with settings being applied across various trigger points.

Triggers: events that occur that prompt configured actions to be applied

Actions: the behaviors applied on managed desktops

Conditions: provide the context for applying actions when certain triggers apply

Making use of a multi-threaded engine, actions can be applied simultaneously, where required, to accelerate logon times by up to 90 percent.
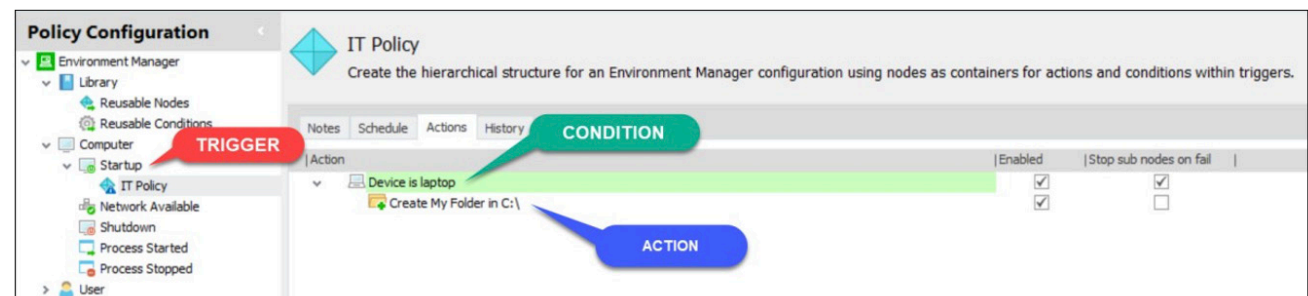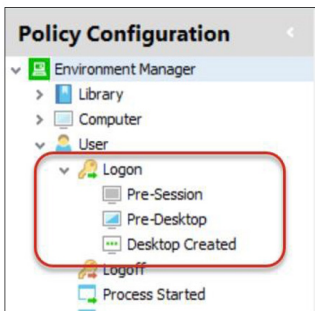
Triggers and Actions

Redundant actions that don't need to be applied at logon can be moved to alternate trigger points to occur on- demand, only when needed. This reduces the load on the logon process to improve logon times even further.

To ensure an optimal user experience, the logon process can be broken down into three separate phases, where actions can be applied as necessary:

- Pre-Session
- Pre-Desktop
- Desktop Created

The **Pre-Session** logon trigger fires first and supports a limited number of actions, including setting environment variables, configuring group policy, and applying specific registry settings.

The **Pre-Desktop** logon trigger is used for performing the majority of user logon actions, including such items as folder redirection, configuring group policy, and applying further registry settings.

The **Desktop** Created trigger fires after the default Windows shell has started. This is ideal for actions that typically take longer to complete, so that they won't impact the perceived logon performance, as the users' desktops and applications will be available while actions defined in this trigger continue to run. Actions typically assigned here include file and folder copy actions, printer and drive mapping actions, and other group policy settings.

Conditions

Conditions enable IT to tailor the user desktop to specific environmental scenarios based on various rules.

Boolean logic can be used to AND or OR conditions together to build flexible, context-aware rules.

And if there's no built-in condition to achieve the result you require, custom conditions can be created using PowerShell, VBScript, or Jscript to provide 100-percent flexibility to satisfy the demands of any organization.
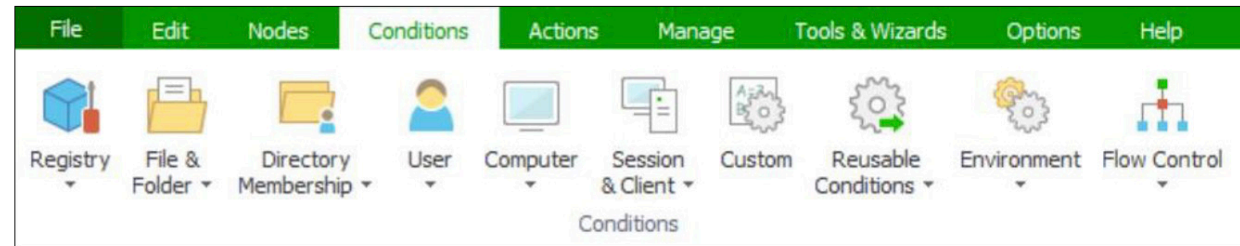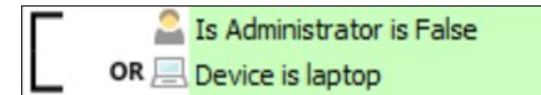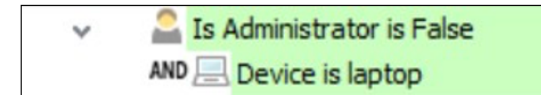
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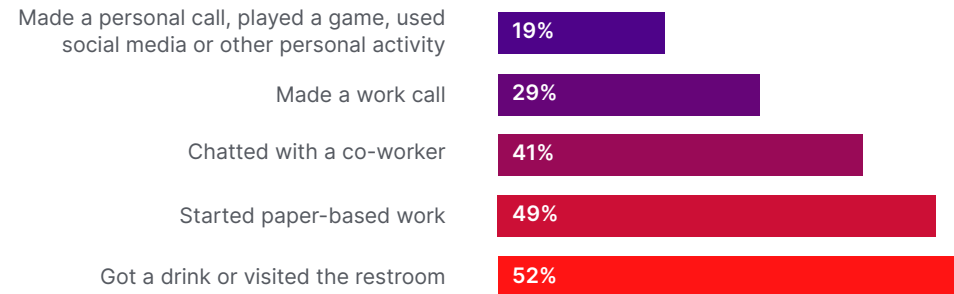
Eradicate Logon Scripts

Environment Manager Policy's multi-threaded, contextual engine is optimized to apply only those configurations that are relevant to the user context, to ensure they're completed quickly, and to prevent logon hold ups if, for example, a network resource is unavailable.

The ability to apply many actions simultaneously, rather than one after the other, greatly improves logon times and provides more flexible configuration options that traditional logon scripts. And, by moving redundant actions away from the logon process, it provides a far more efficient method than traditional logon scripts for configuring the user desktop.

The solution's simple-to-use graphical user interface negates the need for scripting knowledge, freeing up the more skilled IT admins to concentrate on more urgent tasks. And, because it's so simple to use, configurations are a lot easier to pick up and maintain should the designated IT admin change.

Its built-in version control and administrative audit capabilities also make troubleshooting desktop configuration issues a snap.

While your computer is doing something and you have to wait for it, what do you do while you are waiting?

Made a personal call, played a game, used social media or other personal activity	19%
Made a work call	29%
Chatted with a co-worker	41%
Started paper-based work	49%
Got a drink or visited the restroom	52%

End GPO Nightmares

Group Policy is often satisfactory for enforcing company-wide policy, but when used for contextual and granular control of a user desktop, it requires IT to configure and maintain many hundreds of Group Policy settings, often making use of complicated inheritance rules, which over time becomes impossible to maintain. And as Group Policy applies its settings one after the other, the more complex the configuration, the slower the user logon.

Environment Manager Policy provides the ability to import existing Group Policy templates and apply individual settings simultaneously, speeding up user logon substantially. This simplifies the process of migrating away from Group Policies, allowing a staggered approach to migration.

The complexity of inherited Group Policy settings and the inability to troubleshoot associated issues become a distant memory when using Environment Manager. Its intuitive filter allows the location of Group Policy configuration settings to be identified immediately, while its flexible conditions make it simpler to tailor desktops to specific users and their environments. Additionally, built-in audit and version control satisfies enterprise-grade security and compliance mandates and enables IT admins to quickly identify incorrect changes and their culprits.

And with no reliance on network resources, Environment Manager Policy works offline to ensure configuration settings are applied without any delay.

Speed Up Logon Times

In a recent study by Dimensional Research[4], it was found that most users will tolerate a logon of 30 seconds or less. After a 30-second wait, employees can become distracted and seek alternate tasks. Over 70 percent of those distracted employees will turn to a personal activity, lasting anywhere from one to 10 minutes.

This obviously results in a loss of user productivity that can cost organizations thousands, if not millions, of dollars in lost working hours per year.

In addition, if a user leaves their unlocked desktop to go perform another activity, once the user is eventually logged on, it introduces a security and compliance breach whereby that user's desktop and the data therein could be compromised by an unauthorized third party while the user is away.

Many organizations still rely on scripts or batch files to configure the user desktop which, over time, become high- maintenance, unwieldly, and overcomplicated. As settings are added, it takes longer and longer for the logon actions to apply, causing further disruption to the user.

Environment Manager Policy replaces the headache associated with maintaining complex scripts and batch files, with a simple-to-use graphical user interface that requires zero scripting knowledge.

Its multi-threaded, contextual engine applies logon actions simultaneously to substantially accelerate user logons, reduce the costs associated with lost productivity, and eliminate any potential security concerns.

Painless Windows 10 Migration

Roaming profiles have historically been a quick and useful way of ensuring personal settings are available to users when they log on to different endpoints within an organization. However, roaming profiles also introduce several IT headaches.

In Windows 7, a typical roaming profile might be around 25-50MB in size. However, in Windows 10, a typical roaming profile is around 160MB and that's before the user has even started to personalize their environment. As the profile bloats, the user logon time increases, and user acceptance of new Windows 10 desktops can be diminished.

In today's IT world, hybrid computing environments are far more common. Users are not only making use of different devices, but different operating systems and platforms, too.

Windows 7 introduced the v2 profile whereby roaming profiles created under a Windows XP environment would no longer function as expected under Windows 7, causing issues for users who wanted to migrate their personal settings. This trend has continued

throughout each of Microsoft's operating system releases, with Windows 10 now offering a v6 profile.

With each feature update of Windows 10 capable of introducing a new profile version, it means supporting roaming profiles now becomes far more complex and expensive.

Environment Manager Policy enables simple migration of users' personal settings from older operating systems over to Windows 10 desktops. Through a combination of file and folder copying and registry hiving and restoration, user settings can be saved out to a network share either at logoff, session disconnect, or application close, and then restored to a Windows 10 desktop when required—all this without the need for additional server installs or database configuration.

Its multi-threaded, contextual policy engine can also be used to eliminate slow, complex group policy settings and ensure lightning-fast logons for users. This ensures user acceptance of the new Windows 10 desktop and sets the baseline for a successful desktop-transformation project.

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Deliver Full, Non-persistent Desktops

As discussed earlier, the promise of CapEx and OpEx savings gained from utilizing non-persistent desktops is often outweighed by a poor user experience leading to user friction and ultimately project failure.

Ivanti Environment Manager Policy is a simple solution that can be used to ensure user personalization is persisted between virtual and/or physical desktop sessions, no matter if that desktop has been delivered from on-premises servers or from the cloud via a DaaS solution.

Without the need to install additional servers or databases, users' personal settings and data can be copied out or redirected to network file shares, allowing personalization to be restored the next time a non-persistent virtual desktop is connected. This eliminates the need for roaming profiles that can be subject to bloat, resulting in slow logons and corruption, in which user settings can be lost if the profile fails to be written out at logoff.

Environment Manager Policy's multi-threaded engine, flexible triggers, actions, and conditions enable simple configuration of context-aware virtual desktops and ensure the fastest logon times possible.

This provides a win-win situation, as it delivers the costs savings associated with non-persistent virtual desktops the organization has come to expect, along with an optimal quality of service and experience for its users.

Experience the Power of Office 365 in Non-persistent Environments

Many organizations are migrating to Office 365 at an ever- increasing rate, with 2.5 million new active users every month[5], however user acceptance is still key to a successful migration project.

Substantial barriers to user acceptance of Outlook 365 in VDI/RDSH environments are application performance and experience.

This issue is directly linked to one of the methods by which VDI/RDSH sessions are configured to interact with Office 365 Mailboxes:

- **Exchange Online Mode** – Employs a direct connection to an Office 365 Mailbox, which is prone to lagging application performance and poor search capabilities, and is susceptible to network latency.
- **Cached Exchange Mode** – Works predominantly from a local copy of the mailbox. It resolves network and performance issues but requires a resident local mailbox within the user profile.

2.5M
New active users of
Office 365 every month

Cached Exchange Mode is the preferred approach, but typically in virtual sessions the user profile is rebuilt at each logon, which results in each user's .OST mailbox file having to be downloaded for every session, resulting in high network utilization and poor application performance during the session.

Ivanti Environment Manager Policy solves the Cached Exchange mode challenge by attaching a container to use the user's virtual desktop or session and redirecting necessary folders within the user profile into this container.

Outlook caches can now roam effortlessly between sessions, enabling organizations to employ the full power of Office 365. Cache Roaming is also easily extensible to provide solutions for related problems with profiles, IE cookies, temporary internet files, Google Chrome, and other application caches.

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Conclusion

Satisfying the requirements of a stretched IT department facing budget restrictions and limited IT resources is a challenge for many organizations. Throw in modern users' demands and expectations and it presents a cocktail of complexity that can lead to IT frustration, failed projects, productivity issues, user dissatisfaction, and ultimately increased costs to the business.

Traditional methods of desktop configuration, including scripting and Group Policy, have become outdated and are no longer up to the task of configuring and maintaining complex IT environments. IT departments expect simpler and more efficient ways of managing end-user desktops, while users expect a consistent user experience irrespective of the device or location from which they are accessing their corporate IT resources.

Ivanti Environment Manager Policy provides a simple, yet comprehensive solution that enables IT to eradicate logon scripts, end Group Policy nightmares, and eliminate slow user logons. Desktop transformation projects such as Windows 10 migration and Office 365, and moving to cloud-hosted or non-persistent virtual desktops can be achieved quickly and successfully, with very little effort and at low cost to the organization. User acceptance is increased, leading to a more productive workforce and ultimately, increased profits for the organization.

About Ivanti

Ivanti makes the Everywhere Workplace possible. In the Everywhere Workplace, employees use myriad devices to access IT networks, applications and data to stay productive as they work from anywhere. The Ivanti automation platform connects the company's industry-leading unified endpoint management, zero trust security and enterprise service management solutions, providing a single pane of glass for enterprises to self-heal and self-secure devices, and self-service end users. More than 40,000 customers, including 78 of the Fortune 100, have chosen Ivanti to discover, manage, secure and service their IT assets from cloud to edge, and deliver excellent end user experiences for employees, wherever and however they work. For more information, visit ivanti.com

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1. https://www.glassdoor.co.uk/employers/blog/will-generation-z-affect-workplace/
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