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# Carbon Black App Control

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## App Control & Citrix App Layering

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# Contents

- Introduction ..... 3
  - How Carbon Black App Control Handles Citrix App Layering Files ..... 3
  - System requirements ..... 4
- Automatic Approval of Files on Read-only Volumes ..... 5
- Ignore USN Journal Changes ..... 8
- Citrix App Layering Approval Events and Alerts..... 9
- Citrix App Layering Layer Changes and File Inventory Accuracy ..... 10
- Contacting Support ..... 11
  - Reporting Problems ..... 11

## Introduction

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This document provides guidance for Carbon Black App Control customers who also use Citrix App Layering™.

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**IMPORTANT NOTE:**

This document is based on the January 2018 Carbon Black App Control document titled “*Release Note: Enhanced Management of Unidesk Files*”

This document reflects the changes due to rebranding, software updates, and customer experience.

Lastly, this document is the reflection of our experience with a limited set of customers. It is not all-inclusive and is specifically designed to provide guidance only. If your environment differs slightly or you need additional assistance please contact [Support](#).

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An administrator can use Citrix App Layering to create and deploy read-only layers, virtual disks that contain applications approved for use in their environment as well as a bootable Windows image. There is also a writeable layer on an endpoint using Citrix App Layering, not deployed by Citrix App Layering but part of the logical structure on the endpoint.

If you deployed the applications in the read-only layers, you likely have already decided that they are safe and appropriate for your environment. If you are using Carbon Black App Control to manage endpoints in a Citrix App Layering environment, you might want to approve the “interesting files” in the read-only Citrix App Layering layers so that users of these layers do not need to request approval for each file. This also allows you to concentrate on tracking the file activity on the write layer.

Automatic local approval of Citrix App Layering read-only files is supported in Carbon Black App Control.

### **How Carbon Black App Control Handles Citrix App Layering Files**

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- **Always Ignore Hidden Volumes:** Citrix App Layering presents its source layers on a system as numerous storage volumes, but only one is mapped as the C: drive. To reduce the amount of file analysis work and eliminate unnecessary cataloging of files, hidden (unmapped) Citrix App Layering volumes and their files are ignored by the agent. This is always true – no configuration setting is necessary.
- **Optional Automatic Approval of Mapped Read-Only Files:** If an optional configuration property is enabled as described below, when a file in the mapped read-only layer is discovered, it is added to the Carbon Black App Control inventory and automatically approved. File discovery (and with this option, approval) in a read-only layer is not automatic; it occurs when the file is executed or a cache consistency check is run.
- **Optionally Ignore File Changes that Occur when Agent is not Running:** By default, Carbon Black App Control uses USN journaling to trigger a cache

consistency check when file changes occur when the agent is not running. This can be disabled for better performance with Citrix App Layering.

- **Normal Tracking of Files in the Citrix App Layering Write Layer:** Files in the Citrix App Layering write layer are inventoried and analyzed the same as files on non-Citrix App Layering systems. This includes files provided in the read-only layer but modified so that they must be saved in the write layer.

**Note:** Modifications to the read-only layer done offline and then returned to the endpoint are not detected until the modified file is executed (or a cache consistency check is run). Also, if a file from the read-only layer is modified and saved to the write layer, then removed from the write layer, the inventory may still reflect the modified version that is no longer there.

See [Citrix App Layering Layer Changes and File Inventory Accuracy](#) on page 10.

## System requirements

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To use the Citrix App Layering-Carbon Black App Control integration, systems must meet the following requirements:

- Citrix App Layering 4.1 (March 2017) or higher
- Carbon Black App Control Server 8.1.0 or higher
- Carbon Black App Control Agent 8.1.0 or higher

## Automatic Approval of Files on Read-only Volumes

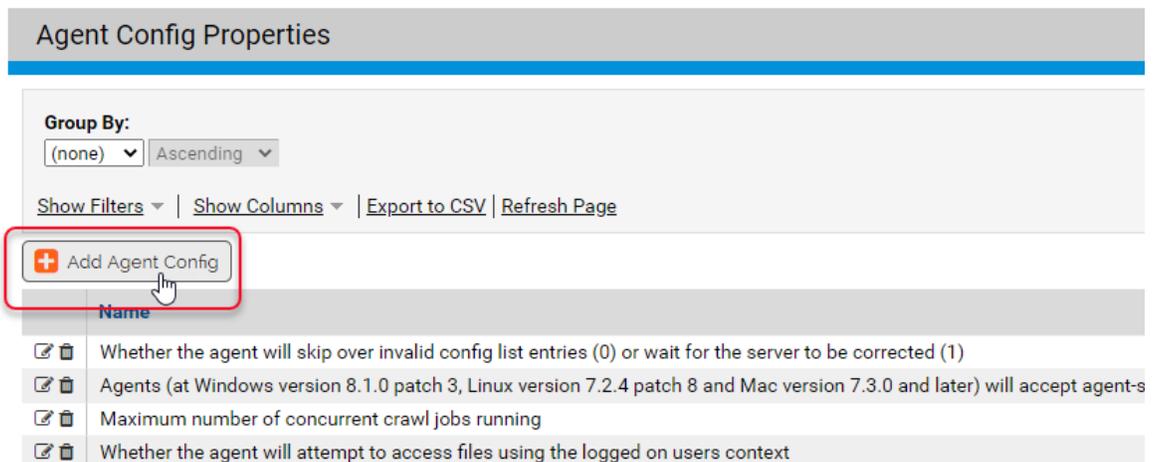
The following procedure enables automatic local approval of files on the mapped read-only layers of a Citrix App Layering endpoint as they are discovered by the Carbon Black App Control Agent. Automatic local approval will save you the time and effort required to do individual approvals as they are requested by each user. Keep the following in mind before enabling this feature:

- Be certain that you want to allow approval and execution of *any file* on the read-only layers before you enable this feature.
- Although these files will be approved, the Carbon Black App Control Agent will still perform an analysis on a file the first time it is executed, so you will still see a performance impact in this case. Subsequent executions of the same file will not be impacted.

### To enable automatic approval of files found on Citrix App Layering read-only volumes:

1. Log in to the Carbon Black App Control Server using an account with administrator privileges.
2. Go to the Agent Config Properties page. This is not available through the user interface but is reached by entering the following URL:  
`https://<servernameandpath>/agent_config.php`

**Warning:** Configuring these internal settings without input from Carbon Black support may result in unexpected behavior.



Agent Config Properties

Group By:  
(none) Ascending

Show Filters | Show Columns | Export to CSV | Refresh Page

+ Add Agent Config

Name
<input checked="" type="checkbox"/> <input type="checkbox"/> Whether the agent will skip over invalid config list entries (0) or wait for the server to be corrected (1)
<input checked="" type="checkbox"/> <input type="checkbox"/> Agents (at Windows version 8.1.0 patch 3, Linux version 7.2.4 patch 8 and Mac version 7.3.0 and later) will accept agent-s
<input checked="" type="checkbox"/> <input type="checkbox"/> Maximum number of concurrent crawl jobs running
<input checked="" type="checkbox"/> <input type="checkbox"/> Whether the agent will attempt to access files using the logged on users context

3. On the Agent Config Properties page, click **Add Agent Config**. This opens the Add Agent Config Property page.

**Warning:** Configuring these internal settings without input from Carbon Black support may result in unexpected behavior.

4. Enter the information for the fields on this page:
  - **Property Name:** Approve Citrix App Layering Files  
This can be any name you choose, but for ease of troubleshooting, this standard name is recommended.
  - **Host ID:** Enter zero (0) if you want this property to affect all agents or to agents you specify by policy.  
  
**Note:** If you want to specify individual computers for which this setting will be effective, you can enter specific computer IDs, which can be seen in the URL on the Computer Details page for each computer. However, if you want to limit the endpoints on which this setting will be effective, putting all the target endpoints in one policy may be a better choice.
  - **Value:** This *must* be the following string:  
approve\_files\_on\_unidesk\_ro\_volume=1  
**NOTE:** Unidesk = Citrix App Layering. This value is hard coded in Carbon Black App Control.
  - **Macros:** You can leave this blank.
  - **Platform:** Citrix App Layering is a Windows application, so you can choose **Windows** here.
  - **Status:** Click the **Enabled** radio button.
  - **Create for:** If you want this to apply to all agent-managed computers, choose **All Current and Future Policies**. If you want to limit this setting to computers in certain policies, click **Selected Policies** and then specify the policies.
5. When you have finished entering the settings for this property, click **Save**.

**Add Agent Config Property**

Agent Config Information

**Property Name:** Approve Citrix App Layering Files

**Host ID (0 For All):** 0

**Value:** approve\_files\_on\_unidesk\_ro\_volume=1

**Macros:**

**Platform:** Windows

**Status:**  Enabled  Disabled

**Create For:**  All Current and Future Policies  Selected policies

All files discovered in the Citrix App Layering read-only layer (because they were executed or a cache consistency check was run) will now be automatically locally approved.

You can disable automatic local approval of Citrix App Layering read-only layer files at any time. This will not remove local approval from file instances already approved by this method, but it will prevent local approval of newly discovered instances of files on Citrix App Layering read-only layers.

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**IMPORTANT NOTE:** There are additional steps required for Optional Automatic Approval of Mapped Read-Only Files to function properly. In addition to setting up the Citrix App Layering agent config setting, the unifltr.sys driver must be present and running. This is the default for Elastic Layered app layers but not for Layered Images.

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#### To disable automatic local approval of Citrix App Layering read-only layer files:

1. Go to the Agent Config Properties page.  
[https://<servernameandpath>/agent\\_config.php](https://<servernameandpath>/agent_config.php)
2. On the Agent Config Properties page, double-click the View Details (pencil and box) icon next to the Approve Citrix App Layering Files configuration. This opens the Edit Agent Config Property page.
3. On the Edit Agent Config Property page, click the the **Disabled** radio button and then click **Save**.

**Note:** If you are certain that you will not want to re-enable this property, you can delete it on the Agent Config Properties page instead of turning it off.

## Ignore USN Journal Changes

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By default, Carbon Black App Control uses the Windows' NTFS file system to discover files modified when the agent is not running. The agent uses the NTFS USN Journal to gather a list of modified files so that the agent doesn't need to wait until execution time for the files to be seen. This involves running a cache consistency check whenever the USN Journal reports file changes.

**Important:** Although this feature has obvious pluses, it can cause performance problems in the Citrix App Layering environment, leading to unacceptably high CPU usage. New volumes appearing that the agent did not see before count as a trigger to do the rescan. Because of this, Carbon Black recommends that automatic cache consistency checks triggered by changes reported in the USN Journal be disabled using a special configuration property

### To disable automatic cache consistency checks for file changes when agents are not running:

1. Log in to the Carbon Black App Control Server using an account with administrator privileges.
2. Go to the Agent Config Properties page by entering the following URL:  
*https://<servernameandpath>/agent\_config.php*
3. On the Agent Config Properties page, click **Add Agent Config**. This opens the Add Agent Config Property page.
4. Enter the information for the fields on this page:
  - **Property Name:** Disable CC3 on USN Journal Reported Changes  
This can be any name you choose, but for ease of troubleshooting, this standard name is recommended.
  - **Host ID:** Enter zero (0) if you want this property to affect all agents or to agents you specify by policy.  
**Note:** If you want to specify individual computers for which this setting will be effective, you can enter specific computer IDs, which can be seen in the URL on the Computer Details page for each computer. However, if you want to limit the endpoints on which this setting will be effective, putting all the target endpoints in one policy may be a better choice.
  - **Value:** This **must** be the following string:  
*usn\_journal\_flags=0*
  - **Macros:** You can leave this blank.
  - **Platform:** Citrix App Layering is a Windows application, so you can choose **Windows** here.
  - **Status:** Click the **Enabled** radio button.
  - **Create for:** If you want this to apply to all agent-managed computers, choose **All Current and Future Policies**. If you want to limit this setting to computers in certain policies, click **Selected Policies** and then specify the policies.
5. When you have finished entering the settings for this property, click **Save**.

## Citrix App Layering Approval Events and Alerts

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A new event subtype, *File approved (Citrix App Layering)*, appears when a file is approved because of the automatic setting for Citrix App Layering read-only layer approvals.

If you choose, you can create an Alert to notify you whenever a file is approved in this way. The alert can also be configured to notify you only when a certain threshold number of files receive Citrix App Layering-based approval, or when only when files on computers in certain policies are approved in this way. Note, however, that this could produce a very large volume of alerts, reducing their usefulness. Consider this before implementing any alert.

You can also use the Citrix App Layering event to trigger actions through Event Rules.

## Citrix App Layering Layer Changes and File Inventory Accuracy

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Because Citrix App Layering layers may be added and removed from an endpoint, the Carbon Black App Control file inventory for Citrix App Layering systems can be inaccurate to varying degrees. This has the following effects when a read-only layer is removed, changed, and then restored on the endpoint:

- If files are added to the layer, the new files will not be discovered until they are executed or a full cache consistency check is run.
- If files are deleted from the layer, they may stay in the inventory until a full cache consistency check is run. This is also true of all the files in a layer that has been removed and not yet restored on the endpoint.
- If a file in the layer is modified, it may still be in the inventory but have the wrong hash and file information until a full cache consistency check is run. Among the side effects of this case can be:
  - If a file was locally approved because it was on a Citrix App Layering read-only layer, and if a file with the same name but a different hash appears on a new Citrix App Layering layer, the new (but actually different) file might retain the approval from the original file. This can be true for both new read-only layers and changed files on the writable layer.
  - If a file in a Citrix App Layering layer that was not an installer is replaced by a file with the same name, and the new file *is* an installer, the Carbon Black App Control Agent will not recognize this change, and the file will not be “promoted” so that it can run as an installer.
  - Other file information, such as publisher and certificate, might be incorrect.

If you want to maintain the most accurate possible inventory of files on endpoints running Citrix App Layering, consider periodically running a full cache consistency check (CC3) on each endpoint. Because a full cache consistency check can be time consuming, running it during non-critical periods is recommended. You may want to do this whenever you make major changes to a Citrix App Layering layer or on a regular schedule. On the other hand, if you are not concerned about closely tracking the read-only layer, you might not need to run these checks.

## Contacting VMware Carbon Black Support

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Please view our Customer Support Guide on the User Exchange for more information about Technical Support:

<https://community.carbonblack.com/t5/Support-Zone/Guide-to-Carbon-Black-Customer-Support/ta-p/34324>

For your convenience, support for Carbon Black App Control is available through several channels:

Technical Support Contact Options
Web: <a href="#">User eXchange</a>
E-mail: <a href="mailto:support@carbonblack.com">support@carbonblack.com</a>
Phone: 877.248.9098
Fax: 617.393.7499

## Reporting Problems

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When you contact support, please provide the following information to your representative:

Required Information	Description
<b>Contact</b>	Your name, company name, telephone number, and e-mail address
<b>Product version</b>	Product name and version number
<b>Hardware configuration</b>	Hardware configuration of the server or endpoint having the issue (processor, memory, and RAM)
<b>Document version</b>	For documentation issues, specify the version of the manual you are using. The date and version of the document appear on the cover page of most documents and after the Copyrights and Notices section of longer manuals.
<b>Problem</b>	Action causing the problem, error message returned, and event log output (as appropriate)
<b>Problem severity</b>	Critical, serious, minor, or enhancement