0patch Agent

version 19.03.01.10750

USER MANUAL

revision 161

https://0patch.com

Contents

1. What is 0patch?

0patch is a microscopic solution for a huge security problem, developed and provided by ACROS Security. It delivers tiny patches of code to computers worldwide to fix software vulnerabilities through which criminals and spies can break in and take control.

These "3rd party" fixes (we call them “0patches”) are tiny patches of code (usually just a few instructions), making them inexpensive to test and review, and extremely unlikely to cause functional problems to corrected software. Moreover, system administrators are able to apply or remove them without having to re-launch corrected applications (much less restart computers), avoiding any downtime for users that is typically associated with official security updates.

0patch is resolving various painful IT security issues:

The Pain	The 0patch Solution
No vendor patches are available for 0day vulnerabilities, leaving users exposed to 0day attacks.	0patch provides patches for various 0day vulnerabilities using an extensive global network of security researchers.
Patches exist, but are not applicable (e.g. many Java applications require particular version of Java, so it is not possible to update to the latest version).	0patch provides patches for non-current (old) versions of applications (including Java), preventing attackers from exploiting known security bugs.
Official patch deployment is expensive, causing a huge financial burden for big corporations.	0patch is extremely light-weight, allowing you to apply and remove patches in running processes instantly without a need to restart applications or reboot computers.
Vendor patches could be extremely complex and replace hundreds of megabytes of code, making it impossible to control code on critical systems.	0patches are so tiny that an administrator can manually review each one of them before deploying it. An average 0patch consists of just a few machine code instructions.
Patch deployment testing is very difficult for high-availability systems (especially if patching requires system restart).	0patch never requires you to restart a computer, or even relaunch an application or restart a service. 0patches are applied to running processes - and removed from them if you so choose.
Large vendor patches often break or modify functionalities.	Each 0patch addresses one single vulnerability and introduces no functional changes to the application. Users will never notice that a 0patch has been installed.

The Pain	The 0patch Solution
No patches are available for custom-built software.	We can create 0patches for almost any software product you may be using.
Legacy software is often unsupported and without security fixes.	We can create 0patches for software that is no longer supported, even if its vendor no longer exists. If you're using it, we can 0patch it.
No patches are available for many widely used, but no-longer-supported platforms (e.g. Windows XP or Microsoft Office 2003).	We create 0patches for unsupported Windows platforms and products, allowing you to continue using them with maximum possible protection.
No patches are available because software vendor does not exist anymore.	We can create 0patches for software that is no longer supported, even if its vendor no longer exists.
Absence of security patches means non-compliance with various standards.	0patches can help you stay compliant with standards that require staying up-to-date with security fixes.
Patch production, testing and deployment are very expensive for software vendors.	Developing, testing and deploying of 0patches is as inexpensive as it could possibly be.

2. Understanding 0patch

This section provides a short description of the basic concepts you need to be familiar with in order to understand how 0patch works and how you can use it.

Software products often contain **vulnerabilities** - flaws that allow attackers to take control of one's computer.

A **patch** (also called a **micropatch**) is a small package with a few code instructions that replace a vulnerable section of code in a running application. A patch therefore **fixes a vulnerability**.

A patch is considered **installed** as soon as it is downloaded from the server along with an appropriate **license** and stored in a local database. This does not automatically mean that it is applicable to your computer, only that it is there waiting to be used in case it is needed.

An installed patch can get **applied** to a **module** (usually, a DLL – dynamic-link library) inside a **running process** in order to eliminate a vulnerability in that process. This means that the vulnerable code section in the module inside the process is replaced with corrected code from the patch. Normally, a patch always gets applied to the vulnerable module (also called **patchable module**) it was designed for, but this can be prevented by either disabling the patch, excluding an application from patching, or disabling the 0patch Agent.

When a patch is **removed** from a running process, the corrected code from the patch is removed, and the original (vulnerable) code is restored in the process. Consequently, the process again becomes vulnerable to the attack previously blocked by the patch.

0patch does not change executable files on the file system. It only modifies code in memory of running processes, which allows it to easily and quickly apply and remove patches without even relaunching applications, much less restarting your computer. Patching is done instantly and (if you want) silently, and so is un-patching.

Normally, all applications loading patchable modules are being patched, which allows 0patch to provide maximal protection. However, for troubleshooting purposes any application can be manually **excluded from patching**. Such application does not get any patches applied until it gets **un-excluded**.

Each patch, when downloaded from the server, is initially **enabled**, which means it is getting applied to the module it was designed for, and therefore to all processes loading that module.

For troubleshooting purposes, any patch can be manually **disabled**, which causes its immediate removal from all processes in which it is applied, and prevents its application to newly launched processes. Naturally, a disabled patch can be manually re-enabled.

The **0patch Server** can mark an installed patch as **revoked**, which permanently disables the patch without an option to manually re-enable it. This usually happens because a better patch was issued for the vulnerability fixed by the revoked patch.

Patches are being applied to processes by the **0patch Agent** running on the computer. 0patch Agent must be **registered** on the 0patch server in order to receive patches. To register 0patch Agent, one needs a **0patch account** on the 0patch Server.

Once registered, 0patch Agent periodically contacts 0patch Server to see if any new patches are available - and downloads them if they are. We call this process **syncing** (i.e., synchronizing with server).

0patch Agent periodically sends **telemetry data** to 0patch Server, allowing users to remotely monitor their agents and allowing us to monitor for problems and usage in order to be able to provide a better service. Details on what data is being sent to 0patch Server are available here.

Once every 24 hours, and after receiving new patches, 0patch Agent scans local drives on the computer for patchable modules so that it can display them in the console and provide the user with accurate information on what could get patched on their computer.

In order to get any particular patch installed (and therefore ready to be applied to vulnerable processes), the account under which the agent is registered must have a valid **license** for that patch. Every new 0patch account initially has the default “Free” license that covers all free patches and can be used on non-work related computers and by certain non-commercial entities (see current License Agreement for details); everyone else needs to purchase a license that includes additional patches and technical support.

3. Supported Operating Systems

0patch Agent currently works on the following platforms:

- Windows Workstations
  - Windows 10, 32 and 64 bit
  - Windows 8.1, 32 and 64 bit
  - Windows 8, 32 and 64 bit
  - Windows 7 SP1, 32 and 64 bit
  - Windows Vista, 32 and 64 bit
  - Windows XP SP3, 32 and 64 bit (fully updated)
- Windows Servers
  - Windows Server 2016 64 bit
  - Windows Server 2012 R2 64 bit
  - Windows Server 2012
  - Windows Server 2008 R2 SP1, 32 and 64 bit
  - Windows Server 2008, 32 and 64 bit
  - Windows Server 2003 R2, 32 and 64 bit (fully updated)
  - Windows Server 2003 SP2, 32 and 64 bit (fully updated)

For the most current list of supported operating system versions see here.

4. Network Connectivity

In order to get registered and download patches from the server, 0patch Agent needs to be able to connect to 0patch Server. It initially connects to 0patch Server immediately after installation when you register the Agent, and then every 60 minutes when it »syncs« with the server to see if any new patches have become available.

Note that 0patch Agent is protecting you, and is applying all applicable patches it has previously downloaded from 0patch Server even when your computer is offline or otherwise unable to connect to 0patch Server. Being unable to connect to the server only means that the local patch database cannot be updated with new patches.

4.1. Firewall

Your firewall, if you have one, must allow the 0patch Agent to connect to host **dist.0patch.com** on port **443**. In case you can set networking permissions for individual processes, you need to allow processes **0patchConsole.exe** and **0patchService.exe** to initiate the above connections.

4.2. Proxy Server

If you want 0patch Agent to establish connections via a proxy server, you need to configure that manually in the registry. As administrator, launch **regedit.exe** and open the **HKEY_LOCAL_MACHINE\SOFTWARE\0patch** key. There are three values under this key that allow you to configure proxy server communication:

- **ProxyHost** – if empty, no proxy server will be used (the default setting); if non-empty, the proxy host in this value will be used, along with the proxy server port in the ProxyPort value
- **ProxyPort** – if proxy server is used, this value will be used as the proxy server port
- **ProxyScheme** – this value defines the proxy authentication scheme as follows
    - 0 – no authentication will be performed on the proxy server
    - 1 – BASIC authentication

If **ProxyScheme** is set to 1 (BASIC authentication), there are two additional values you have to set under the **HKEY_LOCAL_MACHINE\SOFTWARE\0patch\ProtectedSettings** key. Note that unless you run **regedit.exe** as administrator, you won't be able to even open this key because non-admin users are not allowed to read proxy server credentials.

- **ProxyUsername** – this value will be used as username
- **ProxyPassword** – this value will be used as password

Note that even after you configure a proxy server, 0patch Agent will still attempt to make a direct connection to the server if it fails to do so via the proxy server. This allows portable computers to stay up to date with patches both inside the corporate network and outside.

5. Installing 0patch Agent

In order to install 0patch Agent, you need to have - preferably the latest - installer package (file `0PatchInstaller_<version>.msi`). You can obtain the latest 0patch Agent installer package from https://0patch.com/download.htm.

5.1. Interactive Installation

Interactive installation of 0patch Agent varies slightly based on the version of Windows.

- All Windows systems except Windows XP and Windows 2003 Server:
  - If you are logged in as a member of Local Administrators, double-click the installer package and confirm the elevation prompt when requested.
  - If you are not logged in as a member of Local Administrators, double-click the installer package and provide username and password for an administrator account when requested.
- Windows XP and Windows 2003 Server:
  - If you are logged in as a member of Local Administrators, double-click the installer package.
  - If you are not logged in as a member of Local Administrators, log out and log in as a member of Local Administrators, then double-click the installer package.

When asked, confirm your acceptance of end-user license agreement.

Select where on the file system you want to have 0patch Agent installed, or simply keep the suggested location.

Keep the "Launch 0patch Console" checkbox ticked to have the 0patch Console automatically launched when installation is completed. Note that you may have to confirm elevation or provide administrative credentials for 0patch Console to get launched.

If you want to launch 0patch Console at any time, you can do so by clicking the 0patch icon in the system tray, or via the Start button.

5.2. Manual Agent Registration

Before 0patch Agent can download any patches from the server and start protecting your computer, it needs to get registered on the server. This links the Agent to your 0patch account on the 0patch server.

Manual Agent registration is done by signing in to your 0patch user account with your email address and password from the 0patch Console. If you leave the "Launch 0patch Console" checkbox ticked when installing 0patch Agent, the Console will automatically get launched and will immediately ask you to sign in.

Note: Make sure that network connectivity is properly configured as described in section 4, otherwise you will be seeing an »Unable to connect to the server« error message.

0patch Agent also supports auto-registration, as described in section 5.4.

The Console will not be accessible until the Agent has been successfully registered. As soon as the Agent is registered (i.e., linked to the server), it will start downloading patches from the 0patch Server and applying them to running processes on your computer (as applicable).

Note: If you don't have a 0patch account yet, you can get a free account by registering at https://dist.0patch.com/User/Register.

5.3. Agent Re-Registration

If 0patch Agent is already registered to a 0patch account and you wish to register it to another account instead, you can launch 0patch Console and click the icon in the upper right corner. This will open the *Sign In* form, allowing you to provide email and password for the other 0patch account. Once you successfully sign in, the Agent will be registered to the new 0patch account; otherwise, it will remain being registered to the current 0patch account.

5.4. Silent Installation and Auto-Registration

Silent installation of 0patch Agent allows you to install the Agent on a computer without any user interaction, providing all required values via command-line arguments. Such installation also supports *auto-registration*, whereby you don't need to manually provide credentials to have the Agent registered on 0patch server.

A typical example of silent installation of 0patch Agent on a computer behind an authenticated proxy server, with the Agent auto-registering itself to 0patch server, is launched like this:

```
msiexec /q /i 0patchInstaller.msi
AccountKey=0123456789abcdef0123456789abcdef ProxyHost=10.12.0.7
ProxyPort=8888 ProxyScheme=1 ProxyUsername=johndoe ProxyPassword=p3hd)h2KOs
```

These are the supported command-line arguments (arguments are not case-sensitive):

Argument	Description
TargetDir	Specifies the path you want to install 0patch Agent into. If the path contains spaces, enclose it in double quotes. Omitting this argument will result in installing 0patch Agent in the default location, which is `C:\Program Files\0patch` on 32-bit Windows systems and `C:\Program Files (x86)\0patch` on 64-bit Windows systems. Example: `TargetDir="D:\Applications\0patch"`
0patchHost	Specifies the host name of the 0patch server you want 0patch Agent to connect to. This is typically `dist.0patch.com`, but you may want to use another server. Example: `0patchHost=dist.0patch.com`
ProxyHost	In case 0patch Agent will need to connect to the 0patch server via proxy, specify the host name of your proxy server Example: `ProxyHost=10.12.0.7`
ProxyPort	Port for the proxy host, in case `ProxyHost` is specified. Example: `ProxyPort=8888`

Argument	Description
ProxyScheme	If your proxy requires authentication, this argument specifies the authentication scheme. 0 = no authentication will be performed on the proxy server (default) 1 = BASIC authentication Example: `ProxyScheme=1`
ProxyUsername	Username for BASIC proxy authentication (required if `ProxyScheme` is 1) Example: `ProxyUsername=johndoe`
ProxyPassword	Password for BASIC proxy authentication (required if `ProxyScheme` is 1) Example: `ProxyPassword=p3hd)h2KOs`
AccountKey	When provided, 0patch Agent will attempt to auto-register itself on the 0patch server to the account associated with the account key. You can request the account key by sending an email to support@0patch.com from the email address of your 0patch account. Example: `AccountKey=0123456789abcdef0123456789abcdef`

6. Uninstalling 0patch Agent

Uninstalling 0patch Agent can be done interactively or silently using command-line arguments.

6.1. Interactive Uninstallation

To interactively uninstall 0patch Agent, open "Add or Remove Programs" or "Programs and Features" as Administrator in Windows Control Panel (depending on your Windows version), and select option "Uninstall".

Alternatively, you can launch (as Administrator) the installation package of the currently installed 0patch Agent version and select option "Remove 0patch Agent".

6.2. Silent Uninstallation

0patch Agent can be silently uninstalled from the computer by launching:

```
msiexec /x 0patchInstaller.msi /q
```

Or, if you obtain the GUID of the installed 0patch Agent from `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall` on a 32-bit system or `HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\Uninstall` on a 64-bit system, 0patch Agent can be uninstalled by launching:

```
msiexec /x {GUID} /q
```

7. 0patch Console

0patch Console allows you to:

- view important information about patches and applications on your computer;
- view information about your 0patch license
- enable or disable 0patch Agent;
- enable or disable individual patches;
- exclude selected applications from patching;
- configure the appearance of pop-up messages;
- update 0patch agent to the latest version; and
- view the activity log.

0patch Console is automatically launched after successful installation of 0patch Agent if you leave the *Launch 0patch Console* checkbox ticked.

You can launch 0patch Console at any time by clicking the 0patch icon in the system tray, right-clicking the 0patch icon in the system tray and selecting the *Console* menu item, or via the Start button.

Note that 0patch Console needs to be running with administrative privileges. If you're not logged in to Windows as a member of Local Administrators, you will need to provide administrative credentials to launch the Console. On Windows Vista or later, and Windows Server 2008 and later, you may need to confirm the elevation prompt.

7.1. Console Layout

0patch Console consists of seven main areas as shown in the following image.

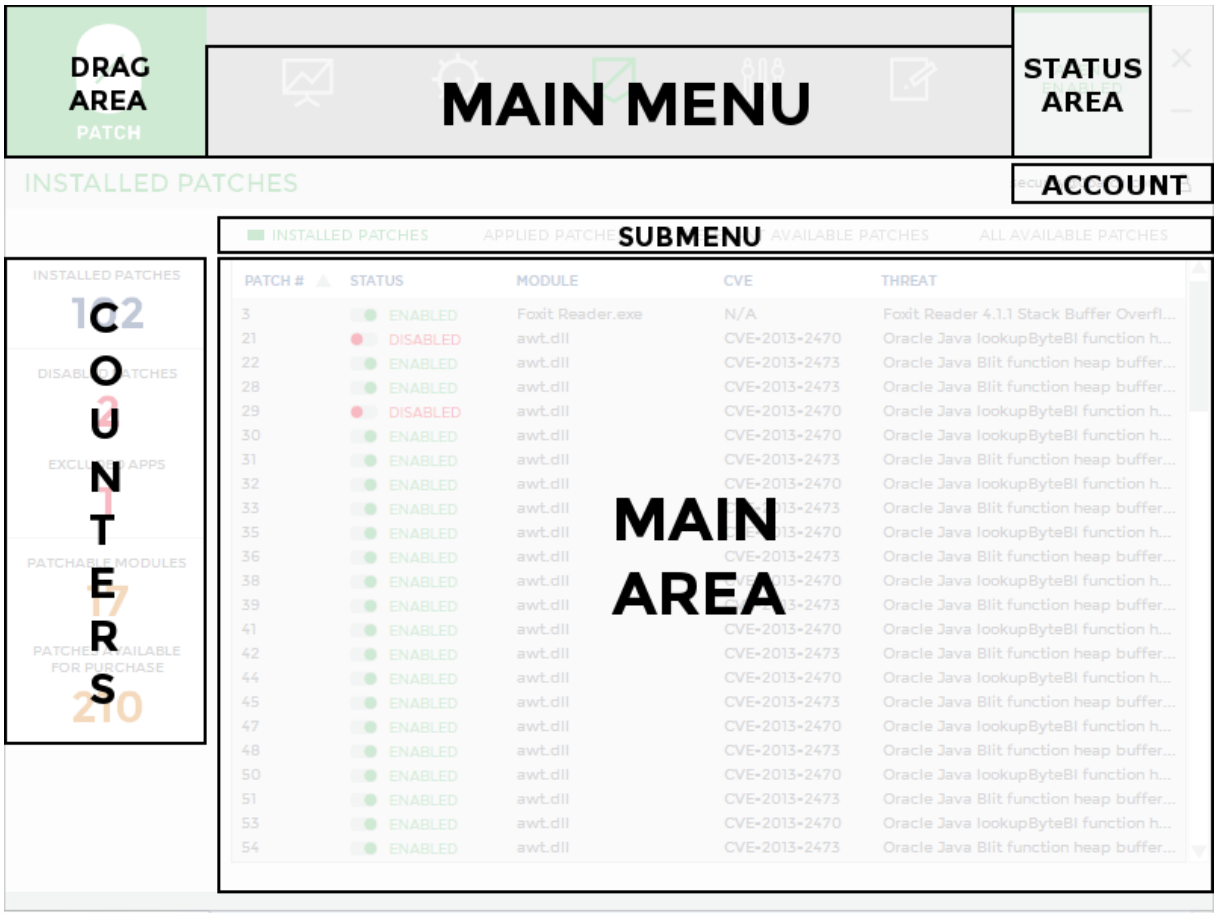


Figure 1: 0patch Console layout

The **MAIN MENU** provides access to individual pages of the Console: Dashboard, Applications, Patches, Settings and Log.

The **SUBMENU** area (only used on *Applications* and *Patches* pages) provides various filters for displaying applications or patches.

The **ACCOUNT** area shows the 0patch account to which the Agent is registered, and allows you to register the Agent to another account.

The **COUNTERS** display the number of patches installed on your computer, the number of disabled patches, the number of applications that have been excluded from patching, the number of *patchable modules* (i.e., modules the agent has patches for), and the number of patches that are available for purchase.

The **MAIN AREA** displays the content of the page selected via the menu.

The **DRAG AREA** allows you to drag 0patch Console around on the desktop.

The **STATUS AREA** shows whether 0patch Agent is currently enabled or disabled.

7.2. Dashboard

The dashboard provides top-level information about the status of your agent. It consists of various "boxes" as shown on the following image.

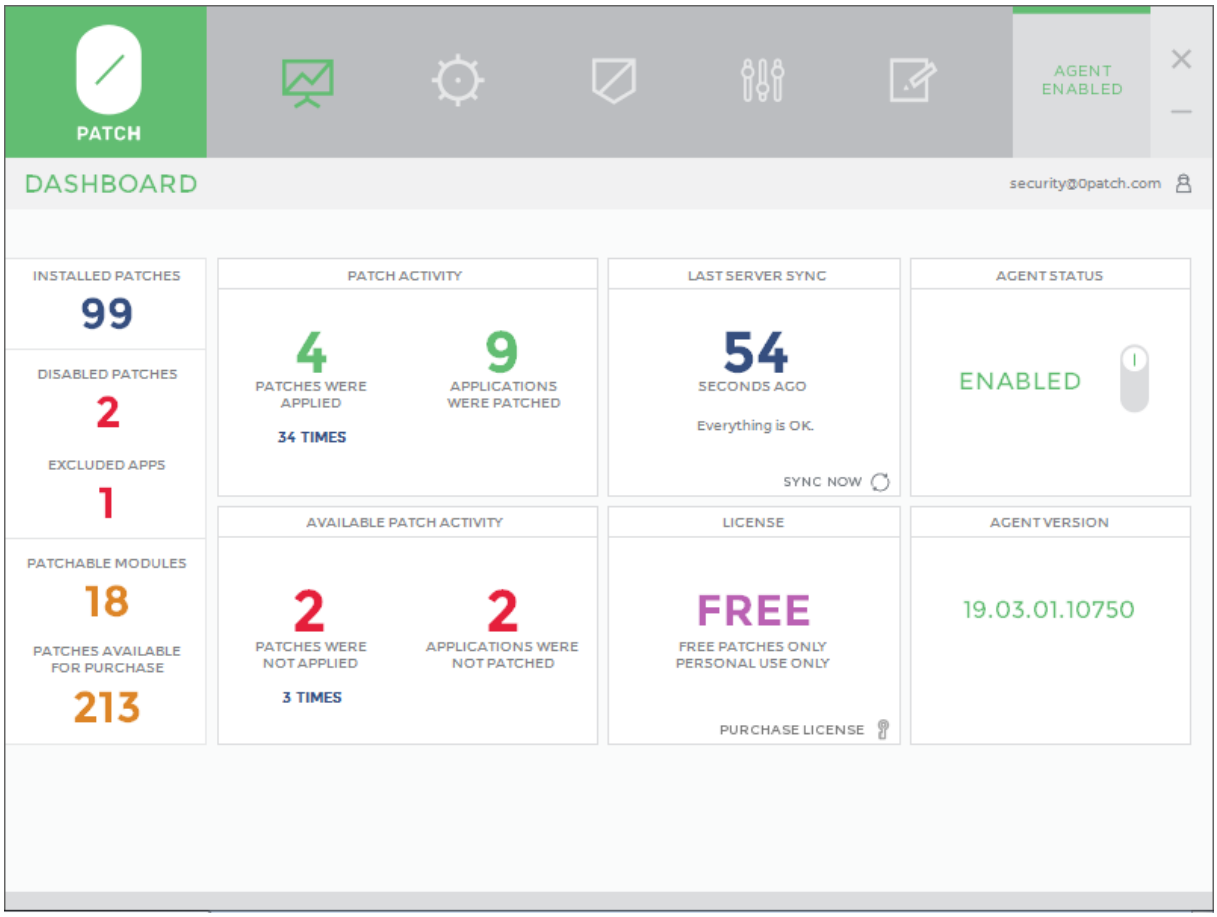


Figure 2: Dashboard page with data »boxes«

The **PATCH ACTIVITY** box displays real-time activity data **for licensed and free patches**:

- **how many patches** have been applied at least once to applications on this computer;
- **how many times** a patch has been applied on this computer; and
- **how many applications** have been patched (with one or more patches) on this computer.

You can click on the two large numbers in this box to go directly to APPLIED PATCHES view and PATCHED APPLICATIONS view.

The **AVAILABLE PATCH ACTIVITY** box displays real-time activity data **for unlicensed patches** (i.e., patches available for purchase that would have been applied had there been a license on this computer):

- **how many patches** available for purchase would have been applied at least once on this computer (but were not, because there was no license);
- **how many times** a patch available for purchase would have been applied on this computer (but wasn't); and
- **how many applications** would have been patched (but weren't) with one or more patches available for purchase.

You can click on the two large numbers in this box to go directly to RELEVANT AVAILABLE PATCHES view and APPLICATIONS THAT COULD BE PATCHED view.

The **LAST SERVER SYNC** box displays the amount of time passed since the 0patch Agent has last successfully received updates from the 0patch server (i.e., the last time it has done a successful "sync"). It also provides short information about the status of the last sync attempt, or any problems that may be causing the Agent to fail syncing. You can manually force a sync by clicking on "SYNC NOW."

The **AGENT STATUS** box allows you to enable or disable the Agent. Normally, the Agent is enabled, which means it is patching applications on your computer and periodically downloading new patches from 0patch server. If you disable the Agent, it removes all patches from currently patched applications and stops applying patches to them until you re-enable it.

The **LICENSE** box shows the license assigned to this agent, and when applicable, provides the "PURCHASE LICENSE" button.

The **AGENT VERSION** box shows the version number of 0patch Agent. When a new agent is available, this box also provides a "GET LATEST AGENT" button you can use to launch the update process and install the latest Agent. More details on this are available in section *Updating 0patch Agent*.

8. Applications

The *Applications* page displays applications and patchable modules on your computer for which 0patch Agent has at least one applicable patch. This is determined by 0patch Agent monitoring all running applications and the modules they're loading to detect patchable modules, and by scanning local drives.

The *Applications* page allows you to:

- see a list of all patchable modules on your computer;
- exclude individual applications from patching (and subsequently un-exclude them);
- see which patches (licensed or not) were found to be applicable to an application or module;
- see for which applications and modules you have all patches, and for which there are additional patches available for purchase; and
- see which patches have actually been applied to each application or patchable module.

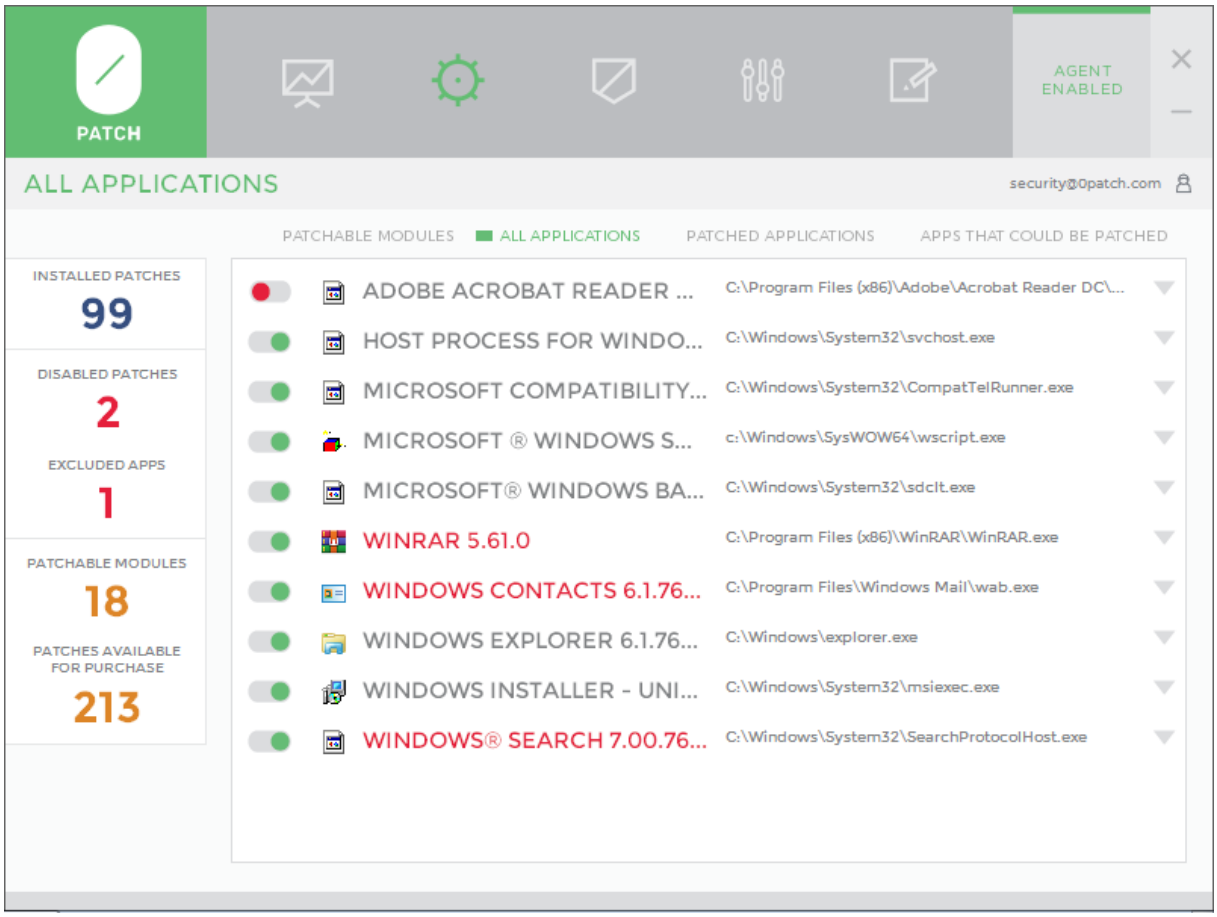


Figure 3: The Applications page

An application or a patchable module is displayed in **RED** (e.g., **WINRAR 5.61.0** on Figure 3, or **UNACEV2.DLL 2.6.0.0** on Figure 9) when at least one patch failed to be applied to it due to a missing, invalid or expired license.

There are three views (filters) you can choose from when viewing the *Applications* page: **PATCHABLE MODULES**, **ALL APPLICATIONS**, **PATCHED APPLICATIONS**, and **APPS THAT COULD BE PATCHED**. These views are explained later in this document.

8.1. Excluding an Application from Patching

If you want to prevent 0patch Agent from applying patches to a selected application, you can exclude that application from patching by simply switching the button next to its name in the application list from "included" (green dot) to "excluded" (red dot). As soon as you exclude an application from patching, all patches are removed from that application in case the application is currently running, and patches will no longer be applied to the application when it gets launched - until you "un-exclude" the application from patching by switching its button back to "included."

Figure 3 shows an example of application Acrobat Reader DC being excluded from patching.

8.2. Viewing Application's Patching Details

If you click on an application in the application list (anywhere except on the button), patching details are displayed for that application. These are presented as a list of all patches that have been found to be applicable to that application – whether they have actually been applied to it or not due to being disabled or due to missing, invalid or expired license for them on this computer. For patches that have been applied to the application at least once, the time of their last application is displayed as shown on Figure 4.

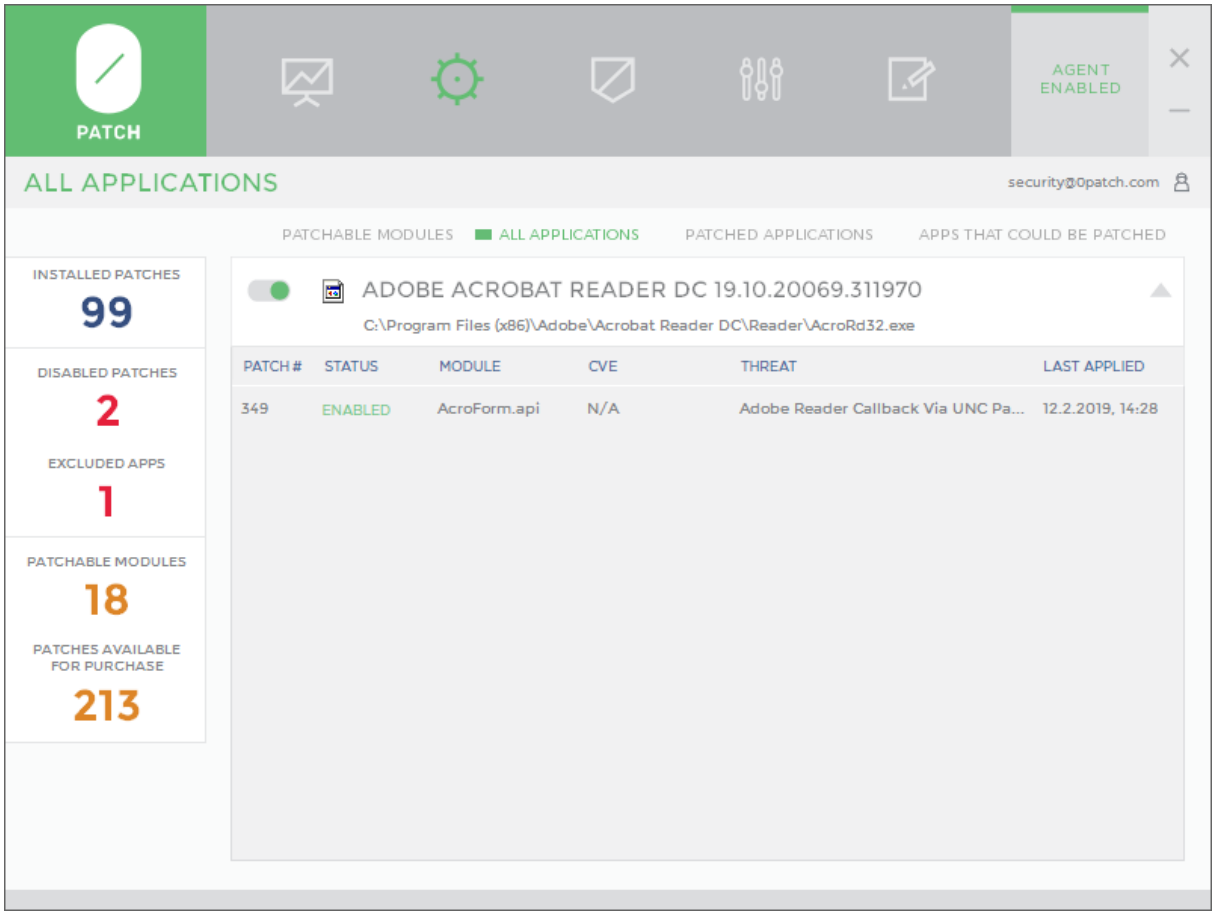


Figure 4: Patching details for an application with one enabled patch

One or more patches applicable for the selected application can be missing a license and are therefore available for purchase. Such patches are marked with a red **AVAILABLE** status as shown on Figure 5 below, and the application name itself is also shown in red.

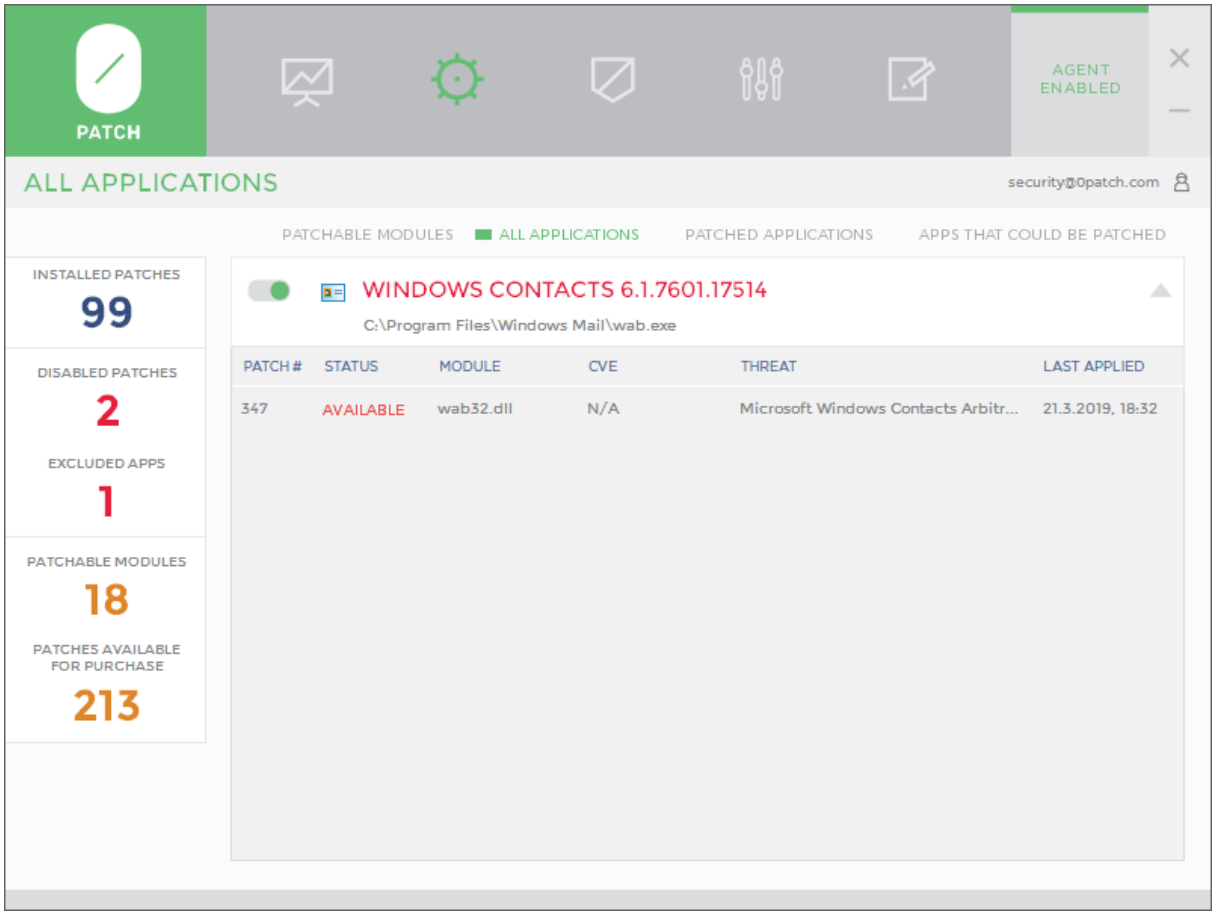


Figure 5: This application has only one patch that is available for purchase

You cannot enable or disable individual patches on this page (because individual patches can only be enabled or disabled globally for all applications, not just for one), but you can click on any patch to be taken directly to the *Patches* page with only the selected patch listed so that you can easily enable or disable it.

Once an application's patching details are shown, you can return to the application list by clicking anywhere on the application's title.

8.3. View: ALL APPLICATIONS

The **ALL APPLICATIONS** view (see Figure 6) shows all applications 0patch Agent has found to have at least one patch for, whether such patch was ever applied to an application or not (e.g., due to the patch being disabled or unlicensed, or the application being excluded from patching).

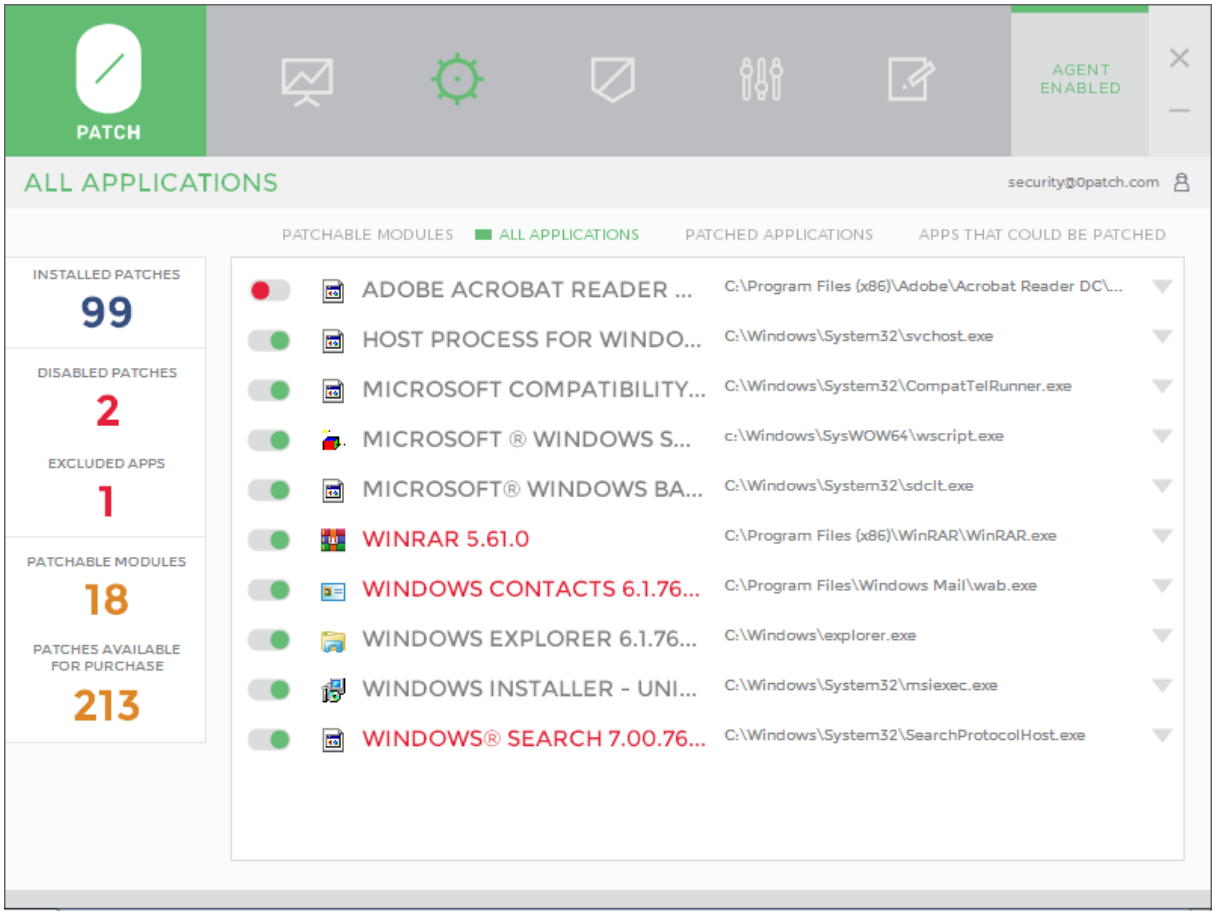


Figure 6: Applications page showing the "ALL APPLICATIONS" view

8.4. View: PATCHED APPLICATIONS

The **PATCHED APPLICATIONS** view (see Figure 7) shows only applications that have actually been patched at least once with at least one patch. This view is useful to determine whether an application you are experiencing problems with has ever been patched by 0patch Agent, so you can then disable it from patching for troubleshooting purposes.

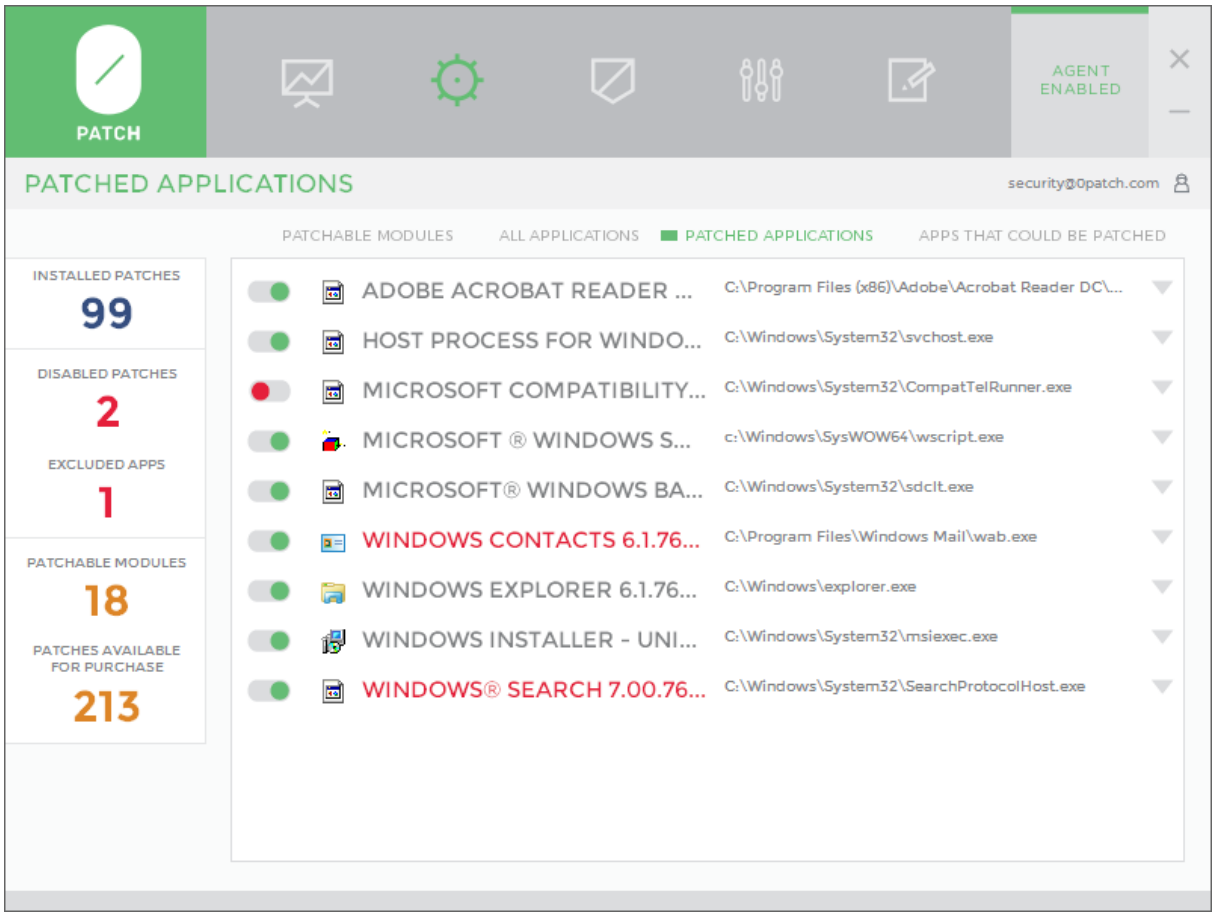


Figure 7: Applications page showing the "PATCHED APPLICATIONS" view

8.5. View: APPS THAT COULD BE PATCHED

The **APPLICATIONS THAT COULD BE PATCHED** view (see Figure 8) shows all applications that have failed to be patched at least once due to a missing, invalid or expired license. This view is useful for determining if you are missing out on any patches that are available for purchase and are confirmed to be applicable to applications on your computer.

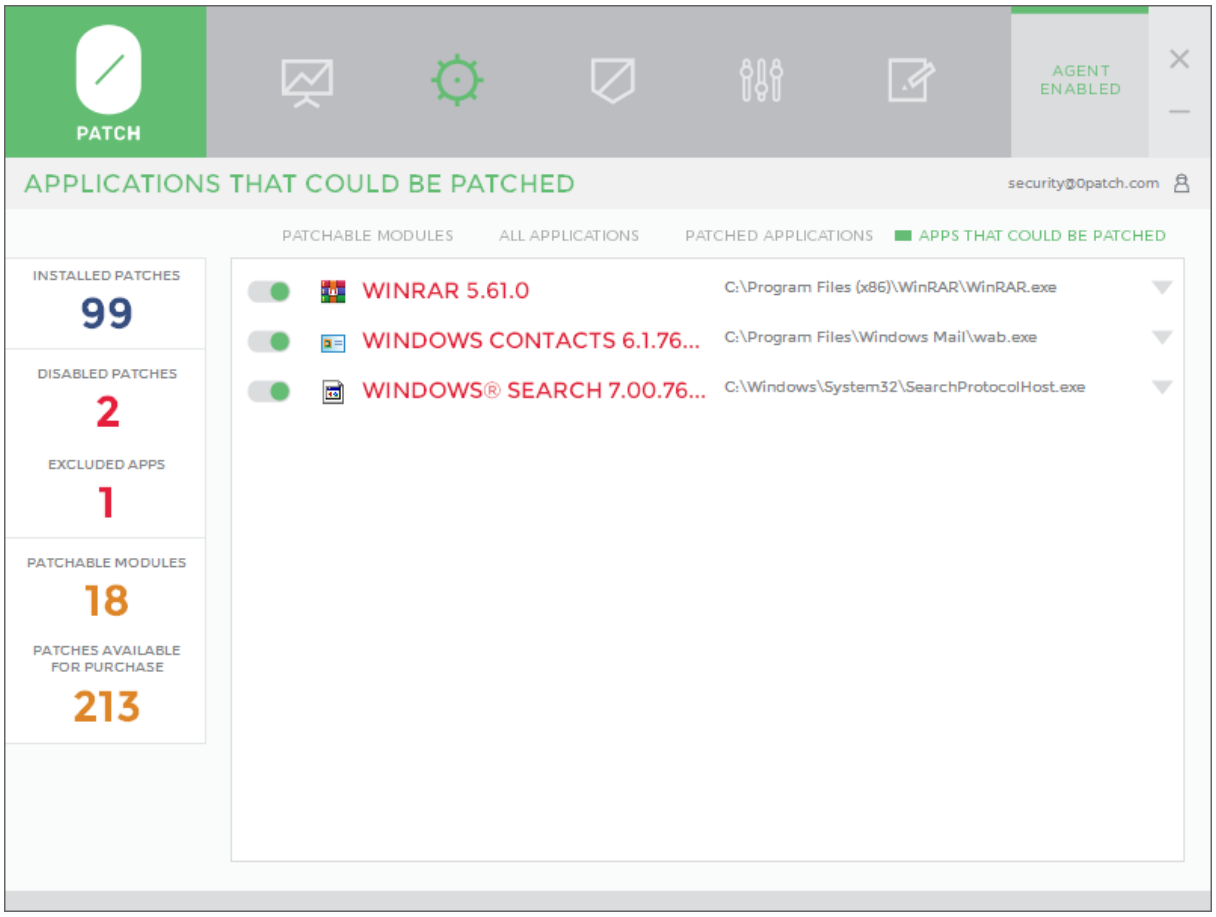


Figure 8: Applications page showing the "Applications That Could Be Patched" view

8.6. View: PATCHABLE MODULES

Patchable Modules are executable modules (mostly DLL files but sometimes also EXE files or files with other extensions) found on the computer that 0patch has at least one patch for.

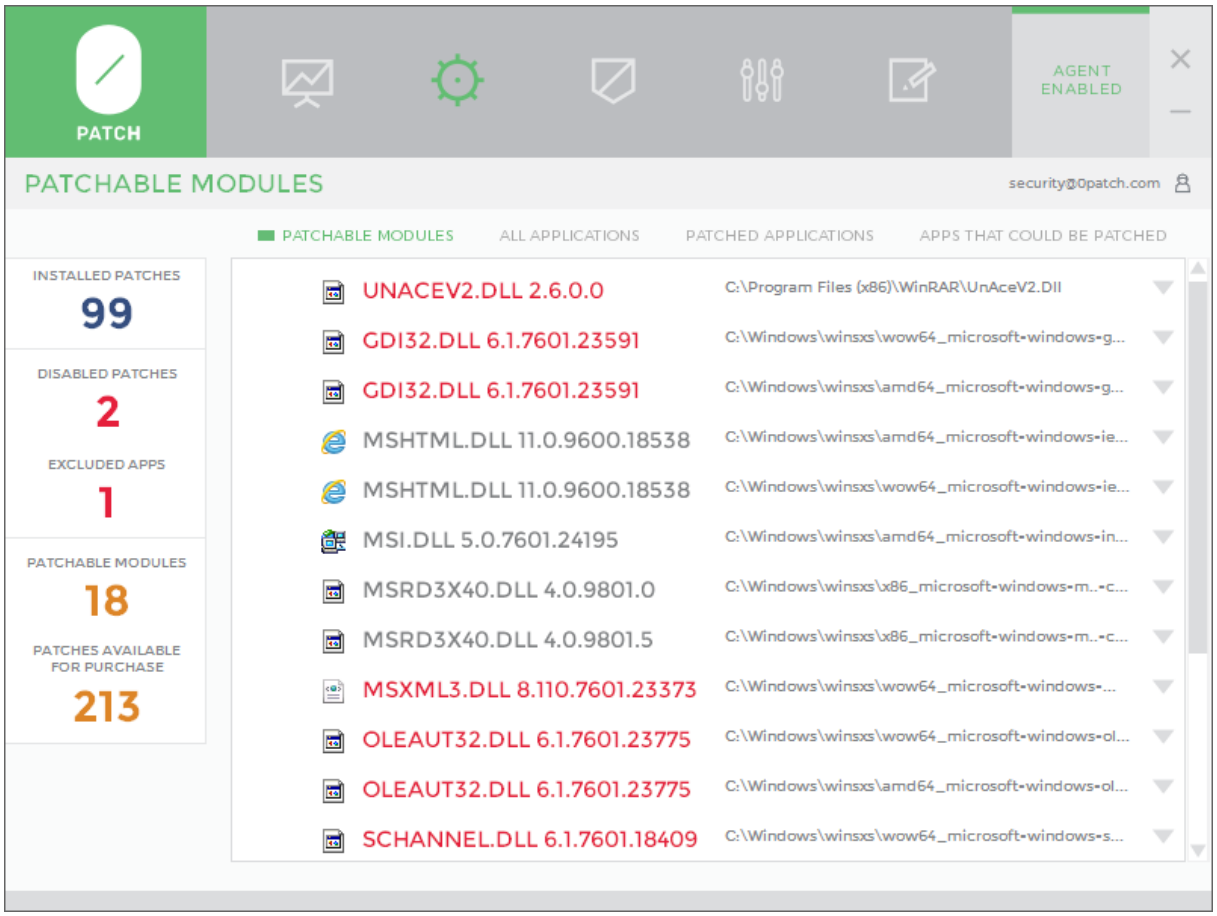


Figure 9: List of all patchable modules on this computer

0patch Agent builds and maintains a list of patchable modules as follows:

1. when a module is loaded in a process (e.g., module UNACEV2.DLL in process WINRAR.EXE), and 0patch has at least one patch for this exact version of the module, this module is added to the list;
2. when the module scanner, launched once a day and upon downloading of new patches, finds a patchable module on a local drive that hasn't been known before, it adds that module to

the list; the module scanner also checks whether any of the currently listed patchable modules are no longer present on the system and removes them from the list;

3. when 0patch Console is launched, it checks whether any of the currently listed patchable modules are no longer present on the system and removes them from the list to keep the list as current as possible.

You can click on the PATCHABLE MODULES counter in the counter area on the left side of the 0patch Console to quickly access the *Patchable Modules* view.

8.7. Viewing Patchable Module's Patching Details

If you click on a patchable module in the *Patchable Modules* list, patching details are displayed for that module. These are presented as a list of all patches that have been found to be applicable to that module – whether they have actually been applied to it or not due to being disabled or due to missing, invalid or expired license for them on this computer. For patches that have been applied to the module at least once, the time of their last application is displayed as shown on Figure 10.

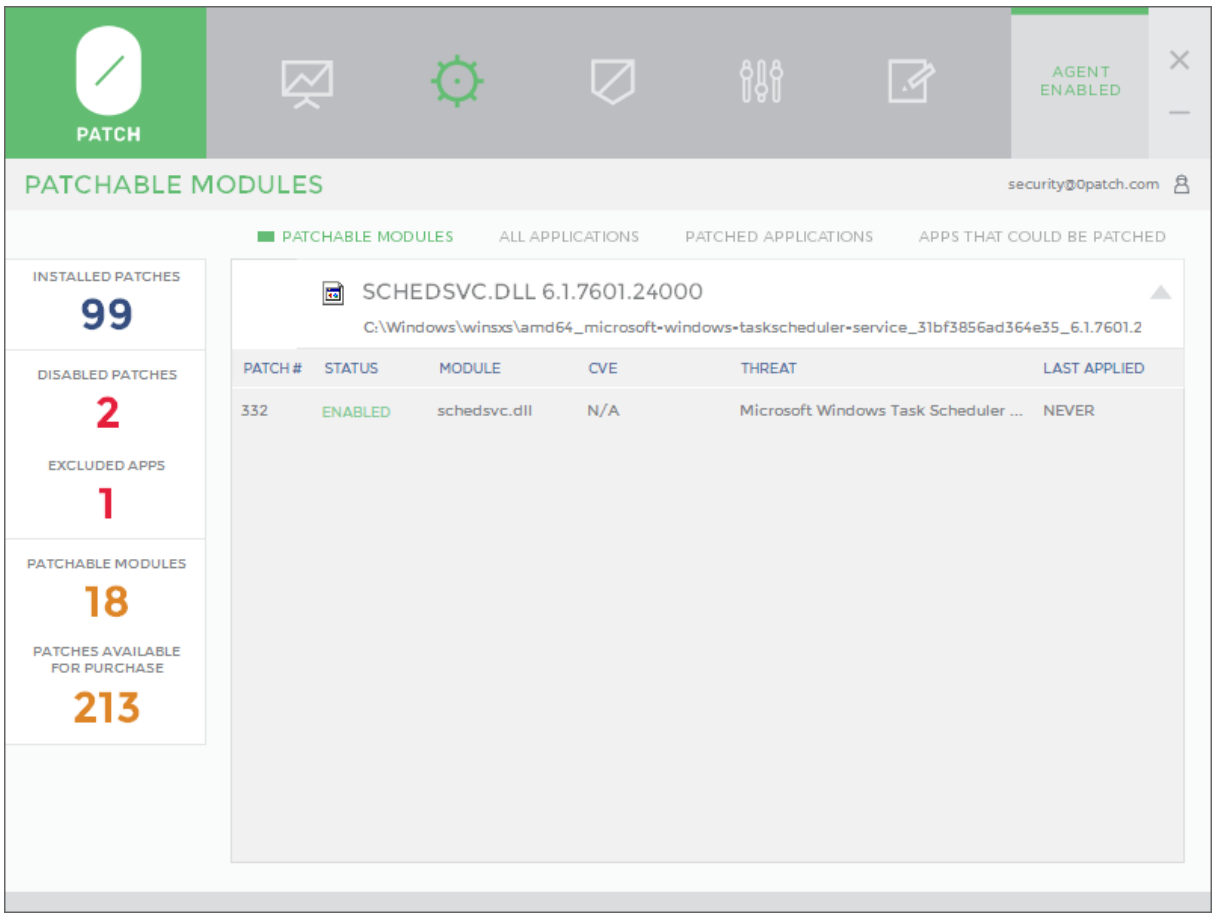


Figure 10: Patching details for a patchable module with one applicable patch

One or more patches applicable to the selected module can be missing a license and are therefore available for purchase. Such patches are marked with a red **AVAILABLE** status as shown on Figure 11 below.

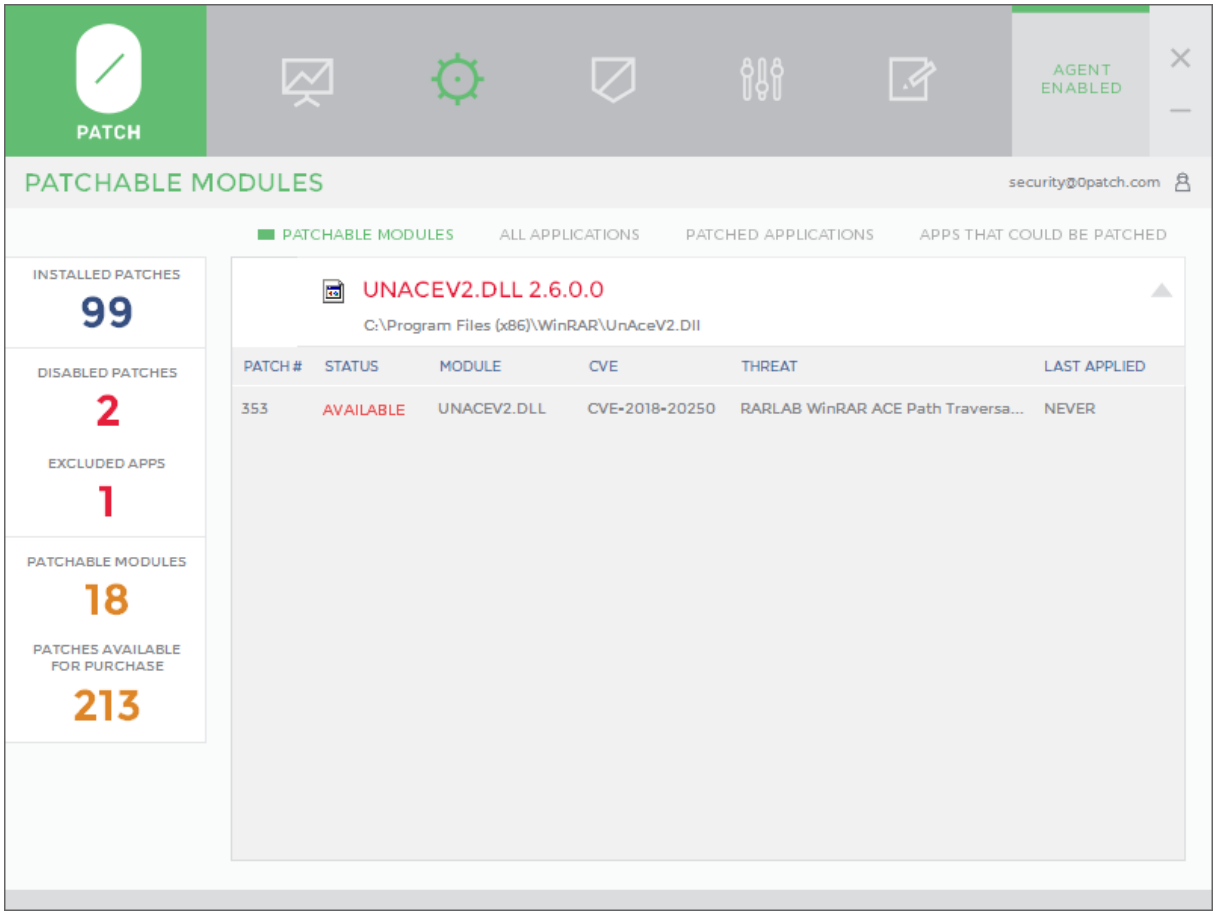


Figure 11: This module has only one patch that is available for purchase

You cannot enable or disable individual patches on this page, but you can click on any patch to be taken directly to the *Patches* page with only the selected patch listed so that you can easily enable or disable it.

Once patchable module's patching details are shown, you can return to the *Patchable Modules* list by clicking anywhere on the module's title.

9. Patches

The *Patches* page displays individual patches, and allows you to enable or disable them. You can enable or disable individual patches by switching the button for that patch between "enabled" (green dot) and "disabled" (red dot). Once you disable a patch, it immediately gets removed from all running applications and stops being applied to newly launched applications. Similarly, when you enable a patch, it immediately gets applied to all running applications where applicable.

There are four views (filters) you can choose from when viewing the list of patches: **INSTALLED PATCHES**, **APPLIED PATCHES**, **RELEVANT AVAILABLE PATCHES**, and **ALL AVAILABLE PATCHES**. These views are explained in the following sections.

9.1. View: INSTALLED PATCHES

The **INSTALLED PATCHES** view (see Figure 12) shows all patches installed on this computer, i.e., all patches that are either free or for which this 0patch Agent has a valid license.

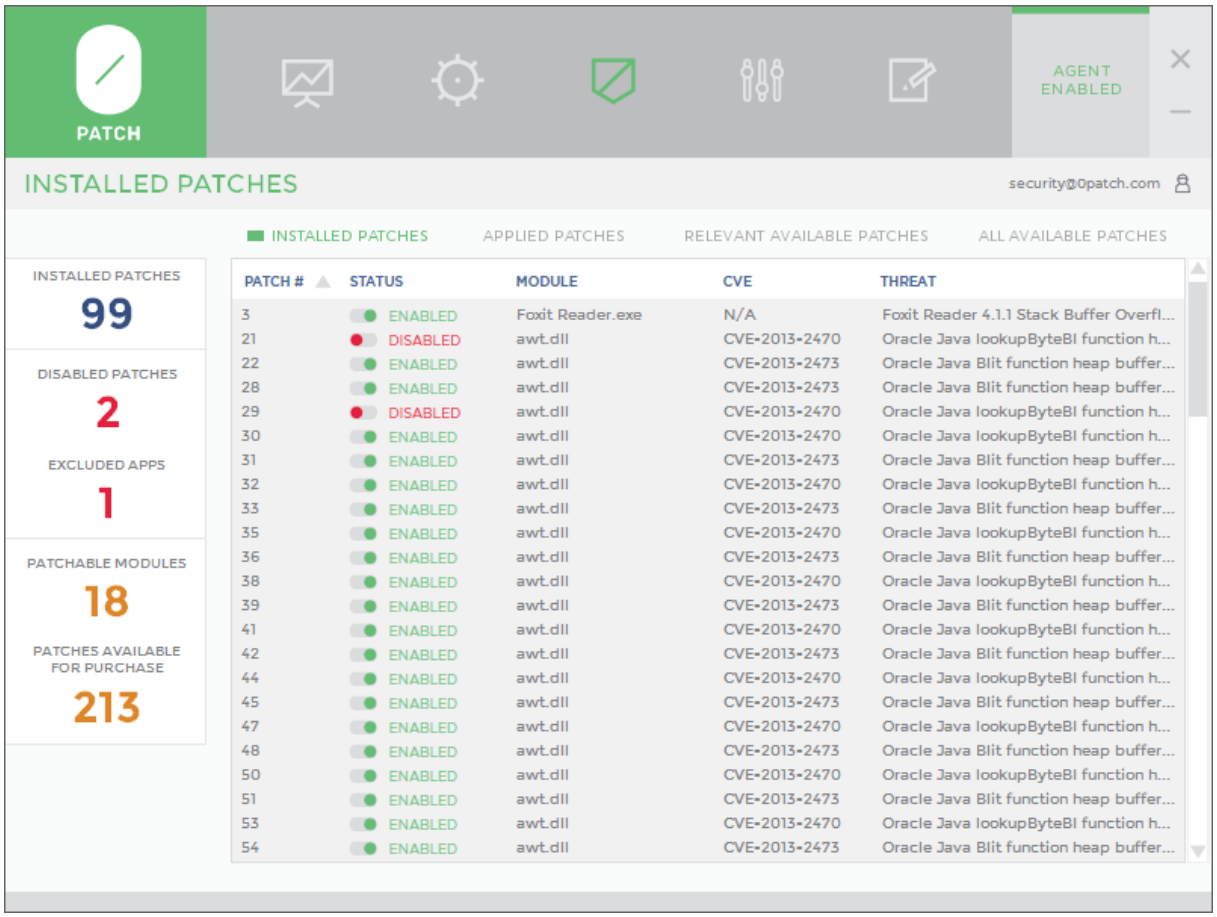


Figure 12: List of installed patches, showing two disabled patches

9.2. View: APPLIED PATCHES

The **APPLIED PATCHES** view (see Figure 13) shows all patches that have been applied on this computer at least once. This view is useful for seeing which patches have helped protect this computer up to this moment, and for disabling patches that you suspect might be causing problems. (Only applied patches could possibly be causing problems).

Note that a patch that was previously licensed on this computer but its license has since expired, can be listed here with status AVAILABLE if it has been applied at least once when it was still licensed. In addition, patches that have been revoked but have been applied prior to their revocation, are also be listed here with status REVOKED.

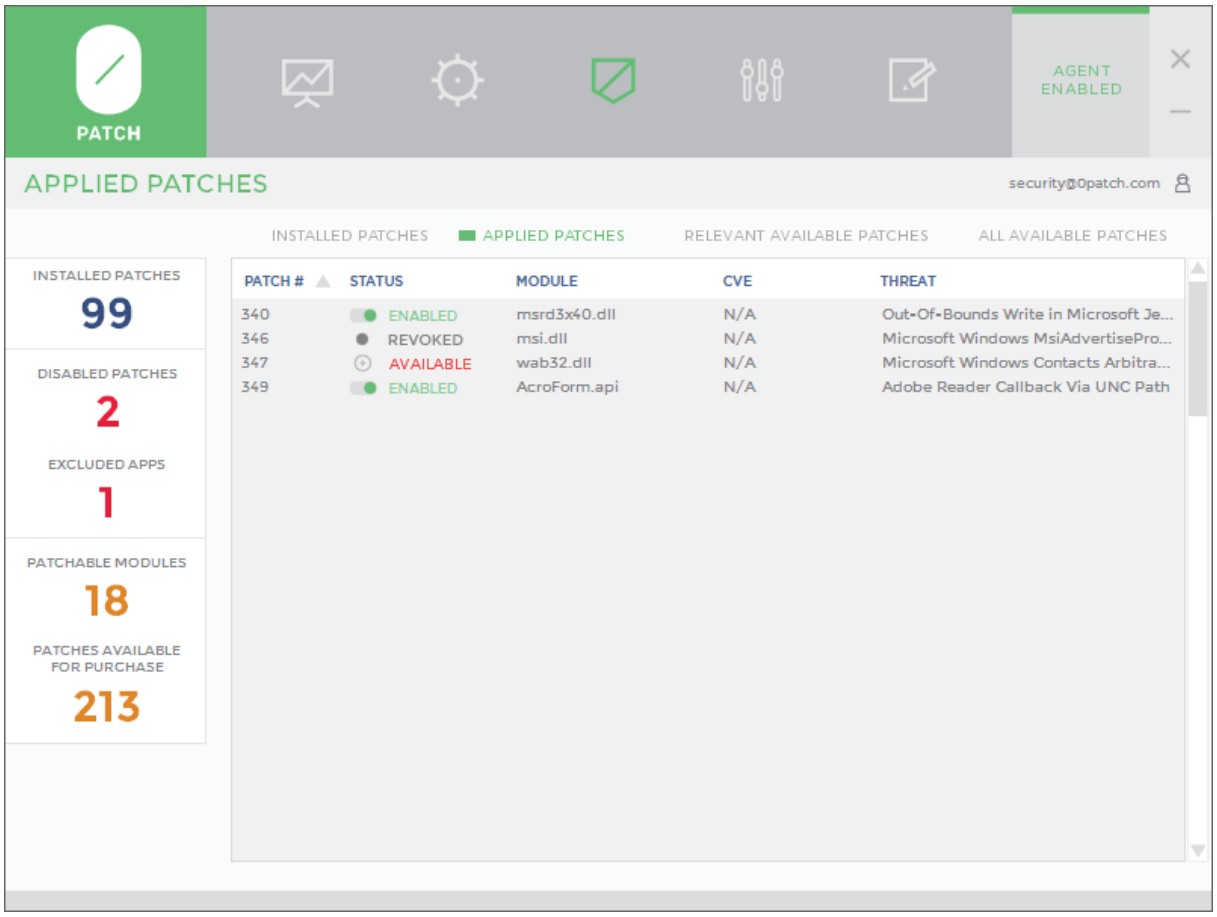


Figure 13: List of all patches that have been applied on this computer at least once; patch 346 has since been revoked, and the license for patch 347 has expired and is therefore no longer being applied

9.3. View: RELEVANT AVAILABLE PATCHES

The **RELEVANT AVAILABLE PATCHES** view (see Figure 14) shows all patches that are relevant on this computer (i.e., whose vulnerable modules have actually been found on it) but couldn't be applied due to missing, expired or invalid license. This view is useful for identifying purchasable patches that could get applied to vulnerable modules existing on this computer.

Important: It is possible that some patches which are relevant on this computer aren't listed here because their vulnerable modules haven't been detected by 0patch Agent yet. For instance, after installing 0patch Agent, the agent scans local drives for patchable modules and only when it finds them, patches for these modules get added to this list. But don't worry, if a vulnerable module is being used by a running application, 0patch Agent knows about it immediately and is able to patch it.

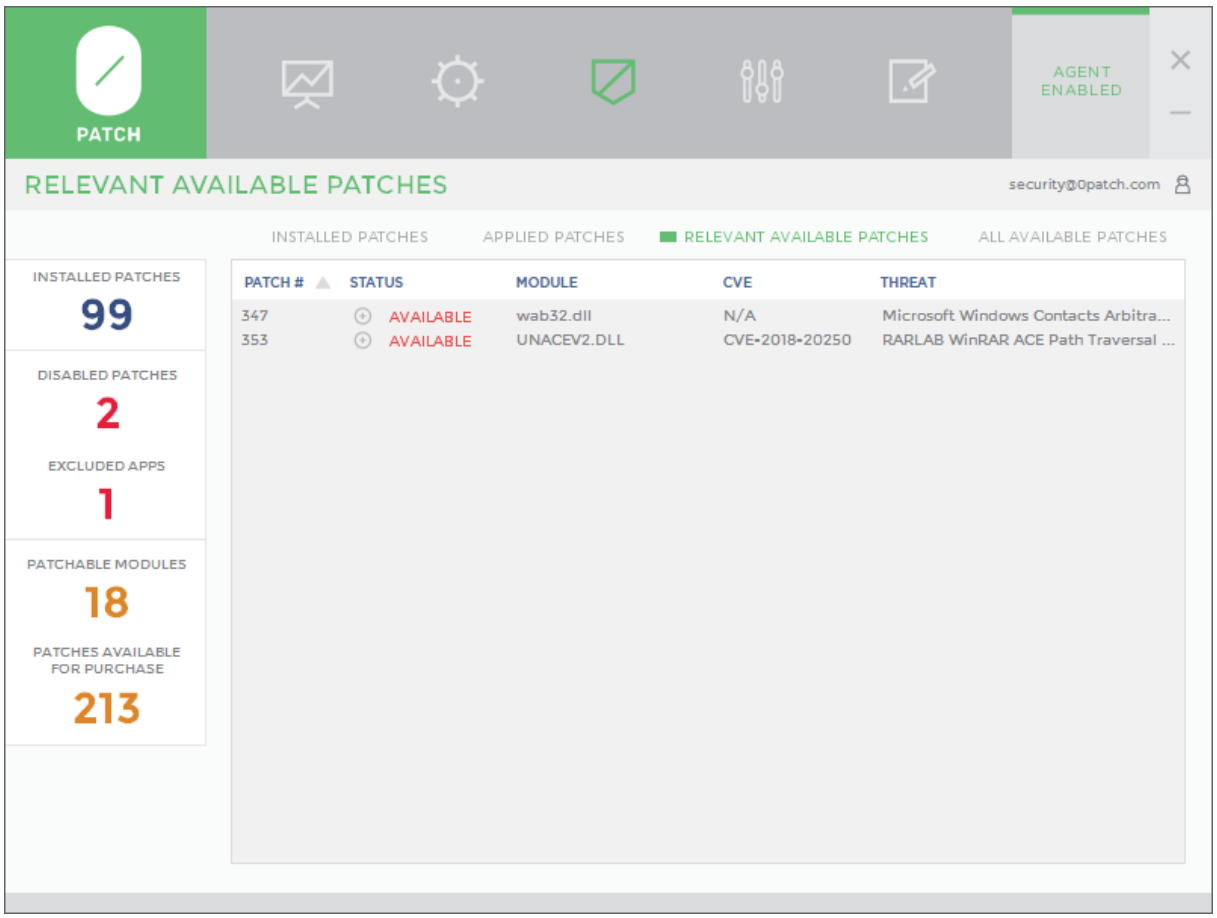


Figure 14: List of patches that have been confirmed to be relevant on this computer and are available for purchase

9.4. View: ALL AVAILABLE PATCHES

The **ALL AVAILABLE PATCHES** view (see Figure 15) shows all patches that can be purchased from 0patch in addition to the ones that are already installed on this computer. Patches whose vulnerable modules have actually been found on this computer have a red **AVAILABLE** status, while others have an orange **AVAILABLE** status.

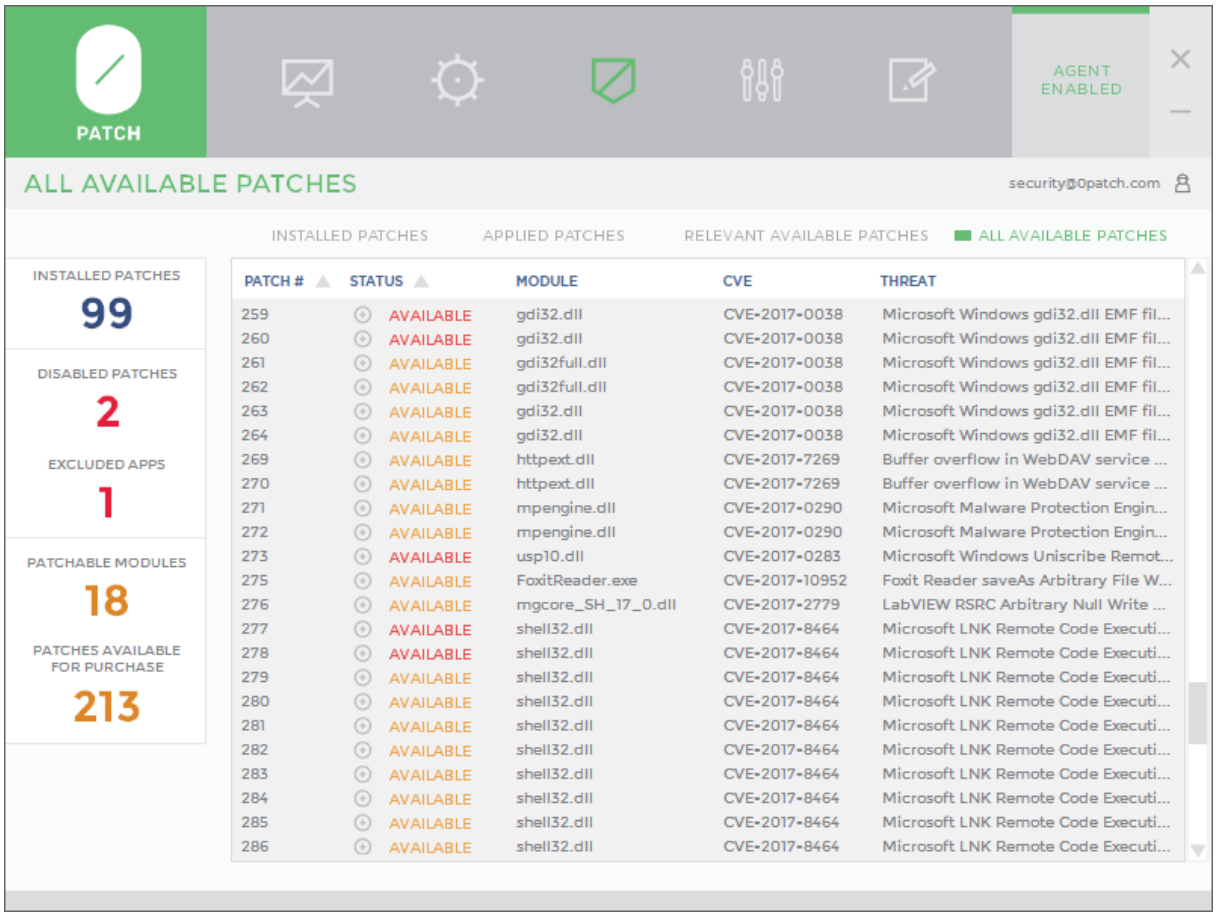
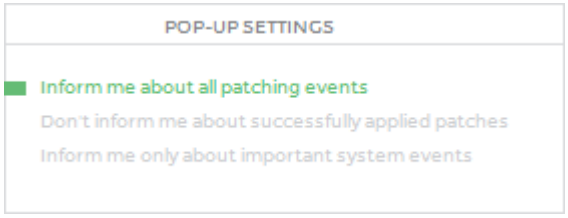


Figure 15: List of all patches available for purchase

10. Settings

The Settings page allows you to manage 0patch Agent's configuration.

The **Pop-up Settings** allow you to select which pop-up messages you wish to have displayed.



11. Log

The Log page allows you to see a log of important 0patch events. The Log page automatically shows the most recent events when you switch to it, but if it remains open, you have to manually refresh it using the *REFRESH* button to see events that have occurred after opening the Log page.

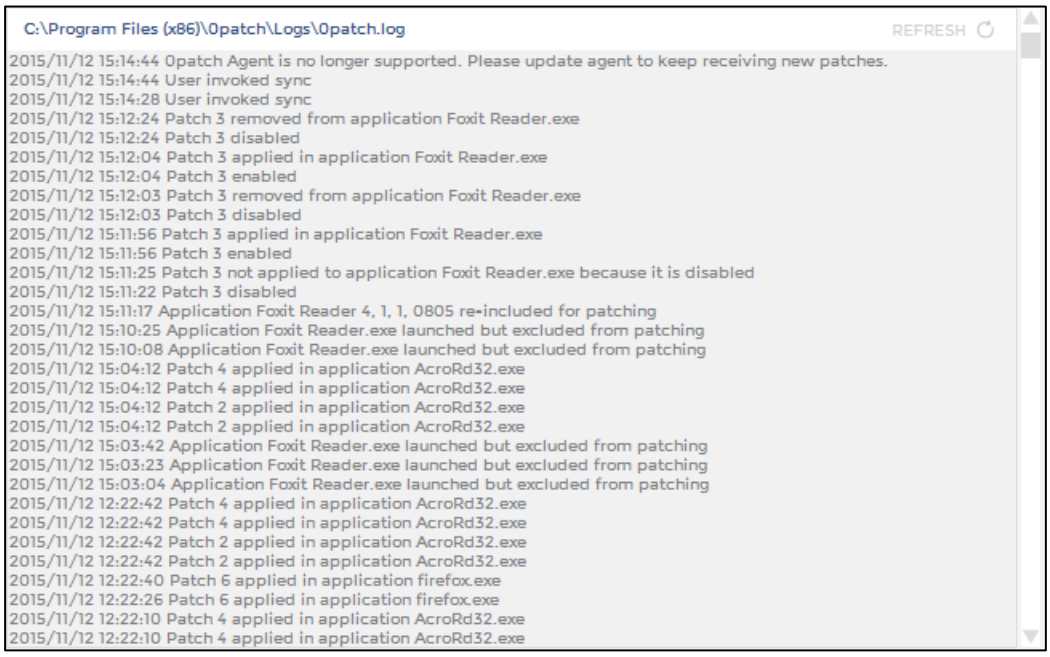


Figure 16: 0patch Agent's log file

12. Pop-up Messages

0patch Agent can inform you about various events using pop-up messages. You can control which pop-up messages you wish to have displayed via 0patch Console's *Settings* page. In addition, you can instantly silence most pop-up messages by clicking the »crossed bell« icon in the upper right corner of every pop-up. This changes the *Pop-up Settings* to “Inform me only about important system events”.

12.1. Patch Data Received

The "Patch Data Received" message informs you that 0patch Agent has just received new patches from the 0patch server, and/or that some patches have been revoked.

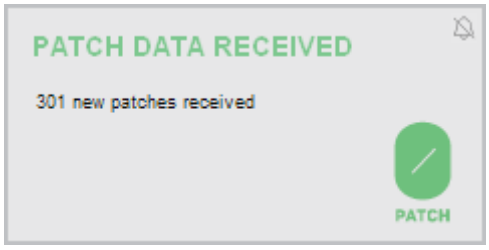


Figure 17: 0patch Agent has just received 301 new patches from the server

12.2. Patch Applied

The "Patch Applied" message informs you that a patch has just been applied to a process on your computer. The message tells you which process was patched and which patch was applied to it.

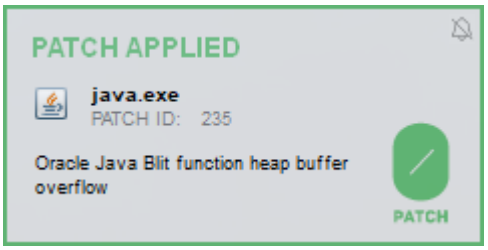


Figure 18: Patch 235 has just been applied to a running java.exe process

12.3. Patch Removed

The "Patch removed" message informs you that a patch has just been removed ("un-applied") from a process on your computer. The message tells you which patch was removed from which process.

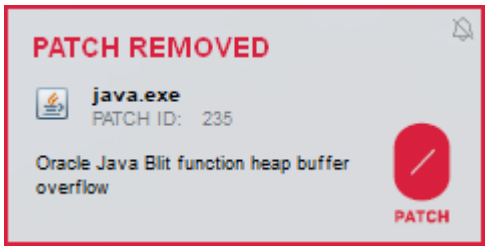


Figure 19: Patch 235 has just been removed from a running java.exe process, likely due to it being disabled via Console

This usually occurs when:

- the patch was disabled via 0patch Console while the application it was applied to was running,
- the application was excluded from patching via 0patch Console while that application was running, or
- 0patch Agent was disabled via 0patch Console.

12.4. Patch Disabled

The "Patch disabled" message informs you that a patch would have been applied to a process on your computer - but wasn't because the patch is disabled. (You can use the Patches page in 0patch Console to enable the patch, which will immediately get it applied to the process.)

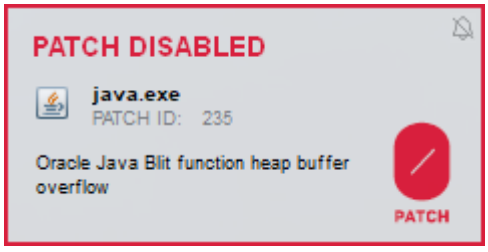


Figure 20: Patch 235 could be applied to the just-launched java.exe but wasn't because it is disabled

12.5. Application Excluded From Patching

The "Application excluded from patching" message informs you that an application has just been launched that is excluded from patching. This means that any patches that would normally have been applied to this application, were not applied. (You can use the *Applications* page in 0patch Console to "un-exclude" the application, which will immediately get all applicable patches applied to it.)

Figure 21: Firefox just got launched but patches won't be applied to it because it is excluded from patching

12.6. Patch Available

The "Patch available" message informs you that a patch would have been applied to a vulnerable process a moment ago, but there is no license for that patch in your 0patch Agent. You can fix that by purchasing a license.

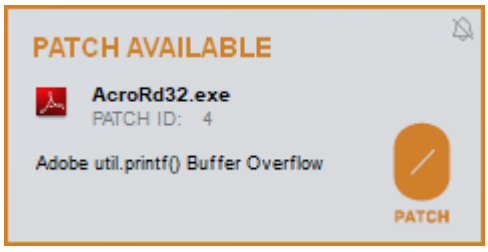


Figure 22: Patch 4 would have been applied to vulnerable Acrobat Reader but there is no valid license for it

12.7. Exploit Blocked

The "Exploit blocked" message alerts you that one of the patches applied to processes running on your computers has detected an attack (also called "exploit") against the vulnerability it is patching. You don't have to do anything when this happens, as the attack was blocked by the patch.

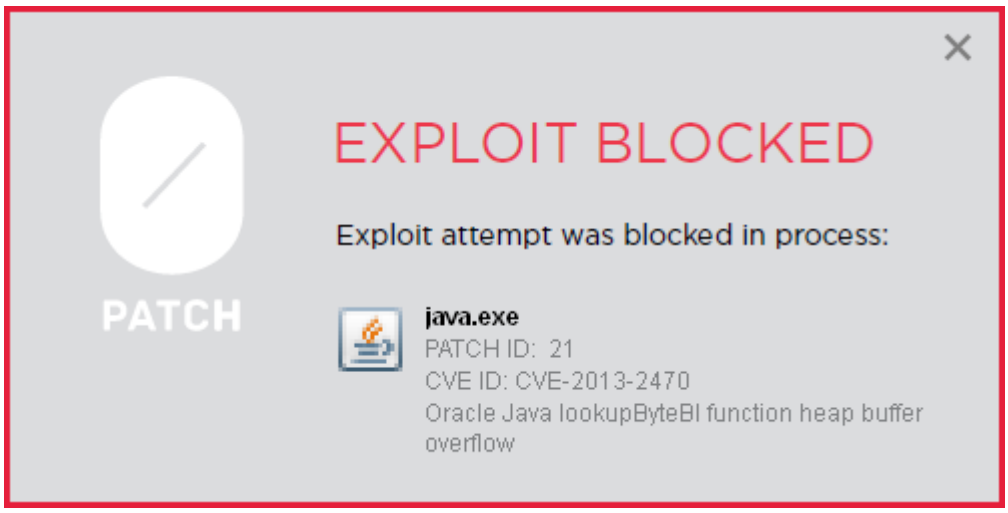


Figure 23: An exploit attempt against vulnerability CVE-2013-2470 was blocked by patch 21 in Java runtime

13. Tray Icon

You may have to manually set the 0patch tray icon to show in your system tray / notification area.

The 0patch icon in system tray serves two functions:

- it provides quick visual information about the status of 0patch Agent, and
- it provides a way to quickly launch 0patch Console, contact 0patch support team and view this user manual.

The "Everything is OK" icon tells you that everything is okay with the Agent. Patches are being applied and new patches are being downloaded from the 0patch server as they become available.

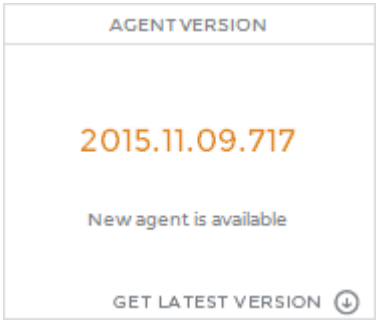
The "Disconnected" icon tells you that while 0patch Agent is applying available patches to your applications, it can't connect to the 0patch server to download new patches as they become available. This is not a critical condition, as your computer may simply be disconnected from the Internet. As soon as it reconnects to the Internet, 0patch Agent will connect to the server and the icon will turn back to the green "Everything is OK" icon.

The "Unregistered" icon tells you that the agent is not registered on the server and can therefore not download patches from it. When the agent is not registered, you need to register it by launching the Console and signing in with your email and password.

The "Disabled" icon tells you that 0patch Agent is disabled and is not applying patches to applications running on your computer. When the Agent is disabled, 0patch it not protecting your computer. In order to enable the Agent, launch 0patch Console and use the button in the "Enable/Disable Agent" box.

14. Updating 0patch Agent

As 0patch technology is being developed, new versions of 0patch Agent are made available to users. When a new Agent is released, 0patch Console will start notifying you about the new version in the *Dashboard*'s "Agent Version" box. You will also find the *GET LATEST VERSION* button there, which will launch the agent update process.



When you press the *GET LATEST VERSION* button and confirm that you want to update the Agent, a new Agent version will be downloaded from the server and your Agent will get replaced by this new version. After a successful Agent update, the new 0patch Console will get launched, and you'll be able to verify its version in the "Agent Version" box in Console's *Dashboard*.

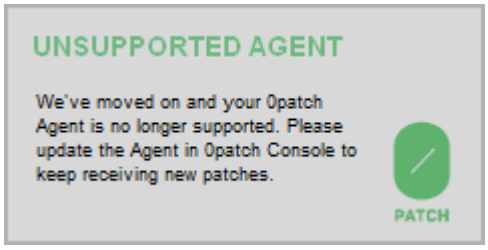
When a new Agent version is available, but your version is still supported (see section 14.1 about unsupported agents), you can continue to use 0patch Agent without any limitations, and will also continue to receive new patches as they get released. Feel free to update the Agent when it is convenient for you.

Note: Agent update currently resets the log file, while all settings remain intact.

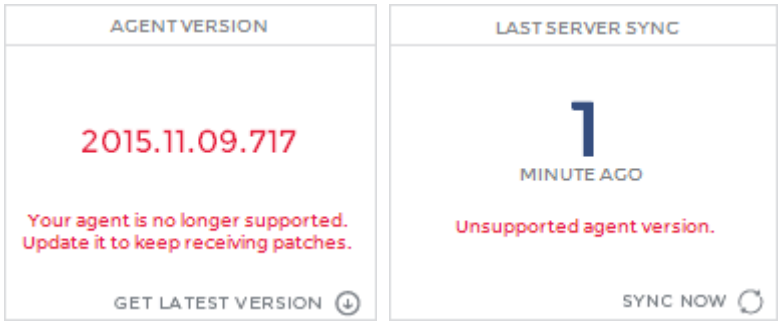
14.1. Unsupported Agent

When a new 0patch Agent version is released, some previously supported versions may no longer be supported by the 0patch Server. This usually happens when a major change was introduced to format or content of data communicated between 0patch Agent and 0patch Server.

In case your 0patch Agent becomes unsupported, you will see the following popup message.



In addition, the Console's *Dashboard* will show you the following messages in the »Agent Version« and »Last Server Sync« boxes.



When your Agent is no longer supported, it cannot receive new patches any more, but it continues to apply the patches it has previously downloaded to processes on your computer. It is highly recommended that you update the Agent when it becomes unsupported.

15. Purchasing a License

0patch Agent initially comes with a FREE license, which includes a limited number of patches and can be used for non-commercial, non-work-related purposes (see current License Agreement for details).

On Figure 24, agent with a FREE license shows that only 99 patches have been installed, while 206 additional patches remain available for purchase. In addition, the number of patchable modules is shown in **YELLOW**, indicating that there are patches for some of the modules on this particular computer that can be purchased.

The **RED** numbers in the *Available Patch Activity* box show how many of these missing patches would have been applied to processes on this computer, and how many applications would have been patched if a PRO license were purchased for it.

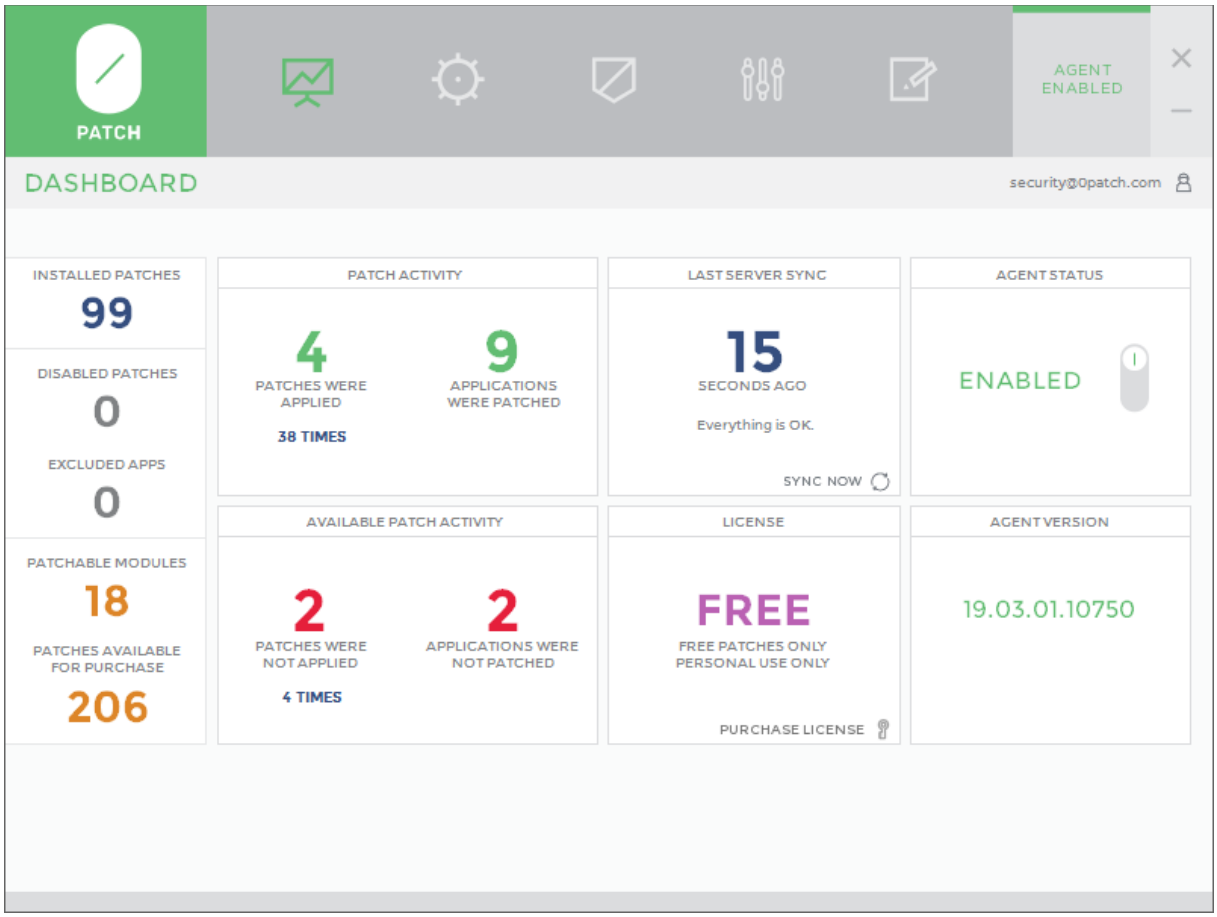


Figure 24: 0patch Agent with a FREE license comes with a limited number of patches; additional patches remain available for purchase

If you want to purchase any number of PRO licenses (currently the only license type available), click on the PURCHASE LICENSE button in the LICENSE box and follow instructions on the web site. **Important: make sure to provide your correct 0patch account email address when purchasing to make sure the licenses will be assigned to your 0patch account.**

After you have purchased an appropriate number of PRO licenses, your Agent will recognize that upon its next sync and will start looking like Figure 25 and all PRO and FREE patches will be installed on your computer – and applied as needed.

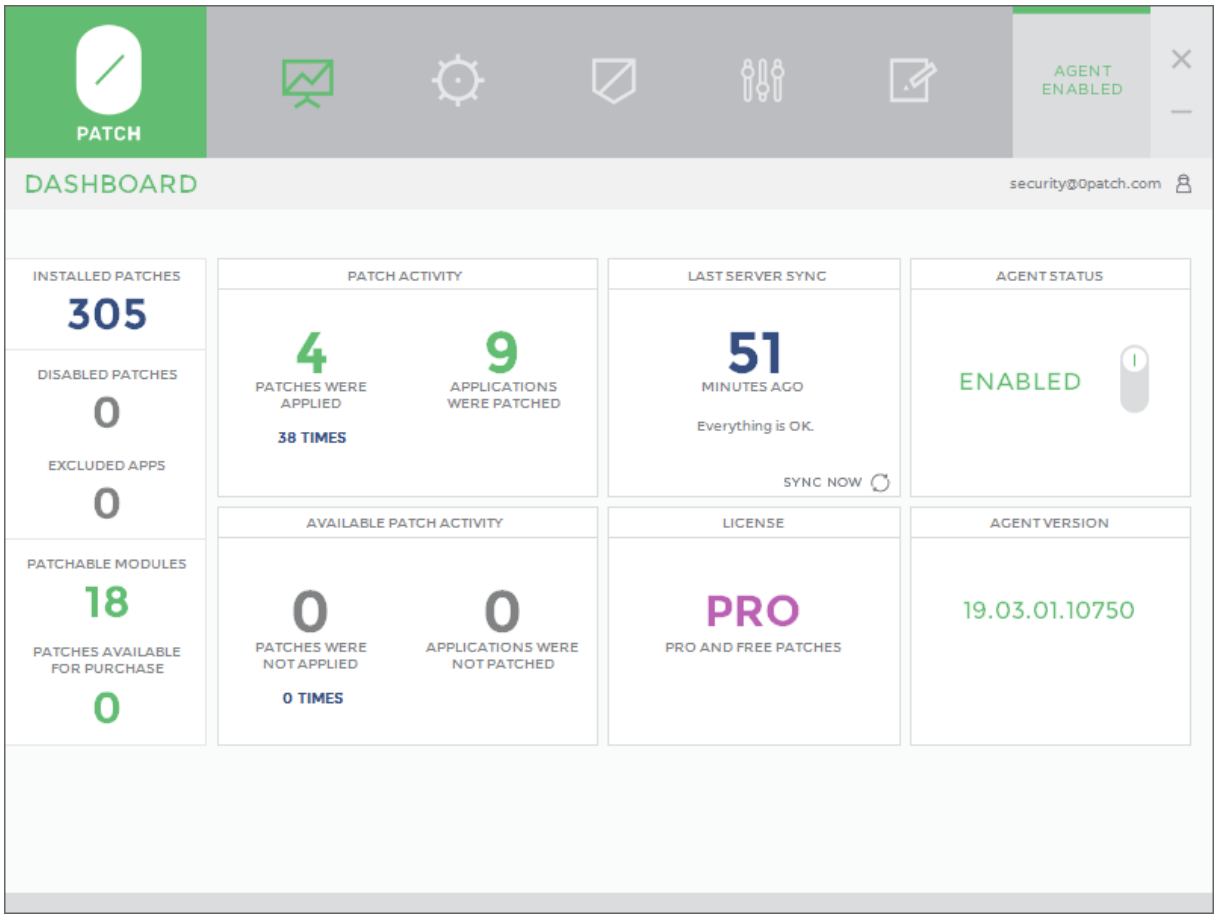


Figure 25: 0patch Agent with a PRO license shows a larger number of installed patches and no patches available for purchase

16. Troubleshooting

Problem: 0patch Agent installation failed
Solution: 1. Try to reinstall 0patch Agent. If it fails again, restart your computer and try to install 0patch Agent again. 2. It may be that a previous installation of 0patch Agent has left some residues on the system. Do the following on your computer as local administrator to clean up these residues: ○ Execute **sc delete 0patchservice** to delete the 0patch service. ○ Execute **sc delete 0patchdriver** to delete the 0patch kernel driver. ○ Delete the entire **0patch** folder under the **Program Files** (on 32-bit Windows) or **Program Files (x86)** folder (on 64-bit Windows) – or wherever you tried to install 0patch Agent if you chose not to use the default location. ○ Launch **regedit.exe** and delete the entire **HKLM\Software\0patch** registry key. 3. Now try to install 0patch Agent again.

Problem: Agent can't connect to the server (I'm getting the »Unable to connect to the server« error when registering the Agent)
Solution: 1. Try to open any web site with your web browser. If this doesn't work, your computer is probably not connected to the Internet. Solution: make sure your computer is connected to the Internet. 2. If the previous step was successful, try to open https://dist.0patch.com with your web browser. If this doesn't work, the 0patch server might be temporarily unavailable. Solution: try again later. 3. If the previous step was successful, and you're on a Windows XP or Windows Server 2003 computer, try to open https://dist.0patch.com with Internet Explorer. If this doesn't work, but you can open non-HTTPS pages like http://www.aaa.com, make sure your computer is fully updated. To install all updates, run `wuauclt /detectnow` as administrator and wait for updates to download. 4. If the previous step was successful, your computer may be behind a firewall or your Internet connections may be proxied through a web proxy server. In this case, make sure to configure network connectivity as described in section 4.

Problem: Comodo Firewall doesn't work after system restart when 0patch Agent is installed
Solution: We're aware of an incompatibility issue with Comodo Firewall whereby enabling the »Enable adaptive mode under low system resources« option results in some Comodo processes failing to launch, and network connectivity being disabled after computer restart. The only workaround for this issue is to untick the »Enable adaptive mode under low system resources« option under HIPS Settings in the Comodo Firewall console.

Problem: Comodo Firewall doesn't start, its user interface cannot be opened and there is no Internet connectivity after installing 0patch Agent. (Reported for Comodo Firewall 10.0.0.6092)
Solution: The only way we know of to resolve this issue is to disable the "Enable adaptive mode under low system resources" setting in Comodo Firewall's console under Settings -> HIPS - HIPS Settings. (This setting is disabled by default.)

Problem: One of my applications is crashing when 0patch Agent is installed
Solution: If 0patch Agent applied at least one patch to the application, you will find the application listed in the Applications page of the 0patch Console. The first thing to try is to exclude this application from patching by switching the button next to it in the list of applications. If this doesn't stop your application from crashing, please continue to the next troubleshooting tip.

Problem: One of my applications is *still* crashing when 0patch Agent is installed (even after trying the previous troubleshooting tip)
Solution: We're aware of some compatibility issues with (mostly low-level debugging-related) applications, for instance with Visual Studio 2010 Express Edition. If you want 0patch Agent to leave some of your processes alone (i.e., not even inject our loader into them), you can edit the registry value named **HKLM\Software\0patch\ExcludeModules** and enter in it names of all executable (.exe) files you want excluded, separated by pipe character ('|'). For example, to exclude Visual Studio 2010 Express Edition and notepad.exe from being injected by 0patch Agent, put "vcexpress.exe|notepad.exe" into the said value. Then to enforce this new setting, you have to change the value of **HKEY_LOCAL_MACHINE\SOFTWARE\0patch\CallbackKeys\UnloadLoaderDll\Counter** to any other number than it already has (this removes the loader from all processes), and restart the 0patch Service service.

Problem: 0patch Tray crashes after installing or updating 0patch Agent, and I have AVG Internet Security installed.
Solution: AVG's Behavior Shield and Ransomware Protection seem to interfere with our launching of 0patch Tray after installation. The only workaround we know of is to add an exception for the entire 0patch folder under Behavior Shield: In AVG, click on Customize -> Exceptions -> Browse, then browse to "C:\Program Files (x86)\0patch" and click OK -> OK -> OK.

Problem: When 0patch Agent is installed, EMET occasionally reports an »EAF mitigation«-related event in some process, then terminates that process.
Solution: Disable »EAF« and »EAF+« in EMET for affected applications. (We observed this problem in EMET 5.5 with Adobe Acrobat and 0patch Console.)

Problem: 0patch Agent installation or update fails while Avast Free Antivirus makes a »quick 15-second scan« of newly-installed executables.
Solution: Temporarily disable Avast while installing or updating 0patch Agent. If the problem occurred during 0patch Agent update, you may have ended up with no 0patch Agent installed; in this case, please download and install the latest Agent version again. (Download link: https://dist.0patch.com/download/latestagent.)

Problem: I have problems that the above instructions do not solve.
Solution: Email our technical support at support@0patch.com or report your problem at https://0patch.com/support.htm. We'll appreciate your taking your valuable time for this and will address your problem as quickly as possible.