



Custom PowerBI Dashboard using Automox API

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Summary

Automox is the easiest-to-use, most-recommended, most efficient cloud-native solution for endpoint hardening – anywhere, in an instant. Being a cloud-native platform, Automox makes it possible to manage Windows, macOS, and Linux devices with one solution without purchasing physical hardware or installing a management application.

As companies move to internet-based modern solutions, some of the challenges of legacy solutions are immediately solved, while others remain. The purpose of this document is to present the most common challenges and provide guidance on how to utilize native technologies while working to preserve the intent of a cloud-first, infrastructure-less solution.

Overview

Did you know a Business Intelligence solution combined with the Automox Console API can improve cybersecurity by providing improved stakeholder visibility?

In this example, we leverage PowerBI and Powershell to enable Automox users to get your data and present it in a familiar way that everyone can understand.

Using the current API and some of the many already available API calls found on the Automox community site, we can pull our data into PowerBI and display this into a report model.

You can find more API scripts and tricks in our Automox Developer Portal & API Guide: [Automox Developer Portal & API Guide](#)

Challenges

- Console Reporting is limited to a few reports
- Limited experience with API
- Requests limits/Pagination
- Nested JSON files.
- No easy way to get device details for all devices, especially if you have more than 5000 devices



Disclaimer

- This isn't a replacement for Automox reporting but an example of using a business intelligence tool with the Automox API.

Instructions

Prerequisites

- A host server is on an [Automox Supported Windows Operating System](#).
- Powershell ISE 5.1 or higher, with the [Execution-Policy](#) set to Bypass or Unrestricted.
- Server has access to the Automox Console and API.
- Automox Org ID and [API Key](#).
- Download and install [PowerBi Desktop](#)
- Directory path of C:\temp\
- Download Powershell API script ([GrabAXAPIData.ps1](#) from Github repository)
- Download PowerBi template file ([Automox_Reports_Example_v1_wAPI.pbix](#) from Github repository).
- **Optional:** If you wish to run the API data sync via a scheduled task, download the template XML file ([AX_ScheduledTask_PowerBI_Dashboard_Data.xml](#) from Github repository).

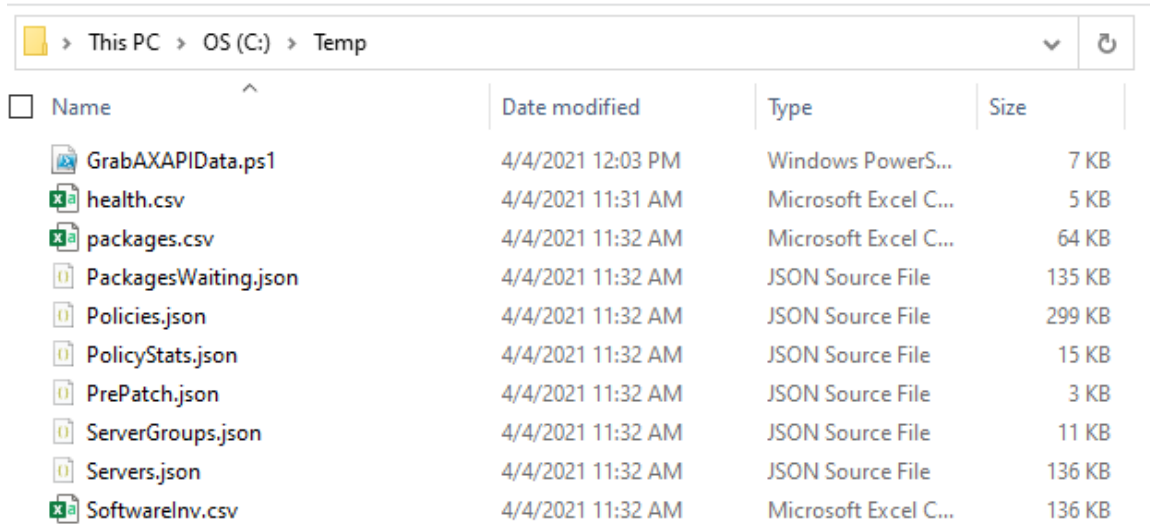
Configuration

1. Create a new folder on your C: drive called temp
2. Download and save the PowerShell API script to C:\temp
3. Download and save the Automox_Reports_Example_v1_wAPI.pbix to C:\temp
4. Open the script to edit and enter your [API Key](#) & your ORG ID and save the file

```
1 # Update these variables with your API Key, orgID & save directory/filename
2 # This script expects the C:\temp\ path to already exist and will overwrite an existing file
3 #####
4
5 $apiKey = '<YOUR_KEY_HERE>'
6 $orgID = '<YOUR_ORG_HERE>'
7
8 #####
9
10
```

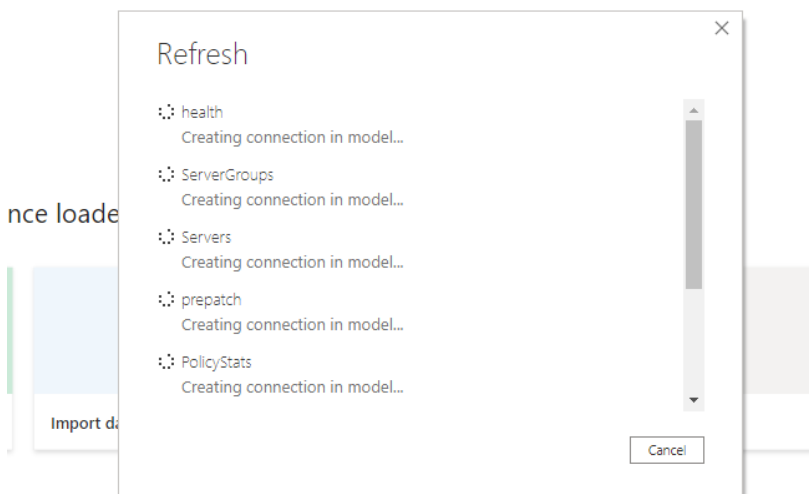


5. Click the Run script button to execute the script. This will generate the required files for the PowerBi reports. The data file are saved in C:\temp\



| This PC > OS (C:) > Temp | | | | |
|--------------------------|-------------------|----------------------|--------|--|
| Name | Date modified | Type | Size | |
| GrabAXAPIData.ps1 | 4/4/2021 12:03 PM | Windows PowerS... | 7 KB | |
| health.csv | 4/4/2021 11:31 AM | Microsoft Excel C... | 5 KB | |
| packages.csv | 4/4/2021 11:32 AM | Microsoft Excel C... | 64 KB | |
| PackagesWaiting.json | 4/4/2021 11:32 AM | JSON Source File | 135 KB | |
| Policies.json | 4/4/2021 11:32 AM | JSON Source File | 299 KB | |
| PolicyStats.json | 4/4/2021 11:32 AM | JSON Source File | 15 KB | |
| PrePatch.json | 4/4/2021 11:32 AM | JSON Source File | 3 KB | |
| ServerGroups.json | 4/4/2021 11:32 AM | JSON Source File | 11 KB | |
| Servers.json | 4/4/2021 11:32 AM | JSON Source File | 136 KB | |
| SoftwareInv.csv | 4/4/2021 11:32 AM | Microsoft Excel C... | 136 KB | |

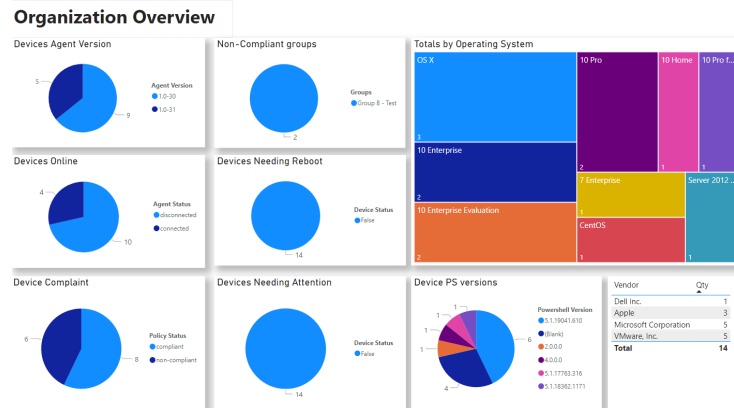
6. Double click to open Automox_Reports_Example_v1_wAPI.pbix from C:\temp\. The template will open and load the data files from step 5.



7. Once the data loads and you see the pre-defined reports, save the file as a PowerBi file with the .pbix extension. Use the .pbix file for viewing the report moving forward.
8. When you want to refresh your report data, just execute the PowerShell script, then click the refresh button in PowerBi.



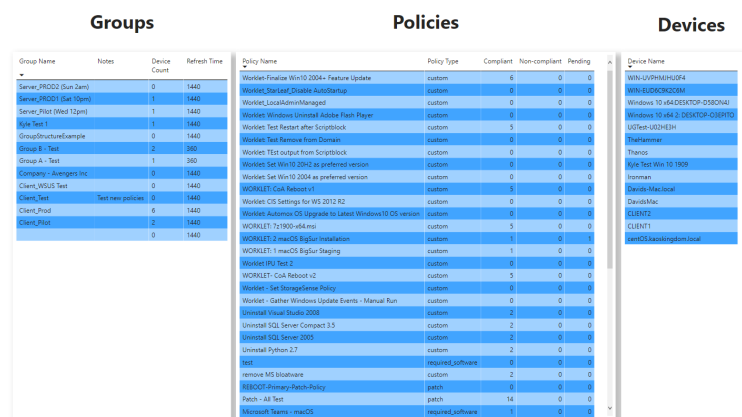
One glance, and you can see device agent versions, devices online, devices needing a reboot, devices by an operating system, and many more.



With a few clicks, you can sort a column, filter, and export your data.



Click on a device; it will filter the groups and policies visualization.





Policies give you a great view of all your policies in the Automox console.

Click on a column to sort, or use a filter to focus on a specific policy.

Policies

| Name | Package Name | notes | Policy Type | OS Family | Package Version | Device Count |
|---|---------------------------|--|-------------------|-----------|-----------------|--------------|
| _Client_Pilot_Standard Patches (Wed 1:30pm) | | Patch All except definition updates, feature updates | patch | Windows | | 3 |
| _Client_PROD_Standard Patches (Fri 1:30pm) | | | patch | Windows | | 7 |
| _Patch_Advanced_Microsoft_OS and Office | | Exclude : SQL, Optional and Recommended Windows Updates, Definition updates, and Feature updates | patch | Windows | | 0 |
| _Patch_Clients_Defender Updates_Daily | | | patch | Windows | | 0 |
| _Patch_Feature Updates_Manual | | | patch | Windows | | 8 |
| _Patch_Servicing Stack Update | | | patch | Windows | | 10 |
| _Patch_Test - Manual | | | patch | Windows | | 9 |
| 7-zip | test | | required_software | Windows | 1.8 | 0 |
| 7-Zipx64 | 7-Zip | | required_software | Windows | 19.00 | 2 |
| Clear Browser cache, cookies, history | | https://community.automox.com/t/worklet-clear-cache-cookies-and-history-from-ie-and-chrome/1384 | custom | Windows | | 2 |
| Config Mgr 2012r2 toolkit | ConfigMgr 2012 Toolkit R2 | toolkit | required_software | Windows | 5.00.7058.1151 | 6 |
| CS Sensor Installer - Servers | CS Sensor | | required_software | Windows | 12.2 | 5 |
| Disable LLMNR | | https://community.automox.com/t/worklet-disable-llmnr-security-risk-windows/7413 | custom | Windows | | 2 |
| Firefox International Support Upgrade | | | custom | Windows | | 0 |
| Gather Application and System errors | | grabbed from https://community.automox.com/t/worklet-windows-event-viewer-output-application-and-system-errors-to-activity-monitor/17251 | custom | Windows | | 2 |
| Heros_Patch_All | | | patch | Windows | | 3 |
| Install Chrome | Google Chrome | | required_software | Windows | 68.0.3425.116 | 2 |
| Kyle - Clear Download | | | custom | Windows | | 1 |
| Kyle - Open Google | | | custom | Windows | | 1 |
| Microsoft Teams - macOS | | | required_software | Mac | 1.0.0.103671 | 1 |
| Patch - All Test | | Testing if Disabled Policy can be attached and if compliance changes based on active/inactive state of this policy | patch | Windows | | 14 |
| REBOOT-Primary-Patch-Policy | | | patch | Windows | | 8 |
| remove MS bloatware | | | custom | Windows | | 2 |
| test | notepad++ | | required_software | Windows | 12 | 0 |
| Uninstall Python 2.7 | | | custom | Windows | | 2 |
| Uninstall SQL Server 2005 | | | custom | Windows | | 0 |

Policy Stats gives you a great view of your policy compliance in the Automox console.

Click on a column to sort, or use a filter to focus on a specific policy.

Policy Stats

| Policy Name | Policy Type | Pending | Compliant | Non-Compliant |
|---|-------------------|---------|-----------|---------------|
| _Client_Pilot_Standard Patches (Wed 1:30pm) | patch | 0 | 3 | 0 |
| _Client_PROD_Standard Patches (Fri 1:30pm) | patch | 0 | 7 | 0 |
| _Patch_Advanced_Microsoft_OS and Office | patch | 0 | 0 | 0 |
| _Patch_Clients_Defender Updates_Daily | patch | 0 | 0 | 0 |
| _Patch_Feature Updates_Manual | patch | 0 | 8 | 0 |
| _Patch_Servicing Stack Update | patch | 0 | 10 | 0 |
| _Patch_Test - Manual | patch | 0 | 9 | 0 |
| 7-zip | required_software | 0 | 0 | 0 |
| 7-Zipx64 | required_software | 0 | 2 | 0 |
| Clear Browser cache, cookies, history | custom | 0 | 2 | 0 |
| Config Mgr 2012r2 toolkit | required_software | 4 | 2 | 0 |
| CS Sensor Installer - Servers | required_software | 0 | 0 | 0 |
| Disable LLMNR | custom | 0 | 2 | 0 |
| Firefox International Support Upgrade | custom | 0 | 0 | 0 |
| Gather Application and System errors | custom | 2 | 0 | 0 |
| Heros_Patch_All | patch | 2 | 1 | 0 |
| Install Chrome | required_software | 0 | 2 | 0 |
| Kyle - Clear Download | custom | 1 | 0 | 0 |
| Kyle - Open Google | custom | 1 | 0 | 0 |
| Microsoft Teams - macOS | required_software | 0 | 1 | 0 |
| Patch - All Test | patch | 0 | 14 | 0 |
| REBOOT-Primary-Patch-Policy | patch | 0 | 0 | 0 |
| remove MS bloatware | custom | 0 | 2 | 0 |
| test | required_software | 0 | 0 | 0 |
| Uninstall Python 2.7 | custom | 0 | 2 | 0 |
| Uninstall SQL Server 2005 | custom | 0 | 2 | 0 |
| Uninstall SQL Server Compact 3.5 | custom | 0 | 2 | 0 |
| Uninstall Visual Studio 2008 | custom | 0 | 2 | 0 |
| Worklet - Gather Windows Update Events - Manual Run | custom | 0 | 0 | 0 |

Pre-patch displays a list of all the scheduled patches per device along with severity and exposure information allowing you to effectively assess internal impact.

Click on a column to sort or

Pre-Patch Report

| Name | Device ID | Group | Patch Name | Patches Severity | Patches Cve | Create Time |
|------------|-----------|----------------|---|------------------|-------------|----------------------|
| Thanos | 918873 | Group B - Test | Security Intelligence Update for Microsoft Defender Antivirus - KB2267602 | | | 3/12/2021 9:57:33 AM |
| Thorhammer | 904773 | Group B - Test | Security Intelligence Update for Microsoft Defender Antivirus - KB2267602 | | | 2/1/2021 1:38:52 PM |

| Name | Agent version | PS Version | Auto Update Option | WSUS Config | WSUS Update Source | WMI Check | Needs Restart | Last Decomm Time | Latency |
|---------------------------|---------------|----------------|---|--|--|-----------|---------------|----------------------|----------------------|
| WUFC-LessonsforGoodSchool | 1-30-2020 | 5.0.50 | OPTIONAL=off ENABLED=off | WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/7/2021 5:04:37 PM | 4/7/2021 5:04:37 PM |
| CLIENT1 | 1-30-2020 | 5.1.19044.610 | OPTIONAL=off ENABLED=off | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/7/2021 7:45:25 AM | 4/7/2021 7:45:25 AM |
| CLIENT2 | 1-30-2020 | 5.1.19044.610 | OPTIONAL=Disabled new updates when available | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/7/2021 7:44:48 AM | 4/7/2021 7:44:48 AM |
| Desktop-Mac local | 1-30-2020 | 5.1.19044.610 | OPTIONAL=off OFF=Automatically Check for updates, disabled new updates when available, install system security updates, install system security updates | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/8/2021 8:04:36 PM | 4/8/2021 8:04:36 PM |
| DESKTOP-DSB904 | 1-30-2020 | 5.1.19044.610 | OPTIONAL=off ENABLED=off | WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/8/2021 11:30:21 AM | 4/8/2021 11:30:21 AM |
| DESKTOP-NIC790V | 1-30-2020 | 5.1.17763.516 | OPTIONAL=off ENABLED=off | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 2/2/2021 10:04:44 AM | 2/2/2021 10:04:44 AM |
| DESKTOP-GIB67D | 1-30-2020 | 5.1.19042.1175 | OPTIONAL=off ENABLED=off | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/8/2021 8:49:53 PM | 4/8/2021 8:49:53 PM |
| DESKTOP-U2D42H6 | 1-30-2020 | 5.1.19044.610 | OPTIONAL=off ENABLED=off | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/7/2021 7:45:26 AM | 4/7/2021 7:45:26 AM |
| Thomas | 1-30-2020 | 5.1.19044.610 | OPTIONAL=off ENABLED=off | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/7/2021 7:45:26 AM | 4/7/2021 7:45:26 AM |
| WIN-R0M4M01 Mac local | 1-30-2020 | 5.1.19044.610 | OPTIONAL=off OFF=Automatically Check for updates, disabled new updates when available, install app updates from the App Store, install system data updates, install system security updates | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/8/2021 8:04:36 PM | 4/8/2021 8:04:36 PM |
| WATHR | 1-30-2020 | 5.1.19044.610 | OPTIONAL=off OFF=Automatically Check for updates, disabled new updates when available, install app updates from the App Store, install system data updates, install system security updates | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/7/2021 7:45:26 AM | 4/7/2021 7:45:26 AM |
| WUFC-EDUCACOM | 1-30-2020 | 5.0.50 | OPTIONAL=off ENABLED=off | WSUS, REACHABLE=off WSUS, SERVER=WSUS, MANAGED=off | OPTIONAL=Connected True ERROR=Successful | True | False | 4/7/2021 7:44:48 AM | 4/7/2021 7:44:48 AM |



Health check column definitions

| | |
|-----------------------------|--|
| Name | Device name |
| Agent Version | Upgrade all agents to latest agent version |
| PS version | PowerShell version on the device |
| Auto Update Option | <p>Provides the Automatic Update options last collected from each agent during the last scan before I collected the environment data. The settings can be set in different ways (1. By the OS Patch Management settings in the Automox group the agent belongs to, 2. If the OS Patch Management settings in the group is set to keep settings, it will be set locally, by GPO, or if there is another management system configuring patch processes). Our best practice is to only use one method to manage the patch management settings. As an example, if you want Automox to manage the settings, set the "Windows and macOS Patch Management" setting to "Disable OS Automatic Updates", and Set the "Windows Update Source" to either "Windows Update" or "WSUS" depending on where you want the devices of that group to search.</p> <p>Disable other patch configuration settings (example, if you use SCCM/Jamf, stop setting patch configurations via agent settings. If you set Windows Update settings with GPO, remove those settings or set to unconfigured in GPO. The important point is to use only one source to configure these settings.</p> <p>{"ENABLED": "0", "OPTIONS": "off"} for Windows, and {"ENABLED": "0", "OPTIONS": ""} for macOS are the preferred settings. This means that the device will not automatically patch itself, and the Automox policy will define what patches to download, and the schedule for installation.</p> |
| WSUS Config | WSUS settings defined on the client. WSUS_Server is blank if using Windows Updates as the source, and will list the WSUS server if WSUS is the source. WSUS_Managed, 0 = not WSUS managed, and 1 = WSUS managed. REACHABLE is only relevant if WSUS managed, 0 = Not reachable, 1= Reachable. |
| WSUS Update Source | Lists if there was an error connecting to the update source, and if it was connected. This will present the devices that failed the update source check visible in the console under compatibility tests. |
| WMI Check | Windows only, check for WMI corruption |
| Need Reboot | Device needs a reboot |
| Last Disconnect time | Lists when a device last disconnected from Automox. If it is empty, it is active. You can use this to identify devices that have not checked-in recently. |

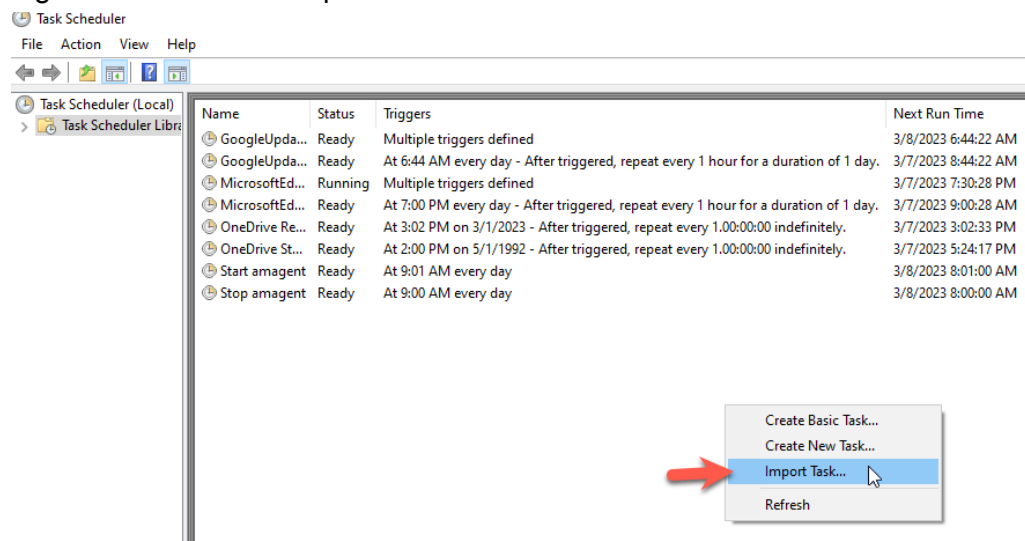


| | |
|-------------------|--|
| Last Refresh Time | Lists the last time a scan was performed. If the date is missing or is very old, the device has either been offline for a substantial period, or the agent is no longer working correctly. <i>Note: if the device is active and not on agent 40 or higher, please try running the Catalog Worklet named Install Latest Agent On Systems With Old Agents.</i> |
| Pending Patches | Number of patches needed based on policy at last successful scan. Can be compared to Column (patches) for analysis of what is available vs targeted to install. |
| OS Version | Review for Automox supported OS versions - Automox Agent Requirements |
| Free (GB) | Free disk space |

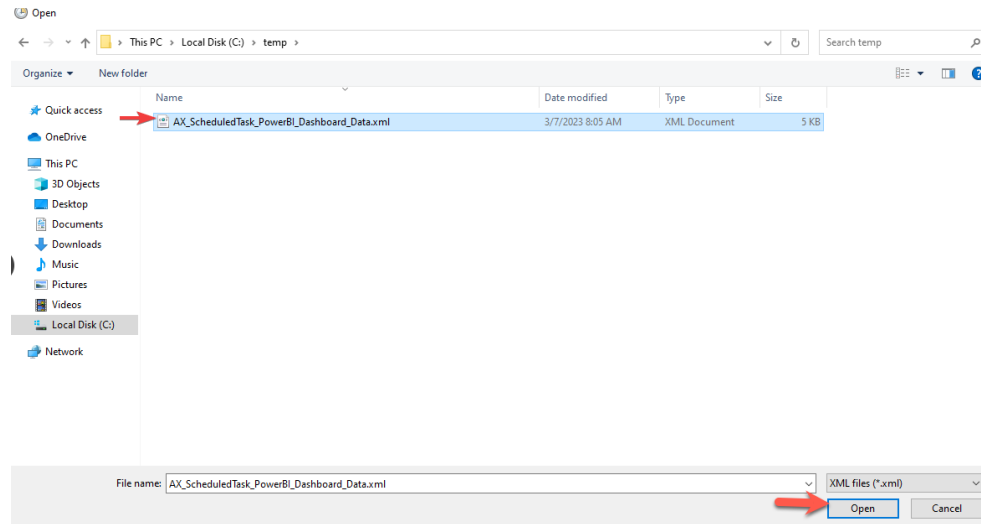
Scheduled Task

Optional: A Scheduled Task can be configured to regularly run the API script and update the PowerBI data files.

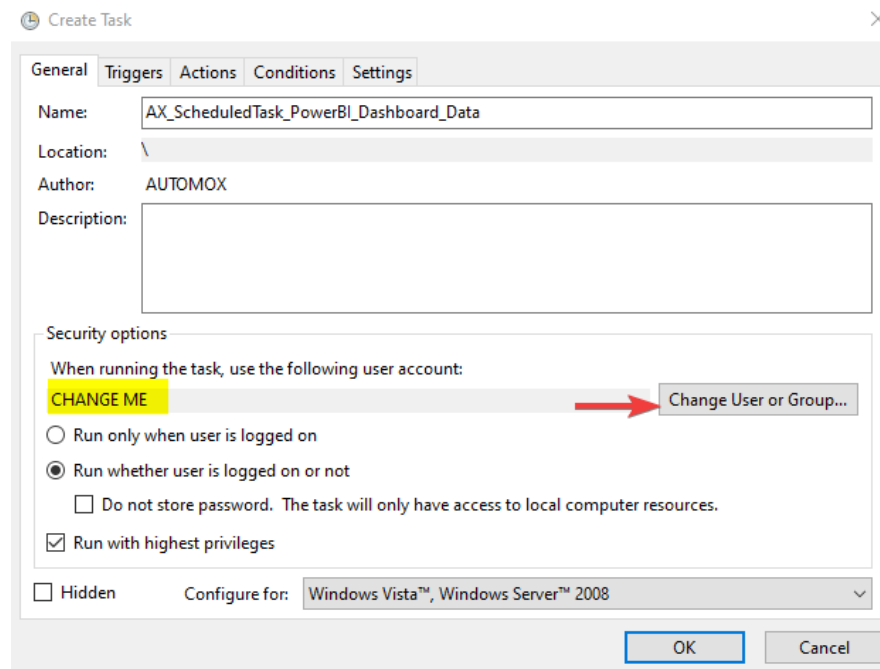
1. Download the Scheduled Task template XML from [AX_ScheduledTask_PowerBI_Dashboard_Data.xml](#) Github repository.
2. Open Task Scheduler on your host server.
3. Right click and select Import Task.



4. Select and import the XML File.



5. Change the security principle that the API script should run as (Example: SYSTEM or a privileged domain user).



6. Define when the scheduled task should run. By default it is scheduled to run three times a day at 6am, 12pm, and 6pm.



Create Task

General Triggers Actions Conditions Settings

When you create a task, you can specify the conditions that will trigger the task.

| Trigger | Details | Status |
|---------|-----------------------|---------|
| Daily | At 6:00 AM every day | Enabled |
| Daily | At 12:00 PM every day | Enabled |
| Daily | At 6:00 PM every day | Enabled |

New... Edit... Delete

OK Cancel

Considerations

If the name of or path to the API script changes, you will need to update this by going to Actions, Edit, and then modifying the file name or path after `-File` in the “Add Arguments” section.

Create Task

General Triggers Actions Conditions Settings

1 When you create a task, you must specify the action that will occur when your task starts.

| Action | Details |
|-----------------|--|
| Start a program | C:\WINDOWS\System32\WindowsPowerShell\v1.0\powershell.exe -NoPro |

2

New... Edit... Delete

OK Cancel

Edit Action

You must specify what action this task will perform.

Action: Start a program

Settings

Program/script: C:\WINDOWS\System32\WindowsPowerShell\v1.0\powe Browse...

Add arguments (optional): 3 C:\temp\GrabAXAPIData

Start in (optional):

4

OK Cancel