

# WHONET

## Automation Tool



**WHO Collaborating Centre for  
Surveillance of Antimicrobial Resistance**

**Boston, July 2022**

# WHONET Automation Tool Installation Guide

## Description

The WHONET Automation Tool allows the user to create a data processing and analysis pipeline. The tool allows you to chain together a configurable sequence of steps which would ordinarily need to be executed manually, with very careful attention to detail. Instead, the Automation Tool links the necessary steps together and provides mechanisms for running the sequence on a set schedule, asynchronously in response to the presence of new input files, batch processing, and easy command-line access for integration with existing IT processes. It can be configured to form the basis of a near real-time data collection and analysis system.

For example, a daily data feed may be extracted automatically from a lab information system (LIS) or instrument and deposited on a network drive. This tool can be configured to check the location at a designated time, run BacLink on the daily file, append the output to a yearly file, and run a set of analyses without any intervention.

Once the daily data have been appended to the full data set, any WHONET analyses can also optionally run using the latest data. For example, we use the Automation Tool at our hospital and several others to run statistical outbreak detection algorithms every morning, reporting the results to key stakeholders. Alternatively, you might choose to setup automated alerts for certain priority organisms or important resistance. If any of the configured steps fail to run successfully, a designated list of users will receive notification via email.

The system also has built-in process monitoring, which can optionally trigger email notifications when certain situations occur. The monitoring system is useful for identifying issues such as when there are too few or too many rows for a given date based on the historical trends, or when a component step's runtime is longer or shorter than normal by a configurable margin (2 standard deviations for example). Such issues aren't triggered by an absence of a data file (which triggers its own error), but often point to something which might require further investigation.

## Prerequisites

Windows 7 SP1, 8, 10, 11 or Windows Server 2008 R2 – 2022

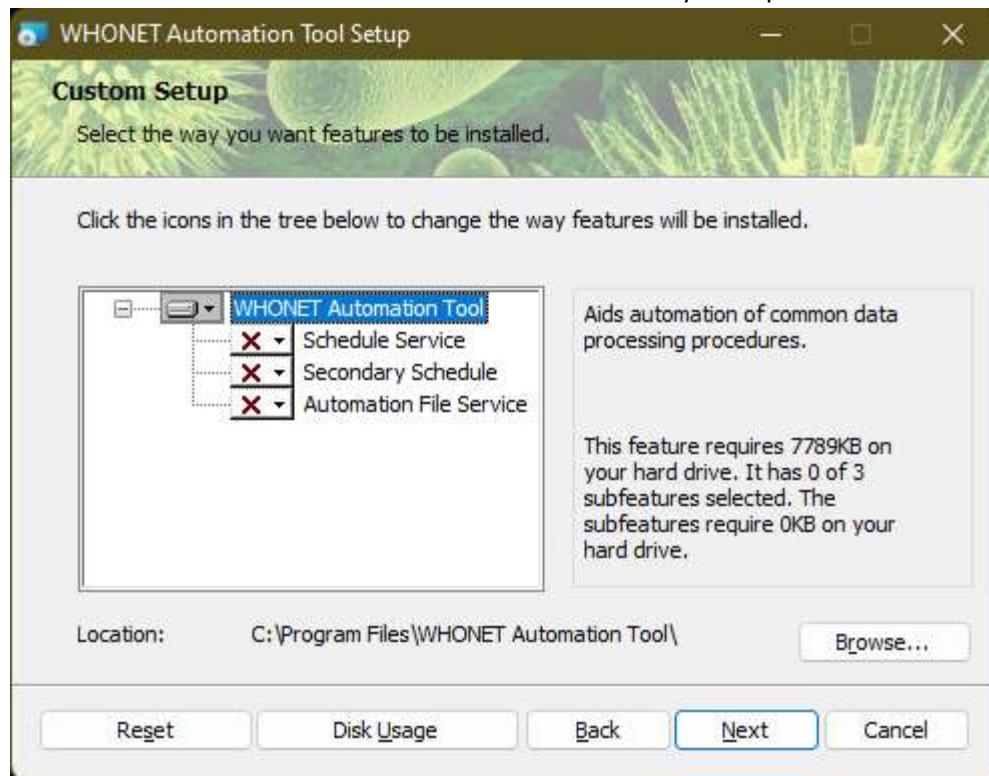
.NET 4.7.1+

Administrator rights for installation and configuration of Windows Services (if applicable).

Optional, only required for full automation: Designated service user with rights to “log on as a service” as described in the [Microsoft documentation](#).

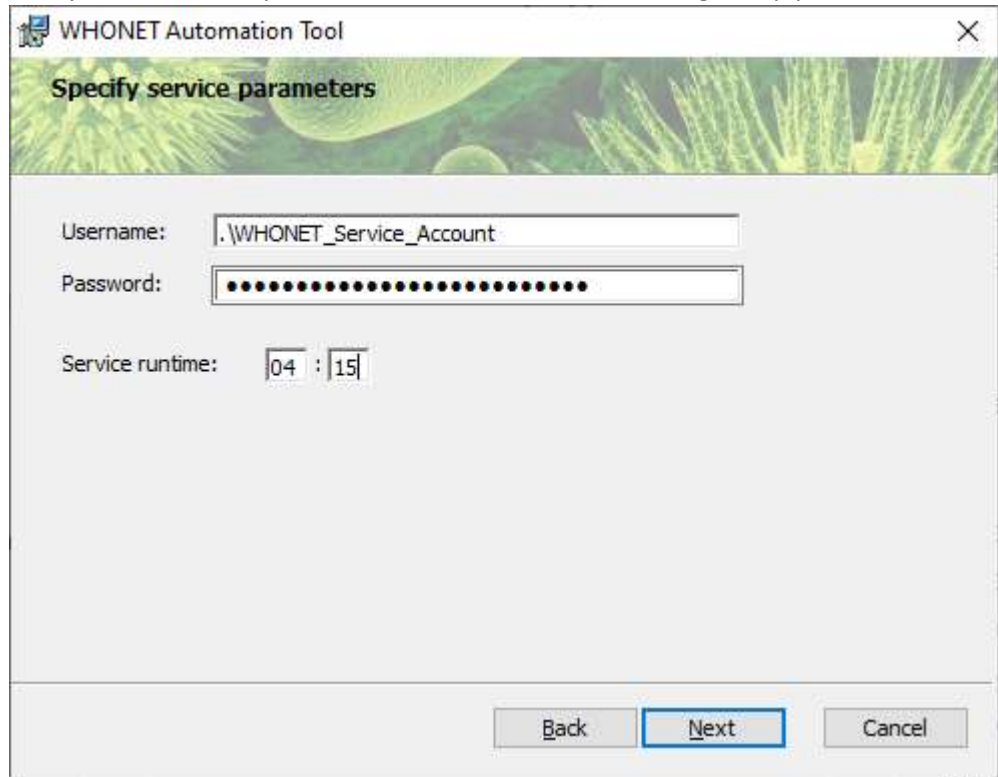
## Installation

1. Run the WHONET Automation Tool .msi file downloaded from our website’s software page. Accept the user agreement to proceed.
2. The screen below appears, allowing you to optionally install a service to enable full automation, or to proceed without services. This setting can be changed later by reinstalling the Automation Tool.
  - a. The Automation Tool is very useful for batch processing of data in addition to the fully automated features associated with the services.
  - b. There is no need to enable the Windows services unless you require full automation.



- c.
- d. If you wish to continue without service installation (the default shown above), press the “Next” button, and skip to installation [step 3](#) of this document.
- e. If you are setting up a service, we recommend requesting that your IT administrator create a service user account specifically for this purpose and grant this account the “log on as a service” right, instead of granting this right to an existing regular user account.

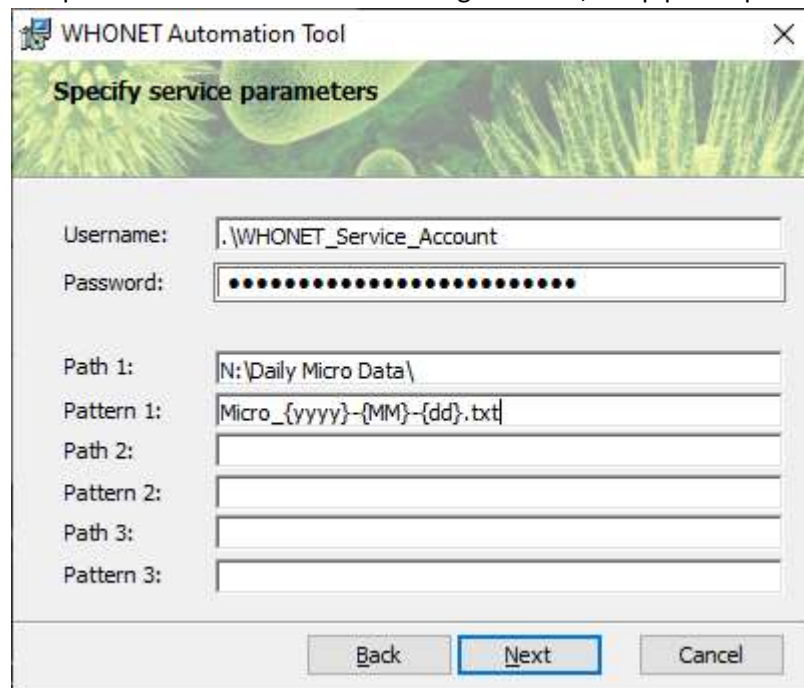
- f. The service user must also have access to local and network folders related to the automation tasks. For example, the service user would need to access the input data folder for the process.
- g. Microsoft documentation on this topic: <https://docs.microsoft.com/en-us/system-center/scom/enable-service-logon?view=sc-om-2022#enable-service-log-on-permission-for-run-as-accounts>
  - i. When a service account is used, you must log into Windows interactively using the service account to configure the Automation Tool. After the Automation Tool has been configured and tested, interactive access for the user may be disabled for security reasons described in the Microsoft documentation, and to prevent unintended changes to this process.
  - ii. A future version of the Automation Tool will aim to simplify the management of services and allow for multiple pipelines to be easily setup on a single server and service account, but it will not eliminate the need for the permissions described above.
- h. After you receive the service user’s credentials, you can proceed with service setup.
- i. Typically, you will only enable one of the above services, most commonly the “Schedule Service”.
- j. Schedule services:
  - i. A single schedule service is the most common use case. A schedule services tells the system to wake up at a set time and execute the configured pipeline.



- ii.
- iii. The image above, the service account user “WHONET\_Service\_Account” will be used to run the service at 4:15 AM each day. The time of day should be after the associated LIS or instrument extracts occur, with enough time to account for

minor delays. For example, if the export process usually finishes by 4:05, you may wish to allow an additional 10 to 30 minutes before this process begins to avoid timing issues.

- iv. The second schedule service would allow for a separate pipeline to be setup on the same server but using a different Windows service account. This situation is much less common, and usually the second service should be left disabled.
- k. Automation file service:
  - i. This service is used for asynchronous processing and is less common. Instead of running at a particular time, the service will continuously watch for up to 3 files with configurable naming patterns (usually containing a date stamp). Once the complete set of files is available for a given date, the pipeline process will run.

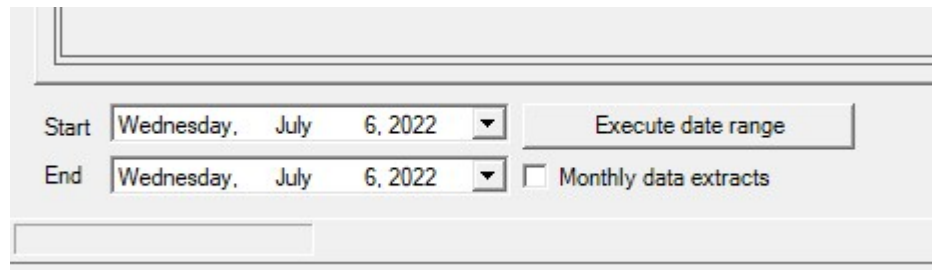


- ii.
- iii. You can see above that the “WHONET\_Service\_Account” user has instructed the system to watch the folder in “Path 1” for files with a specific date stamped file name.
- iv. For example, “Pattern 1” would match an incoming file such as “Micro\_2022-07-04.txt”.
- v. Valid date patterns are described in the “Date patterns” section of the WHONET Automation Tool User Guide, available on our website at the following URL:
- vi. <https://whonet.org/Docs/WHONET%20Automation%20Tool%20User%20Guide.docx>

3. Press “Install” to install the core software, as well as any services you have enabled.
  - a. If you have chosen to install a service, but have not obtained the “run as a service” permission for the user, you will receive a Windows message like this:



- b.
- c. To fix this problem, the administrator could provision a Windows service account dedicated to this automation process with the necessary permissions.
- d. If your IT administrator is unwilling to do this, then you can still use the tool for batch processing. You would also be able to configure the steps as required, and manually press the “Execute date range” button once per day in the interactive software to emulate the schedule service.



- e.
  - f. While pressing the button once per day is not an ideal long-term solution, it can get you operational without any extra permissions necessary for the service aspect.
4. Press “Finish” to complete the installation.
    - a. If installation is successful, you will see a new icon on your desktop and in the program menu to launch the interactive user interface.
    - b. Please note that a command line window will also appear whenever you run the interactive software. This window will display output generated during manual batch processing but can otherwise be ignored.
    - c. If there is a problem with the service credentials, or another installation problem, you may require assistance from your IT group, or a remote WHONET support session with you and your IT group.
    - d. If you are installing the software on a computer which you own and control, and don’t wish to create a dedicated service account, you will still likely need to follow the [Microsoft documentation link](#) above to grant yourself rights to “log on as a service” prior to installing the Automation Tool.