

# User Manual

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ScanMasterX is a powerful tool that leverages libraries and readily known data to tell you more about the security of your system. It features several options for users to choose from and in turn they learn more information about their network and potential threats. The system also connects the output to CPE (Common Platform Enumeration) and CVE (Common Vulnerabilities and Exposures) information, providing comprehensive insights into network security. Users can also visualize their network topology through an interactive graph, making it easier to understand the network structure and potential vulnerabilities. This application provides ease of use, comprehensive network scanning, and enhanced security insight in one component. Our integration with security databases and support for different options provides an up to date and flexible tool.

## Installation Instructions

### Prerequisites

Before installing and using ScanMasterX, ensure that the following prerequisites are met:

1. **Python 3.8+:** Ensure you have Python 3.8 or higher installed. You can download it from [Python's official website](#).
2. **Nmap:** The application relies on Nmap for network scanning. Install Nmap by following the instructions on Nmap's official website. This will be dependent on package manager.
3. **Python packages:**

Required Python Packages: Install the necessary Python packages using your appropriate package manager, including PyQt6 for the graphical user interface and various other libraries such as json:

```
json
Pyqt6
ftplib
netifaces
ipaddress
networkx
matplotlib
nmap
```

### 4. Running with Sudo/Administrator Privileges

Because this program leverages Nmap, it will require sudo or administrator privileges depending on your OS.

### Installation Steps

1. **Clone the Repository:** Visit and Clone the GitHub repository to your local machine:

<https://github.com/Sanmeet-EWU/github-teams-project-bid-uwultimate-stardust-crusaders>

gh repo clone Sanmeet-EWU/github-teams-project-bid-uwultimate-stardust-crusaders

**Set Up Virtual Environment:** (Optional but recommended) Create and activate a virtual

```
python -m venv venv
```

```
source venv/bin/activate
```

```
# On Windows use `venv\Scripts\activate`
```

2. **Install Dependencies:** Install the required Python packages:

```
pip install -r requirements.txt
```

### Requirements File (requirements.txt)

Ensure your requirements.txt includes the necessary libraries:

```
json  
Pyqt6  
ftplib  
netifaces  
ipaddress  
networkx  
matplotlib  
nmap
```

### Running the Software

1. **Start the Application:** Navigate to the src folder in our repository and run the main application file on the command line:

Mac: Sudo Python3 main.py

Windows: Run as administrator and then python main.py

### Using the Software

**You can click Start or Welcome to ScanMasterX to take you from our home page to the main menu page. From the main menu, you are presented with 3 options: Scan Subnets, Scan Ports, or Display Topology:**

#### Scanning Subnets

1. **Enter IP and Subnet Information:** Enter an IP address you wish to scan with its subnet. (e.g., 192.168.1.0 and 24).
2. **Start Scan:** Click the "Scan Network" button to start the scanning process.

#### Scan Ports

1. **Enter IP Information:** Pick an IP address from the dropdown or type it in. (e.g., 192.168.1.0).
2. **Specify Port Range:** Enter the range of ports you want to scan (e.g., 1-1000).
3. **Start Scan:** Click the "Scan Host" button to start the scanning process.

#### Display Topology

1. **Network Topology Graph:** This feature updates in real time to view the graphical representation of the network. The graph displays the network nodes, their connections, and information when clicked.
2. **Interactive Features:** Use the interactive features of the graph to zoom in, zoom out, and click on IP nodes to get more detailed information on their vulnerabilities.

## Work in Progress

Some features are still under development and may not be fully functional:

- **Improved Performance:** Scanning a big port range may result in long wait times and lagging, which is still under development and a feature to improve.
- **Real-time Updates:** Future updates will include real-time scanning updates and notifications.
- **Customization and account creation:** This would be a new feature to implement, as users can't save scans or have personalization.

For any issues or further assistance, refer to the README file in the repository or contact the development team.

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This basic user's manual provides essential information to help users install, run, and operate the ScanMasterX application effectively. For detailed technical documentation and developer guidelines, refer to the developer's documentation section in our repository.