Algorithm for file updates in Python

Walker Larivee

Project description:

In cybersecurity, maintaining a precise and up-to-date allow list (also known as a whitelist) is essential for controlling which IP addresses are permitted to access network resources. An allow list helps mitigate unauthorized access, preventing potential security breaches by ensuring that only trusted IP addresses can interact with critical systems.

This script automates the process of updating the allow list, enhancing the efficiency and accuracy of network security management. The code defines a function, update_file(import_file, remove_list), which removes IP addresses specified in the remove_list parameter from the import_file parameter using python file handling, string manipulation, conditional logic and iteration, data processing, and automation.

Algorithm for file updates in Python

Walker Larivee

```
def update_file(import_file, remove_list):

  # Build `with` statement to read in the initial contents of the file

  with open(import_file, "r") as file:

    # Use `.read()` to read the imported file and store it in a variable named `ip_addresses`

    ip_addresses = file.read()

  # Use `.split()` to convert `ip_addresses` from a string to a list

  ip_addresses = ip_addresses.split()

  # Build iterative statement
  # Name loop variable `element`
  # Loop through `ip_addresses`

  for element in ip_addresses:

    # Build conditional statement
    # If current element is in `remove_list`,

    if element in remove_list:

      # then current element should be removed from `ip_addresses`

      ip_addresses.remove(element)

  # Convert `ip_addresses` back to a string so that it can be written into the text file

  ip_addresses = " ".join(ip_addresses)

  # Build `with` statement to rewrite the original file

  with open(import_file, "w") as file:

    # Rewrite the file, replacing its contents with `ip_addresses`

    file.write(ip_addresses)

# Call `update_file()` and pass in "allow_list.txt" and a list of IP addresses to be removed

update_file("allow_list.txt", ["192.168.25.60", "192.168.140.81", "192.168.203.198"])

# Build `with` statement to read in the updated file

with open("allow_list.txt", "r") as file:

  # Read in the updated file and store the contents in `text`

  text = file.read()

# Display the contents of `text`

print(text)
```