PowerShell Location Status

Here is a project that will help managers, supervisors or anyone that may need to know the status of users in their workplace. With this project you will be able to determine if a user is (1) offline (2) working remotely (3) working onsite. This project will utilize powershell to write a script that will retrieve the status of the users.

The first way to determine a user's status is using the ping command or “Test-Connection”and retrieving information from the network adapter details. Essentially you will ping/ “Test-Connection” for each workstation on your network, determining if the user is online or offline. You use the powershell “Get-WmiObject” cmdlet to query WMI (Windows Management Instrumentation) for information about network adapters on a specified remote computer. Since remote users are required to use a VPN to connect to the work network the script will search for if the active network adapters are using VPN or not. VPN results means they are working remotely and no VPN means the user is physically onsite.

Results:

```
--------------------------------------------------
--------------------------------------------------
--------------------------------------------------
------------- Location Status Report -------------
--------------------------------------------------
--------------------------------------------------
--------------------------------------------------
Bishop Oliver is Offline.
Mack Bell is Working Remotely.
Zariyah Knox is Working Onsite.
Ariel Jones is Working Remotely.
Walter Williams is Working Remotely.
Jim James is Working Remotely.
Luke Coby is Working Onsite.
Josh Justin is Working Onsite.
Tracy Usher is Working Onsite.
Walter Chris is Offline.
Melissa Gomez is Working Onsite.
Drew Brown is Offline.

PS H:\>
```

The Script:

```
# Function to check if a remote computer is using a VPN
function GetNetworkStatus {
    param (
        [string]$computerName
    )

    try {
        # Test if the computer is online
        $isOnline = Test-Connection -ComputerName $computerName -Count 2 -Quiet

        if ($isOnline) {
            # Get network adapters on the remote computer
            $adapters = Get-WmiObject Win32_NetworkAdapter -ComputerName $computerName
             -Filter 'NetConnectionStatus = 2' -ErrorAction Stop | Select-Object -ExpandProperty Description

            # Check if any adapter description contains keywords indicating a VPN
            if ($adapters -match 'VPN' -or $adapters -match 'Virtual') {
                return 'Working Remotely'  # VPN connection detected
            } else {
                return 'Working Onsite'  # Direct network connection detected
            }
        } else {
            return 'Offline'
        }
    } catch {
        # Handle RPC server unavailability errors
        if ($_.Exception.ErrorCode -eq 1722 -or $_.Exception.ErrorCode -eq 1355) {
            # Ignore RPC server unavailability errors
            return 'Offline'
        } else {
            # Other errors are ignored
            return 'Offline'
        }
    }
}


# Specify the full path to the text file
$filePath = "C:\[redacted].txt"
Write-Output "----------------------------------------------------"
Write-Output "----------------------------------------------------"
Write-Output "----------------------------------------------------"
Write-Output "------------- Location Status Report -------------"
Write-Output "----------------------------------------------------"
Write-Output "----------------------------------------------------"
Write-Output "----------------------------------------------------"

if (Test-Path $filePath) {
    # Read the content of the text file
    $fileContent = Get-Content -Path $filePath

    foreach ($line in $fileContent) {
        # Extract workstation and user information
        $workstation, $user = $line -split ' - '

        # Get the network status for the user
        $networkStatus = GetNetworkStatus -computerName $workstation

        # Display the result with specific phrases
        Write-Host "$user is $networkStatus."
    }
} else {
    Write-Host "File not found at $filePath"
}
```

The second way to determine a user's status is using the trace route command "tracert". You will need to determine what is the highest amount of hops a workstation onsite takes to communicate to another workstation onsite and what is the lowest traceroute hops between a workstation that's onsite and remote. With this information you will create a powershell script that will determine if the user is onsite or remote based on the result of the trace route. In this insist the highest traceroute hop between 2 onsite workstation was no greater than 3 and between a workstation onsite and 1 remote the lowest traceroute hop is 7 hops. In the provided script, onsite workstations have fewer than 5 hops and remote workstations have 5 or more hops.

Results:

```
Location Status Report
----------------------

--- Offline Users ---
Walter Chris
Bishop Oliver
Drew Brown

--- Remote Users ---
Mack Bell
Ariel Jones
Walter Williams
Jim James

--- Onsite Users ---
Zariyah Knox
Luke Coby
Melissa Gomez
Josh Justin
Tracy Usher

PS H:\>
```

The Script:

```
# Function to perform ping and traceroute
function Get-ConnectionInfo {
    param (
        [string]$ComputerName
    )

    # Perform ping to check if the computer is online
    $pingResult = Test-Connection -ComputerName $ComputerName -Count 1 -Quiet

    if ($pingResult) {
        # Perform traceroute
        $tracerouteResult = tracert $ComputerName | Select-Object -Skip 2

        # Calculate the hop count
        $hopCount = ($tracerouteResult.Count - 4)

        # Return the results based on hop count
        if ($hopCount -ge 5) {
            return @("Remote", $hopCount)
        } else {
            return @("On-site", $hopCount)
        }
    } else {
        return @("Offline or does not exist", 0)
    }
}

# Function to output colored text
function Write-ColoredText {
    param (
        [string]$Text,
        [string]$Color
    )
    Write-Host $Text -ForegroundColor $Color
}

# Specify the full path to the text file
$filePath = "C:\Users\[redacted].txt"

# Initialize hash tables to group results
$offlineUsers = @{}
$remoteUsers = @{}
$onsiteUsers = @{}

```

```
if (Test-Path $filePath) {
    # Read the content of the text file
    $fileContent = Get-Content -Path $filePath

    foreach ($line in $fileContent) {
        # Extract workstation and user information
        $workstation, $user = $line -split ' - '

        # Get the network status for the user
        $networkStatus, $hopCount = Get-ConnectionInfo -ComputerName $workstation

        # Group results based on network status
        switch ($networkStatus) {
            "Remote" { $remoteUsers[$user] = $workstation }
            "On-site" { $onsiteUsers[$user] = $workstation }
            "Offline or does not exist" { $offlineUsers[$user] = $workstation }
        }
    }
} else {
    Write-ColoredText "File not found at $filePath" "Red"
    return
}

# Display grouped results
Write-Output "Location Status Report"
Write-Output "----------------------"

Write-ColoredText "`n--- Offline Users ---" "Red"
foreach ($user in $offlineUsers.Keys) {
    Write-Host "$user"
}

Write-ColoredText "`n--- Remote Users ---" "Yellow"
foreach ($user in $remoteUsers.Keys) {
    Write-Host "$user"
}

Write-ColoredText "`n--- Onsite Users ---" "Green"
foreach ($user in $onsiteUsers.Keys) {
    Write-Host "$user"
}

# Note: The following section is redundant and can be removed if not needed.
$filePath2 = "C:\[redacted].txt"

if (Test-Path $filePath2) {
    # Filter lines that are not blank and do not start with "#"
    $computerNames = Get-Content -Path $filePath2 | Where-Object { $_ -notmatch '^#' -and $_ -ne '' }
} else {
    Write-ColoredText "File not found at $filePath2" "Red"
    return
}
```

The 3rd way to determine a user's status is using an ip address. Organizations will usually have a pattern with the ip address based on building, computer type, department, etc. In this insist the workstations that I was working with shared the first 2 octets in the ip addresses when they are the work network and a different ip address group if they are remote, ex: 10.37.x.x. With this information you can use powershell to ping the workstation, retrieve the ip address and provide the status of users from the results.

Results:

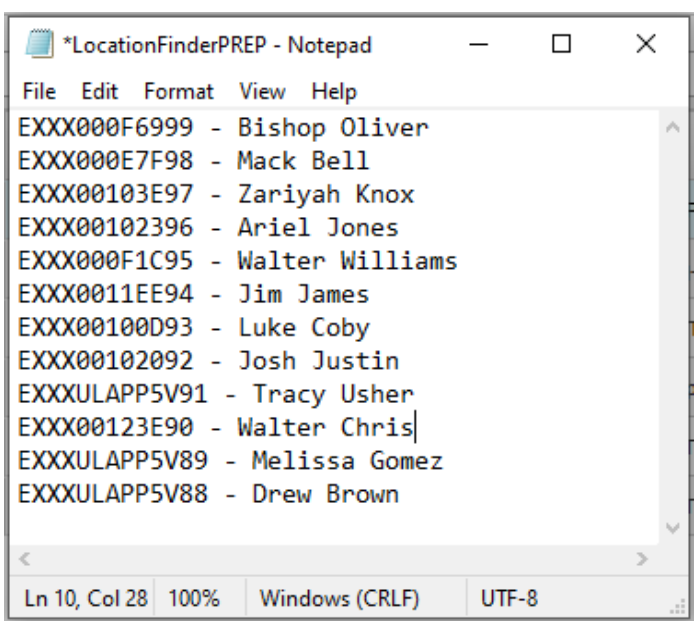
```
Location Status Report
----------------------

Onsite Users     Remote Users       Offline Users
------------     ------------       -------------
1. Zariyah Knox  1. Mack Bell       1. Bishop Oliver
2. Luke Coby     2. Ariel Jones     2. Walter Chris
3. Josh Justin   3. Walter Williams 3. Drew Brown
4. Tracy Usher   4. Jim James
5. Melissa Gomez


Script execution time: 12.370727 seconds
PS H:\>
```

The Script:

```
# Sleeping for 5 seconds to display the banner
Start-Sleep -Seconds 5

# Clearing the console screen
Clear-Host

# Function to get the location status of a computer
function Get-LocationStatus {
    param (
        [string]$computerName
    )

    # Testing connection to the computer
    $pingResult = Test-Connection -ComputerName $computerName -Count 1 -ErrorAction SilentlyContinue

    if ($pingResult) {
        $ipAddress = $pingResult.IPV4Address.IPAddressToString

        # Checking if the IP address indicates onsite or remote location
        if ($ipAddress -like '*10.[redacted]*') {
            Write-Output "Onsite"
        } else {
            Write-Output "Remote"
        }
    } else {
        Write-Output "Offline"
    }
}

# Path to the text file containing computer names and user names
$textFilePath = "C[redacted]P.txt"

# Arrays to store users based on location status
$onlineUsers = @()
$remoteUsers = @()
$offlineUsers = @()

# Read computer names and user names from the text file
$computerUserPairs = Get-Content -Path $textFilePath | ForEach-Object {
    $parts = ($_ -split ' - ', 2).Trim()
    [PSCustomObject]@{
        ComputerName = $parts[0]
        UserName = $parts[1]
    }
}

# Loading message
Write-Host "Loading..."

# Start timer to measure script execution time
$startTime = Get-Date

```

```
# Iterate through each computer and user pair
foreach ($pair in $computerUserPairs) {
    $locationStatus = Get-LocationStatus -computerName $pair.ComputerName

    # Sorting users based on location status
    if ($locationStatus -eq "Onsite") {
        $onlineUsers += $pair.UserName
    } elseif ($locationStatus -eq "Remote") {
        $remoteUsers += $pair.UserName
    } else {
        $offlineUsers += $pair.UserName
    }
}

# Stop timer
$executionTime = (Get-Date) - $startTime

# Clear loading message
Clear-Host

# Determine the maximum count among the arrays
$maxCount = $onlineUsers.Count, $remoteUsers.Count, $offlineUsers.Count |
Measure-Object -Maximum | Select-Object -ExpandProperty Maximum

# Combine the arrays into a table format without the "User Number" column
$resultTable = @()

for ($i = 0; $i -lt $maxCount; $i++) {
    $resultTable += [PSCustomObject]@{
        "Onsite Users"  = if ($i -lt $onlineUsers.Count) { "$($i + 1). $($onlineUsers[$i])" } else { '' }
        "Remote Users"  = if ($i -lt $remoteUsers.Count) { "$($i + 1). $($remoteUsers[$i])" } else { '' }
        "Offline Users" = if ($i -lt $offlineUsers.Count) { "$($i + 1). $($offlineUsers[$i])" } else { '' }
    }
}

# Output the results in a table-like format without the "User Number" column
Write-Output "Location Status Report"
Write-Output "----------------------"
$resultTable | Format-Table

# Display execution time
Write-Host "Script execution time: $($executionTime.TotalSeconds) seconds"
```

For all these scripts they are retrieving the workstation and the corresponding user from a notepad that has a specific format. I will provide an example of the format with random workstations and names.



Automated Network Location Detection Script

Purpose:

This document outlines the use and importance of a PowerShell script designed to quickly determine the network location (On-site, Remote, or Offline) of users' workstations. This script is crucial during emergencies such as intruder alerts, fires, or for regular event planning like meetings and attendance tracking. It provides managers, supervisors, and relevant personnel with immediate information about the whereabouts of employees based on their computer's network status.

Note: Ensure proper permissions and data security measures are in place to safeguard sensitive information accessed or processed by the script. Regular testing and updates to the script may be necessary to maintain functionality and accuracy.