1. Terminal Server Load Radar

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| 1. **Contents**    [[hide](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar)]   * [1 Purpose](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Purpose)   + [1.1 What is TSLR](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#What_is_TSLR)   + [1.2 Why Need TSLR](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Why_Need_TSLR) * [2 Scope](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Scope) * [3 How TSLR Work](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#How_TSLR_Work)   + [3.1 Put Everything Together](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Put_Everything_Together) * [4 Making TSLR Run at Site](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Making_TSLR_Run_at_Site)   + [4.1 Configuring TSLR at Radar Server](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Configuring_TSLR_at_Radar_Server)   + [4.2 Gathering TS Inventory and Farm Name](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Gathering_TS_Inventory_and_Farm_Name)   + [4.3 Test Run](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Test_Run)   + [4.4 Scheduled Run](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Scheduled_Run)   + [4.5 Develop Process Control](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Develop_Process_Control)   + [4.6 Archiving Results](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Archiving_Results)   + [4.7 Trend Analysis and Load Behavioral Studies](https://wokrdcwiki01.corp.jabil.org/wiki/index.php/Terminal_Server_Load_Radar#Trend_Analysis_and_Load_Behavioral_Studies) |

1. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=1)]Purpose

This document explains the importance of Terminal Server Load Radar (TSLR) and the usage of the load radar.

1. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=2)]**What is TSLR**

* TSLR is a basic monitoring tool to monitor the loading status of a terminal server (TS).
* Its basic function is just to count how many users are currently active in the particular TS.
* The results are automatically email to Engineer for trend analysis, load behavior, as well as TS maintenance.

1. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=3)]**Why Need TSLR**

* Production TS (non-Citrix) are load balanced under a virtual farm.
* Applications that are running on the TS will be mainly MES related application (SFCS, MES, EPS, Label, etc).
* Production user may run MES app that utilizing higher memory (loading reports, etc) and often can halt the TS.
* There is no monitoring tool in place in the TS and therefore, if one TS is hang, no one will know.
* Production user will continue to retry connection to the TS Farm.
  + If it works, they will not be bordering contacting IT.
  + Users are not connecting to the actual server name, therefore, over a few retries, it will load into other TS.
* The problematic TS remained as halt state, when this occur, Nagios would not detect as DOWN because the IP is still replying on ping.
* This moves on until production load picks up, users started to load high at other servers (due to lack of 1 server, other servers become busy).
* Over the time, more servers will continue suffer hung up and this resulting to slower production and eventually, bring down the line.
* **TSLR is functioned as a monitoring tool to steer guide Engineer(s) to response to the TS quicker before production ever notice it**

1. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=4)]Scope

* TSLR is proven to be working well for TS under Microsoft Network Load Balancing (NLB) scheme.
* TSLR wasn't tested for DNS Round Robin Load Balancing; however, it is believed that TSLR should work as well.

1. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=5)]How TSLR Work

* Use VB script.
* The most basic structure of the entire TSLR engine is just per below:
  + VB-Script is written to get server connections and calculate the average number
  + If the connection is "0",the server will be marked with red color and list in the front of the report.
  + Finally, send out the report as email to recipients.

1. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=6)]**Put Everything Together**

* A dedicated server to launch the TSLR (Radar Server).
  + This Radar Server can be a VM but should not be the TS itself.
  + The Radar Server will need to run the TSLR in the Scheduled Task.
* A known service account
  + This can be any service account that a site is in used of.
  + This service account needs to be Administrators to all TS that is going to be monitored.
  + This service account needs to be Administrator to the server that runs the Scheduled Task.
    - The scheduled task will make use of this service account.
  + As a start, it is still workable to put engineer's logon ID except every 90 days when password is reset, the engineer will need to reset the password at Scheduled Task of the Radar Server.
    - Having a special dedicated service account just for this reason is optional but preferable.

1. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=7)]Making TSLR Run at Site
2. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=8)]**Configuring TSLR at Radar Server**

* Create a 3 folders:
  + C:\BIN\TSLoad
  + C:\BIN\TSLoad\Server
  + C:\BIN\TSLoad\Log
* Create Terminal Server List.
  + Access in this path C:\BIN\TSLoad\Server
  + Create a txt and name it as terminal server farm name. (Example: *WUXTRMV01; PENMESV02* )
  + Write down the server list in this file,1 server name 1 line.(Example as below:)

wuxtrm01

wuxtrm02

wuxtrm03

wuxtrm05

wuxtrm06

wuxtrm07

* Create Terminal Server Load Radar.vbs.
  + Create a notepad and rename it as Terminal Server Load Radar.vbs
  + Copy the below and paste in Terminal Server Load Radar.vbs.

' ----------------------------------------------------------------------------------------------------

' PrgName: Terminal Server Load Radar.vbs

' Section: Terminal Server Load Radar

' Purpose: Detect Terminal Server Connection Status.

' Versions: V1

' Last Maint: 05/06/2014 By: Leo Yan

' Prereq: User must have administrator permission for the servers

' ----------------------------------------------------------------------------------------------------

' Notes: Inspired by Samuel Chen's Script

' ----------------------------------------------------------------------------------------------------

'declare the variables

On Error Resume Next

Dim fso,Server,hh,objfile

Dim Strcomputer,connObj

Dim objnetwork,objping,objstatus,strping

Dim objproc,strconnection,objwmi

Dim colos,objos,strram

Dim objwmiservice,colitems,objitem,strhd

Dim colservices,objservice

Dim NameSpace,emailContent,Email

Dim ClickCancel

'Get Client Info

Set objNetwork=CreateObject("Wscript.NetWork")

Setlocale "en-us"

' -----------------------------------

' Define Email Title

' -----------------------------------

emailtitle = "<h1 style=""font: bold 16px Verdana, Arial, Helvetica, sans-serif;"">Terminal Server Load Radar</h1>"\_

& "<h3 style=""font: bold 11px Verdana, Arial, Helvetica, sans-serif;"">" & "User: " & objNetwork.userName & "<h3>"\_

& "<h3 style=""font: bold 11px Verdana, Arial, Helvetica, sans-serif;"">" & "Client: " & objNetwork.ComputerName & "</h3>"\_

& "<h3 style=""font: bold 11px Verdana, Arial, Helvetica, sans-serif;"">" & "Time: " & now & "</h3>"\_

& "<h3 style=""font: bold 11px Verdana, Arial, Helvetica, sans-serif;"">" & "<font color=red>" & "\*\*Below Servers No Connection,Please Help Check Them </h3>"\_

& "<table width=85% cellspacing=0 cellpadding=0 border=0>"\_

' -----------------------------------

' Define Email Warning Part

' -----------------------------------

emailwarning= "<th style = ""font: bold 11px Verdana, Arial, Helvetica, sans-serif; color: #FFFFFF; border: 1px solid #C1DAD7; letter-spacing: 2px; text-transform: uppercase; text-align: left; padding: 6px 6px 6px 12px; background: #4F81BD;rowspan: 2; align: center;"">Server Name</th>"\_

& "<th style = ""font: bold 11px Verdana, Arial, Helvetica, sans-serif; color: #FFFFFF; border: 1px solid #C1DAD7; letter-spacing: 2px; text-transform: uppercase; text-align: left; padding: 6px 6px 6px 12px; background: #4F81BD;rowspan: 2; align: center;"">Connections</th>"\_

' -----------------------------------

' Define Email Content

' -----------------------------------

emailContent= "<TR>"\_

& "</table><h3 style=""font: bold 11px Verdana, Arial, Helvetica, sans-serif;"">" & "\*\*Summary</h3>"\_

& "<table width=85% cellspacing=0 cellpadding=0 border=0>"\_

' -----------------------------------

' Get ALL of Site Server File

' -----------------------------------

Set cmd=CreateObject("Wscript.Shell")

cmd.run "cmd /c dir/b .\server\\*.txt >.\log\serverlist.log",0

' -----------------------------------------------

' Hold VBS 1s to waiting for the cmd running

' -----------------------------------------------

set WshShell = WScript.CreateObject("WScript.Shell")

WScript.Sleep 1000

' -----------------------------------

' Get All of Site Server List

' -----------------------------------

Set fso = CreateObject("Scripting.FileSystemObject")

Set Serverlist= fso.OpenTextFile(".\log\serverlist.log", 1, TRUE)

Do While Serverlist.AtEndOfLine <> True

serverfile= fso.getbasename(Serverlist.ReadLine)

emailContent = emailContent & "<TR>"

emailContent = emailContent & "<th colspan=2 style = ""font: bold 11px Verdana, Arial, Helvetica, sans-serif; color: #FFFFFF; border: 1px solid #C1DAD7; letter-spacing: 2px; text-transform: uppercase; text-align: left; padding: 6px 6px 6px 12px; background: #4F81BD;rowspan: 2;align: center;"">"& serverfile &"</th><tr>"\_

& "<th style = ""font: bold 11px Verdana, Arial, Helvetica, sans-serif; color: #FFFFFF; border: 1px solid #C1DAD7; letter-spacing: 2px; text-transform: uppercase; text-align: left; padding: 6px 6px 6px 12px; background: #4F81BD;rowspan: 2; align: center;"">Server Name</th>"\_

& "<th style = ""font: bold 11px Verdana, Arial, Helvetica, sans-serif; color: #FFFFFF; border: 1px solid #C1DAD7; letter-spacing: 2px; text-transform: uppercase; text-align: left; padding: 6px 6px 6px 12px; background: #4F81BD;rowspan: 2; align: center;"">Connections</th>" \_

' ------------------------------------------

' Initialize Connection and Average Number

' ------------------------------------------

intTotalLoad = 0

intSvrCount = 0

fltAvgLoad = 1.1

Set Server= fso.OpenTextFile(".\Server\"& Serverfile &".txt", 1, True)

' -----------------------------------

' Check The Server Online OR NOT

' -----------------------------------

Do While Server.AtEndOfLine <> True

strcomputer= UCase(Server.ReadLine)

Set objPing = GetObject("winmgmts:{impersonationLevel=impersonate}").ExecQuery("select \* from Win32\_PingStatus where address = '" & strcomputer & "'")

For Each objStatus in objPing

strping = objStatus.protocoladdress

if strping = "" then

strconnection = 0

' -----------------------------------

' Check The Server Halt OR NOT

' -----------------------------------

else

set objwmiservice=getobject("winmgmts:" & "\\" & strcomputer & "\root\cimv2")

set colservices=objwmiservice.execquery("select \* from win32\_service where displayname='Terminal Services' or displayname='Remote Desktop Services'")

for each objservice in colservices

if objservice.state<>"Running" then

strconnection = 0

' -----------------------------------

' Get Terminal Service Connections

' -----------------------------------

else

' -----------------------------------

' Check The OS Version

' -----------------------------------

Set objWMIService = GetObject("winmgmts:\\" & strComputer & "\root\CIMV2")

Set colItems = objWMIService.ExecQuery( \_

"SELECT \* FROM Win32\_OperatingSystem",,48)

For Each objItem in colItems

objos = objItem.Caption

Next

' -----------------------------------

' Windows 2003 OS

' -----------------------------------

if InStr(objos,"2003")<>0 Then

Set objWMIService = GetObject("winmgmts:\\" & strComputer & "\root\CIMV2")

Set colItems = objWMIService.ExecQuery( \_

"SELECT \* FROM Win32\_PerfFormattedData\_TermService\_TerminalServices",,48)

' -----------------------------------

' Windows 2008 OS

' -----------------------------------

elseif InStr(objos,"2008")<>0 Then

Set objWMIService = GetObject("winmgmts:\\" & strComputer & "\root\CIMV2")

Set colItems = objWMIService.ExecQuery( \_

"SELECT \* FROM Win32\_PerfFormattedData\_LocalSessionManager\_TerminalServices",,48)

else

End if

For Each objItem in colItems

strconnection = objItem.ActiveSessions

Next

End if

Next

End if

If strconnection = 0 then

emailContent = emailContent & "<TR>"

emailContent = emailContent & "<td style = ""border: 1px solid #C1DAD7; font-size:11px; padding: 6px 6px 6px 12px; background: #FFF2CC;"">" & "<font color=red>" & strcomputer

emailContent = emailContent & "<td style = ""border: 1px solid #C1DAD7; font-size:11px; padding: 6px 6px 6px 12px; background: #FFF2CC;"">" & "<font color=red>" & strconnection

emailwarning = emailwarning & "<TR>"

emailwarning = emailwarning & "<td style = ""border: 1px solid #C1DAD7; font-size:11px; padding: 6px 6px 6px 12px; background: #FFF2CC;"">" & "<font color=red>" & strcomputer

emailwarning = emailwarning & "<td style = ""border: 1px solid #C1DAD7; font-size:11px; padding: 6px 6px 6px 12px; background: #FFF2CC;"">" & "<font color=red>" & strconnection

else

emailContent = emailContent & "<TR>"

emailContent = emailContent & "<td style = ""border: 1px solid #C1DAD7; font-size:11px; padding: 6px 6px 6px 12px;"">" & strcomputer

emailContent = emailContent & "<td style = ""border: 1px solid #C1DAD7; font-size:11px; padding: 6px 6px 6px 12px;"">" & strconnection

end if

Next

intTotalLoad = intTotalLoad + strconnection

intSvrCount = intSvrCount + 1

Loop

fltAvgLoad = intTotalLoad / intSvrCount

emailContent = emailContent & "<TR>"

emailContent = emailContent & "<td style = ""border: 1px solid #C1DAD7; font-size:11px; padding: 6px 6px 6px 12px;"">" & "<strong>" & "-- AVERAGE"

emailContent = emailContent & "<td style = ""border: 1px solid #C1DAD7; font-size:11px; padding: 6px 6px 6px 12px;"">" & "<strong>" & round(fltAvgLoad,0)

LOOP

emailContent = emailtitle & emailwarning & emailContent & "</table><h3 style=""font: bold 10px Verdana, Arial, Helvetica, sans-serif;"">Jabil - Confidential</h3>"\_

Server.Close

' -----------------------------------

' Define Email Parameters

' -----------------------------------

NameSpace = "http://schemas.microsoft.com/cdo/configuration/"

Set Email = CreateObject("CDO.Message")

Email.From = "ITGlobalResponseTeam@jabil.com"

Email.To = "Leo\_Yan@jabil.com"

Email.Subject = "Terminal Server Load Radar - " & now

Email.Htmlbody =emailContent

With Email.Configuration.Fields

.Item(NameSpace&"sendusing") = 2

.Item(NameSpace&"smtpserver") = "CORIMC04"

.Item(NameSpace&"smtpserverport") = 25

.Item(NameSpace&"smtpauthenticate") = 1

.update

End With

' -----------------------------------

' Send Out The Email Report

' -----------------------------------

Email.Send

* A summary of how TSLR run as per below:
  + Upon executing Terminal Server Load Radar.vbs, it will collect all of file name under the path: C:\Bin|TSLoad\Server, and saved as ServerList.log under the path: C:\Bin|TSLoad\Log
    - Use terminal server farm name as the site server file name.
    - These are all the function names of the production in site PEN (i.e. PENMESV01, PENRADV01, etc).
  + The VB script will check the server connection one by one.
    - The server will be marked as red color in the report if it is offline
    - The server will be marked as red color in the report if it is halt, it means it can be ping but the terminal service isn't running
    - Those marked red color server will be showed in the front of report to be paid attention to
    - It also calculate the average connection number of the terminal server farm
  + When finishes, it will send an SMTP email to the intended recipients.

1. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=9)]**Gathering TS Inventory and Farm Name**
2. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=10)]**Test Run**
3. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=11)]**Scheduled Run**
4. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=12)]**Develop Process Control**
5. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=13)]**Archiving Results**
6. [[edit](https://wokrdcwiki01.corp.jabil.org/wiki/index.php?title=Terminal_Server_Load_Radar&action=edit&section=14)]**Trend Analysis and Load Behavioral Studies**