

Background

If you spend a lot of time working with TAC engineers you might find yourself sending CLI output or topology documents quite a bit. Sometimes the process of sending them data can be cumbersome depending on the situation. I ran into this often as a technical consultant in a Managed Services practice. It was then that I started thinking about trying to automate this to some degree. Here's what I came up with.

Requirements

- Windows XP/2003/2008/7 (NOTE: All development, testing, and examples done on Windows 7)
- SMTP command line tool (script uses BLAT, <http://www.blat.net>)
- Command line compression tool (script uses 7-zip, <http://www.7-zip.org>)
- A TFTP, FTP or SFTP server

Code

```
@ECHO OFF

REM *****
REM Parse date/time to build logfile name
REM *****

FOR /F "tokens=1-4 delims=/ " %c in ('ECHO %DATE%') DO SET DAYOFWEEK=%c&&SET MONTH=%d&&SET DAY=%e&&SET YEAR=%f
FOR /F "tokens=1-3 delims=:." %c in ('ECHO %TIME%') DO SET HOUR=%c&&SET MINUTE=%d&&SET SECOND=%e

REM *****
REM Initialize variables and log file
REM *****

IF NOT EXIST TEMP\nul MD TEMP >nul
IF NOT EXIST DATA\nul MD DATA >nul
IF NOT EXIST QUEUE\nul MD QUEUE >nul
IF NOT EXIST PROCESSED\nul MD PROCESSED >nul
IF NOT EXIST LOG\nul MD LOG >nul

SET LOGFILE=LOG\%YEAR%MONTH%DAY%-DAYOFWEEK%-HOUR%MINUTE%SECOND%-SendToTAC.txt
SET SMTPSERVER=<your smtp server ip address or FQDN goes here>
SET SMTPSENDER=<your smtp address goes here - used in cc field and to field for error reports>
SET DESC=
SET SMTPTO=
SET TACSR=
SET ATTACHFNAME=
SET TEMPFILENAME=
SET /A MAINLOOPTIMER=1

ECHO %DATE% %TIME% Initializing log file >%LOGFILE%

IF EXIST DATA\recall.txt GOTO skipRecallInit
ECHO %DATE% %TIME% Initializing RECALL database
IF NOT EXIST DATA\recall.txt ECHO 00000000=RECALL >DATA\recall.txt
:skipRecallInit

IF EXIST DATA\history.txt GOTO skipHistoryInit
ECHO %DATE% %TIME% Initializing HISTORY database
ECHO. >DATA\history.txt
:skipHistoryInit

REM *****
REM This is the main loop. For every file in QUEUE parse the fields and call the subProcessFile subroutine
REM At the bottom of the loop, rem PAUSE %MAINLOOPTIMER% second(s)
REM *****

:Loop
CLS
ECHO %DATE% %TIME% Sleeping for %MAINLOOPTIMER% second(s)
CHOICE /C YN /D Y /T %MAINLOOPTIMER% >nul
FOR /F "tokens=1" %c in ('DIR /S /B QUEUE\#*.*') DO CALL :subProcessFile %~-nc %~-xc
GOTO Loop
GOTO End

:subProcessFile
FIND /i "%1%2" DATA\history.txt
IF NOT ERRORLEVEL 1 CALL :subAlreadyProcessed %1%2
IF NOT EXIST QUEUE\%1%2 GOTO skipProcessFile
ECHO %1%2 >>DATA\history.txt
FOR /F "tokens=1-4 delims=/ " %c in ('ECHO %DATE%') DO SET DAYOFWEEK=%c&&SET MONTH=%d&&SET DAY=%e&&SET YEAR=%f
FOR /F "tokens=1-3 delims=:." %c in ('ECHO %TIME%') DO SET HOUR=%c&&SET MINUTE=%d&&SET SECOND=%e
SET FNAMEPREFIX=%1
SET FNAME_SUFFIX=%2
ECHO %DATE% %TIME% Picking up %FNAMEPREFIX%FNAME_SUFFIX% >>%LOGFILE%
```

```

FOR /F "tokens=1-5 delims=#" %%c in ('ECHO %FNAMEPREFIX%') DO SET DESC=%%c&&SET TACSR=%d&&SET SMTPTO=%e&&SET LOOPTIMER=%%f
ECHO %DATE% %TIME% Looking for SR %TACSR% in RECALL database >>%LOGFILE%
FIND /i "%TACSR%" DATA\recall.txt >nul
IF NOT ERRORLEVEL 1 GOTO skipAddToRecall
ECHO %DATE% %TIME% Did not find SR %TACSR% in RECALL database so adding now... >>%LOGFILE%
IF /I "%SMTPTO%"=="RECALL" GOTO errInvalidRecall
ECHO %TACSR%=%SMTPTO% >>DATA\recall.txt
:skipAddToRecall
IF /I NOT "%SMTPTO%"=="RECALL" GOTO skipRecall
ECHO %DATE% %TIME% Recall TAC SE e-mail address from RECALL database... >>%LOGFILE%
IF /I "%SMTPTO%"=="RECALL" FOR /F "skip=2 tokens=2 delims==" %%c in ('FIND /i "%TACSR%" DATA\recall.txt') DO SET SMTPTO=%%c
ECHO %DATE% %TIME% The new SMTP TO address is %SMTPTO%
:skipRecall
SET ATTACHFNAME=SR%TACSR%-DESC%-YEAR%%MONTH%%DAY%-DAYOFWEEK%-HOUR%%MINUTE%%SECOND%.gz
SET TEMPFILENAME=SR%TACSR%-DESC%-YEAR%%MONTH%%DAY%-DAYOFWEEK%-HOUR%%MINUTE%%SECOND%%FNAMESUFFIX%
ECHO %DATE% %TIME% DESC = %DESC% >>%LOGFILE%
ECHO %DATE% %TIME% TAC SR = %TACSR% >>%LOGFILE%
ECHO %DATE% %TIME% SMTP SENDER = %SMTPSENDER% >>%LOGFILE%
ECHO %DATE% %TIME% SMTP TO = %SMTPTO% >>%LOGFILE%
ECHO %DATE% %TIME% SMTP SERVER = %SMTPSERVER% >>%LOGFILE%
ECHO %DATE% %TIME% ATTACH FNAME = %ATTACHFNAME% >>%LOGFILE%
ECHO %DATE% %TIME% Waiting for %LOOPTIMER% seconds for I/O to complete >>%LOGFILE%
CHOICE /C YN /D Y /T %LOOPTIMER% >nul
ECHO %DATE% %TIME% Copying QUEUE\%1%2 to TEMP\%TEMPFILENAME%
COPY /Y QUEUE\%1%2 TEMP\%TEMPFILENAME% >nul
ECHO %DATE% %TIME% Compressing file attachment...
BIN\7z.EXE a -tgzip TEMP\%ATTACHFNAME% TEMP\%TEMPFILENAME% >>%LOGFILE%
ECHO %DATE% %TIME% E-mailing %ATTACHFNAME% to %SMTPTO% for SR %TACSR%
BIN\BLAT.EXE -body "See attached" -to %SMTPTO% -cc %SMTPSENDER%,attach@cisco.com -server %SMTPSERVER% -f %SMTPSENDER% -subject "Service Request %TACSR%" -attach TEMP\%ATTACHFNAME% >>%LOGFILE%
CALL :subCleanUp
rem PAUSE
:skipProcessFile
GOTO :EOF

:subAlreadyProcessed
SET /A MAINLOPTIMER=9999
ECHO %DATE% %TIME% %1 has already been processed >>%LOGFILE%
ECHO %DATE% %TIME% The main loop counter has been set to %MAINLOPTIMER% >>%LOGFILE%
DEL /Q QUEUE\%1%2 >nul
BIN\BLAT.EXE -body "See log file for details" -to %SMTPSENDER% -server %SMTPSERVER% -f <unique sender address goes here> -subject "%1%2 was deleted from queue because it had already been processed!" -attach %LOGFILE%
GOTO :EOF

:errInvalidRecall
SET /A MAINLOPTIMER=9999
ECHO %DATE% %TIME% Attempting to recall 'SMTP TO' from recall database but SR %TACSR% doesn't already exist. >>%LOGFILE%
CALL :subCleanUp
GOTO :EOF

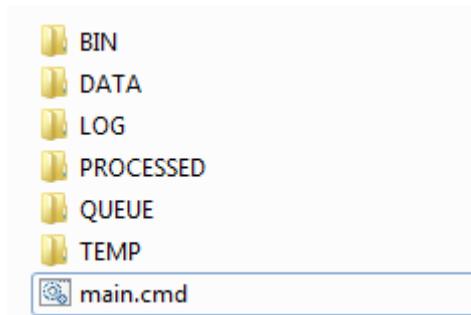
:subCleanUp
ECHO %DATE% %TIME% Deleting %ATTACHFNAME% and %TEMPFILENAME% from TEMP folder >>%LOGFILE%
DEL /Q TEMP\%TEMPFILENAME% >>%LOGFILE%
DEL /Q TEMP\%ATTACHFNAME% >>%LOGFILE%
ECHO %DATE% %TIME% Renaming QUEUE\%FNAMEPREFIX%%FNAMESUFFIX% >>%LOGFILE%
REN QUEUE\%FNAMEPREFIX%%FNAMESUFFIX% processed_%FNAMEPREFIX%-YEAR%%MONTH%%DAY%-DAYOFWEEK%-HOUR%%MINUTE%%SECOND%%FNAMESUFFIX% >>%LOGFILE%
ECHO %DATE% %TIME% Moving QUEUE\%FNAMEPREFIX%.processed to the PROCESSED folder >>%LOGFILE%
MOVE QUEUE\processed_%FNAMEPREFIX%-YEAR%%MONTH%%DAY%-DAYOFWEEK%-HOUR%%MINUTE%%SECOND%%FNAMESUFFIX% PROCESSED >>%LOGFILE%
GOTO :EOF

:End

```

Copy and paste above code into a text file and save the file with a “.cmd” extension. I call mine “main.cmd”.

Figure 1 shows the folder structure used by the process. BIN contains blat.exe and 7z.exe (along with supporting files). DATA contains history.txt and recall.txt (explained later in this document). QUEUE is the folder monitored by the main process. Your TFTP/FTP/SFTP server should point to QUEUE as the root directory. TEMP is a scratch area to place temporary files. PROCESSED stores files which have been e-mailed to TAC.



(FIGURE 1)

Figure 2 shows the syntax to use to redirect output from CLI to the process. **<server_ip>** can either be an IP address or FQDN (as long as it is resolvable by the device), **<description>** should be used to describe the contents of the file. Do not waste too many characters with the description. While some versions of IOS support lengthy file names (such as NX-OS), the IOS I ran this example from only allows 62 characters in the file name. Based on a very unscientific sampling of TAC e-mail addresses, you'll have about 15 – 20 characters available to you in the description element. This element cannot have spaces or the '#' character. The '#' character is a delimiter. **<sr_num>** is the TAC service request number. Do not include anything but the actual number. Do not include "SR". The script will add "Service Request " followed by the value you plug into sr_num. **<smtp_to>** is where you put the e-mail address of the TAC engineer. This is a special-case element. The first time you send an e-mail on a given case the script will record the e-mail/SR combination in a file called recall.txt. The next time you send a file on the same SR you can replace the e-mail address element in the file name with recall and the script will send the file to the address stored in the recall file for that SR. If the engineer changes simply do not use recall and include the new engineer's e-mail address instead. **<wait_sec>** tells the script how long to wait before processing the file. The reason this is there is because the script will detect the presence of the file almost immediately but it might take several seconds for the device to complete the I/O. For example, on a large stack of 3750s, a 'show tech-support' command might take 90 seconds or more. Use your best judgment with this. If you think it might take 2 minutes plug 300 into this value. **<ext>** is the file extension.

```
show tech-support | redirect tftp://<server_ip>/#<description>#<sr_num>#<smtp_to>#<wait_sec>#.<ext>
```

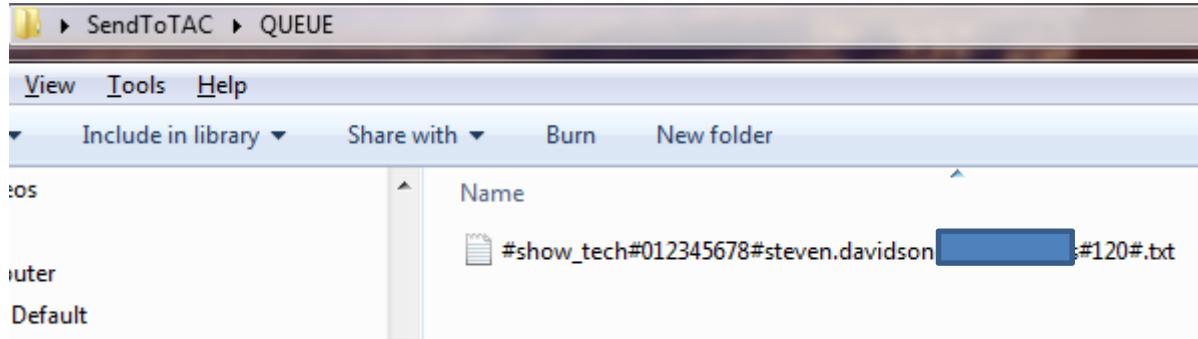
(FIGURE 2)

Figure 3 show an the actual command I issued that produced the results seen in the remaining figures

```
3750-Saints-Access#show tech-support | redirect tftp://172.19.30.96/#show_tech#012345678#steven.david.[redacted]#120#.txt
```

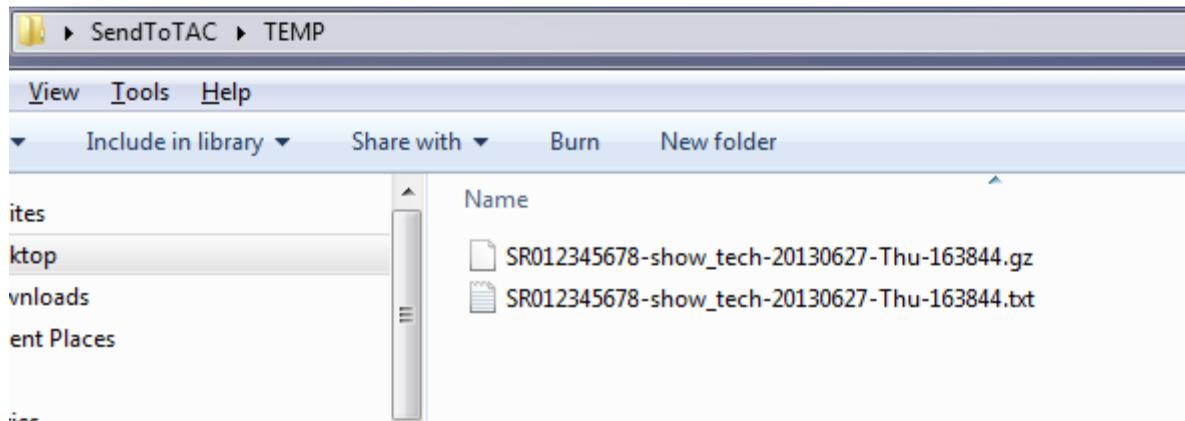
(FIGURE 3)

Figure 4 shows the file appearing in the QUEUE folder.



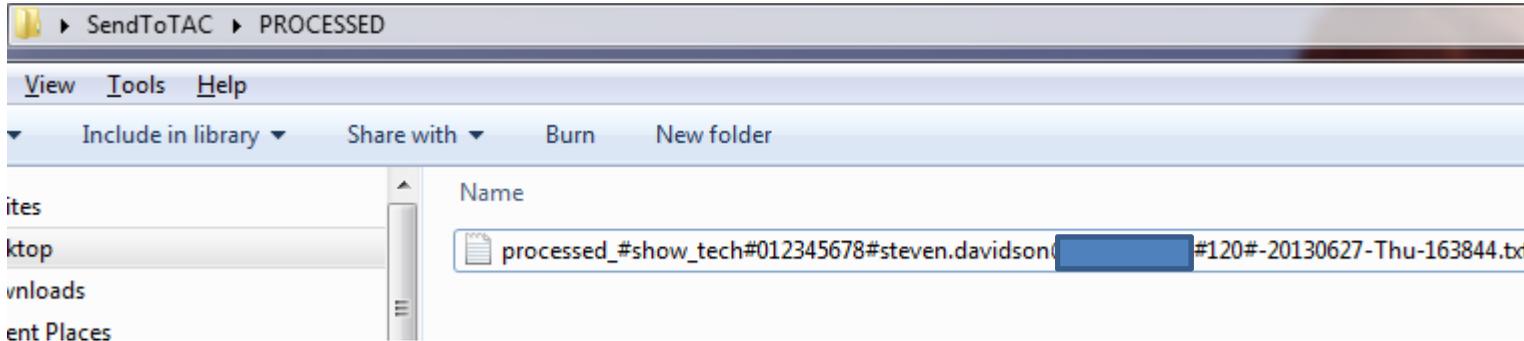
(FIGURE 4)

Figure 5 shows that the file was copied to the TEMP folder, the name changed to include information specific to the SR and a date / time stamp. The file is compressed in gzip format and this file will be included as an attachment to the e-mail.



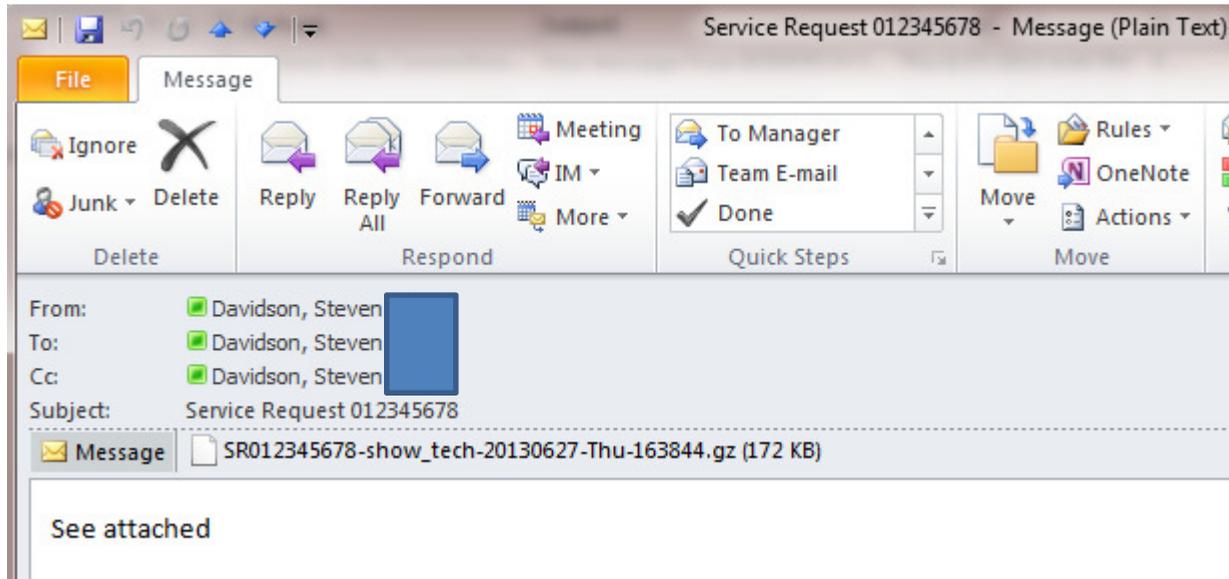
(FIGURE 5)

Figure 6 shows how the script renames the original file and moves it from the QUEUE folder to the PROCESSED folder.



(FIGURE 6)

Figure 7 shows the e-mail I received. Notice that attach@cisco.com doesn't appear in the cc line. This is only because I excluded it for the purpose of producing this sample. In the code at the beginning of this document attach@cisco.com is included in the cc section of the BLAT command. Notice, also, that the attachment is compressed.



(FIGURE 7)

Figure 8 shows the contents of the log file for this example. Line 1 shows the process detecting the file at 16:38:44. Line 3 shows that this is the first time it has seen this particular SR and is adding the SR/smtp_to info to the recall.txt file. Line 10 shows that the script needs to wait 120 seconds for I/O to complete.

```
Thu 06/27/2013 16:38:44.44 Picking up #show_tech#012345678#steven.davidson[REDACTED]#120#.txt
Thu 06/27/2013 16:38:44.44 Looking for SR 012345678 in RECALL database
Thu 06/27/2013 16:38:44.45 Did not find SR 012345678 in RECALL database so adding now...
Thu 06/27/2013 16:38:44.46 DESC = show_tech
Thu 06/27/2013 16:38:44.46 TAC SR = 012345678
Thu 06/27/2013 16:38:44.46 SMTP SENDER = steven.davidson[REDACTED]
Thu 06/27/2013 16:38:44.46 SMTP TO = steven.davidson[REDACTED]
Thu 06/27/2013 16:38:44.46 SMTP SERVER = [REDACTED]
Thu 06/27/2013 16:38:44.46 ATTACH FNAME = SR012345678-show_tech-20130627-Thu-163844.gz
Thu 06/27/2013 16:38:44.46 Waiting for 120 seconds for I/O to complete

7-Zip 9.20 Copyright (c) 1999-2010 Igor Pavlov 2010-11-18
Scanning

Creating archive TEMP\SR012345678-show_tech-20130627-Thu-163844.gz

Compressing TEMP\SR012345678-show_tech-20130627-Thu-163844.txt

Everything is Ok
Blat v3.0.7 (build : Jul 20 2012 01:24:19)
32-bit Windows, Full, Unicode

Sending stdin.txt to steven.davidson[REDACTED], steven.davidson[REDACTED]
Subject: Service Request 012345678
Login name is [REDACTED]
Attached binary file: TEMP\SR012345678-show_tech-20130627-Thu-163844.gz
Thu 06/27/2013 16:40:48.11 Deleting SR012345678-show_tech-20130627-Thu-163844.gz and SR012345678-show_tech-20130627-Thu-163844.txt from TEMP folder
Thu 06/27/2013 16:40:48.12 Renaming QUEUE\#show_tech#012345678#steven.davidson[REDACTED]#120#.txt
Thu 06/27/2013 16:40:48.12 Moving QUEUE\#show_tech#012345678#steven.davidson[REDACTED]#120#.processed to the PROCESSED folder
1 file(s) moved.
```

(FIGURE 8)

Final Thoughts

I run this process as a Windows Scheduled Task, on system startup, silently in the background 24x7. Because the process scans for files beginning with the '#' character I can use my TFTP server for other purposes so long as I remember that for any file I want the script to leave alone I cannot begin the file name with a '#' character. Another thing to note is that it's not important HOW you get the file into the QUEUE folder only that the file name is in the proper format. If you make an error with one or more of the elements expect strange results.