Article
[Julian Matthews](#) · Apr 14, 2021   3m read

Backup Freeze/Thaw batch script pitfalls for VMWare (and solutions)

Hey everyone.

I came across some issues when setting up Freeze and Thaw batch scripts for use with VMWare in a Windows ecosystem, and I wanted to share what I found in the hopes it can help others. This was undertaken in an environment using Healthconnect 2019.1.x.

IRIS not up (2)

It seems that [the sample script from the documentation](#) in my my case would tell me that the environment was not running (despite it running). To correct this, I provided the filepath to the Mgr location as so:

```
c:\InterSystems\HealthConnect\bin\irisdb -s"C:\InterSystems\HealthConnect\Mgr" -U%%SY
S ##Class(Backup.General).ExternalFreeze() <C:\InterSystems\BackupScripts\login.scr
```

It could be because I had more than one installation of Healthconnect on this environment, however it persisted after an uninstall of the other instance and reboot.

Script Running

The second issue I faced was the getting the scripts to run when the backup was being taken. After some digging, I found that VMWare will run every script in the folder "C:\Program Files\VMware\VMware Tools\backupScripts.d" in alphabetical order passing in the command "freeze", and then will run every script in reverse order using the command "thaw". In my case I needed to create this folder within the "VMWare Tools" directory.

To avoid managing multiple files and restricting what command can be run against them, I combined freeze and thaw into a single script, and added an if statement to the start of the single batch file to route to the freeze or thaw:

```
if "%1" == "freeze" goto doFreeze
if "%1" == "thaw" goto doThaw
```

Script Errorlevels

If the freeze is successful, irisdb.exe will return the errorlevel as 5. However, VMWare (and some others) will read a non-zero return as an error. Therefore, I needed to overwrite the exitcode depending on the errorlevel returned as it otherwise stops the quiescent backup running:

```
:FreezeOK
echo SYSTEM IS FROZEN
rem Error levels from freeze do not match standard convention, so we return 0 when su
ccessful.
EXIT /b 0

:FreezeFAIL
```

```
echo SYSTEM FREEZE FAILED
EXIT /b 1
```

note: I used 1 for the error purely because it was non-zero.

Final result

Putting this all together has given me the following:

```
@echo off
rem VMTools should pass in either freeze or thaw.
if "%1" == "freeze" goto doFreeze
if "%1" == "thaw" goto doThaw

echo Nothing Matched. Exiting...
EXIT /b

:doFreeze
rem Call external freeze and provide credential file stored in separate folder.
c:\InterSystems\HealthConnect\bin\irisdb -s"C:\InterSystems\HealthConnect\Mgr" -U%%SY
S ##Class(Backup.General).ExternalFreeze() <C:\InterSystems\BackupScripts\login.scr
rem note that we need to check errorlevel from highest to lowest here....
if errorlevel 5 goto FreezeOK
if errorlevel 3 goto FreezeFAIL
rem If here, errorlevel did not match an expected output.
rem Assume Failure.
echo errorlevel returned unexpected value
goto FreezeFAIL

:FreezeOK
echo SYSTEM IS FROZEN
rem Error levels from freeze do not match standard convention, so we return 0 when su
ccessful.
EXIT /b 0

:FreezeFAIL
echo SYSTEM FREEZE FAILED
EXIT /b 1

:doThaw
c:\InterSystems\HealthConnect\bin\irisdb -s"C:\InterSystems\HealthConnect\Mgr" -U%%SY
S ##Class(Backup.General).ExternalThaw()
EXIT /b 0
```

Improvements/Next steps

The doThaw block is pretty weak as it assumes success, and this could be a good opportunity to write to a log and record any failures. In addition, I will be adding in a call to ##Class(Backup.General).ExternalSetHistory() to ensure that the environment correctly records when backups have been taken and trigger journal purges.

#Backup #HealthShare #InterSystems IRIS for Health