

CNT 4603: System Administration Spring 2022

Project Six – Managing The `savn.local` Domain – Part 2 – Task Scheduling and PowerShell Scripting

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Passcode: 983064

Q&A Sessions via Zoom: Meeting ID: 981 8349 4221
Passcode: 509807

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Project Six

- **Title:** “Project Six: Managing The `savn.local` Domain – Part 2 – Task Scheduling and PowerShell Scripting
- **Points:** 100 points
- **Due Date:** **Tuesday April 26, 2022** by 11:59 pm WebCourses time. NOTE: This is not the normal submission day.
- **Objectives:** Project Five was designed to give you a flavor of system administration on the `savn.local` domain, wherein you created different types of user accounts. Project Six will give you some experience with the Task Scheduler and PowerShell scripting. This task will focus on MJL-SP22-S22-1 and MJL-SP22-S22-2.
- **Deliverables:** Ten screen shots as shown on pages 15, 17, 18, 19, 20, 24, 25, 26, 27, and 28.



Project Six

- Project Six has two main objectives. In Objective 1 you will create a non-local task relevant to the `savn.local` domain. In Objective 2, you will create a task that executes a PowerShell script.

The pages that follow explain the details of the project, stepping you through the actions. In the various callouts, the items that appear in **bold green** text require you to do screen captures and/or answer questions. These screen captures and answers will constitute your submission for this project.



Project Six

- In this project you will become more familiar with the Task Manager tool in Windows Server 2022 and, also, with PowerShell scripting. You will create and schedule two different tasks, one of which will execute a PowerShell script.
- As we've covered in the notes (Module 7, Part 1), the Task Manager has extensive capability for defining and scheduling tasks to run automatically on any server, both locally and remotely.
- This project has two different objectives related to task scheduling and PowerShell scripting:
 - (1) creating and scheduling a remote task.
 - (2) creating and scheduling a local task that executes a PowerShell script.



Project Six – Objective One

- In this first objective for the project, you will define and configure a remotely scheduled task.
- You may want to refer to the notes that dealt with the Task Scheduler for the details in creating and storing tasks.
- Notepad is a Windows application that comes as a part of all Windows operating systems, including Server 2022.
- The first part of this project is to create a task that will start Notepad running on MJL-SP22-S22-2 when the domain user (domainUser01) that you created in Project Five logs on to that machine.
- Note, the Administrator of the `savn.local` domain is the creator of this task and it is created via the Task Scheduler on MJL-SP22-S22-1, but the task is deployed on MJL-SP22-S22-2.



Project Six – Objective One

- Note that MJL-SP22-S22-2 must be running when the task is created on it from MJL-SP22-S22-1, however, no one needs to be logged into the system when the task is being created.
- Name your task: `startNotePad`



Task Scheduler

File Action View Help

Task Scheduler (Local)

Task Scheduler Library

Task Scheduler Summary (Last refreshed: 4/18/2022 4:15:12 PM)

Overview of Task Scheduler

Status of tasks that have started in the following time p... Last 24 hours

Summary: 60 total - 2 running, 55 succeeded, 0 stopped, 3 failed

Task Name	Run Result	Run Start	Run End
.NET Framework NGEN v4.0.303...			
.NET Framework NGEN v4.0.303...			
Automatic-Device-Join (last ru...			
BgTaskRegistrationMaintenanc...			
CacheTask (running)			

Active Tasks

Active tasks are tasks that are currently enabled and have not expired.

Summary: 71 total

Last refreshed at 4/18/2022 4:15:12 PM

Refresh

Actions

Task Scheduler (Local)

Connect to Another Computer...

Create Basic Task...

Create Task...

Import Task...

Display All Running Tasks

Disable All Tasks History

AT Service Account Configuration

View

Refresh

Help

From the Task Scheduler in MJL-SP22-S22-1, select "Connect to Another Computer" from the actions pane. This is where you will select MJL-SP22-S22-2 (see next slide).



Select Computer

Select the computer you want this snap-in to manage:

☐ Local computer (the computer this console is running on)

☒ Another computer:

☐ Connect as another user: <none>

Status of tasks that have started in the following time p... Last 24 hours

Summary: 60 total - 2 running, 55 succeeded, 0 stopped, 3 failed

Summary: 71 total

Last refreshed at 4/18/2022 4:15:12 PM

Actions

- Task Scheduler (Local)
- Connect to Another Computer...
- Create Basic Task...
- Create Task...
- Import Task...
- Display All Running Tasks
- Disable All Tasks History
- AT Service Account Configuration
- View
- Refresh
- Help

Enter the correct server name when this window appears, then click OK.. Once you are connected to the correct server, then you can create the task which will be located in that server's task scheduler library. **NOTE:** the remote server must be running to be able to connect to it,



Task Scheduler

File Action View Help

Task Scheduler (MJL-SP22-S22-2.savn.local)

Task Scheduler Library

Task Scheduler Summary (Last refreshed: 4/18/2022 4:27:55 PM)

Overview of Task Scheduler

You can use Task Scheduler to create and manage common tasks that your computer will carry out automatically at the times you specify. To begin, click a command in the Action menu.

Tasks are stored in folders in the Task Scheduler Library. To view or perform an operation on an individual task, select the task in the Task Scheduler Library.

Task Status

Status of tasks that have started in the follo... Last 24 hours

Summary: 37 total - 2 running, 34 succeeded, 0 stopped, 1 failed

Active Tasks

Active tasks are tasks that are currently enabled and have not expired.

Last refreshed at 4/18/2022 4:27:55 PM Refresh

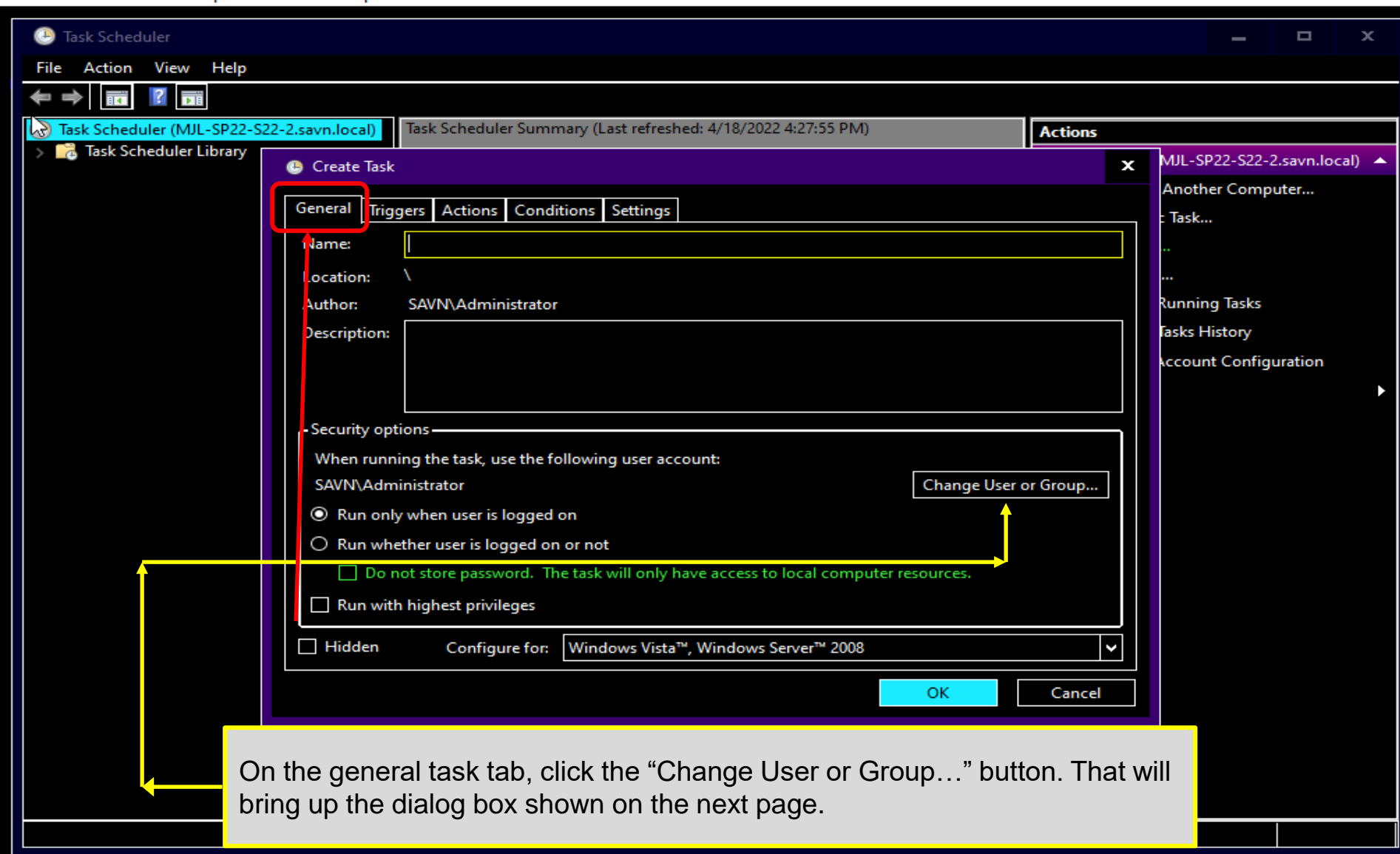
Actions

Task Scheduler (MJL-SP22-S22-2.savn.local)

- Connect to Another Computer...
- Create Basic Task...
- Create Task...
- Import Task...
- Display All Running Tasks
- Disable All Tasks History
- AT Service Account Configuration
- View
- Refresh
- Help

Note that you are now connected remotely to MJL-SP22-S22-2. Select Create Task (not Create Basic Task) to begin creation of the task on MJL-SP22-S22-2.





Click the “Locations” button and select “Entire Directory” (see next page).

MJL-SP22-S22-1 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Task Scheduler

File Action View Help

Task Scheduler (MJL-SP22-S22-2.savn.local) Task Scheduler Summary (Last refreshed: 4/18/2022 4:27:55 PM) Actions

Task Scheduler Library

Create Task

General Triggers Actions Conditions Settings

Select User or Group

Locations

Select the location you want to search.

Location:

- MJL-SP22-S22-2.savn.local
- Entire Directory

OK Cancel

Run with highest privileges

Server™ 2008

OK Cancel

Active tasks are tasks that are currently enabled and have not expired.

Last refreshed at 4/18/2022 4:27:55 PM Refresh

Select "Entire Directory" then click OK.



Task Scheduler (MJL-SP22-S22-2.savn.local) Task Scheduler Summary (Last refreshed: 4/18/2022 4:27:55 PM)

Task Scheduler Library

Create Task

General Triggers Actions Conditions Settings

Select User, Service Account, or Group

Select this object type:

User, Service Account, or Built-in security principal Object Types...

From this location:

Entire Directory Locations...

Enter the object name to select (examples):

domainUser01 Check Names

Advanced... OK Cancel Change User or Group...

☐ Run whether user is logged on or not

☒ Do not store password. The task will only have access to local computer resources.

☐ Run with highest privileges

Last refreshed at 4/18/2022 4:27:55 PM Refresh

Enter "domainUser01" in the name box and then click the "Check Names" button. The system will find your domainUser01 account on the DNS server (MJL-SP22-S22-1). (See next page)



Task Scheduler (MJL-SP22-S22-2.savn.local) Task Scheduler Summary (Last refreshed: 4/18/2022 4:27:55 PM)

Task Scheduler Library

Create Task

General Triggers Actions Conditions Settings

Select User, Service Account, or Group

Select this object type:
 Object Types...

From this location:
 Locations...

Enter the object name to select (examples):
 Check Names

Advanced... OK Cancel Change User or Group...

☐ Run whether user is logged on or not
☒ Do not store password. The task will only have access to local computer resources.
☐ Run with highest privileges

Once the system has found your domainUser01 account on the DNS server click OK.

Last refreshed at 4/18/2022 4:27:55 PM Refresh



Task Scheduler (MJL-SP22-S22-2.savn.local)

Task Scheduler Library

Create Task

General Triggers Actions Conditions

Name: startNotePad

Location: \

Author: SAVN\Administrator

Description:

Security options

When running the task, use the following user account:
SAVN\domainUser01

Change User or Group...

☒ Run only when user is logged on

☐ Run whether user is logged on or not

☐ Do not store password. The task will only have access to local computer resources.

☐ Run with highest privileges

☐ Hidden

Configure for: Windows Server 2022

OK Cancel

Active tasks are tasks that are currently enabled and have not expired.

Summary: 70 tasks

Last refreshed at 4/18/2022 7:11:23 PM

Refresh

Another Computer...

Task...

Running Tasks

Task History

Account Configuration

Be sure the server name is visible in all screen shots. Note that the task is created on MJL-SP22-S22-1. Note that the user's account should be domainUser01. Configure the task for the highest level it will allow (should be Windows Server 2022).

Take a screen shot of this screen. Label it "SS1 – Task creation – general tab."

Task Name: startNotePad



MJL-SP22-S22-1 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Task Scheduler

File Action View Help

Task Scheduler (MJL-SP22-S22-2)

Task Scheduler Library

New Trigger

Begin the task: At log on

Settings

☐ Any user

☒ Specific user: SAVN\domainUser01

Change User...

Advanced settings

☐ Delay task for: 15 minutes

☐ Repeat task every: 1 hour

☐ Stop all running tasks at end of run

☐ Stop task if it runs longer than: 3 days

☐ Activate: 4/18/2022 7:15:58

☐ Expire: 4/18/2023 7:15:58

☒ Enabled

Define the Trigger

1. Set the task trigger to begin at log on.
2. The task is developed for only savn.local user domainUser01. The task is not enabled for any other user. Click the Change User button and repeat the steps from pages 10-14 to set the specific user.
3. Click OK.

Last refreshed at 4/18/2022 7:11:23 PM

Refresh



Task Scheduler

File Action View Help

Task Scheduler (MJL-SP22-S22-2.savn.local) Task Scheduler Summary (Last refreshed: 4/18/2022 7:11:23 PM) Actions

> Task Scheduler Library

Create Task

General Triggers Actions Conditions Settings

When you create a task, you can specify the conditions that will trigger the task.

Trigger	Details	Status
At log on	At log on of SAVN\domainUser01	Enabled

New... Edit... Delete

Active tasks are tasks that are currently running or scheduled to run. 70 total

Last refreshed at 4/18/2022 7:11:23 PM Refresh

MJL-SP22-S22-2.savn.local

Another Computer...

Task...

Running Tasks

Tasks History

Account Configuration

When you click OK on the previous dialog box, the task trigger will be created and you will be returned to this window. All the triggers for this task are listed here.

Take a screen shot of this screen. Label it "SS2 – Task creation – trigger."



Task Scheduler (MJL-SP22-S22-2.savn.local)

Task Scheduler Summary (Last refreshed: 4/18/2022 7:11:23 PM)

Actions

MJL-SP22-S22-2.savn.local

Another Computer...

Task...

Running Tasks

Tasks History

Account Configuration

New Action

You must specify what action this task will perform.

Action: Start a program

Settings

Program/script:

c:\windows\system32\notepad.exe

Browse...

Add arguments (optional):

Start in (optional):

1. Define the action.

1. Set the Action to be "Start a program".

2. In the Program/Script window enter:
c:\windows\system32\notepad.exe

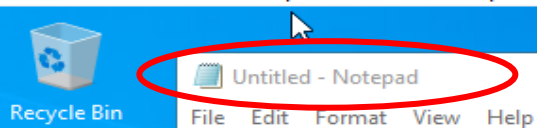
Take a screen shot of this screen. Label it
"SS3 – Task creation – action."

2. After getting screenshot SS3.

1. Click ok to complete the action definition.

2. Then click ok to complete the task definition.

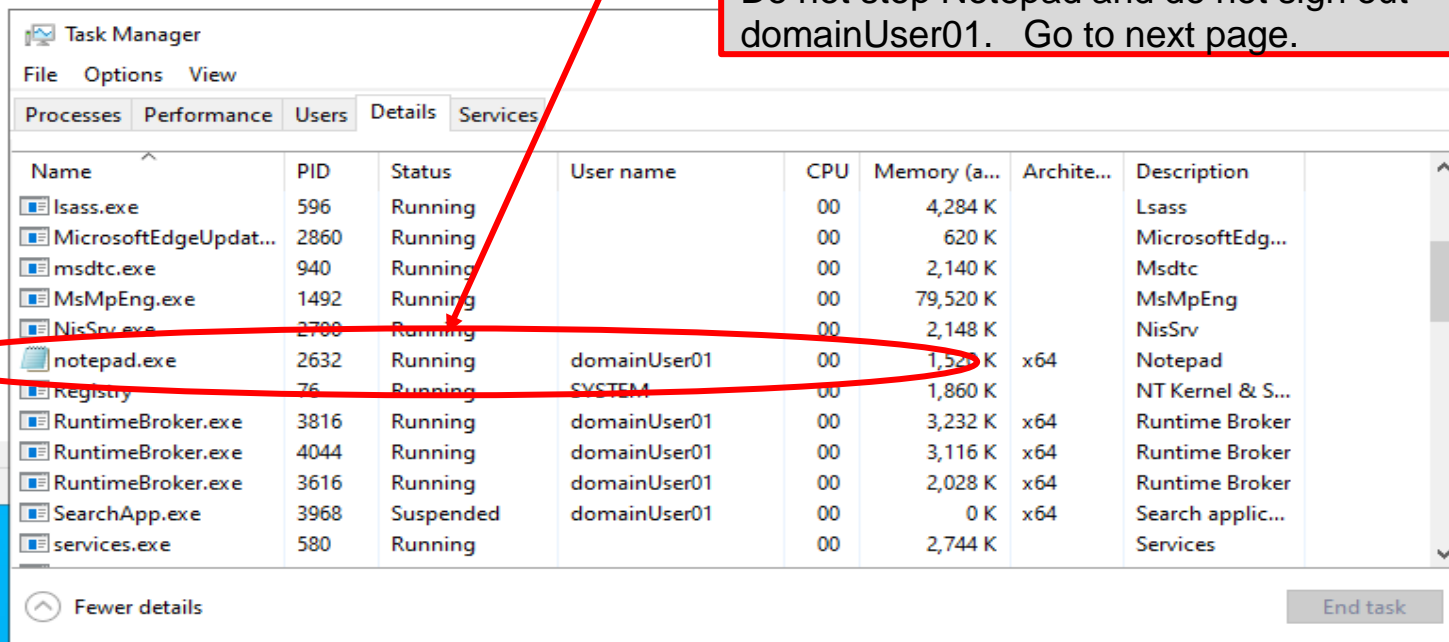




Log on to MJL-SP22-S22-2 using the domainUser01 account. Notepad should start. Open the Task Manager and select the Details tab, showing notepad.exe running under the domainUser01 user name.

Take a screen shot of this screen. Label it "SS4 – Task executing for domainUser01 on MJL-SP22-S22-2."

Do not stop Notepad and do not sign out domainUser01. Go to next page.



Type here to search



7:28 PM
4/18/2022



Task Scheduler (MJL-SP22-S22-2.savn.local)

Task Scheduler Library

Name	Status	Triggers
CreateExplor...	Ready	When the task is created or modified
MicrosoftEd...	Ready	Multiple triggers defined
MicrosoftEd...	Ready	At 6:30 PM every day. After triggered, repeat every
startNotePad	Running	At log on of SAVN\domainUser01

General Triggers Actions Conditions Settings History

Name: CreateExplorers...

Location: \

Author: ExplorerShellUn...

Description:

Security options

When running the task, use the following security credentials

☒ Run only when user is logged on as administrator

☐ Run whether user is logged on or not

☐ Do not store password

Task Scheduler Library

- Create Basic Task...
- Create Task...
- Import Task...
- Display All Running Tasks
- Disable All Tasks History
- New Folder...
- View
- Refresh

Go back to MJL-SP22-S22-1 as the Administrator and connect to the remote MJL-SP22-S22-2 remote server and go inside the Task Scheduler Library as shown here and confirm the task startNotePad is running under domainUser01.

Take a screen shot of this screen. Label it "SS5 – Task listed on remote system MJL-SP22-S22-2 running under domainUser01."



Project Six – Objective Two

- The second objective for the project is to create a PowerShell script that will execute when any user logs on to MJL-SP22-S22-1.
- Create the PowerShell script using NotePad (or use the PowerShell ISE) on MJL-SP22-S22-1 and save it in the Administrator script library that we created in the notes (see PowerShell Scripting – Part 1) named MyScripts (path is: c:\users\administrator\myscripts).
- The PowerShell script is a very simple one that simply prints two lines – a welcome message and the line: “Today is: “ followed by the actual date and time when the script is executed. Since we didn’t have enough time for you to really get into PowerShell scripting, I will give you the entire script to be executed so that you do not need to develop it yourself.
- Name your script: `get-datemessage.ps1`.
- Name your task: `displayDateMessage`.
- Create the script first, then create the task.



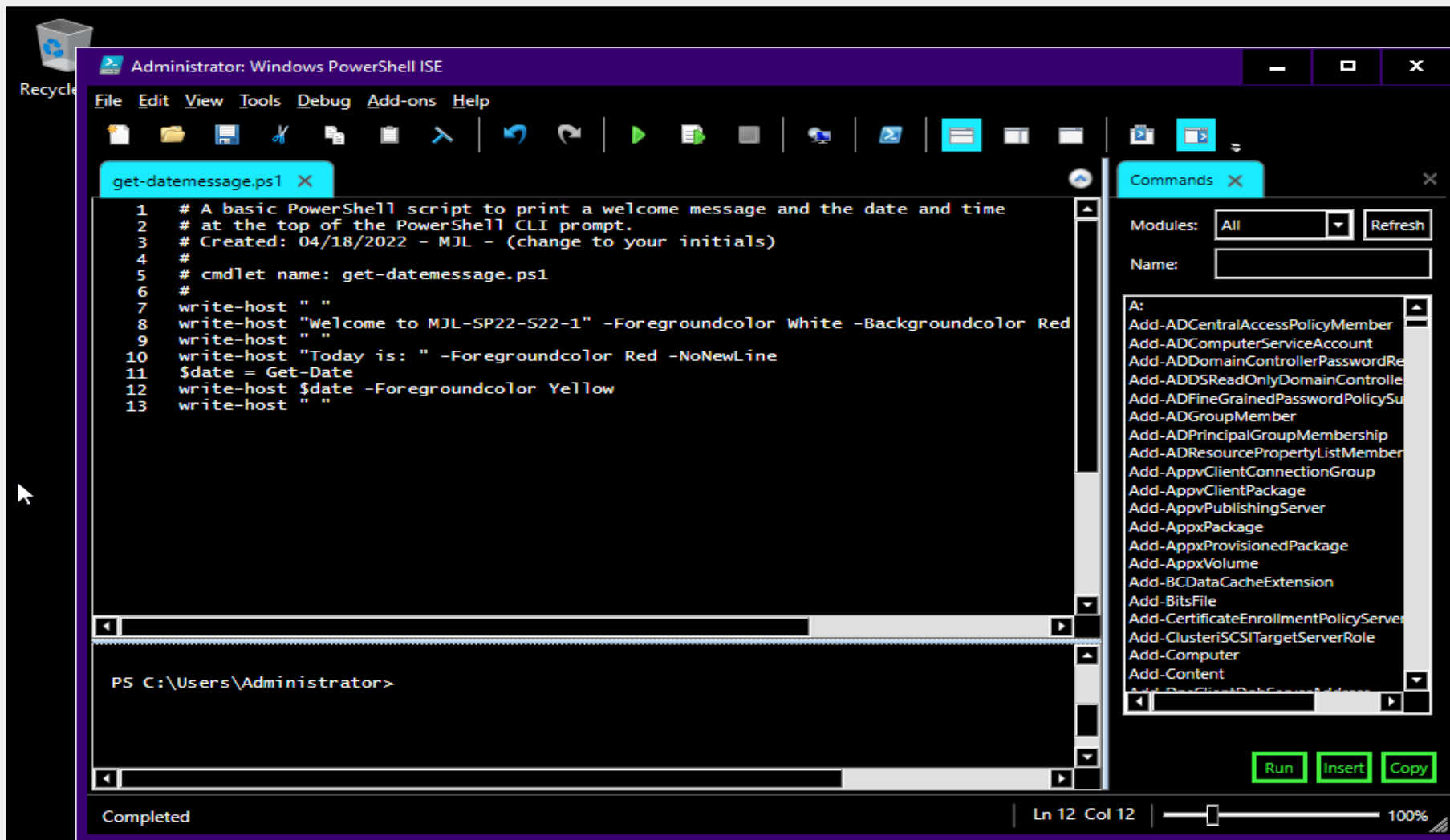
Project Six – Objective Two

- The PowerShell script is shown below as well as on the next page as viewed from within the PowerShell ISE on MJL-SP22-S22-1.

```
# A basic PowerShell script to print a welcome message and the date and
# time at the top of the PowerShell CLI prompt.
# created: 04/18/2022 - MJL (change to your initials)
#
# cmdlet name: get-datemessage.ps1
#
write-host " "
write-host "Welcome to MJL-SP22-S22-1" -ForegroundColor White -BackgroundColor Red
write-host " "
write-host "Today is: " -ForegroundColor Red -NoNewLine
$date = get-date
write-host $date -ForegroundColor Yellow
write-host " "
```

- Name your script: `get-datemessage.ps1`.
- Name your task: `displayDateMessage`.





Administrator: Windows PowerShell ISE

File Edit View Tools Debug Add-ons Help

get-datemessage.ps1

```
1 # A basic PowerShell script to print a welcome message and the date and time
2 # at the top of the PowerShell CLI prompt.
3 # Created: 04/18/2022 - MJL - (change to your initials)
4 #
5 # cmdlet name: get-datemessage.ps1
6 #
7 write-host " "
8 write-host "Welcome to MJL-SP22-S22-1" -ForegroundColor White -BackgroundColor Red
9 write-host " "
10 write-host "Today is: " -ForegroundColor Red -NoNewLine
11 $date = Get-Date
12 write-host $date -ForegroundColor Yellow
13 write-host " "
```

PS C:\Users\Administrator>

Completed

Ln 12 Col 12 | 100%

Commands

Modules: All Refresh

Name:

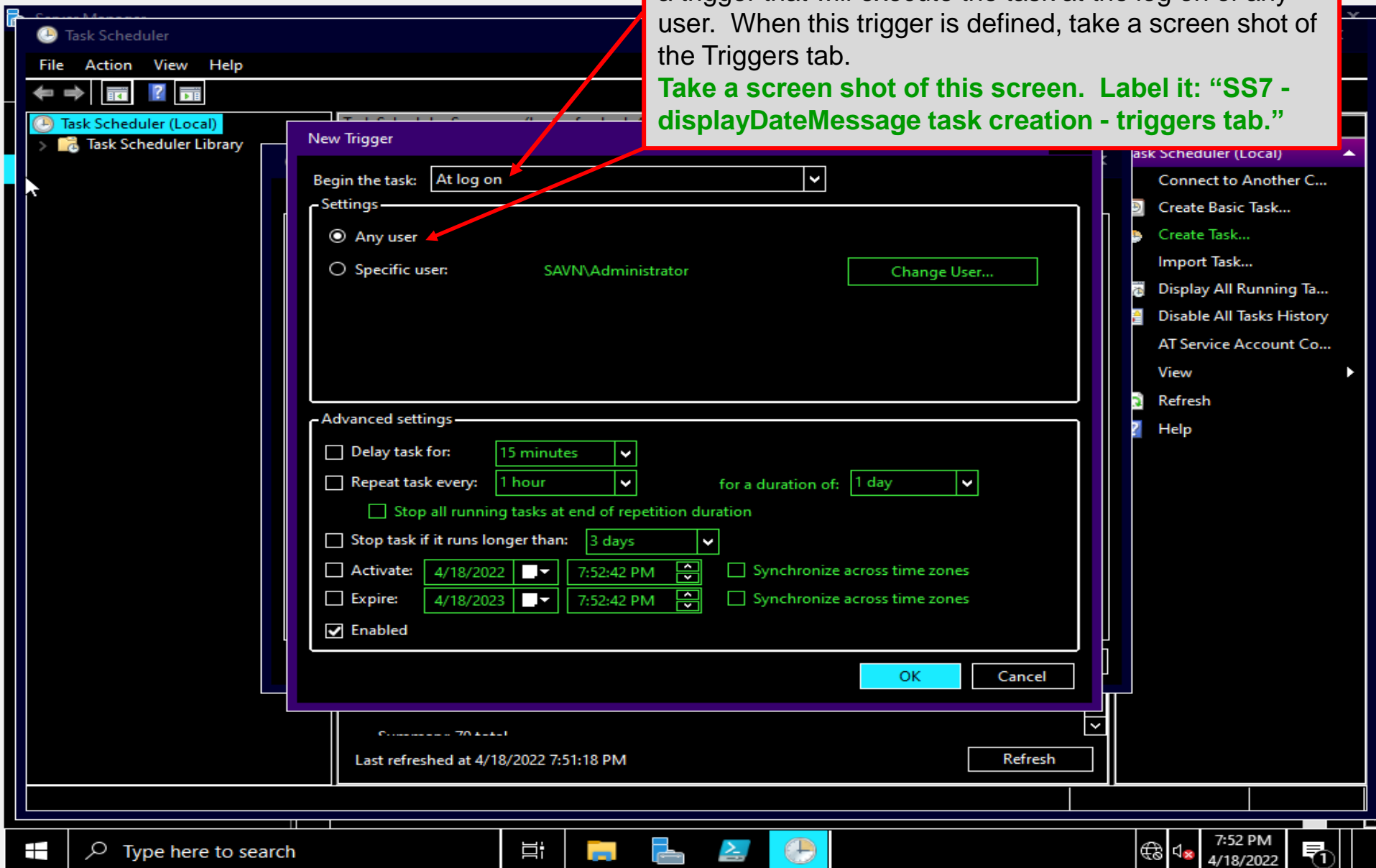
- Add-ADCentralAccessPolicyMember
- Add-ADComputerServiceAccount
- Add-ADDomainControllerPasswordRe
- Add-ADDSReadOnlyDomainControlle
- Add-ADFineGrainedPasswordPolicySu
- Add-ADGroupMember
- Add-ADPrincipalGroupMembership
- Add-ADResourcePropertyListMember
- Add-AppvClientConnectionGroup
- Add-AppvClientPackage
- Add-AppvPublishingServer
- Add-AppxPackage
- Add-AppxProvisionedPackage
- Add-AppxVolume
- Add-BCDataCacheExtension
- Add-BitsFile
- Add-CertificateEnrollmentPolicyServer
- Add-ClusterSCSITargetServerRole
- Add-Computer
- Add-Content
- Add-Device

Run Insert Copy



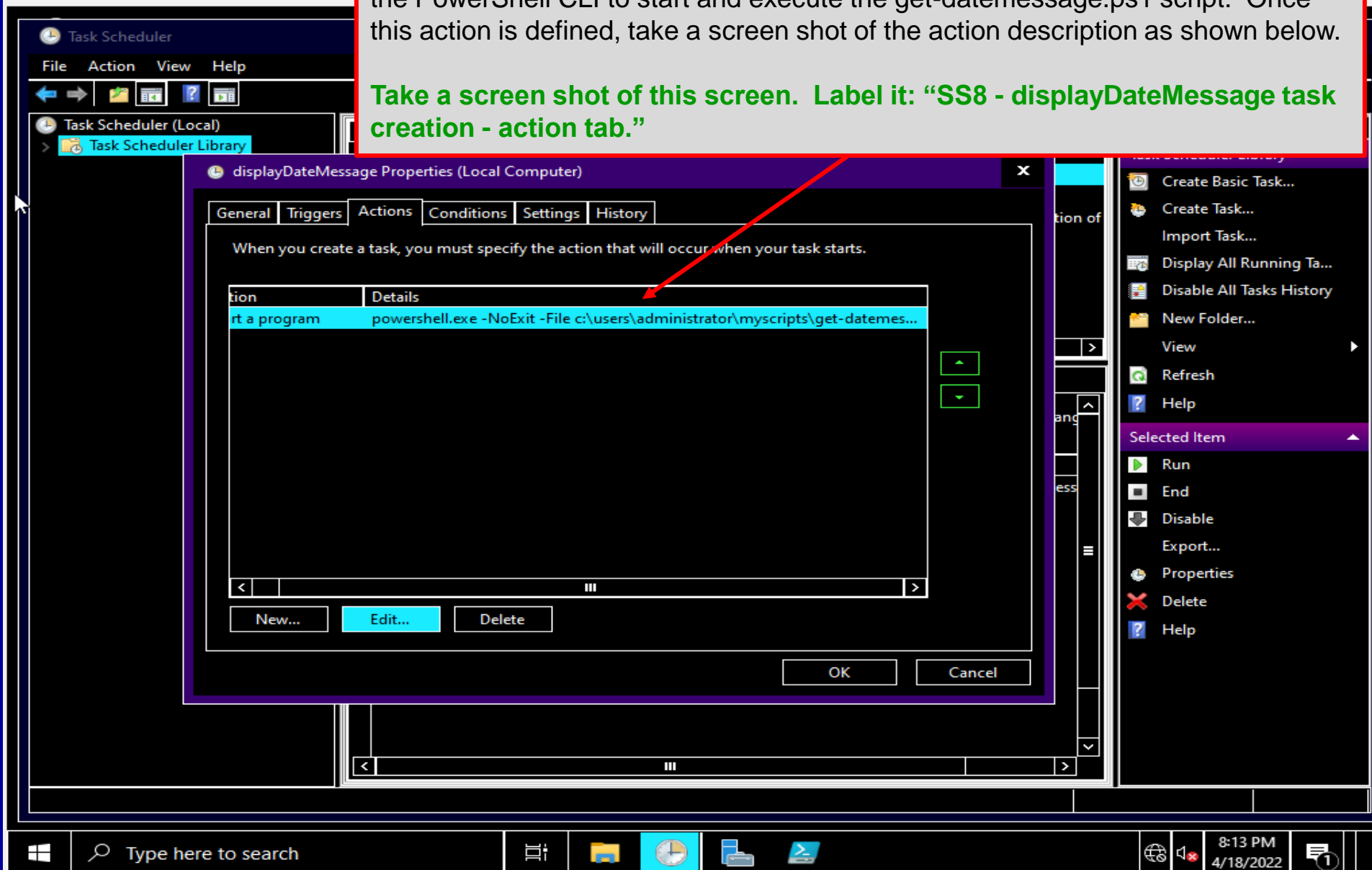
Take a screen shot of this screen. Label it: “SS6 - displayDateMessage task creation - general tab.”





Actions tab: displayDateMessage task creation. Create an action that will cause the PowerShell CLI to start and execute the get-datmessage.ps1 script. Once this action is defined, take a screen shot of the action description as shown below.

Take a screen shot of this screen. Label it: "SS8 - displayDateMessage task creation - action tab."



Task Scheduler (Local)

Task Scheduler Library

Name	Status	Triggers
CreateExplorershellUnele...	Running	When the task is created or modified
displayDateMessage	Ready	At log on of any user
MicrosoftEdgeUpdateTask...	Running	Multiple triggers defined
MicrosoftEdgeUpdateTask...	Ready	At 2:12 PM every day - After trig

General Triggers Actions Conditions Settings History

Number of events: 1

Level	Date a	Event	Task Category	Operational Code	Co
Inf...	4/18/2...	106	Task registered	Info	

Event 106, TaskScheduler

General Details

User "SAVN\Administrator" registered Task Scheduler task "\displayDateMessage"

Open the Task Scheduler tool and locate the displayDateMessage task in the Task Library. It should show the task as ready. The history tab should show the task as being registered only.

Take a screen shot of this screen. Label it "SS9 – displayDateMessage task listed as registered in the task library."



```
Task Scheduler
Administrator: C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Install the latest PowerShell for new features and
improved compatibility: https://aka.ms/WindowsPowerShell6
Welcome to MJL-SP22-S22-1
Today is: 4/18/2022 8:17:28 PM
PS C:\Windows\system32>
```

Log in to MJL-SP22-S22-1 with any user account (administrator or domainUser01) and you should see the PowerShell CLI appear as shown.

Take a screen shot of this screen. Label it “SS10 – displayDateMessage task executing.”

Note – be sure to include a task manager view showing whichever user is currently logged into MJL-SP22-S22-1.

