

Manage File System Security

- Introduction
 - Lab Topology
 - Exercise 1 - Manage Share and NTFS Permissions
 - Review
-

Introduction

Security

Permissions

NTFS permissions

Welcome to the **Manage File System Security** Practice Lab. In this module, you will be provided with the instructions and devices needed to develop your hands-on skills.

Learning Outcomes

In this module, you will complete the following exercise:

- Exercise 1 - Manage Share and NTFS Permissions

After completing this lab, you will be able to:

- Create folders and configure share permissions
- Manage NTFS permissions
- Verify permissions

Exam Objectives

The following exam objectives are covered in this lab:

- **3.2** Compare and contrast components of an operating system.

- **6.4** Compare and contrast authentication, authorization, accounting, and non-repudiation concepts.

***Note:** Our main focus is to cover the practical, hands-on aspects of the exam objectives. We recommend referring to course material or a search engine to research theoretical topics in more detail.*

Lab Duration

It will take approximately **45 minutes** to complete this lab.

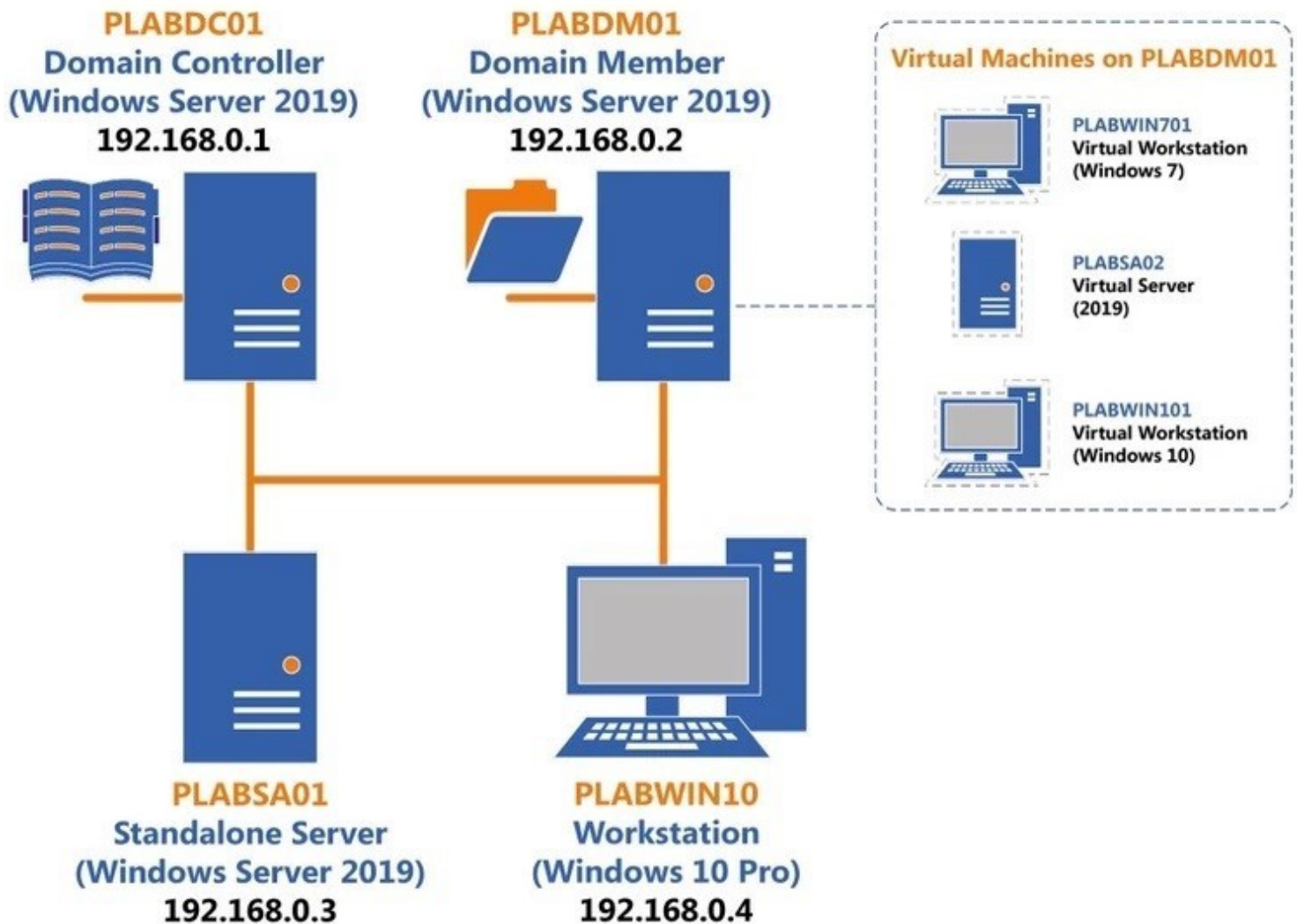
Help and Support

For more information on using Practice Labs, please see our **Help and Support** page. You can also raise a technical support ticket from this page.

Click **Next** to view the Lab topology used in this module.

Lab Topology

During your session, you will have access to the following lab configuration.



Depending on the exercises you may or may not use all of the devices, but they are shown here in the layout to get an overall understanding of the topology of the lab.

- **PLABDC01** - Domain Controller (Windows Server 2019)
- **PLABDM01** - Domain Member (Windows Server 2019)
- **PLABSA01** - Standalone Server (Windows Server 2019)
- **PLABWIN10** - Workstation (Windows 10 Pro)

Click **Next** to proceed to the first exercise.

Exercise 1 - Manage Share and NTFS Permissions

When a folder is shared in a Windows computer, it means that the folder, including its subfolders and files, is accessible to users in a network. The default share permission grants the “Everyone” special group with “Allow Read”. To fine-tune share permissions, the Domain Users security group gets Full Control as this group refers to Active Directory users. The “Everyone” group is removed from the share permissions list to secure the shared folder.

“Administrative shares” such as root drives C\$, D\$, the operating system directory “admin\$”, and inter-process communication IPC\$ are other shared folders accessible to members of the computer’s Administrators security group. The operating system disallows the modification of the administrative shares as these provide convenience for administrator access.

To enhance file system security, Windows automatically assigns NTFS permissions to folders, including all subfolders and files. Folders and files inherit the permissions from the parent drive; the permissions are customizable to comply with the file security requirements of an organization.

To learn more about managing share and NTFS permissions, please refer to your course material or use your favorite search engine to research for more information about this topic.

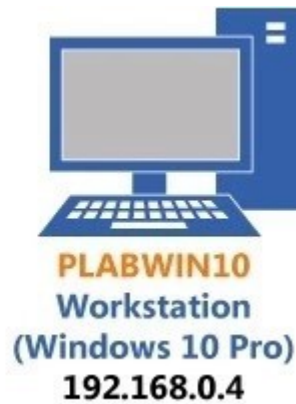
Learning Outcomes

After completing this exercise, you will be able to:

- Create folders and configure share permissions
- Manage NTFS permissions
- Verify permissions

Your Devices

You will be using the following devices in this exercise. Please power these on now.



- **PLABDC01** - Domain Controller (Windows Server 2019)
- **PLABDM01** - Domain Member (Windows Server 2019)
- **PLABWIN10** - Workstation (Windows 10 Pro)

Task 1 - Create folders and configure share permissions

In this task, you will share folders using Windows PowerShell, File Explorer, and Computer Management.

Step 1

Ensure that you have powered on the required devices listed in the introduction.

Connect to **PLABDM01**.

Right-click **Start** and select **Windows PowerShell (Admin)**.

Step 2

To create the following folders, type:

```
cd\
```

Press **Enter**.

```
md projects
```

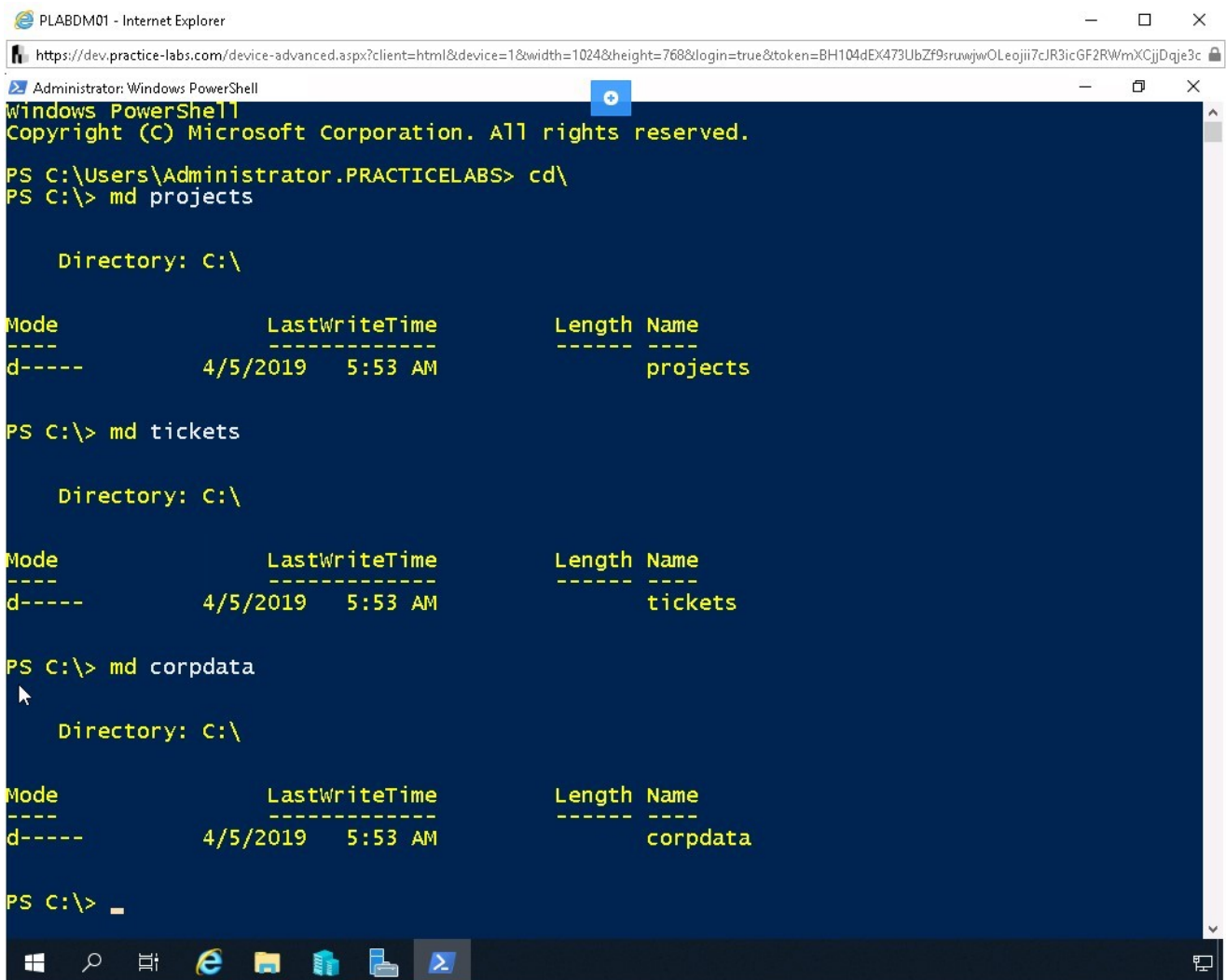
Press **Enter**.

```
md tickets
```

Press **Enter**.

```
md corpdata
```

Press **Enter**.



The screenshot shows a Windows PowerShell terminal window with the following content:

```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator.PRACTICELABS> cd\
PS C:\> md projects

Directory: C:\

Mode                LastWriteTime         Length Name
----                -
d-----            4/5/2019   5:53 AM         projects

PS C:\> md tickets

Directory: C:\

Mode                LastWriteTime         Length Name
----                -
d-----            4/5/2019   5:53 AM         tickets

PS C:\> md corpdata

Directory: C:\

Mode                LastWriteTime         Length Name
----                -
d-----            4/5/2019   5:53 AM         corpdata

PS C:\> _
```

Figure 1.1 Screenshot of the PLABDM01 desktop: Administrator Windows PowerShell window is displayed showing the commands to create various directories typed-in and system-response to the same.

Step 3

On the next prompt, to share the **project** folder created in the previous step, type the following:

```
New-SmbShare -Name "projects" -Path "c:\projects" -  
FullAccess "practicelabs\Domain Users"
```

Press **Enter**.

Step 4

The projects folder is successfully shared.

Close **Windows PowerShell**.

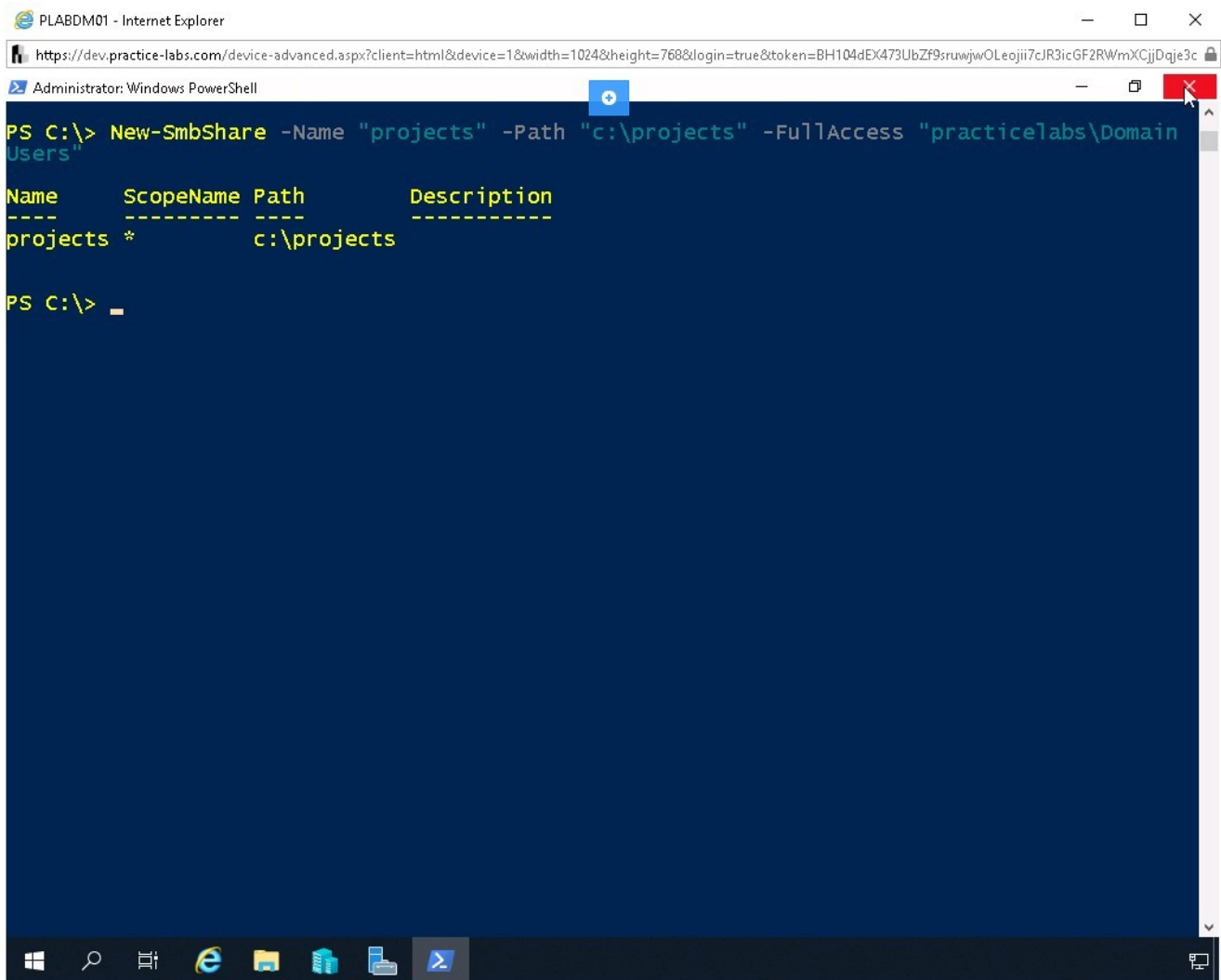


Figure 1.2 Screenshot of the PLABDM01 desktop: Administrator Windows PowerShell window is displayed showing the command to share the required folder typed-in and system-response to the same.

Step 5

Another method to share a folder is through **File Explorer**.

Click **File Explorer** on the taskbar.

Step 6

On the **File Explorer** window, expand **This PC** and click the **Local Disk (C:)** drive.

Right-click **tickets**, point to **Give access to** and select **Specific people...**

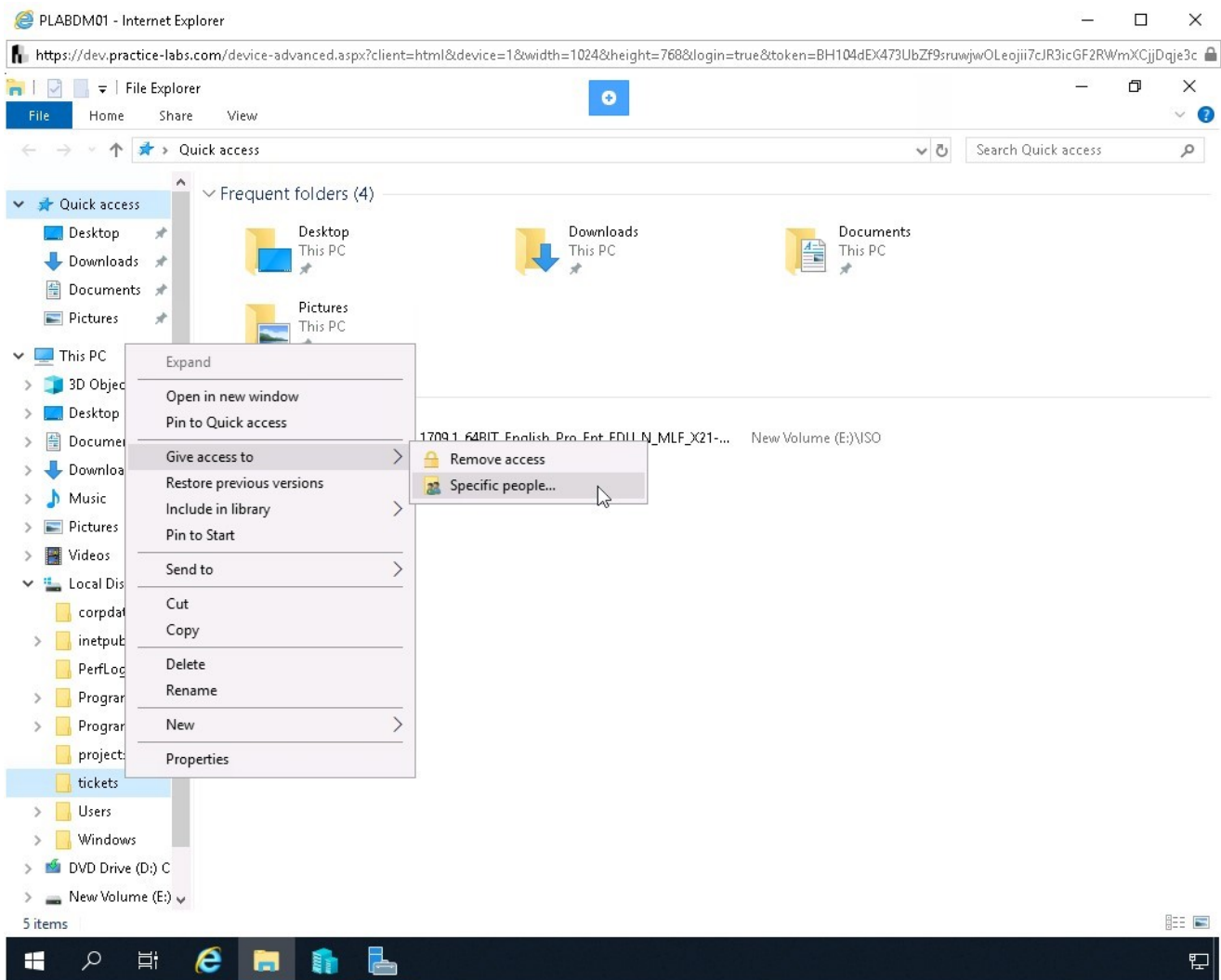


Figure 1.3 Screenshot of the PLABDMo1 desktop: Context menu (that appears on right-clicking a listed local disk) > Give access to > Specific people menu-options are highlighted on the File Explorer window.

Step 7

On the **Network access** dialog box, click in the text box and type:

domain users

Click **Add**.

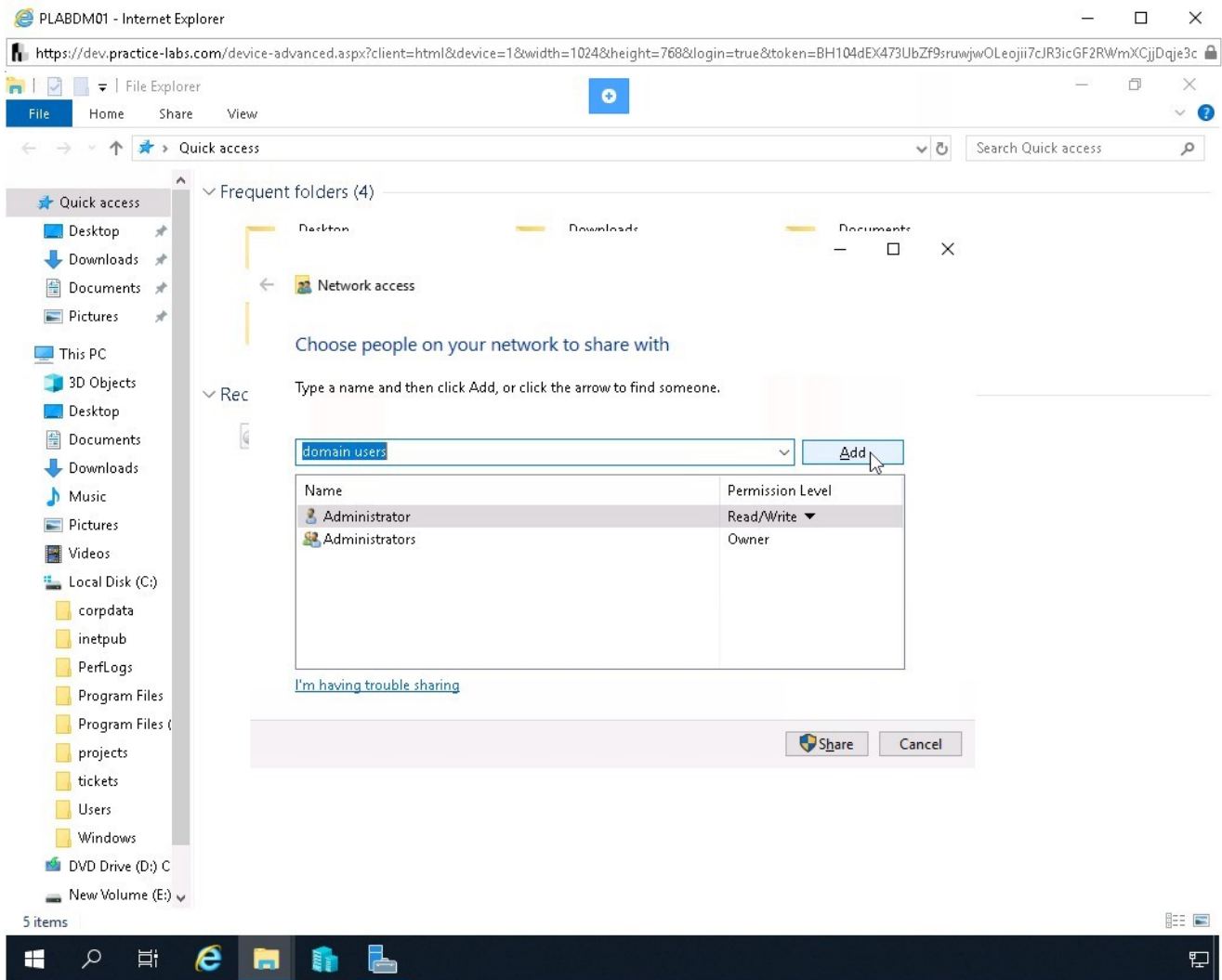


Figure 1.4 Screenshot of the PLABDM01 desktop: Network access dialog box is displayed showing the required name typed-in and the Add button highlighted.

Step 8

Select **Domain Users**, click the **Read** drop-down list, then select **Read/Write**.

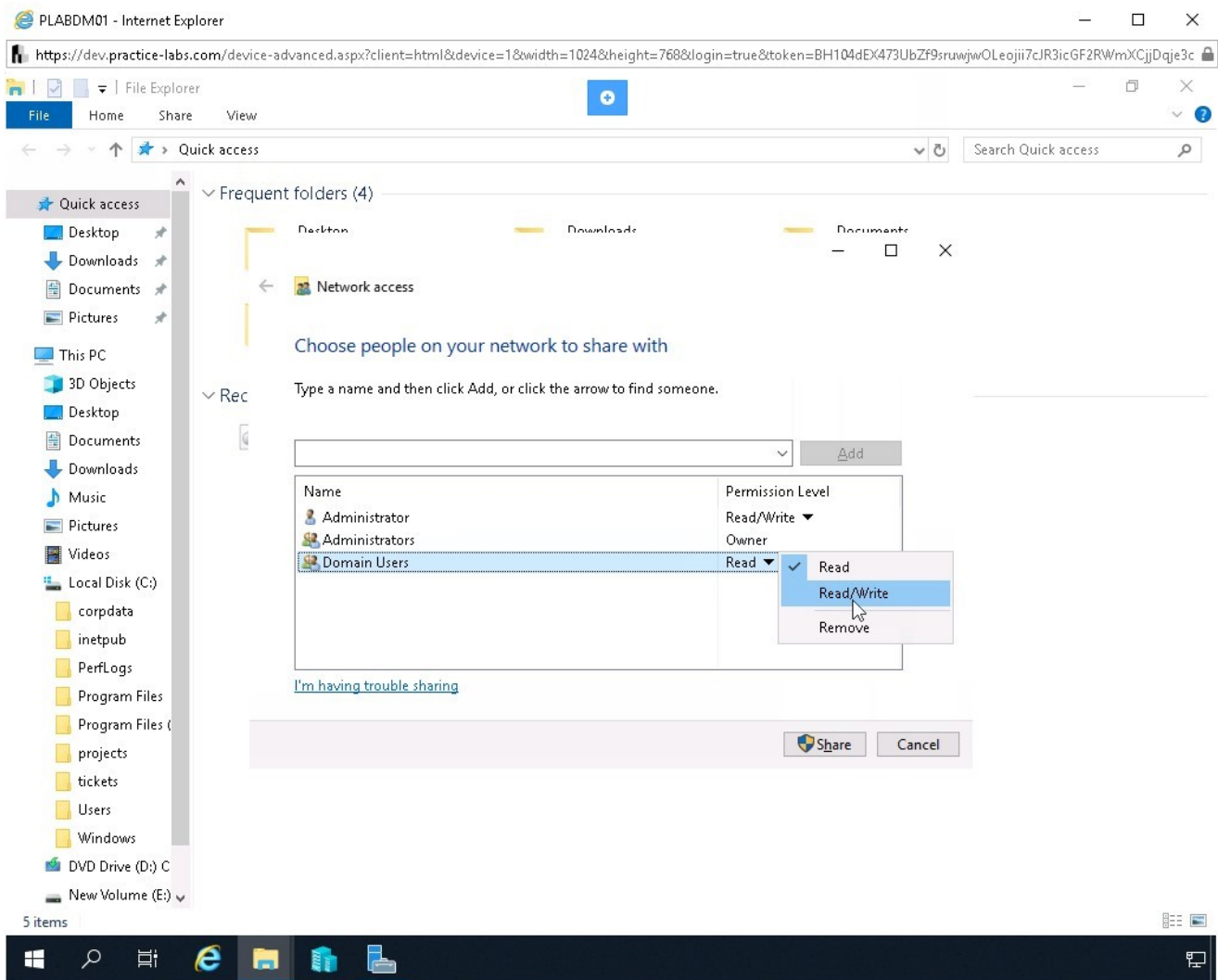


Figure 1.5 Screenshot of the PLABDM01 desktop: Network access dialog box is displayed showing the required settings performed.

Step 9

Click **Share**.

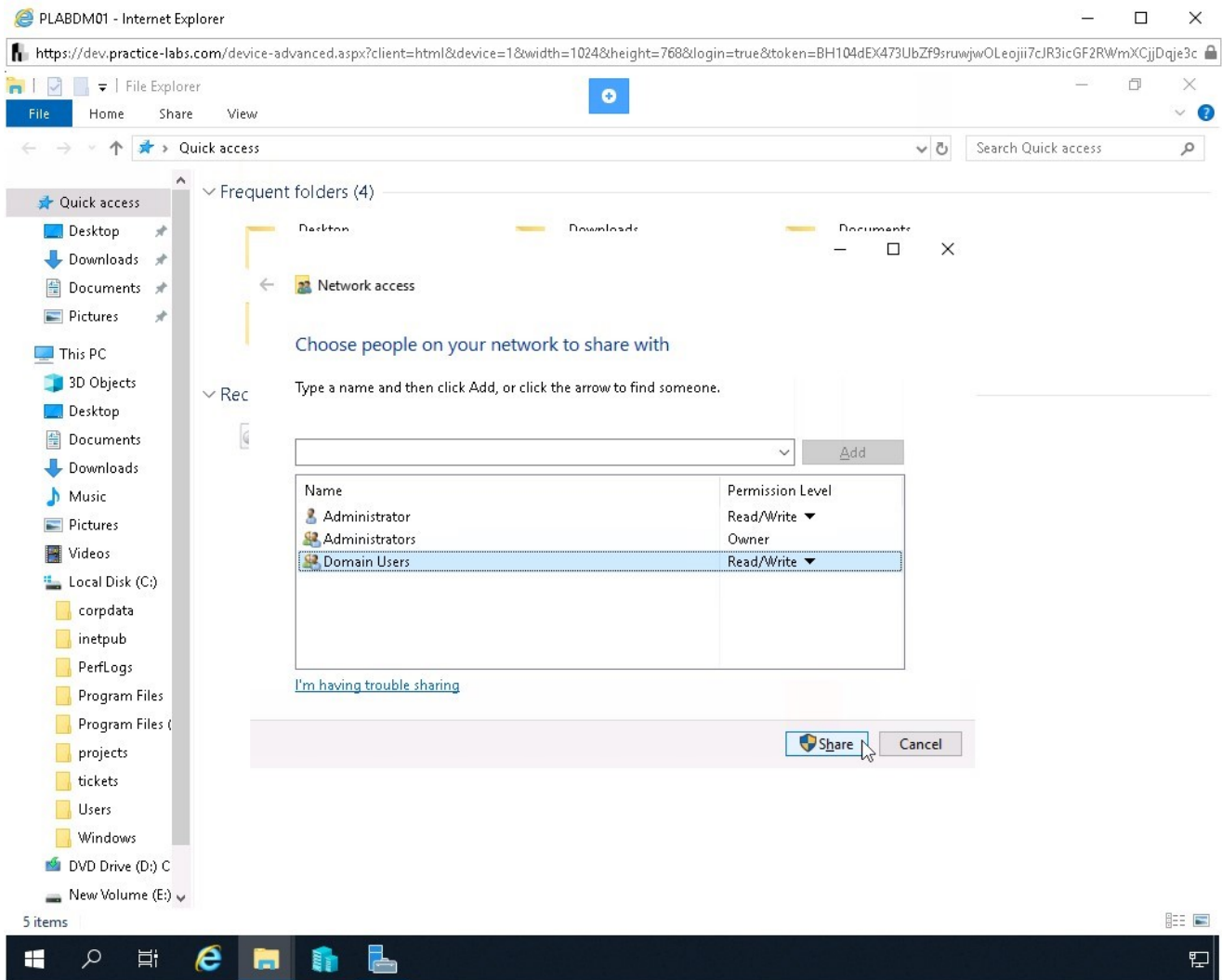


Figure 1.6 Screenshot of the PLABDM01 desktop: Network access dialog box is displayed showing the required settings performed and the Share button highlighted.

Step 10

Click **Done** to close the **Network access** window.

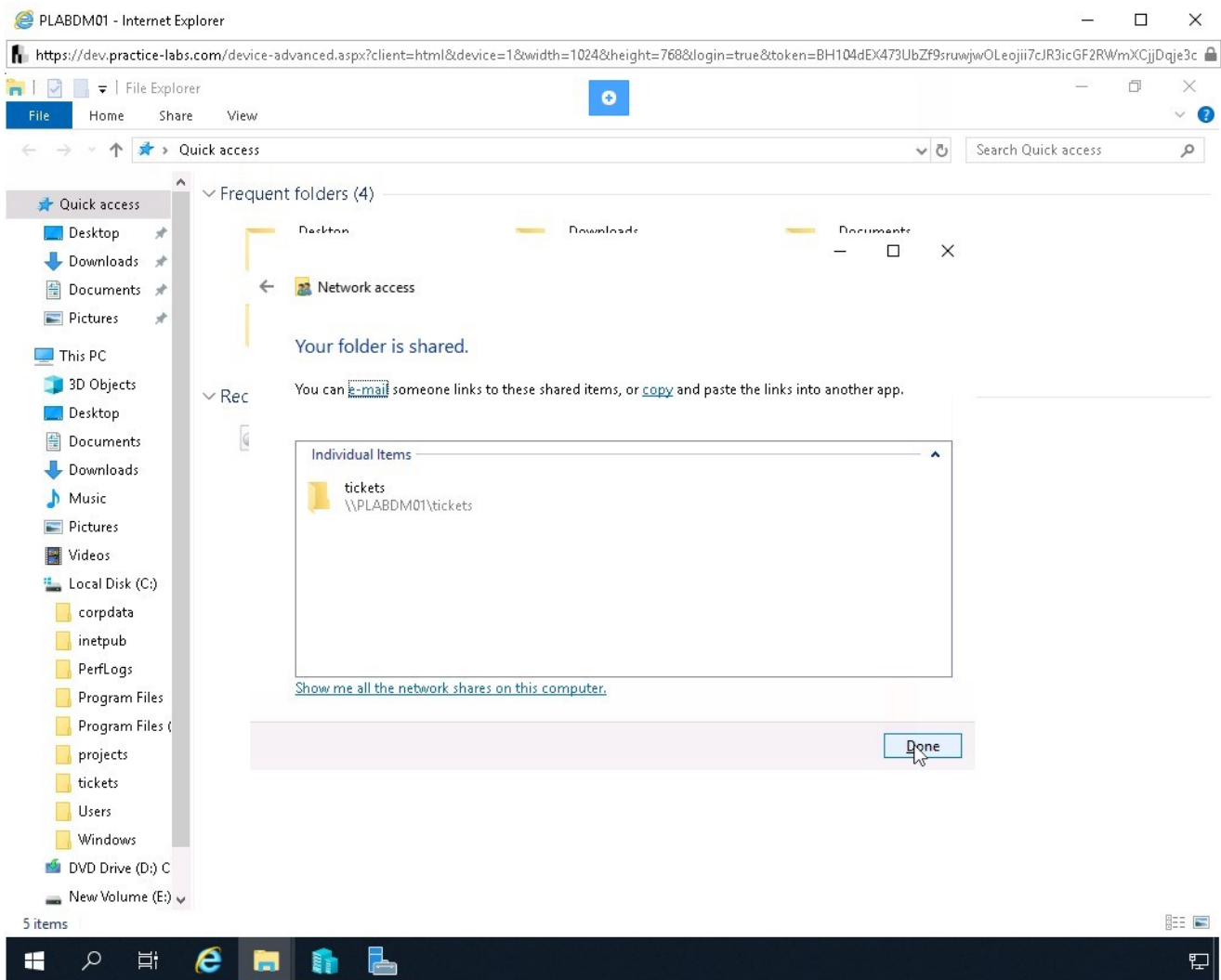


Figure 1.7 Screenshot of the PLABDM01 desktop: Network access dialog box is displayed showing the message that Your folder is shared and the Done button highlighted.

Close **File Explorer**.

Step 11

Right-click **Start** and select **Computer Management**.

Step 12

From **Computer Management**, expand **Shared Folders** and click **Shares**.

Right-click **Shares** and select **New Share**.

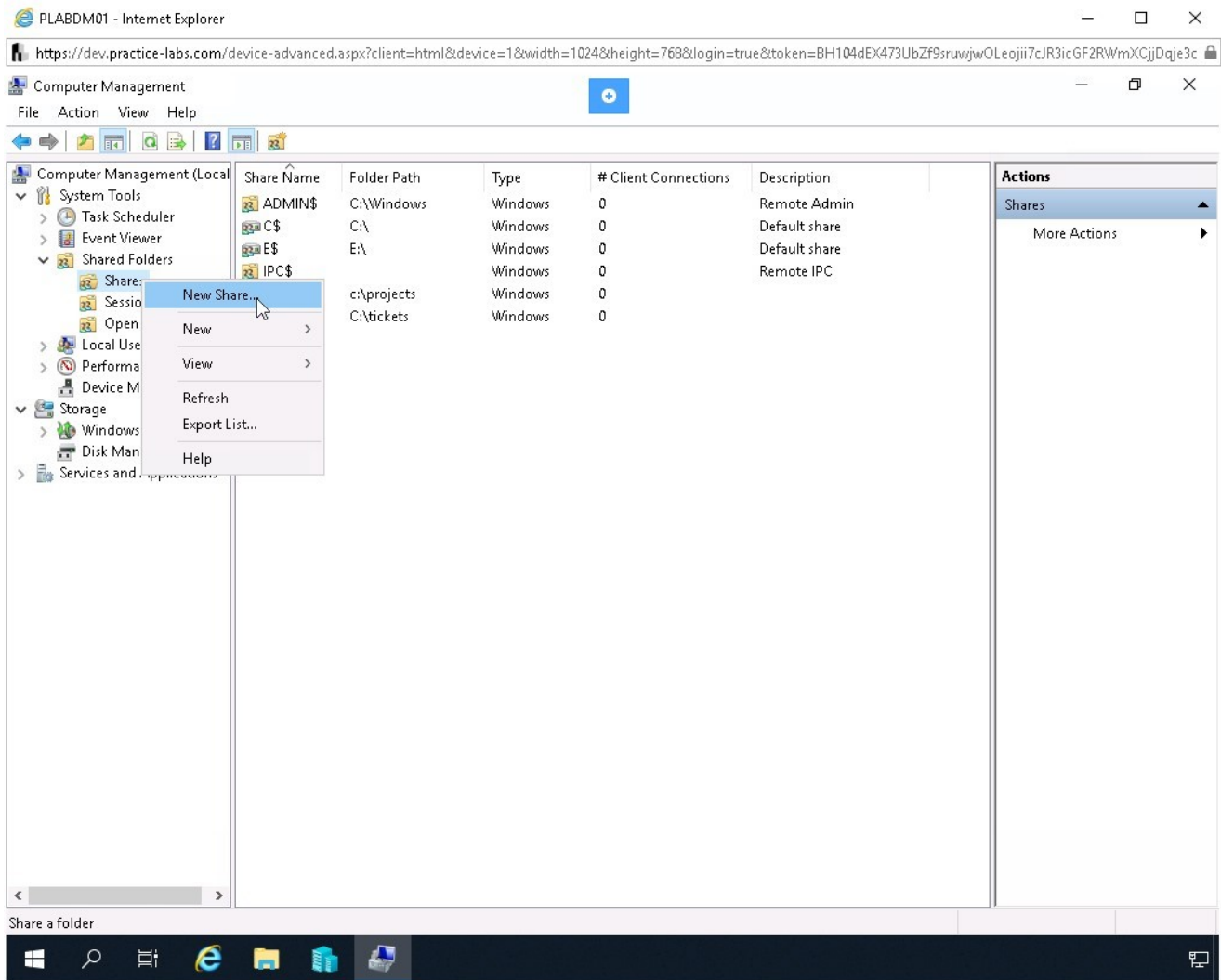


Figure 1.8 Screenshot of the PLABDM01 desktop: Context menu (that appears on right-clicking a listed shared folder) > New Share menu-options are highlighted on the Computer Management console.

Step 13

On the **Welcome to the Create a Shared Folder Wizard**, click **Next**.

Step 14

On the **Folder Path** page, type in the **Folder path**:

C:\corpdata

Click **Next**.

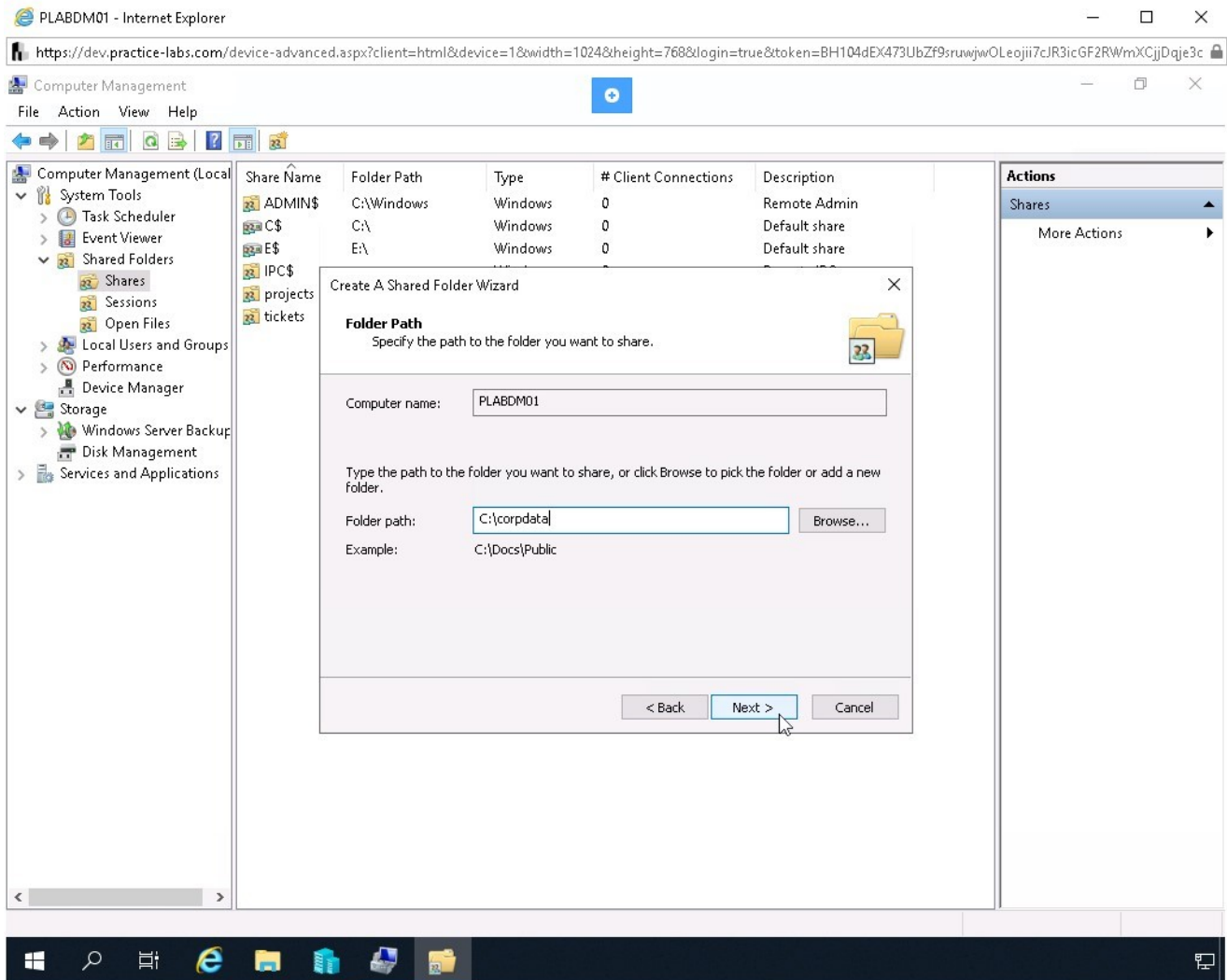


Figure 1.9 Screenshot of the PLABDM01 desktop: Folder Path page on the Create A Shared Folder Wizard is displayed showing the required value typed-in and the Next button highlighted.

Step 15

On the **Name, Description, and Settings** page, click **Next**.

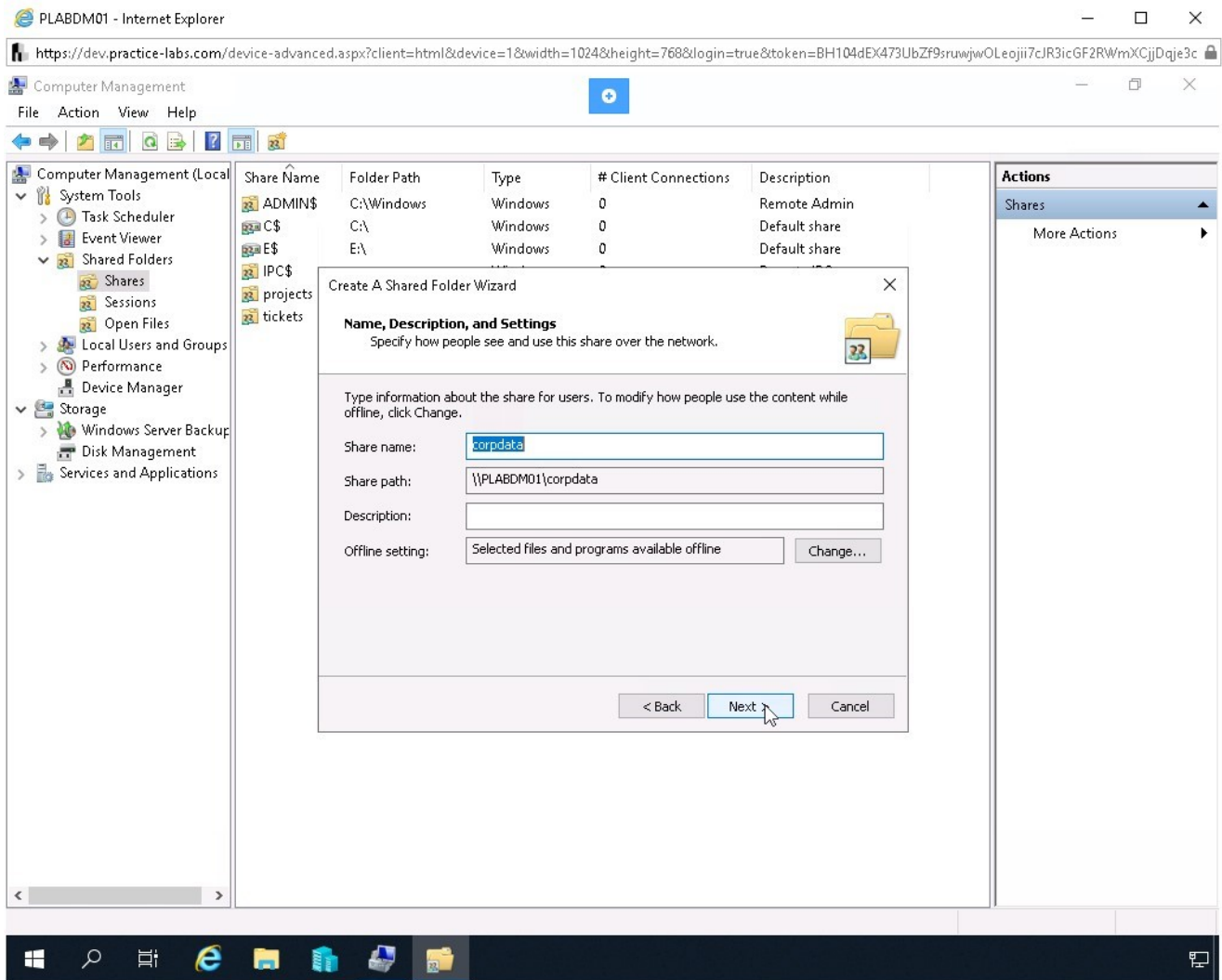


Figure 1.10 Screenshot of the PLABDM01 desktop: Name, Description, and Settings page on the Create A Shared Folder Wizard is displayed showing default values and the Next button highlighted.

Step 16

On the **Shared Folder Permissions**, select **Custom permissions**.

Click **Custom...**

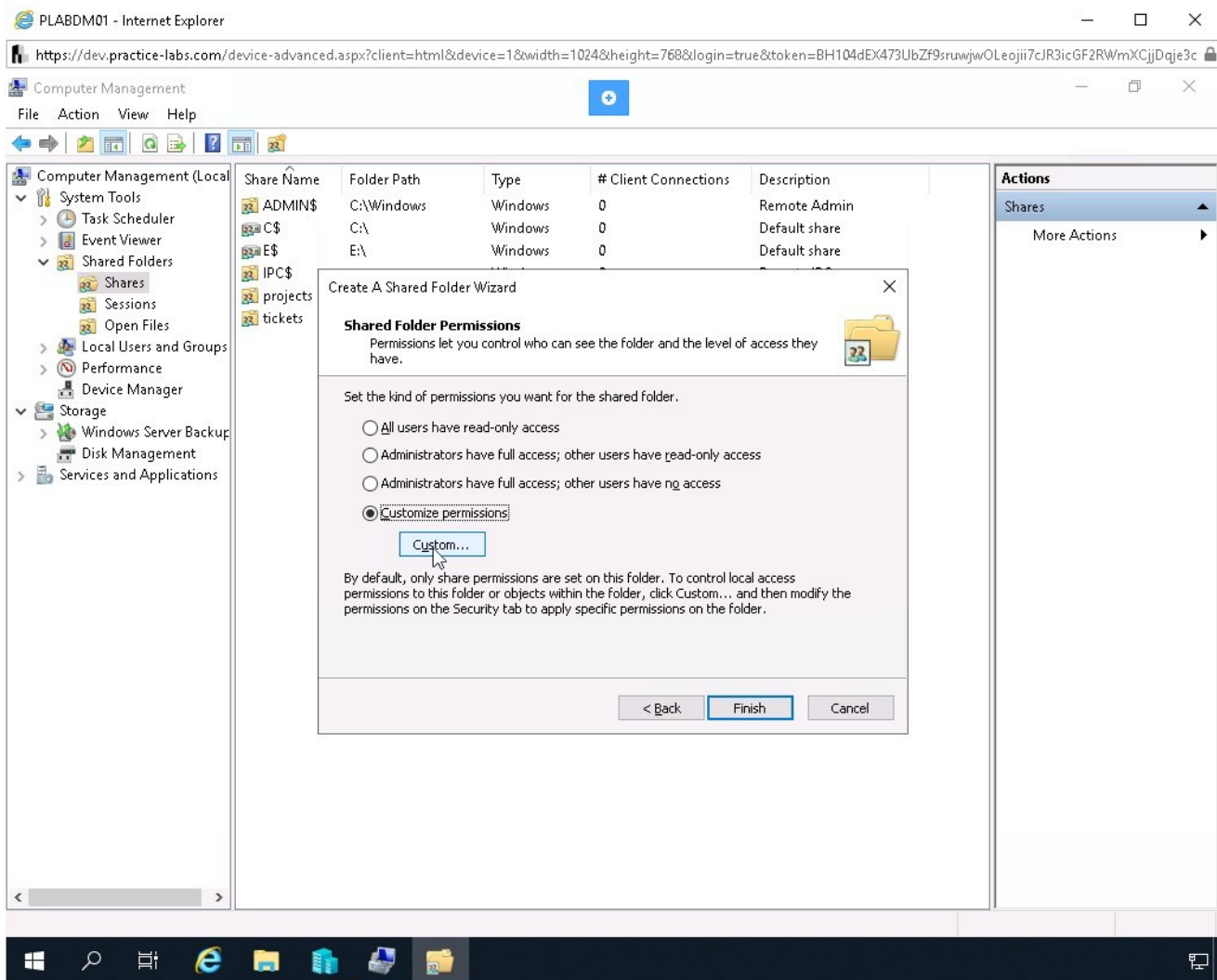


Figure 1.11 Screenshot of the PLABDM01 desktop: Shared Folder Permissions page on the Create A Shared Folder Wizard is displayed showing the required selection performed and the Custom button highlighted.

Step 17

On the **Customize Permissions** dialog box, select **Everyone**.

Click **Remove**.

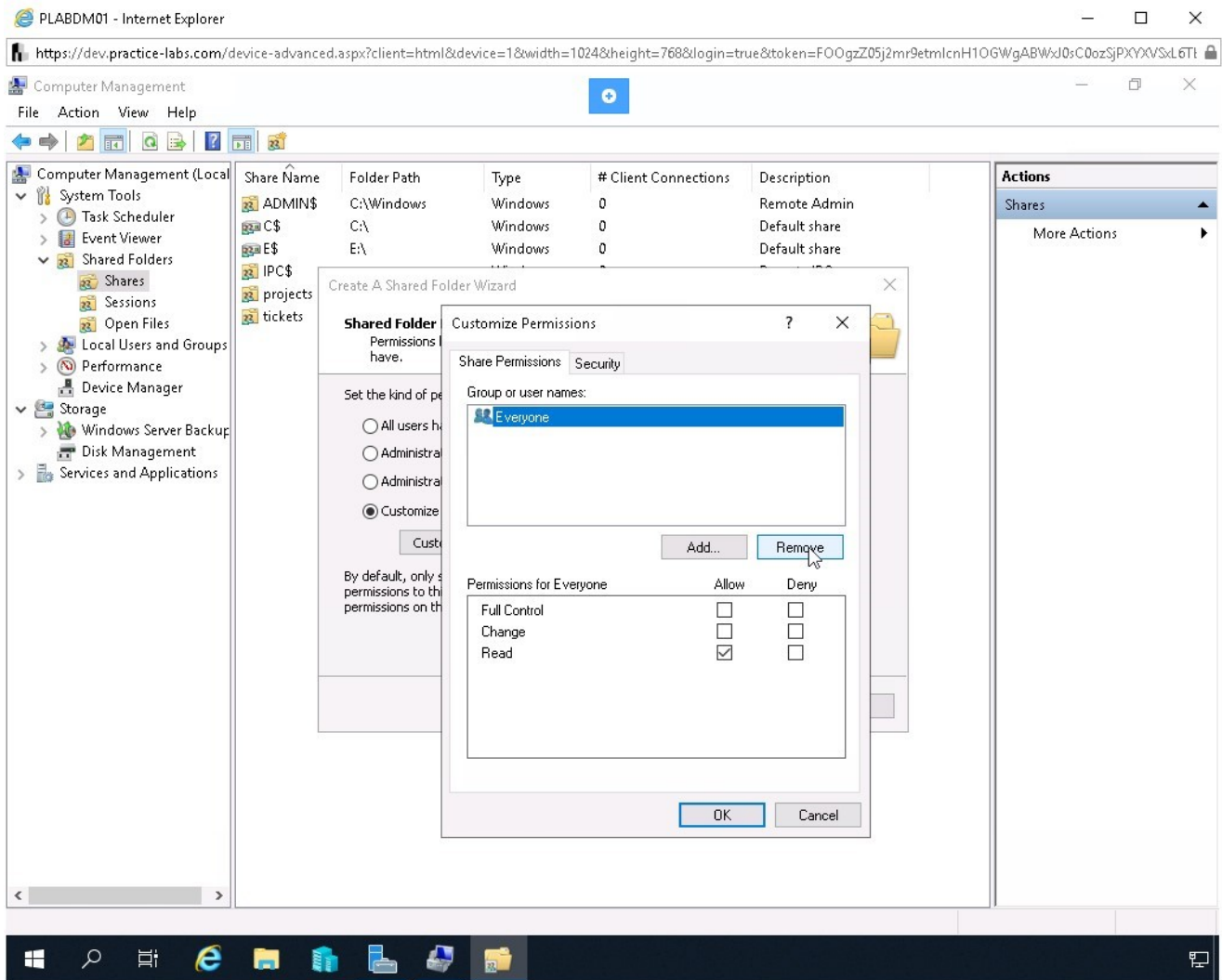


Figure 1.12 Screenshot of the PLABDM01 desktop: Customize Permissions dialog box is displayed showing the required selection performed and the Remove button highlighted.

Step 18

Click **Add**.

Step 19

From **Select Users, Computers, Service Accounts or Groups** dialog box, type:

domain users

Click **OK**.

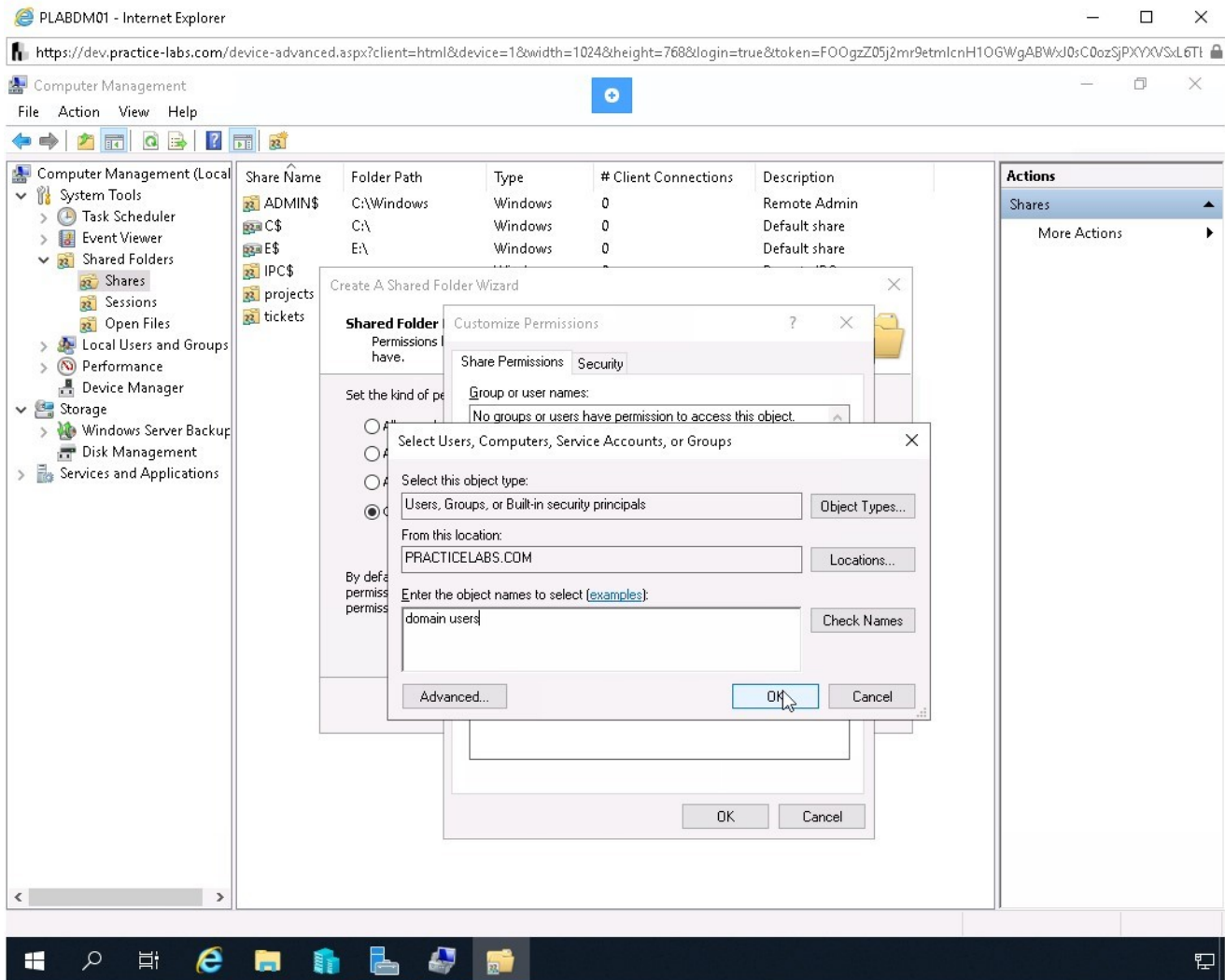


Figure 1.13 Screenshot of the PLABDM01 desktop: Select Users, Computers, Service Accounts, or Groups dialog box is displayed showing the required value typed-in and the OK button highlighted.

Step 20

From **Customize Permissions**, select **Domain Users (PRACTICELABS\Domain Users)** if applicable.

Under the **Allow** column, select the **Full Control** box.

Click **OK**.

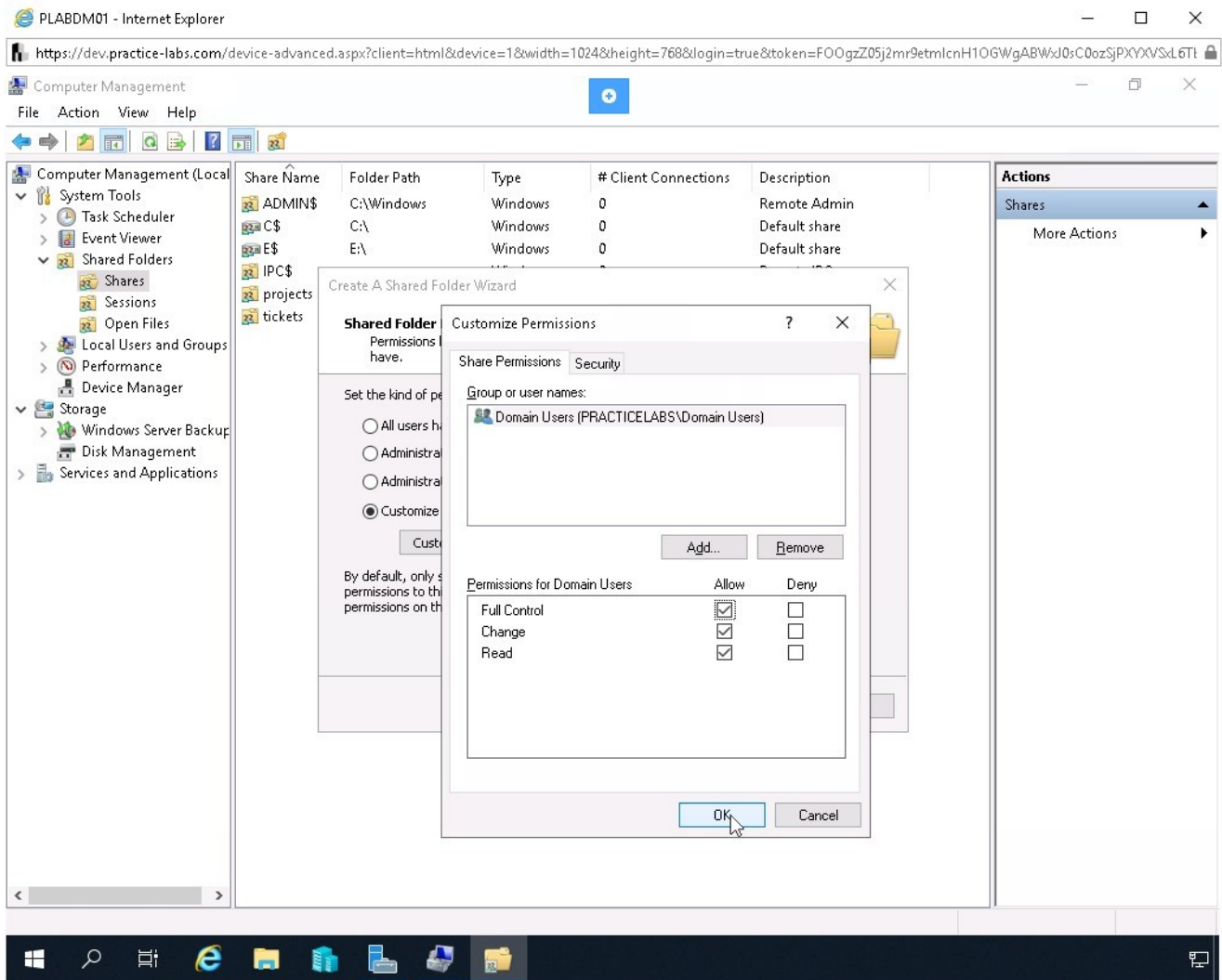


Figure 1.14 Screenshot of the PLABDM01 desktop: Customize Permissions dialog box is displayed showing the required settings performed and the OK button highlighted.

Step 21

Click **Finish**.

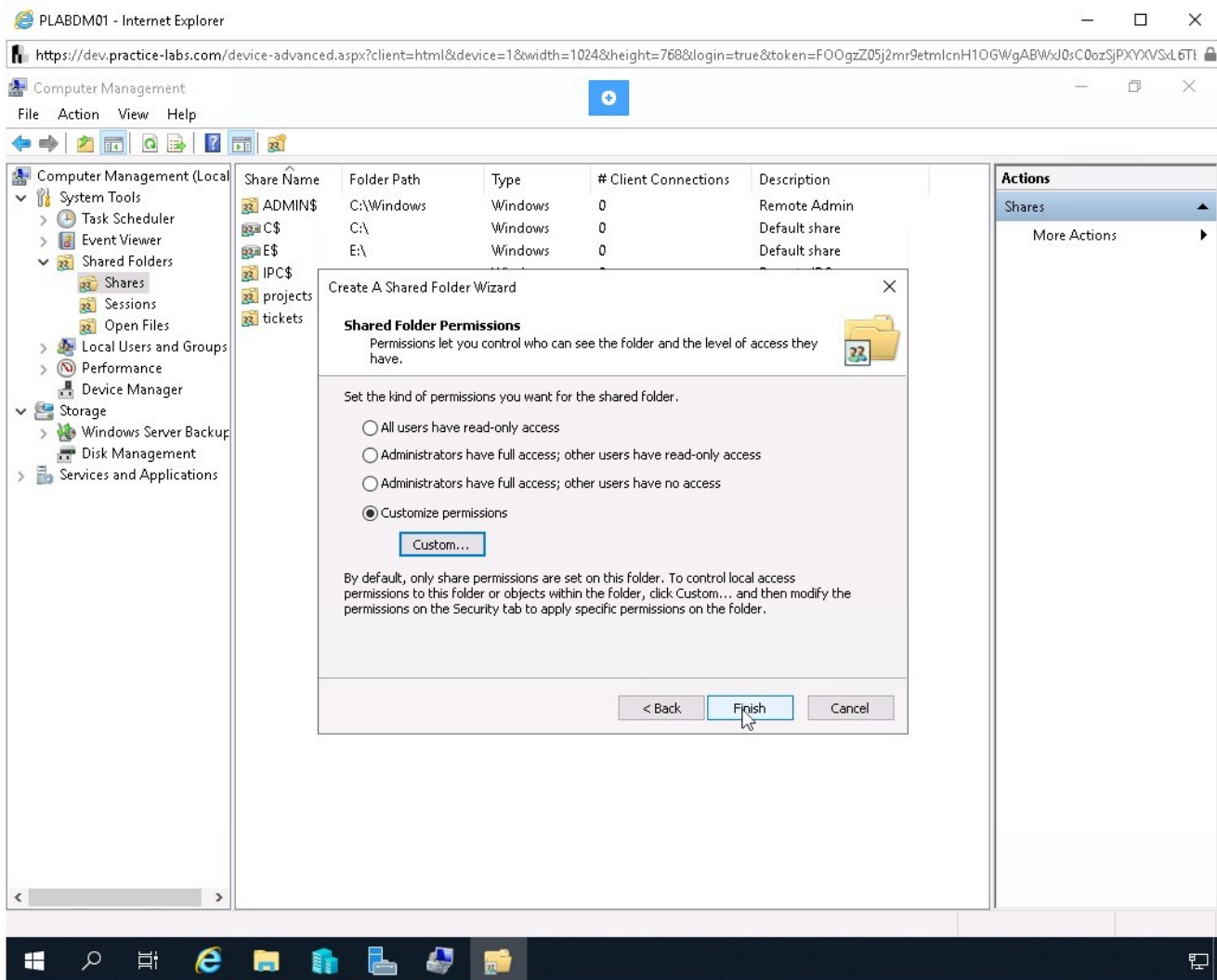


Figure 1.15 Screenshot of the PLABDM01 desktop: Shared Folder Permissions page on the Create A Shared Folder Wizard is displayed showing the Finish button highlighted.

Step 22

Click **Finish** on the **Sharing was Successful** page.

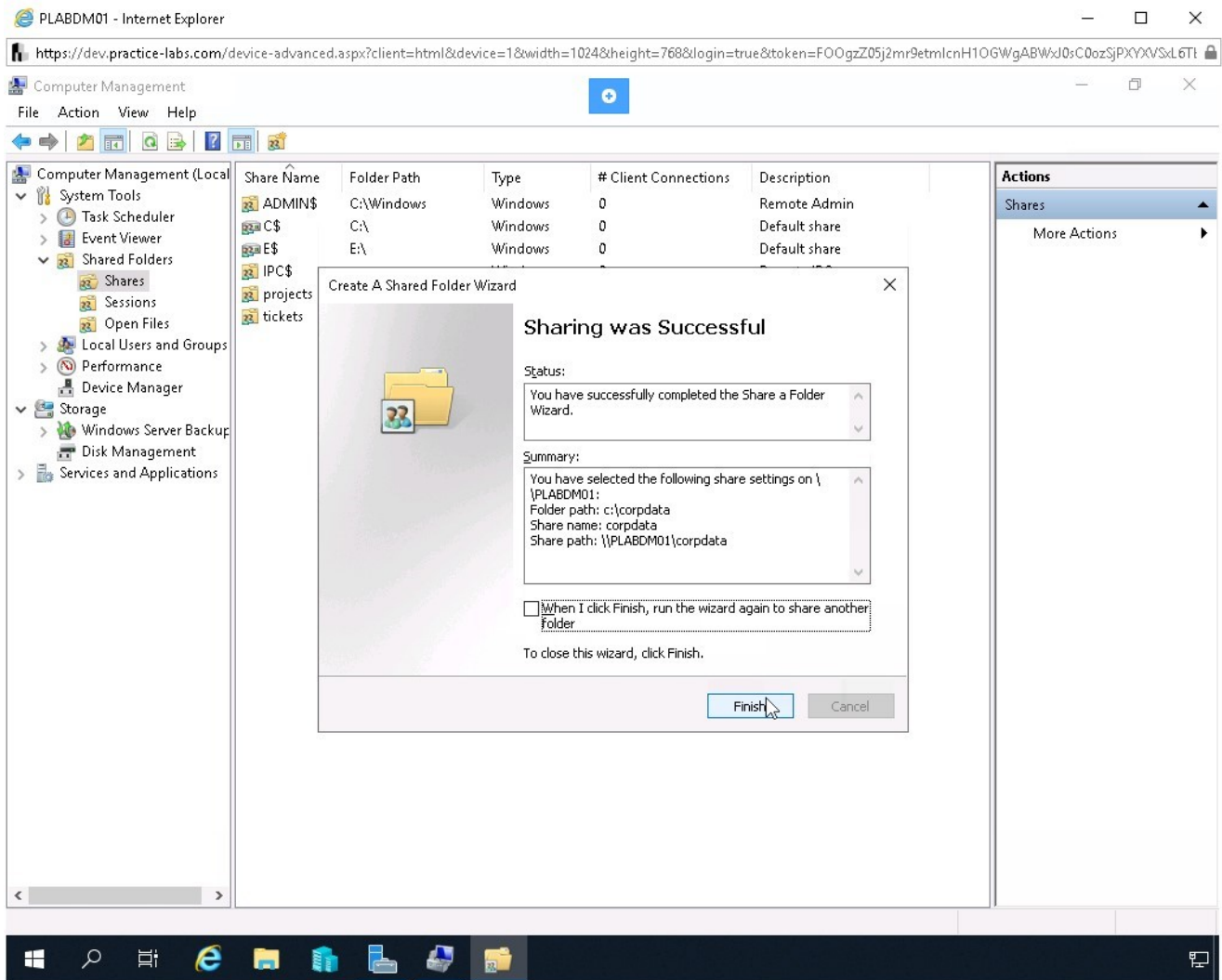


Figure 1.16 Screenshot of the PLABDM01 desktop: Sharing was Successful page on the Create A Shared Folder Wizard is displayed listing a summary of the share specifications and showing the Finish button highlighted.

Step 23

Computer Management displays the **corpdata**, **projects** and **tickets** shared folders.

Close **Computer Management**.

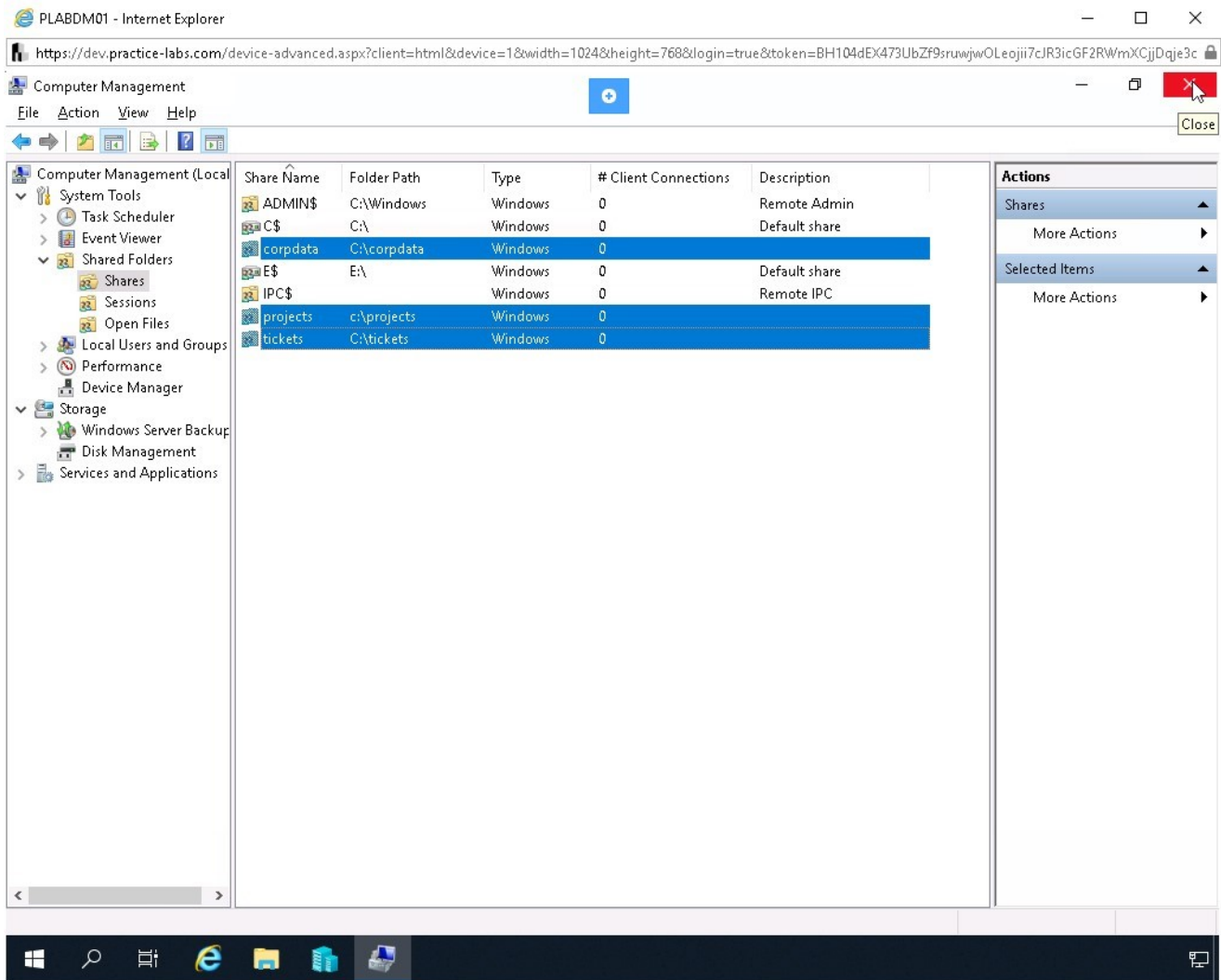


Figure 1.17 Screenshot of the PLABDM01 desktop: Shared folders listed on the Computer Management console.

Task 2 - Manage NTFS permissions

Windows automatically sets NTFS permissions on all fixed drives such as C:, D:, etc. and these permissions apply to all folders, subfolders, and files within the drives. These permissions are customizable to enable organizations to set file security to protect important assets from unauthorized users.

NTFS permissions are self-explanatory and modifiable by administrators and folder owners on a Windows device. In this task, you will customize the NTFS permissions for some of the folders created earlier.

Step 1

On **PLABDM01**, click **File Explorer** on the taskbar.

Step 2

Expand **This PC** and click the **Local Disk (C:)** drive.

Right-click **corpdata** and select **Properties**.

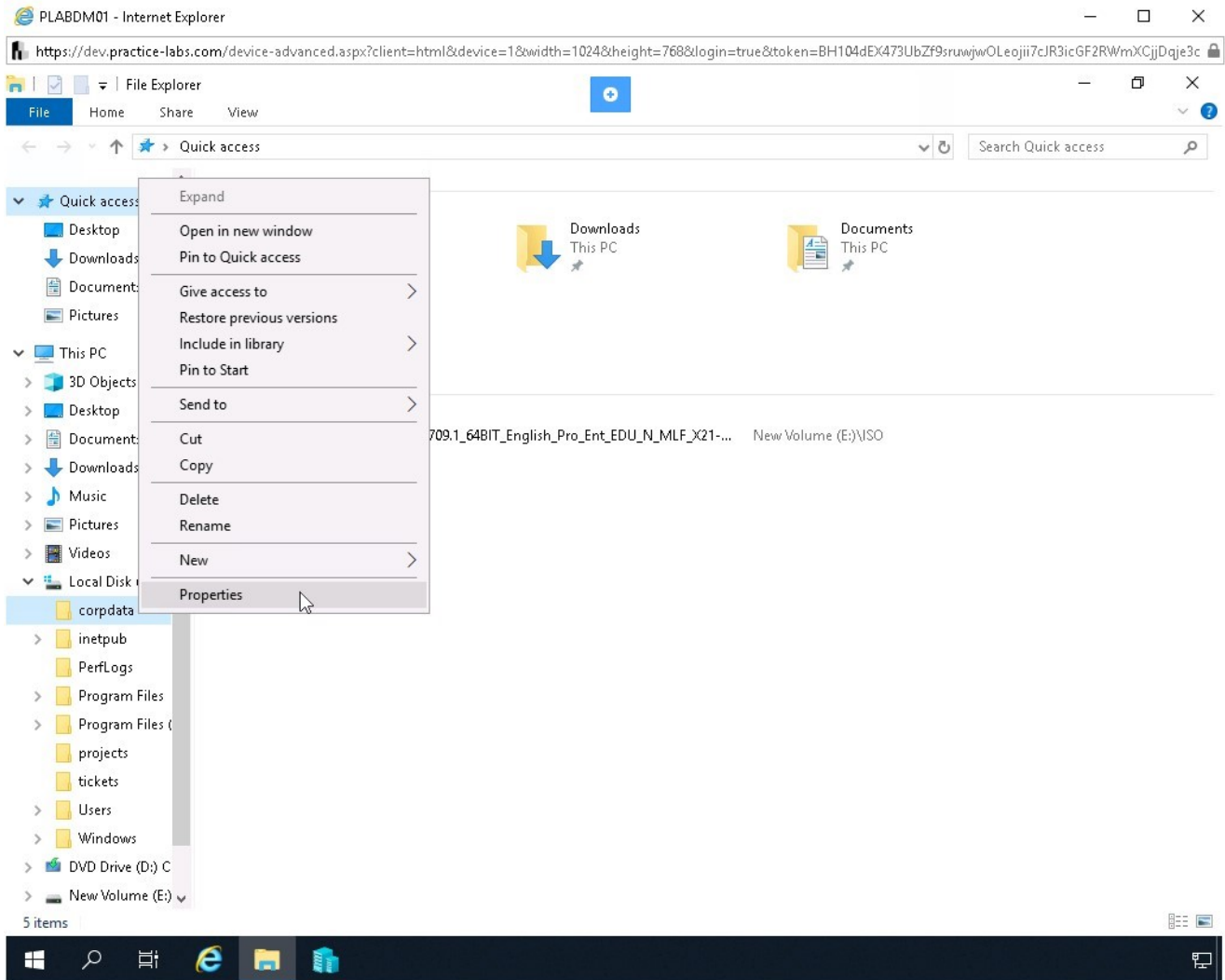


Figure 1.18 Screenshot of the PLABDM01 desktop: Context menu (that appears on right-clicking a listed local disk) > Properties menu-options are highlighted on the File Explorer window.

Step 3

On the **Properties** dialog box, click the **Security** tab.

Step 4

On the **Security** tab, the default NTFS permissions appear.

Click **Edit**.

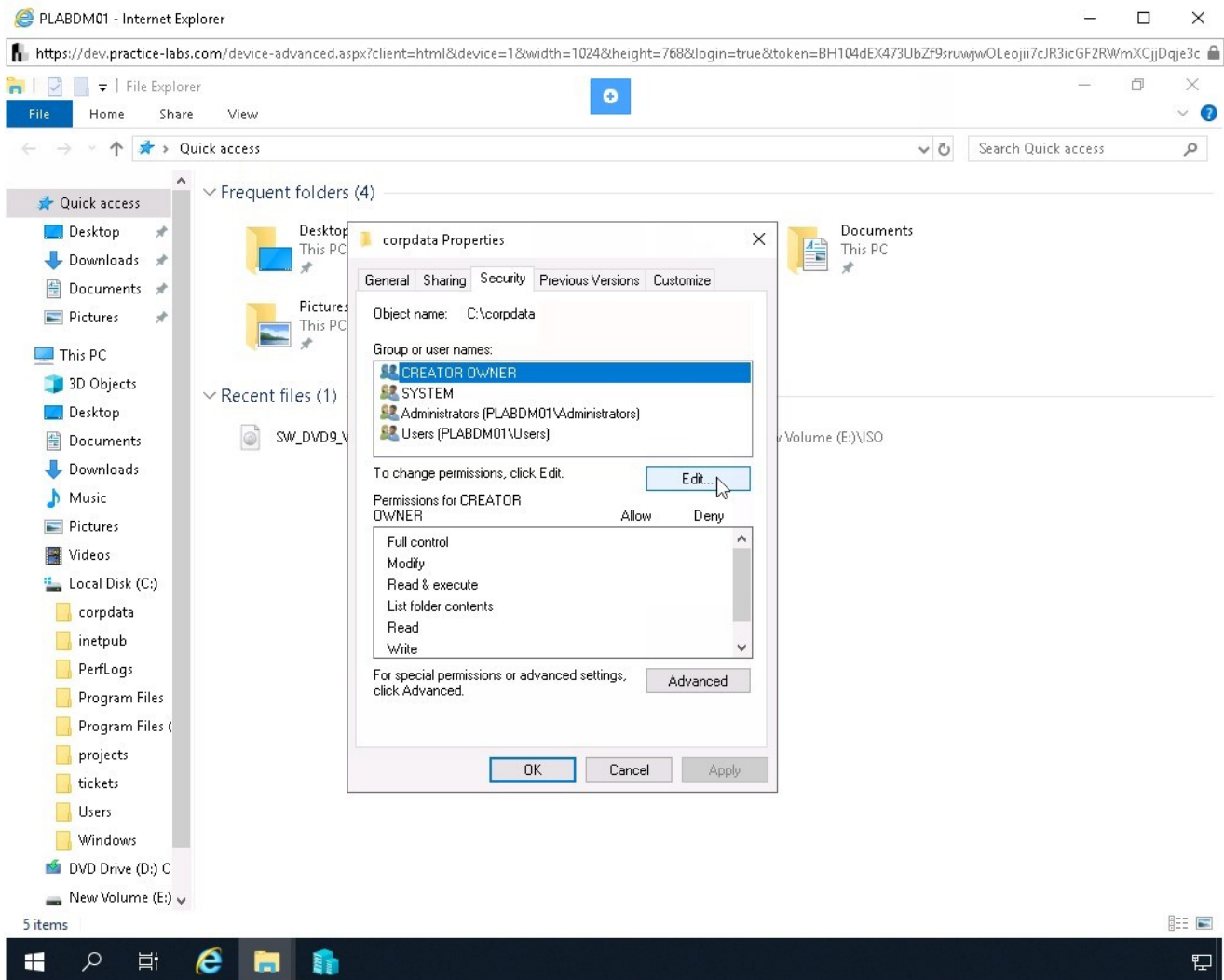


Figure 1.19 Screenshot of the PLABDM01 desktop: Security tab on the corpdata Properties dialog box is displayed showing the Edit button highlighted.

Step 5

On the **Permissions for corpdata** window, click **Add**.

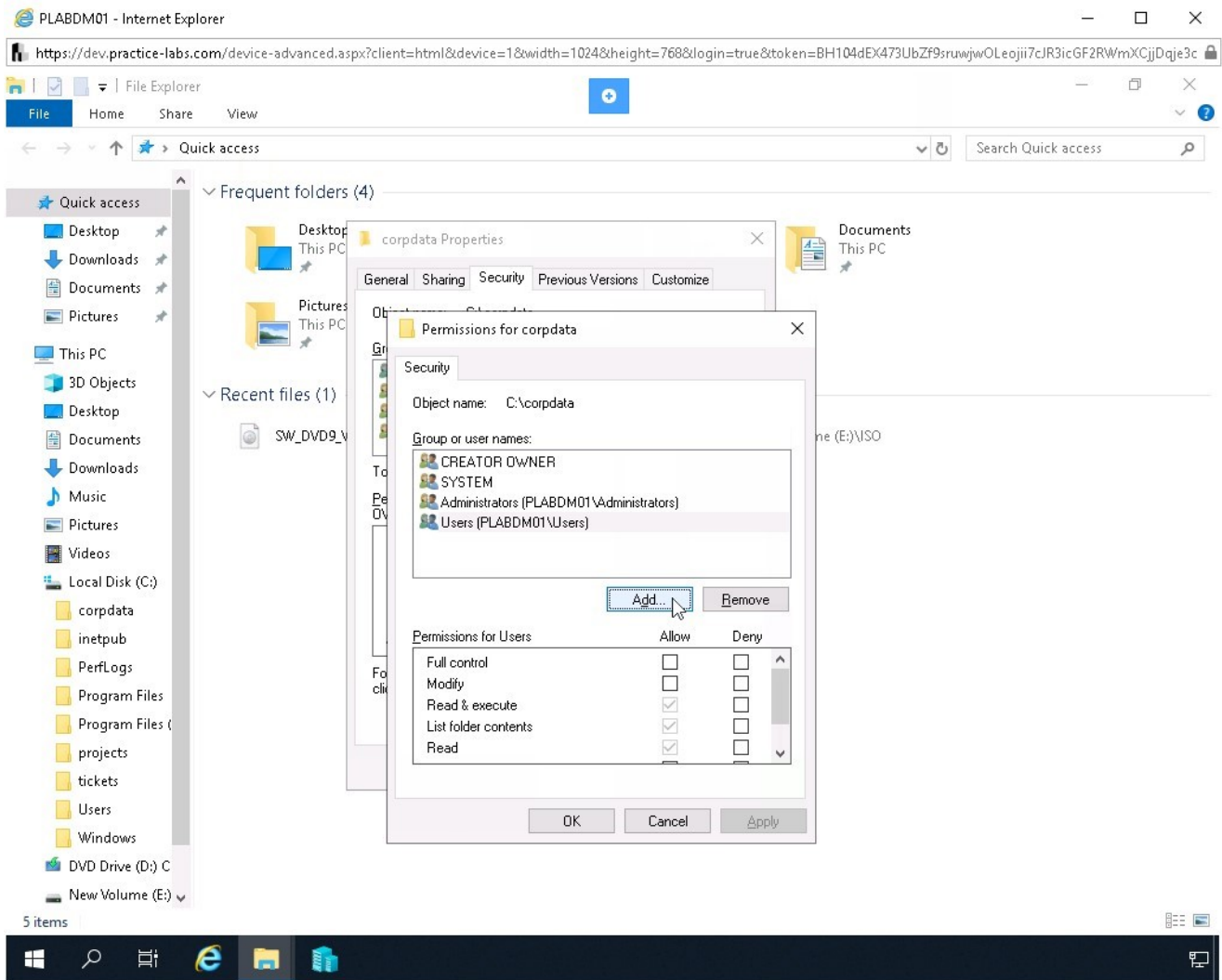


Figure 1.20 Screenshot of the PLABDM01 desktop: Add button is highlighted on the Permissions for corpdata dialog box.

Step 6

On the **Select Users, Computers, Service Accounts, or Groups** dialog box, type the following group name in the text box:

```
corpusers;globalit;gengineering;ghelpdesk;goperations;gmarketing
```

Click **OK**.

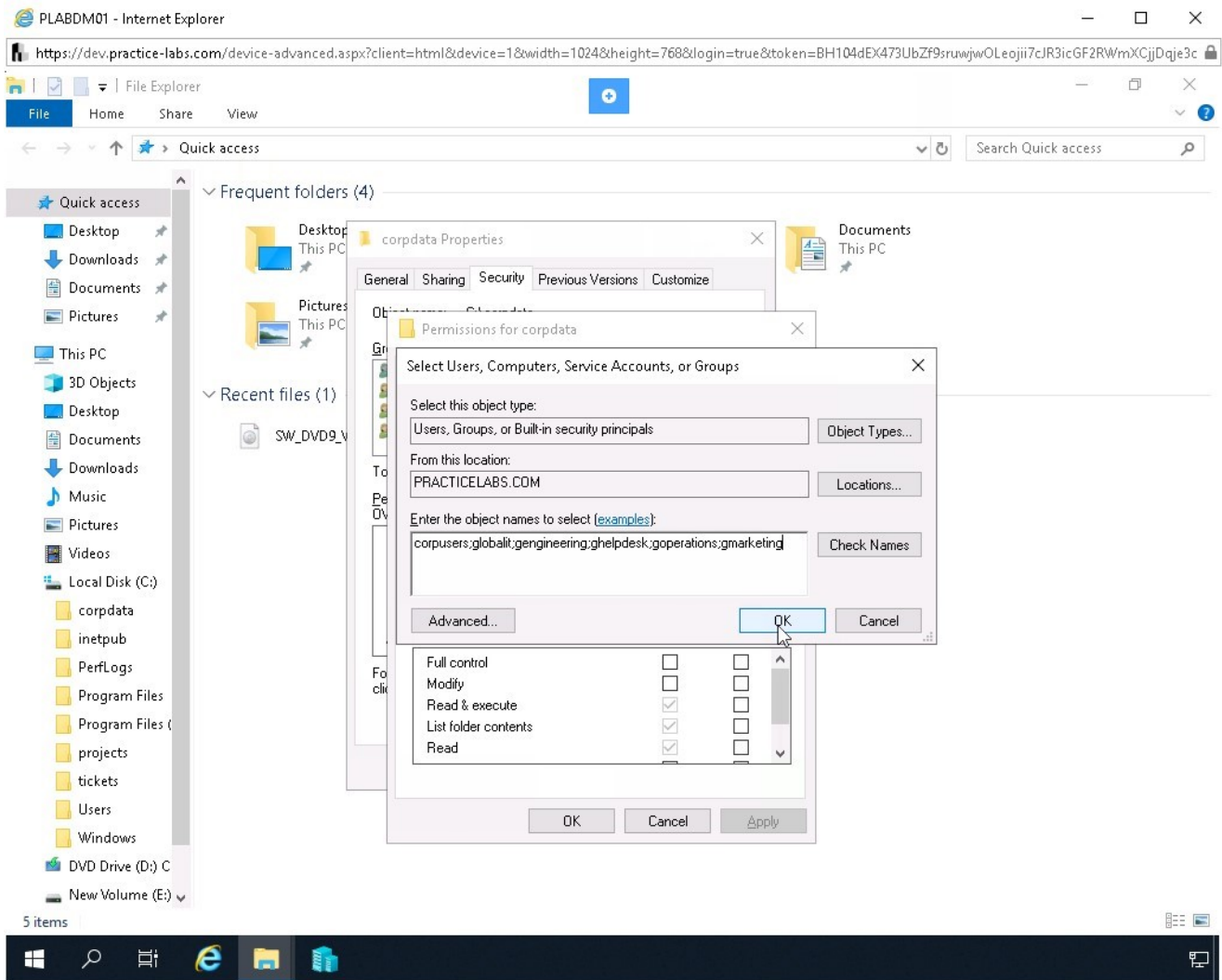


Figure 1.21 Screenshot of the PLABDM01 desktop: Select Users, Computers, Service Accounts, or Groups dialog box is displayed showing the required value typed-in and the OK button highlighted.

Step 7

Grant the security groups: **CorpUsers**, **GEngineering**, **GHelpDesk**, **GlobalIT**, **GMarketing**, and **GOperations** the following permissions:

Read & execute, List folder contents, Read, Write

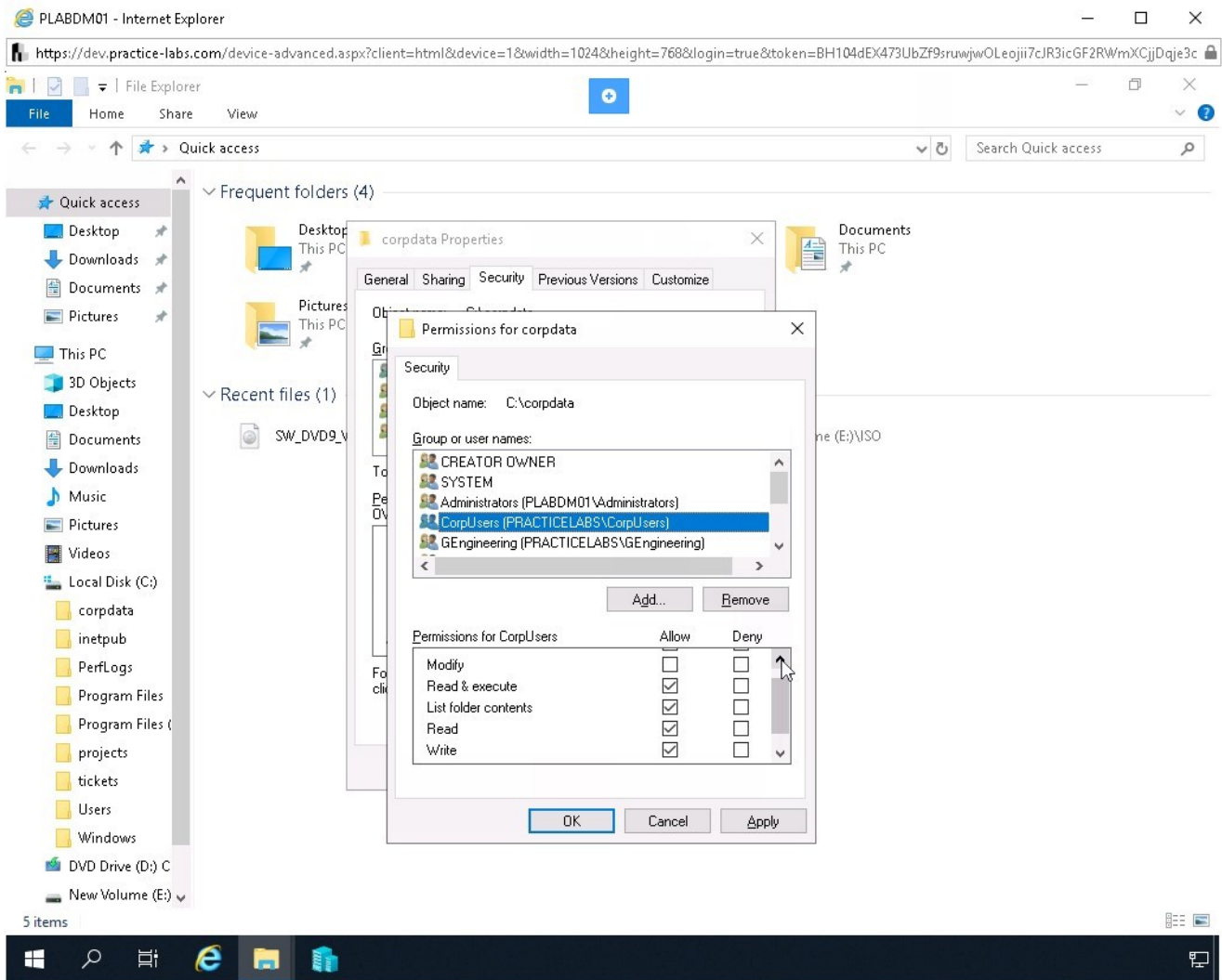


Figure 1.22 Screenshot of the PLABDM01 desktop: Permissions for corpdata dialog box is displayed showing the required settings performed and the OK button highlighted.

Click **OK**.

Step 8

Back in the **corpdata Properties** dialog box, click **Advanced**.

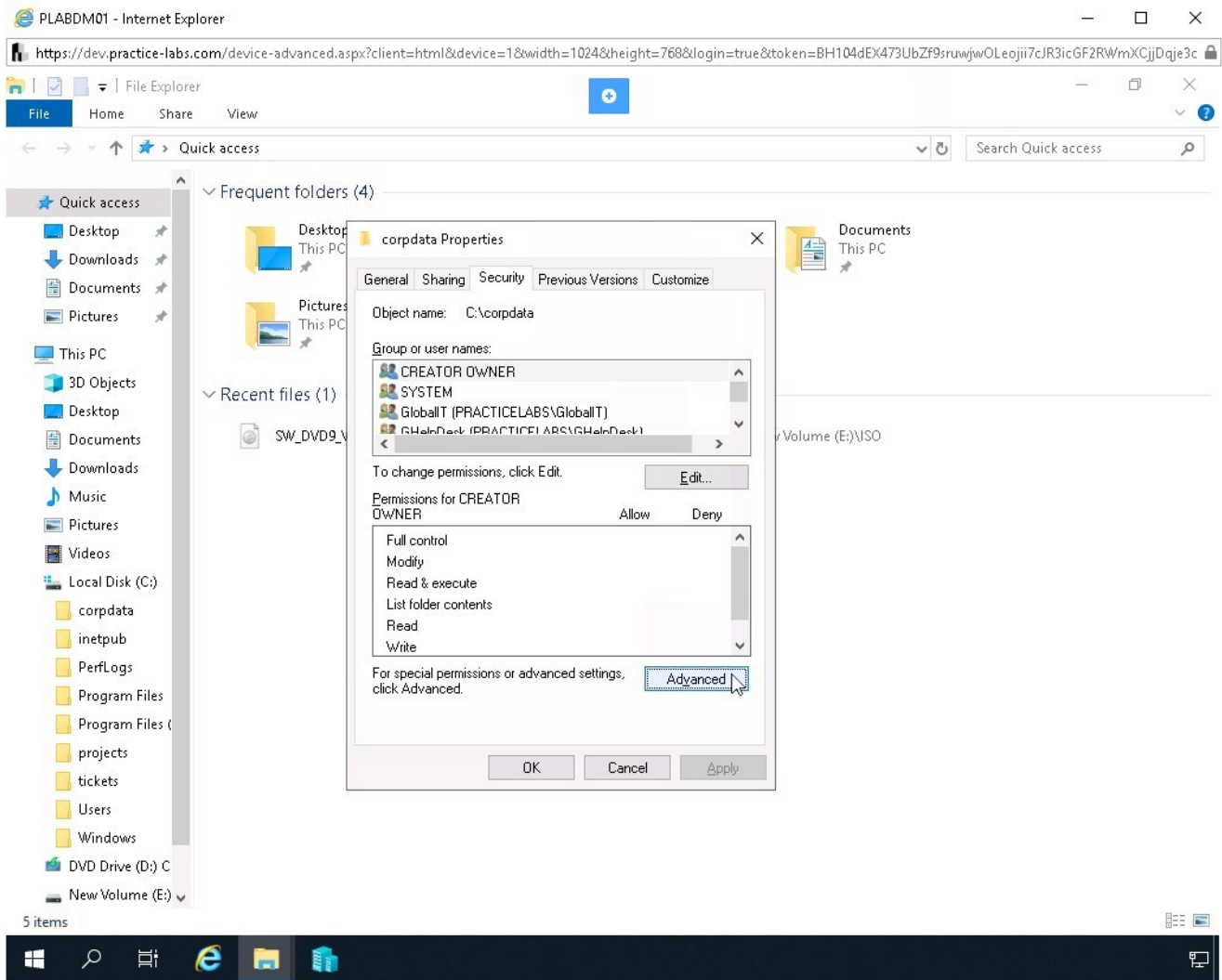


Figure 1.23 Screenshot of the PLABDM01 desktop: Security tab on the corpdata Properties dialog box is displayed showing the Advanced button highlighted.

Step 9

On the **Block Inheritance** message box, click **Remove all inherited permissions from this object**.

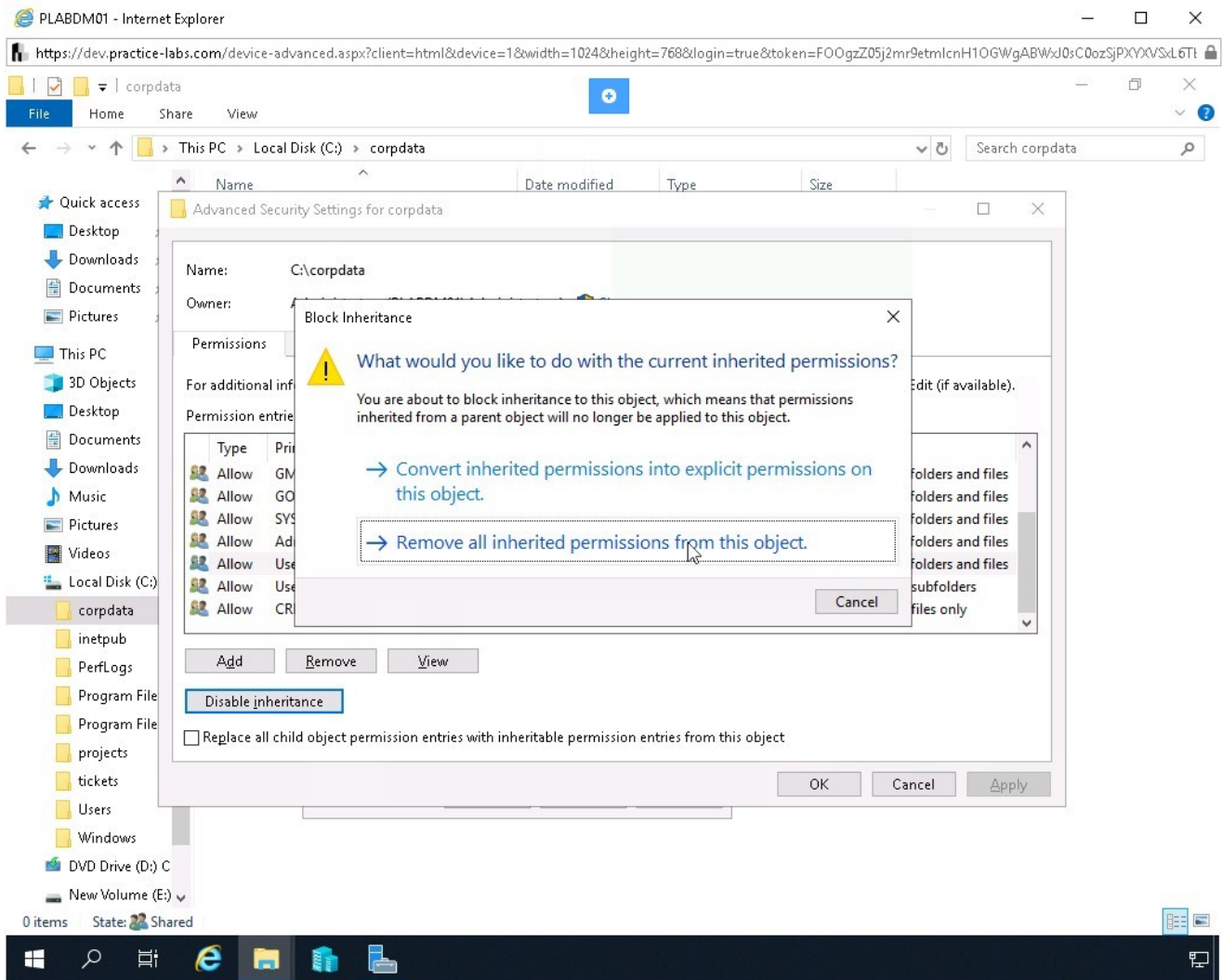


Figure 1.24 Screenshot of the PLABDM01 desktop: Block Inheritance dialog box is displayed showing the required option selected.

Step 10

The security groups of the **PRACTICELABS.COM** domain with permissions added earlier appears.

Click **Add**.

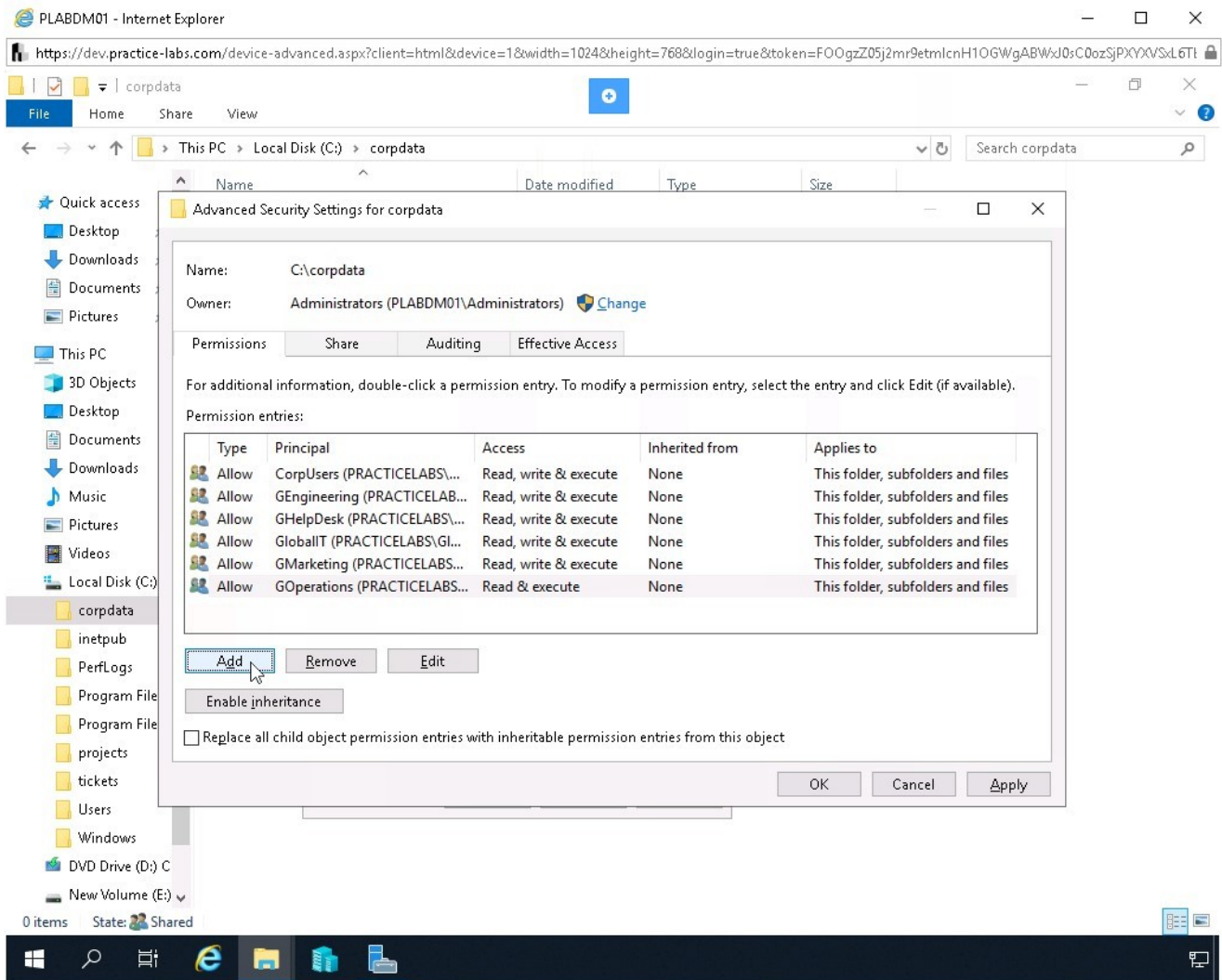


Figure 1.25 Screenshot of the PLABDM01 desktop: Add button on the Advanced Security Settings for corpdata dialog box is highlighted.

Step 11

In this step, you will add a special identity called **CREATOR OWNER**. By adding this special identity to the permissions list, a user will be able to have Full Control over the objects - folders and files that they will create in “**corpusers**” folder.

On the **Permission Entry for corpdata** window, click **Select a principal**.

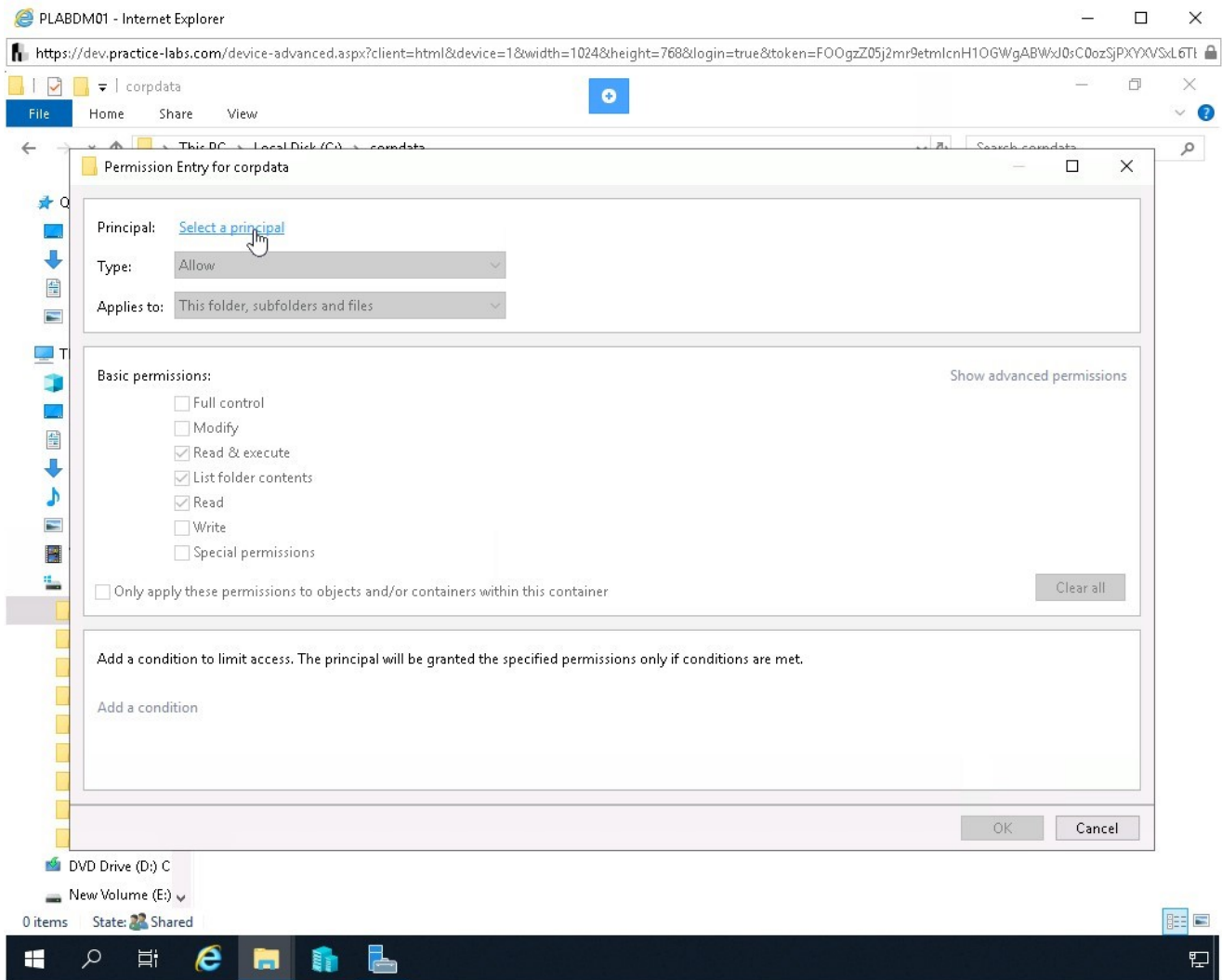


Figure 1.26 Screenshot of the PLABDM01 desktop: Select a principal link on the Permission Entry for corpdata dialog box is highlighted.

Step 12

From the **Select User, Computer, Service Account, or Group** dialog box, type:

creator owner

Click **OK**.

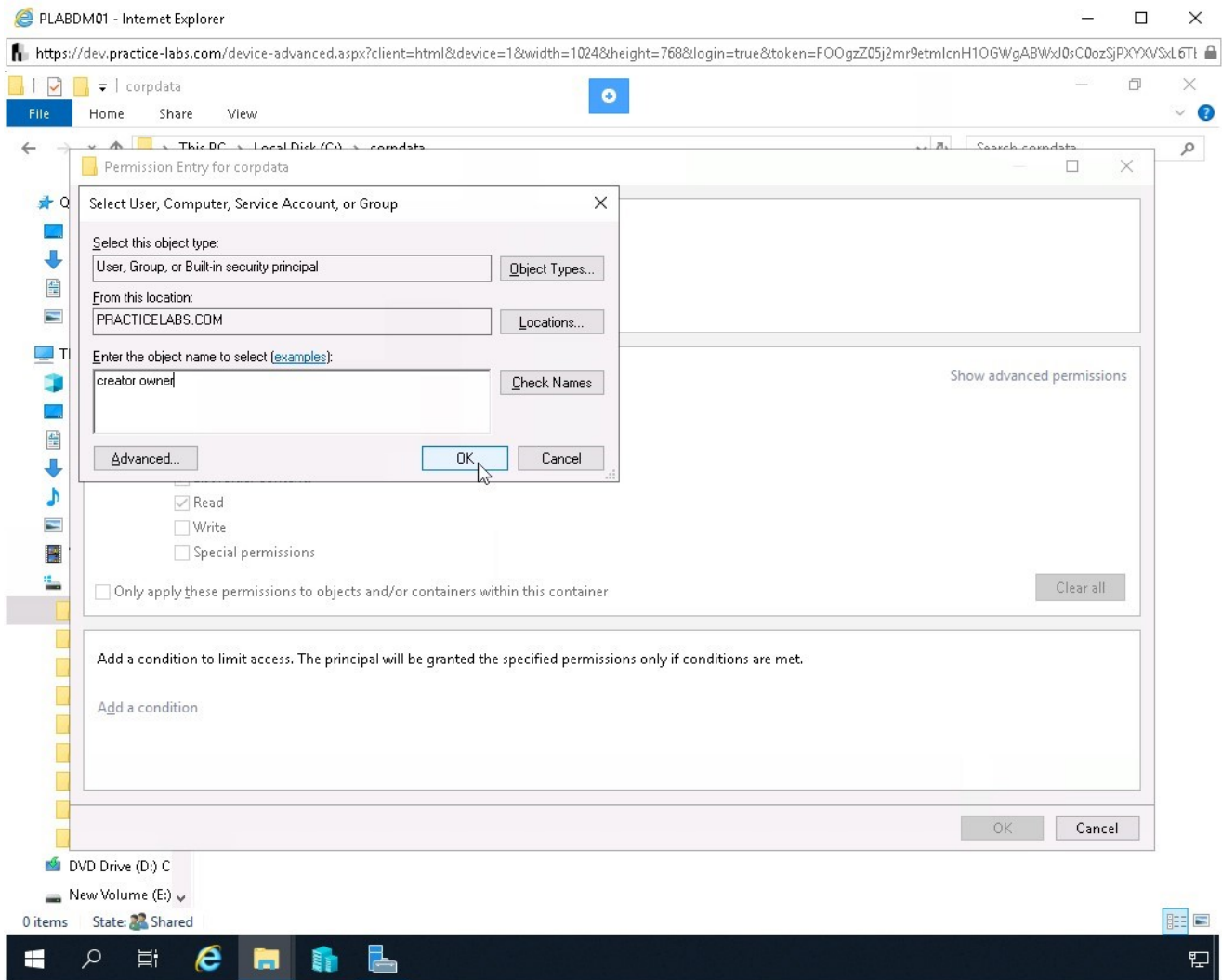


Figure 1.27 Screenshot of the PLABDM01 desktop: Select User, Computer, Service Account, or Group dialog box is displayed showing the required value typed-in and the OK button highlighted.

Step 13

On the **Permission Entry for corpdata** dialog box, under **Basic permissions** select **Full Control**.

Click **OK**.

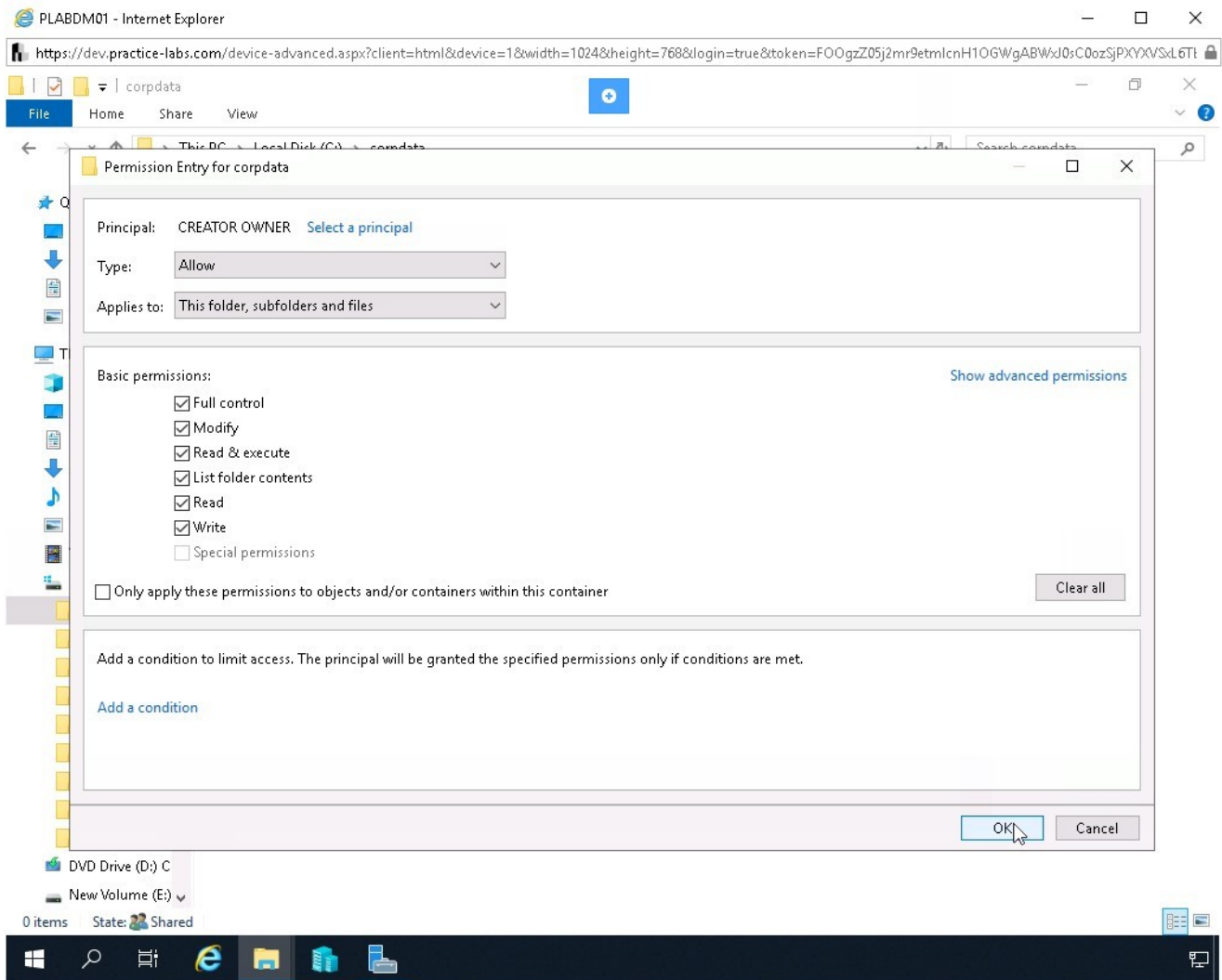


Figure 1.28 Screenshot of the PLABDM01 desktop: Permission Entry for corpdata dialog box is displayed showing the required selections performed and the OK button highlighted.

Step 14

Click **OK** to close **Advanced Security Settings for corpdata**.

Similarly, click **OK** to close **corpdata Properties**.

Close **File Explorer**.

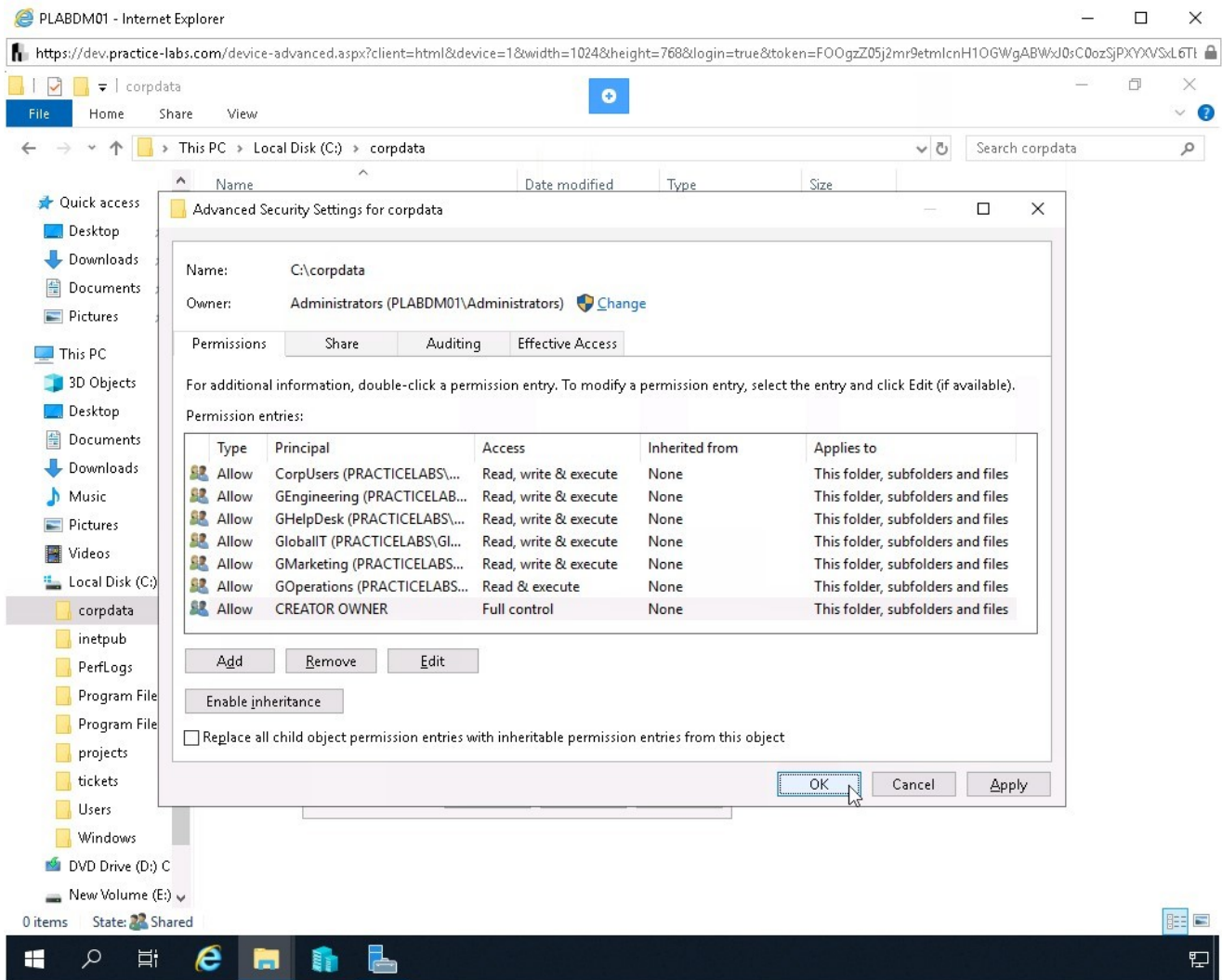


Figure 1.29 Screenshot of the PLABDM01 desktop: OK button on the Advanced Security Settings for corpdata dialog box is highlighted.

Task 3 - Verify permissions

After setting up share and NTFS permissions on the folders in PLABDM01, you will verify a user's effective permission on the **corpdata** folder, when accessed over a network.

Step 1

Note: For this step, you will need to disable the **Auto login** feature. Please see our [help and support page](#) for more information on how to do this.

Connect to **PLABWIN10**.

Alert: You may need to click the **reconnect** button in the top right-hand corner of **PLABWIN10** after disabling auto login. This will allow the change to be applied.

On the sign-in screen, click **Other user**.

Step 2

In the **User name** box, type:

matthew.bernstein

In the **Password** box, type:

Passw0rd

Press **Enter**.

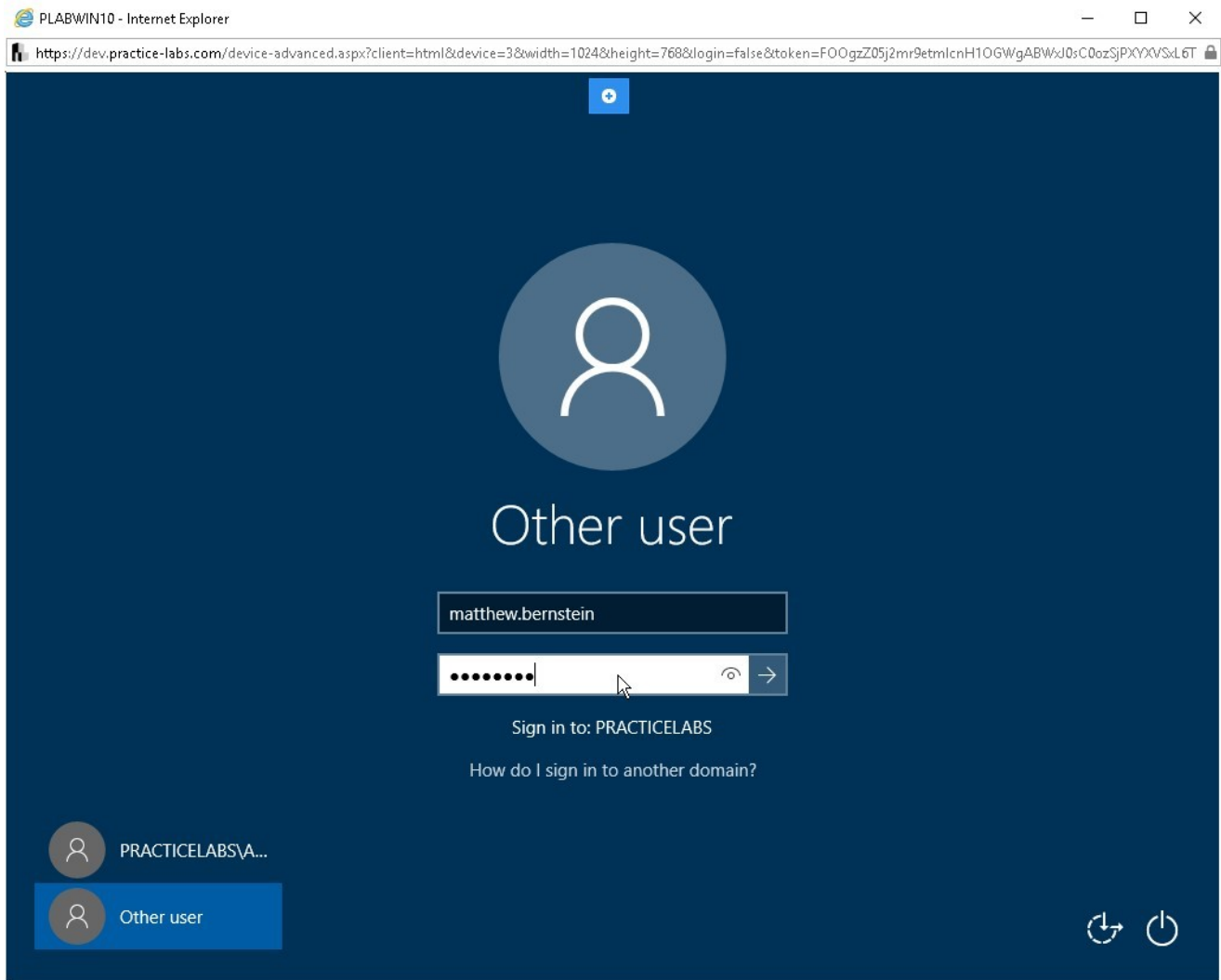


Figure 1.30 Screenshot of the PLABWIN10 desktop: Other user login screen is displayed showing the required login credentials typed-in.

Step 3

Click **Agree** on the **BGInfo License Agreement** page.

Click **File Explorer** on the taskbar.

Step 4

Expand **This PC**, right-click on it then select **Map network drive...**

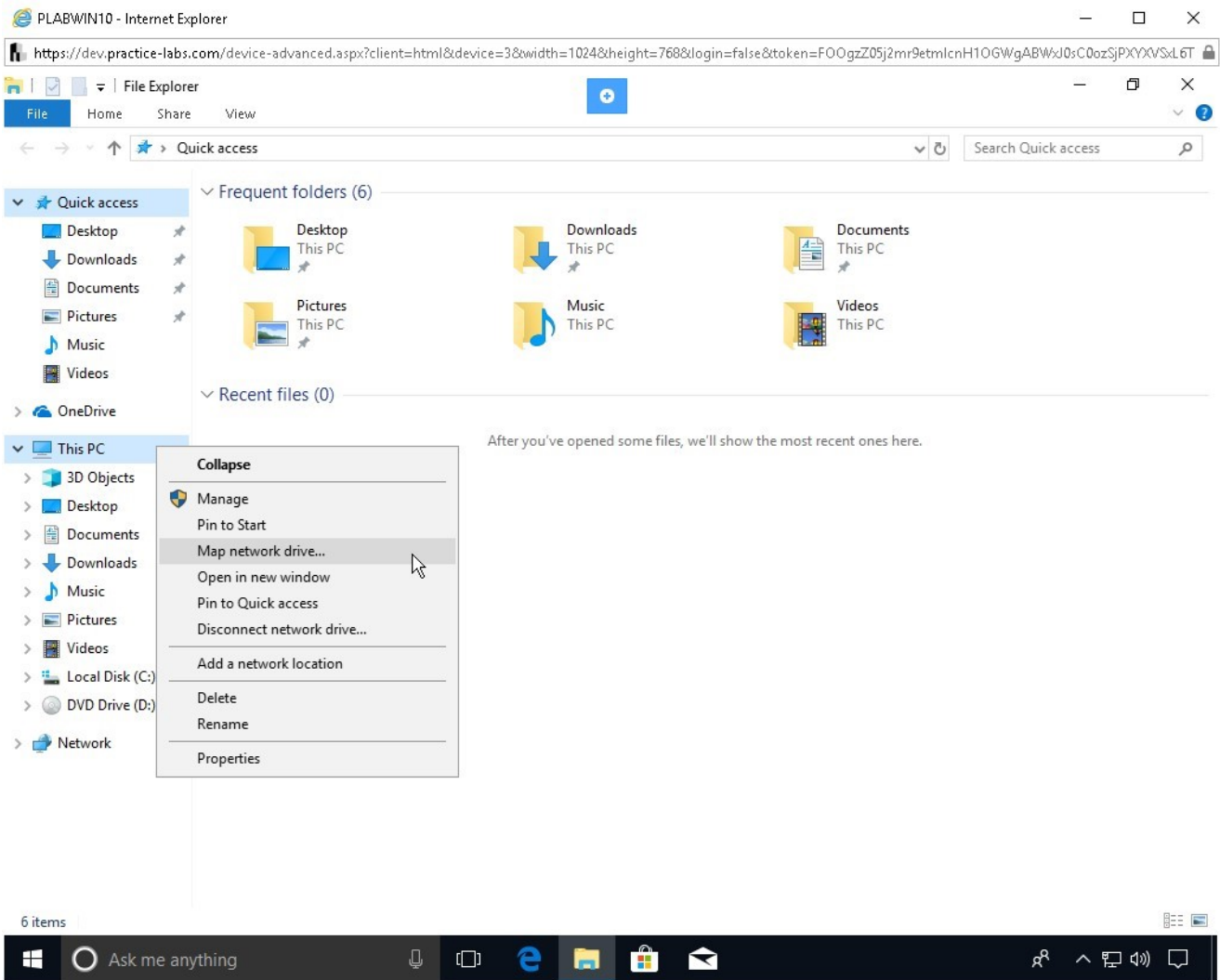


Figure 1.31 Screenshot of the PLABWIN10 desktop: Context menu (that appears on right-clicking the This PC node) > Map network drive menu-options are highlighted on the File Explorer window.

Step 5

On the **Map Network Drive** window, type the following network path in the **Folder** text box:

```
\\plabdm01\corpdata
```

Click **Finish**.

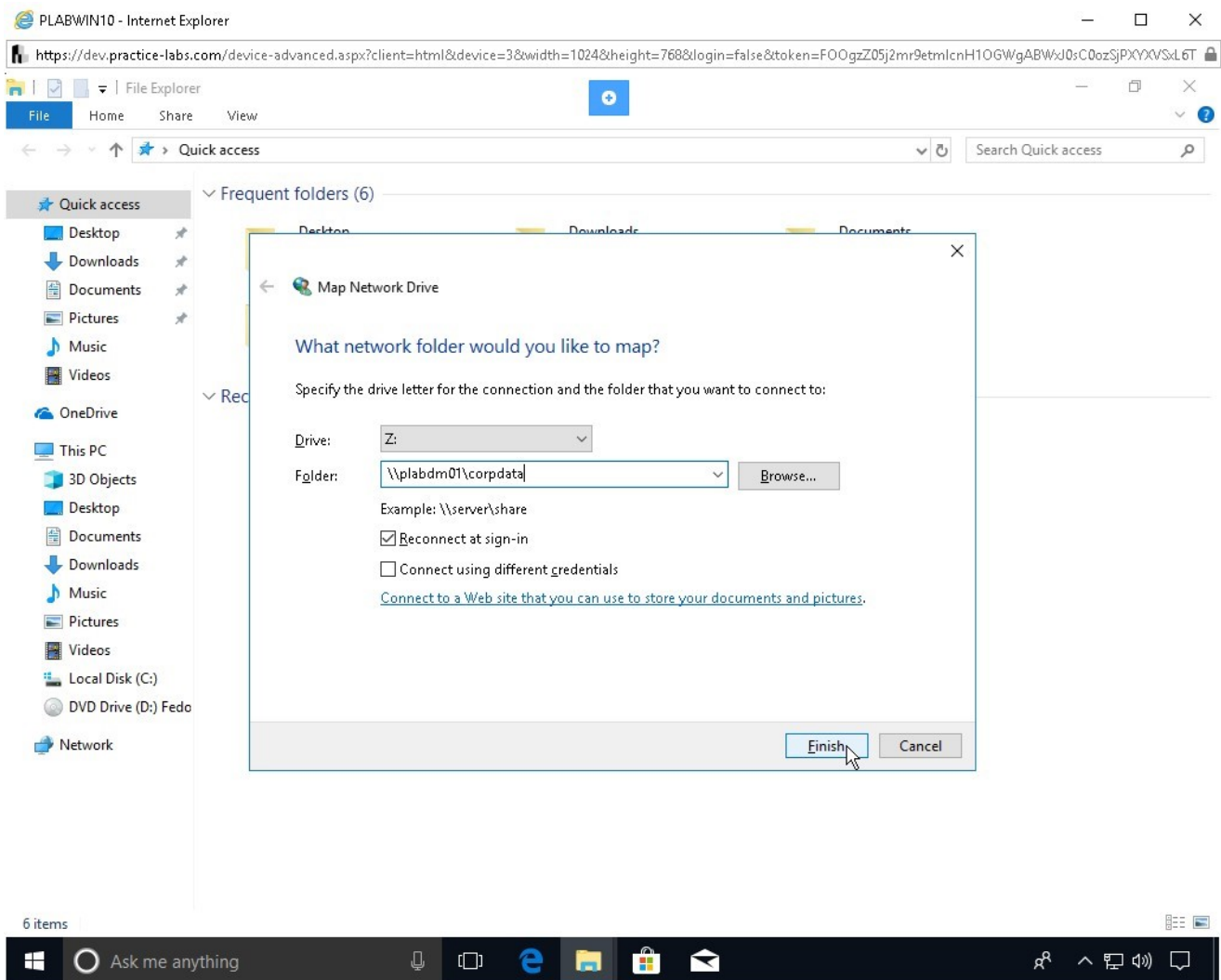


Figure 1.32 Screenshot of the PLABWIN10 desktop: Map Network Drive dialog box is displayed showing the required value typed-in and the Finish button highlighted.

Step 6

A new **File Explorer** window opens.

Right-click on the details pane, point to **New** and select **Folder**.

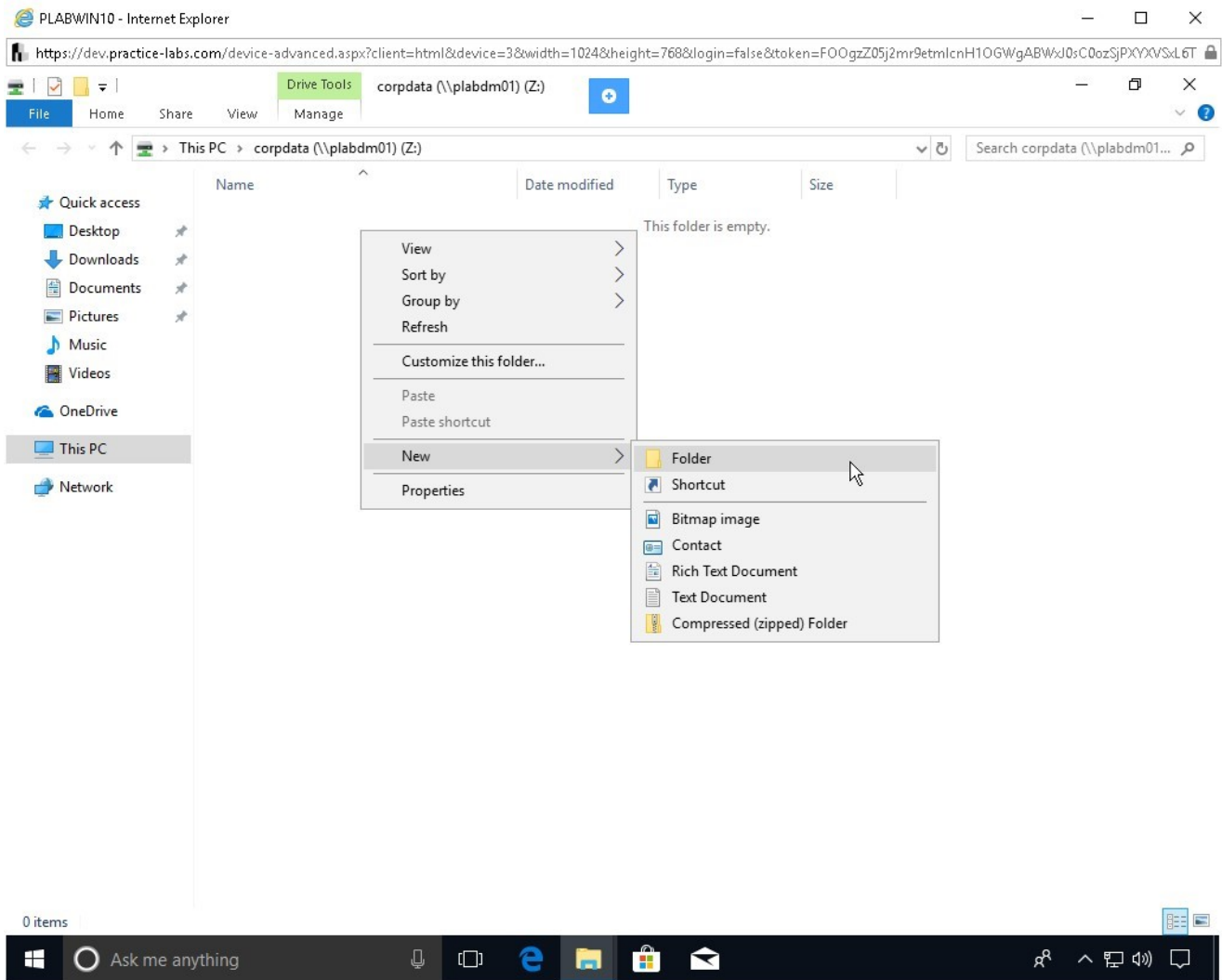


Figure 1.33 Screenshot of the PLABWIN10 desktop: Context menu (that appears on right-clicking the details pane) > New > Folder menu-options are highlighted on the file explorer window.

Name the folder:

mbernstein

The user **mbernstein** successfully creates a folder because of the Read, Write permissions given to the user account.

Step 7

Open the **mbernstein** folder.

Create a text document in the folder and name it as:

First quarter sales

Like before, creation of the file was successful because the user has Read, Write permissions on the folder.

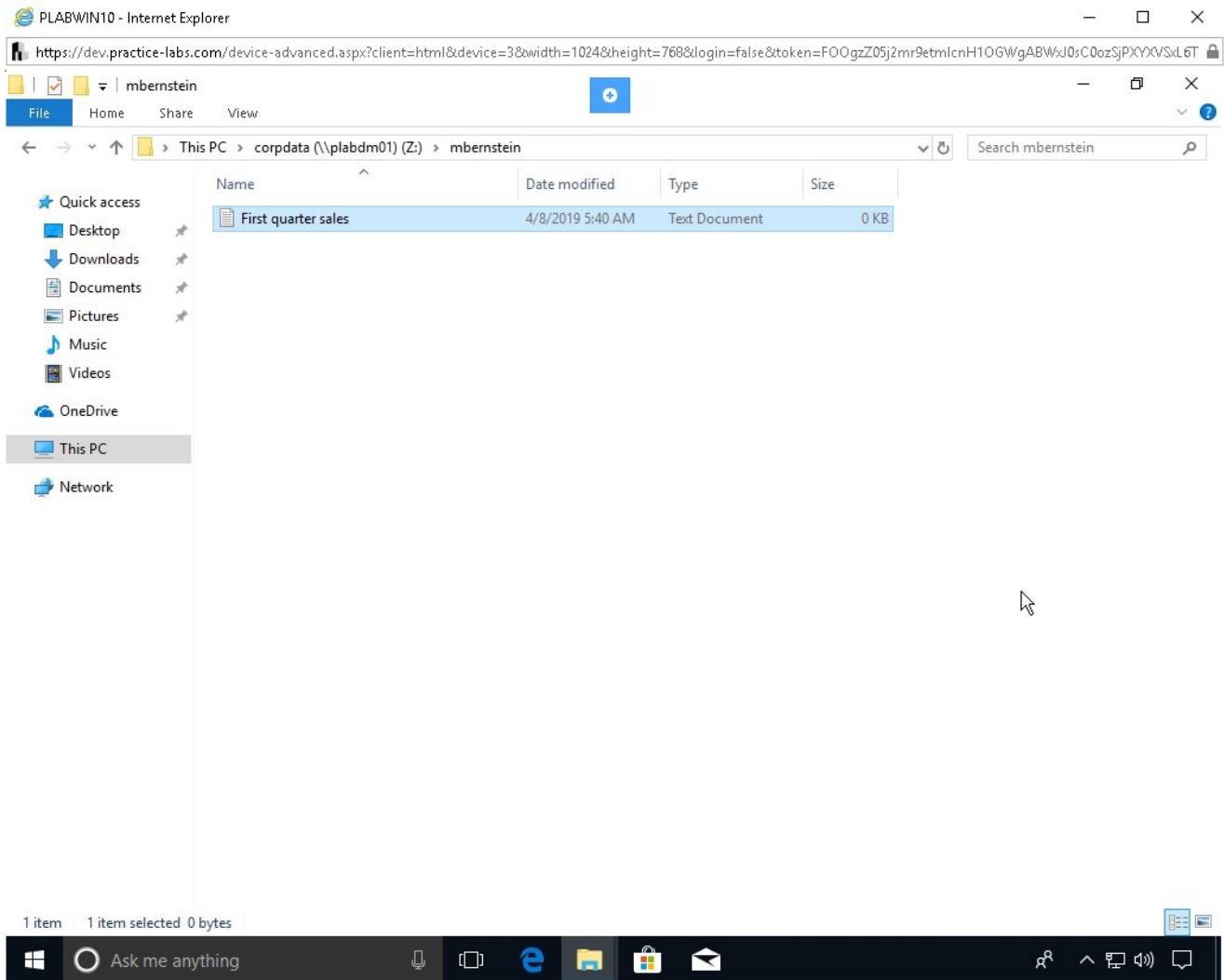


Figure 1.34 Screenshot of the PLABWIN10 desktop: Newly created document is listed on the file explorer window.

Step 8

Click the up arrow to go up by one folder level to see the **mbernstein** folder.

Right-click **mbernstein** and select **Properties**.

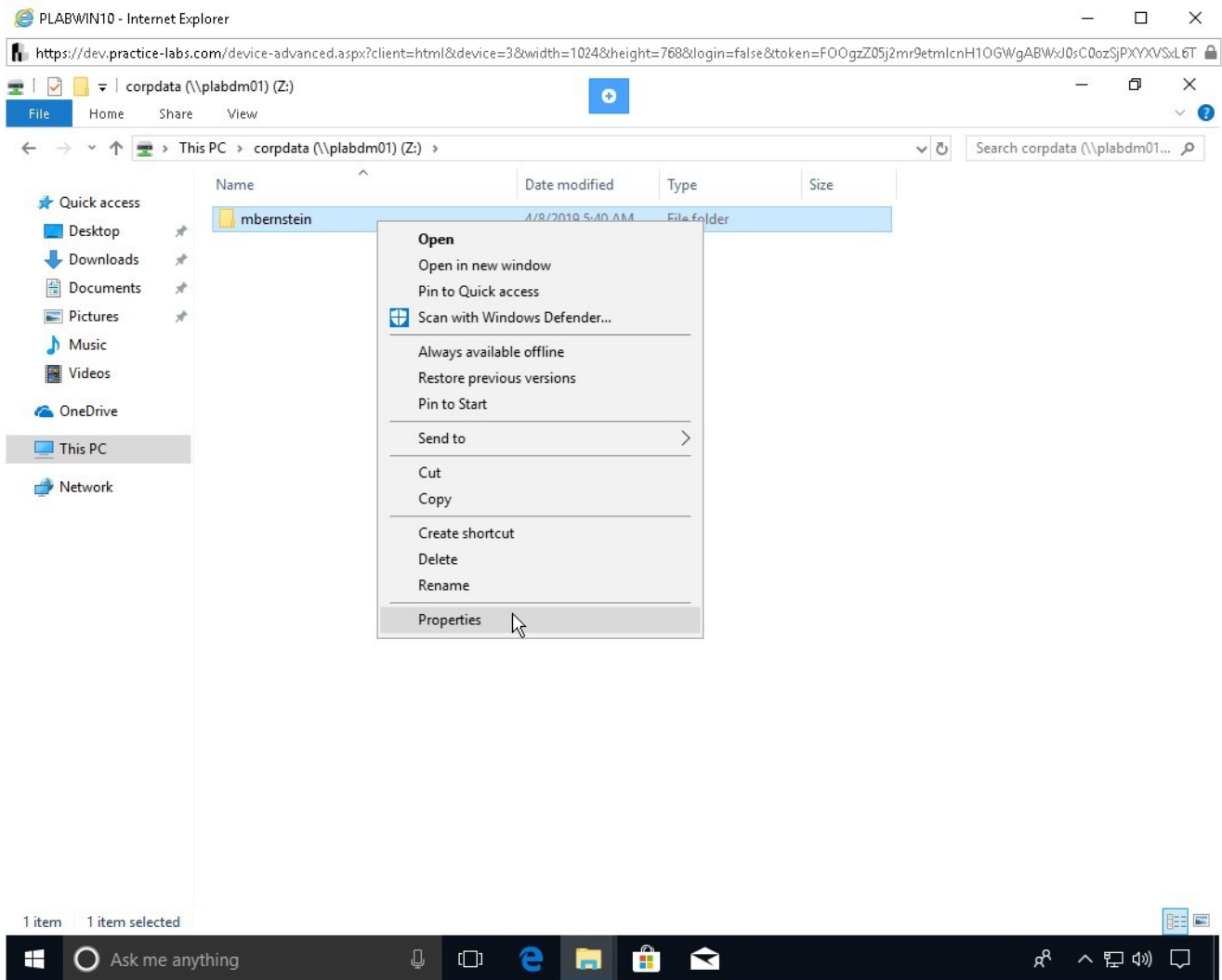


Figure 1.35 Screenshot of the PLABWIN10 desktop: Context menu (that appears on right-clicking a listed folder) > Properties menu-options are highlighted on the file explorer window.

Step 9

On the **mbernstein Properties** dialog box, click **Security**.

Step 10

Under the **Security** tab, examine the **Group or User names** that have permissions on this folder.

The security groups of the domain: **GlobalIT**, **GHelpDesk**, **GEngineering**, **CorpUsers**, **GOperations**, and **GMarketing** have all **Read, Write** permissions. These are inherited permissions.

Notice that **CREATOR OWNER** and **Matthew Bernstein** have “**Special permissions.**”

Click **Advanced.**

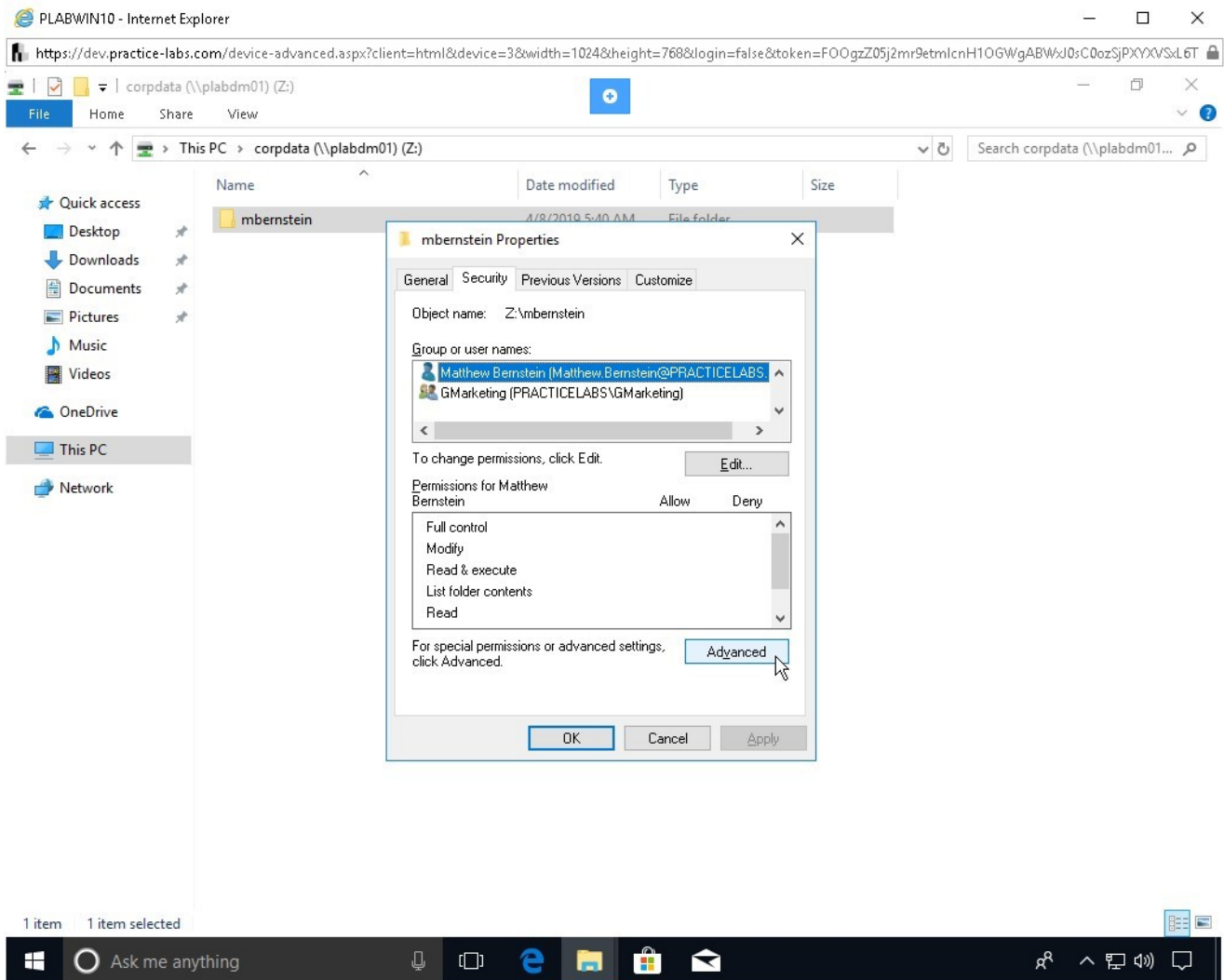


Figure 1.36 Screenshot of the PLABWIN10 desktop: Security tab on the mbernstein Properties dialog box is displayed showing the Advanced button highlighted.

Step 11

From the **Advanced Security Settings for mbernstein**, select **Matthew Bernstein**. Notice that **Full Control** access to “This folder only” is given to the account.

Similarly, select **CREATOR OWNER**. The special identity has **Full Control** access to subfolders and files.

Click **OK**.

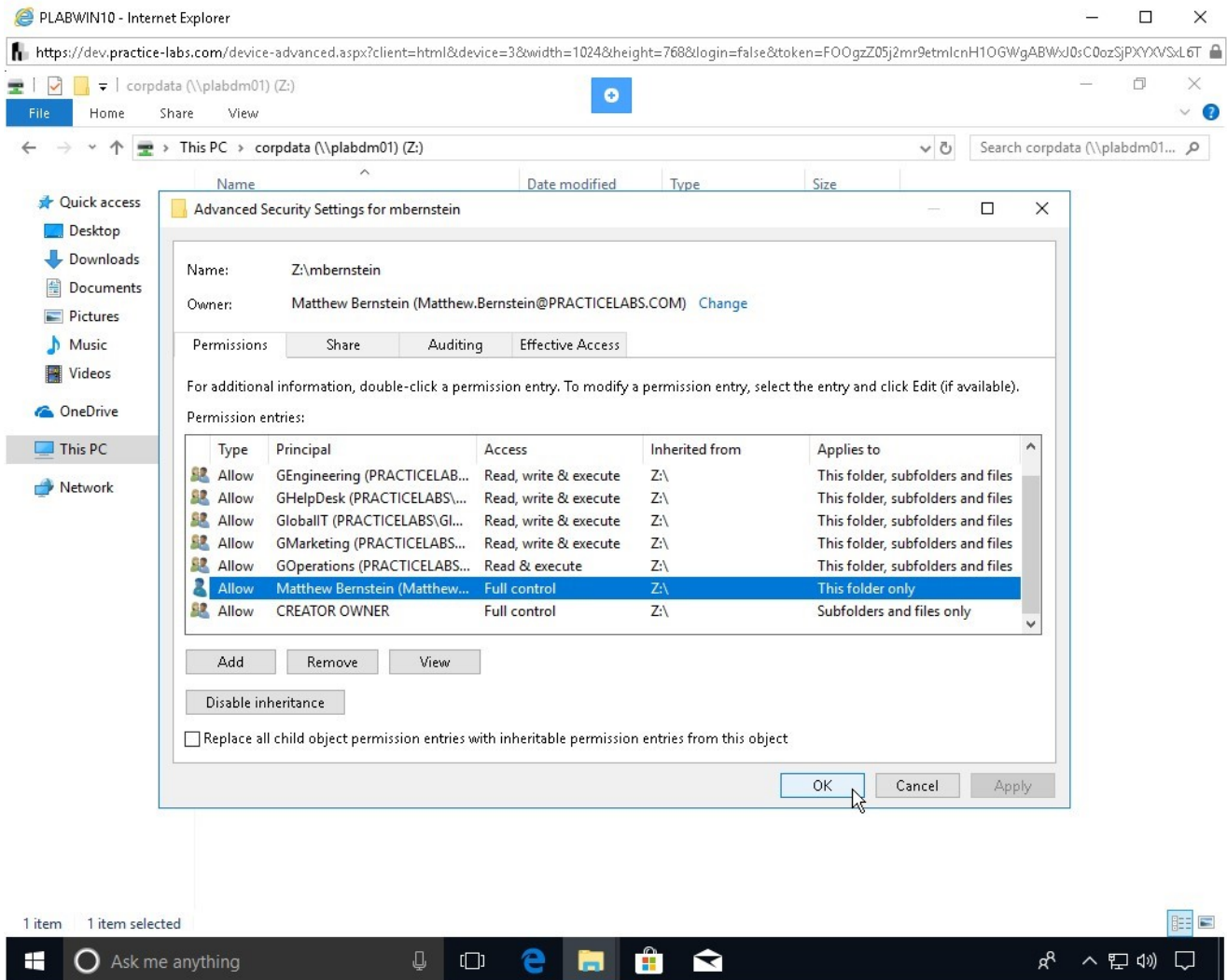


Figure 1.37 Screenshot of the PLABWIN10 desktop: Advanced Security Settings for mbernstein dialog box is displayed listing permissions for the selected user and showing the OK button highlighted.

Also, click **OK** on **mbernstein Properties**.

Step 12

Right-click **Start**, point to **Shut down or sign out** and select **Sign out**.

Step 13

To test another user account, connect to **PLABWIN10**.

From the sign-in screen, click **Other user**.

Step 14

In the **User name** box, type:

lisa.scott

In the **Password** box, type:

Passw0rd

Press **Enter**.

Step 15

Click **File Explorer** on the taskbar.

Step 16

Expand **This PC**, right-click on it, then select **Map network drive...**

Step 17

On **Map Network Drive**, type the following network path in the **Folder** text box:

\\plabdm01\corpdata

Press **Enter**.

Step 18

Open the **mbernstein** folder.

Right-click on the details pane, point to **New** and select **Text Document**.

Rename the text document as:

summary

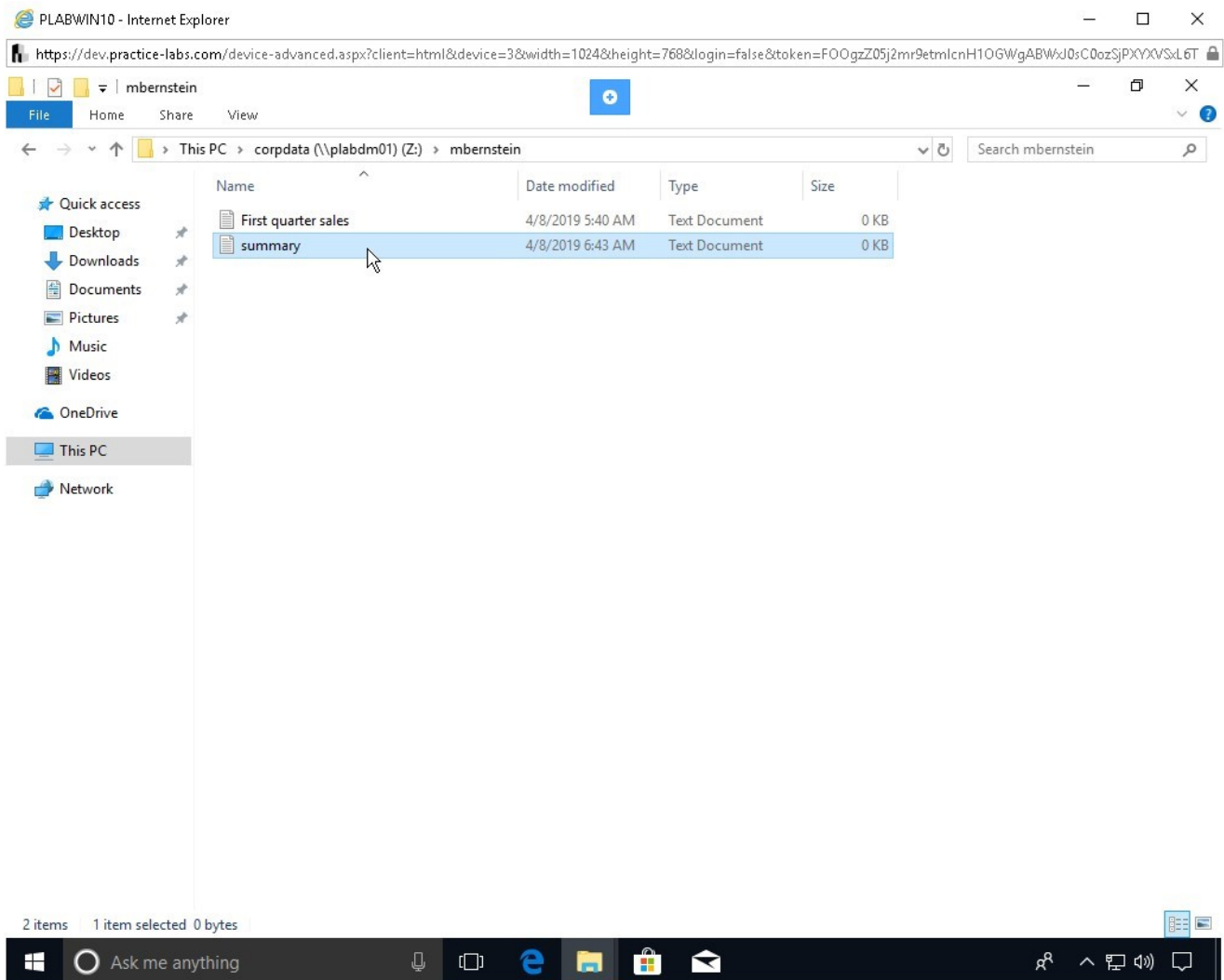


Figure 1.38 Screenshot of the PLABWIN10 desktop: Newly created document is listed on the file explorer window.

Step 19

To test the permission, right-click **First quarter sales** and select **Delete**.

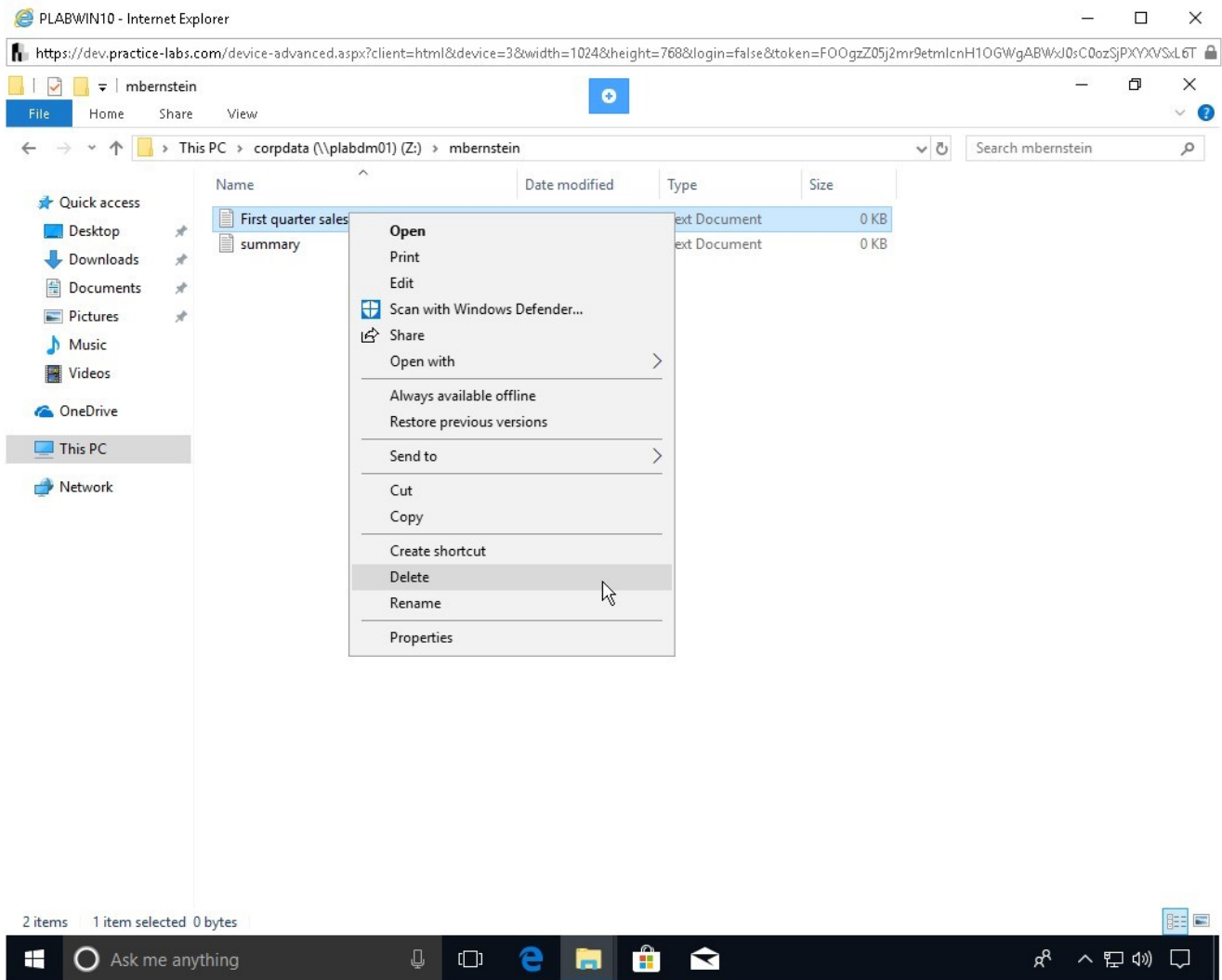


Figure 1.39 Screenshot of the PLABWIN10 desktop: Context menu (that appears on right-clicking a listed folder) > Delete menu-options are highlighted on the file explorer window.

Step 20

Click **Yes** to continue with the file deletion.

Step 21

An error message appears as Lisa Scott does not have full control permission over the “First quarter sales” text file. Lisa could not delete the First quarter sales file because of its ownership by another user account.

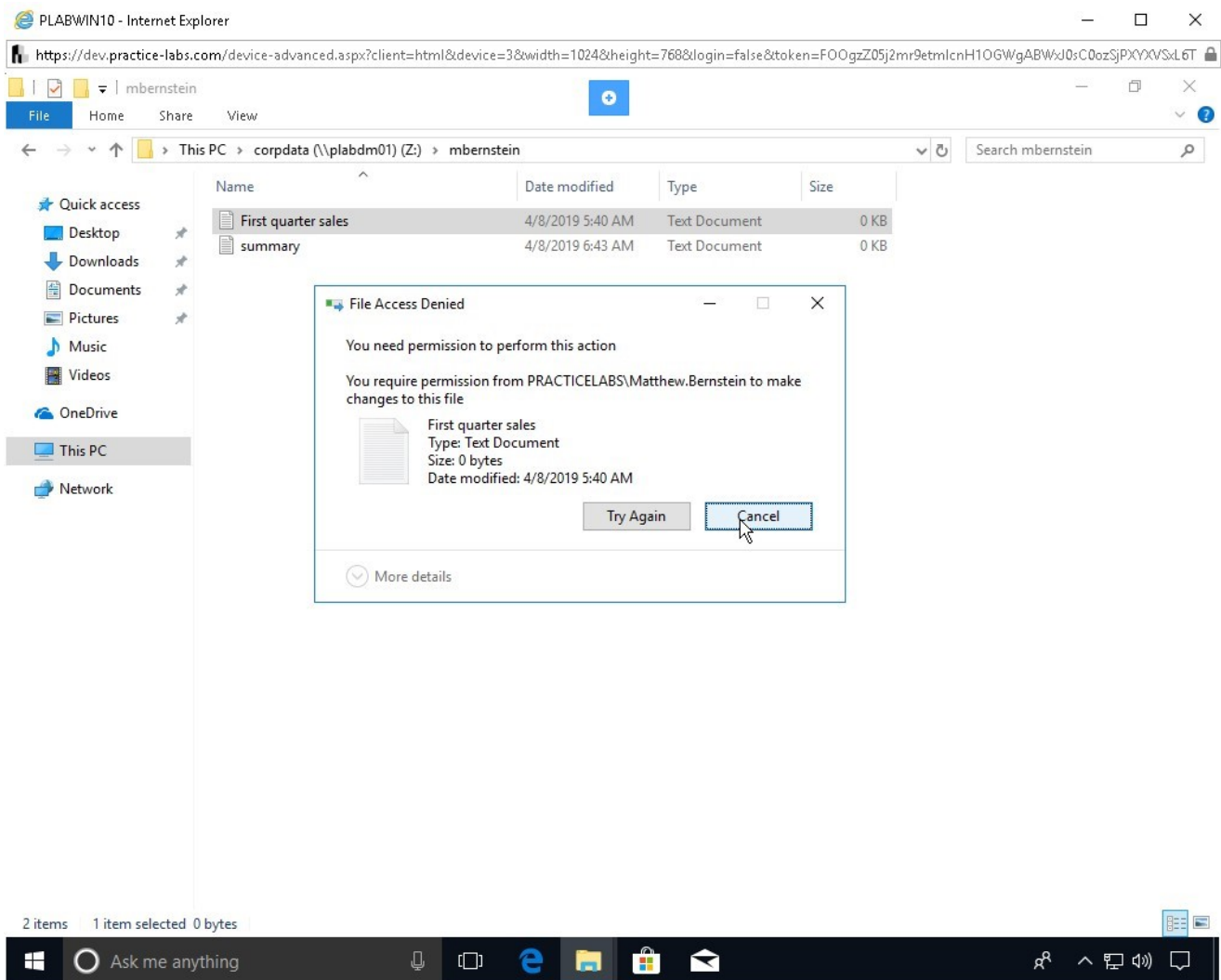


Figure 1.40 Screenshot of the PLABWIN10 desktop: File Access Denied dialog box is displayed indicating lack of relevant permissions and showing the Cancel button highlighted.

Click **Cancel**.

Step 22

Right-click **Start**, point to **Shut down or sign out** and select **Sign out**.

Keep all devices that you have powered on in their current state and proceed to the next exercise.

Review

Well done, you have completed the **Manage File System Security** Practice Lab.

Summary

You completed the following exercise:

- Exercise 1 - Manage Share and NTFS Permissions

You should now be able to:

- Create folders and configure share permissions
- Manage NTFS permissions
- Verify permissions

Feedback

Shutdown all virtual machines used in this lab. Alternatively, you can log out of the lab platform.