Tech Note 998

Wonderware Application Server Security Troubleshooting Essentials Part 1: Galaxy Security -Runtime Errors and Security Groups Settings

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Introduction

This Essentials Tech Note is the 1st in a projected series.

Galaxy-type security uses local Galaxy configuration to authenticate users. All security for the Galaxy is specified and contained at the specific Galaxy level. When the user logs on, security credentials are checked and access to areas and activities is granted at the Galaxy level.

In Application Server you can select from three authentication modes to assign security. This *Tech Note* discusses two common Application Server errors experienced with Galaxy type security.

It includes

- The symptoms,
- · Root cause analysis, and
- Configurable resolutions.

Application Versions

• Wonderware Application Server 2012 and later

Issues

This Tech Note details the following cases:

- Case 1: Deployed ArchestrA Object has Error Messages.
- Case 2: Access-Denied Error when Setting a UDA Value from the Object Viewer.

Symptoms

By default, the Galaxy Administrator account has full privileges. However, the default settings can be changed and the assumption of full

Wonderware Application Server Security Troubleshooting Essentials Part 1: Galaxy Security - Runtime Errors and Security Groups Settings privileges might not always be true.

Case 1: Deploy an ArchestrA Object - UDO4DevUsers_001_001 - Has Error Messages

1	
😟 Template Toolbox 🧭 Graphic Toolbox	Deploy
<u>Template Toolbox</u> Graphic Toolbox <u>Opployment</u> <u>Deployment</u> <u>ForToolkit</u> <u>Unassigned Host</u> <u>Unaster</u> <u>Unassigned Host</u>	Deploy Deploy complete Validating connected galaxy Validating GRNodeInfo Checking whether objects being deployed require software upgrade Sorting and Validating 1 object(s) starting from UDO4DevUsers_001_001 hosted by platform WinPlatform_001 for deploy operation Deploying 1 Automation Object(s) starting with UDO4DevUsers_001_001 to the AppEngine_001 Placing 1 automation Objects OnScan starting with UDO4DevUsers_001_001 hosted by AreaSecurityTesting Error: Failed to deploy UD04DevUsers_001_001 : However, the object could not be put On Scan - Permission to modify "Operate" attributes is required Operation has been completed for 1 object(s) starting with UDO4DevUsers_001_001 hosted by AreaSecurityTesting
	100% completed

In Figure 1 (at left), you see a one-line error message in the Deploy message window. This error line provides a message that we will use for later analysis. However, if there are a large number of ArchestrA objects included in this deployment, this error line could easily go unnoticed.

FIGURE 1: DEPLOYED WITH ERROR MESSAGE

Г	AppEngine_UU1.AppEngineP	AppEngine_UU1: Hull deployment ended for 1 object(s). The engine hosts 4 object(s).	1
	ApplicationCategory	Setting 1 object(s) onscan on engine (id:2) platform (id:1)	
	ApplicationCategory	Failed to set object onscan - [group:1 - 1 of 1] object: 6, status - success:False, categ:<6:MxCategorySecurityError>, detected:<5:MxSourceRespondingAutomationObject>, detail:1008	In Figure
	NmxSvc	CNmxAdptrStats::RemoveAnonymousEngineID() - Removing 32765	not clearl
	WWPackageServer	Finished deploying 1 objects.	not clean

Figure 2 (at left), the warning message does t clearly describe the problem.

FIGURE 2: WARNING MESSAGE IN THE SMC LOGGER

In Figure 3 (at left), we see there is a warning icon that tells you this ArchestrA object is abnormal, but no any further indication.

💋 Object Viewer								-	
<u>File Edit View Options Help</u>									
🗞 🖬 🏘 🛒 🖉							•	Go	
🖃 🚀 ForToolkit	Attribute Name 🔺	Value	Timestamp	Quality	Status	SecurityC	Category	Locked	Туре
🖃 🔩 WinPlatform_001[EDXTOOLKITS]	AlarmInhibit	false		C0:Good	Ok	Operate	Writea	UnLocked	Book
🖻 🖶 AppEngine_001	AlarmMode	Enable		C0:Good	Ok	ReadOnly	Calcula	UnLocked	Cust
🕀 👫 Area 001 [Area 001]	AlarmModeCmd	Enable		C0:Good	Ok	Operate	Writea	UnLocked	Cust
- AreaSpourityTesting [AreaSecurityTesting]	Area	AreaSecurityTe		C0:Good	Ok	ReadOnly	System	UnLocked	Refe
- (n ULO4DevUsers_001_001 [UDO4DevUsers_001_001]	ConfigVersion	7		C0:Good	Ok	ReadOnly	Writea	UnLocked	Integ
	ContainedName			C0:Good	Ok	ReadOnly	System	UnLocked	Strin
	Container			C0:Good	Ok	ReadOnly	System	UnLocked	Refe
	DevValue	5	11/10/2013 6:4	C0:Good	Ok	Operate	Writea	UnLocked	Integ
	ExecutionRelatedObject			C0:Good	Ok	ReadOnly	Writea	UnLocked	Refe
	ExecutionRelativeOrder	None		C0:Good	Ok	ReadOnly	Writea	UnLocked	Cust
	HierarchicalName	UDO4DevUsers		C0:Good	Ok	ReadOnly	System	UnLocked	Strin
	Host	AreaSecurityTe		C0:Good	Ok	ReadOnly	System	UnLocked	Refe
	InAlarm	false		C0:Good	Ok	ReadOnly	Calcula	UnLocked	Book
	ScanState	false		C0:Good	Ok	ReadOnly	Calcula	UnLocked	Bool
	ScanStateCmd	false		C0:Good	Ok	Operate	Writea	UnLocked	Bool
	SecurityGroup	GroupA4Dev		C0:Good	Ok	ReadOnly	Writea	UnLocked	Strin
	ShortDesc	The UserDefine		C0:Good	Ok	ReadOnly	Writea	UnLocked	Inter
	Tagname	UDO4DevUsers		C0:Good	Ok	ReadOnly	System	UnLocked	Strin
	1								►
		FILE:	User: Administrator				Mod	de: User	

FIGURE 3: WARNING ICON IN THE OBJECT VIEWER

Case 2: Access-Denied Error When Setting a UDA Value from the Object Viewer

💋 Object Viewer	Modify Numeric Value
File Edit View Options Help	Attribute Reference: UDO4DevUsers_001_001.DevValue
⊡ •	betal: 1008
Ready	FILE: User: Administrator Mode: User

FIGURE 4: WRITE ACCESS DENIED DESCRIPTION WHEN SETTING A VALUE ON THE UDA (DEVVALUE)

Root Cause & Resolution

The first step in troubleshooting security-related errors is to check the Galaxy SECURITY SETTINGS.

Case 1: Deploy an ArchestrA Object - UDO4DevUsers_001_001

From the information we collected above in Figures 1-3, checking the Security Settings is our priority focus for continued troubleshooting. For this case, let's look closer at the impact of the security settings:

Check which Security Group UDO4DevUsers_001_001 belongs to. Figure 5 (below) shows the **Configure Security** window with the respective tabs' checkpoints.

• Security Groups tab: UDO4DevUsers_001_001 belongs to the GroupA4Dev Security Group.

- Roles tab: The Administrator Role does not have GroupA4Dev Operational permissions. In this example, only the DevRoles Role has GroupA4Dev Operational permissions.
- Users tab: The **Administrator** user is not in **DevRoles** Role. **DevRoles** is the only role that has **GroupA4Dev** Operational permissions.

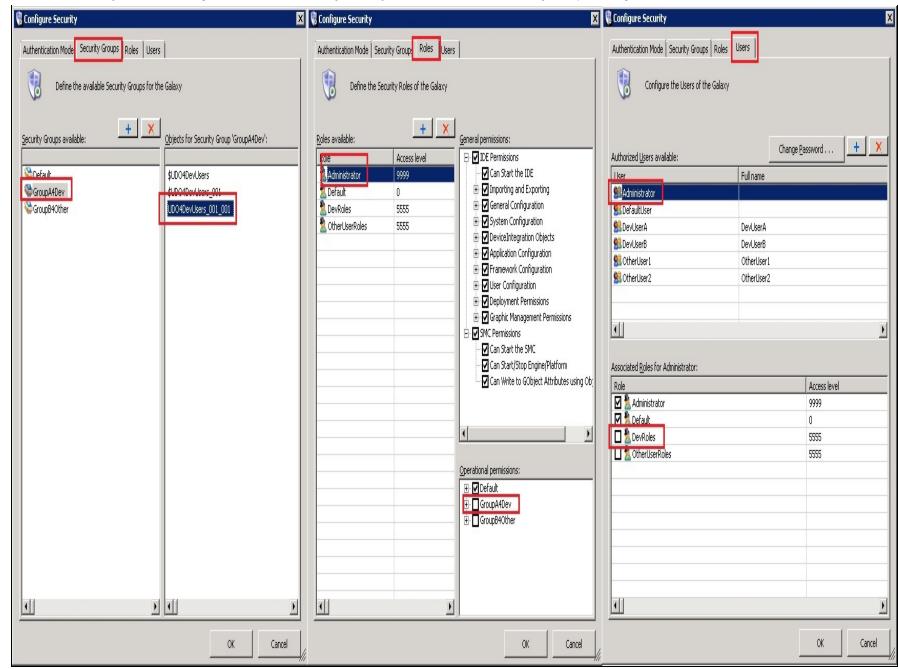


FIGURE 5: GALAXY SECURITY SETTINGS

After this side by side comparison, it's clear the root cause of the problem. In fact, even when we login as the Galaxy Administrator, the Galaxy security rules still need to be kept in mind.

To fix the issue, check the **DevRoles** role in the **Associated Roles for Administrator** panel of the **Users** tab and re-deploy the ArchestrA object (for this example, **UDO4DevUsers_001_00**).

Case 2: Access-Denied Error When Setting a UDA Value from the Object Viewer

In Figure 4, you were unable to set the value of the UDA DevValue. You also know that there are no error messages during the ArchestrA Object deployment.

The next step is to check the security settings on the Object and on the UDA. The following steps will help you determine the root cause.

1. In the UDAs tab of the Object, check the DevValue's current Operational Permission level (Figure 6 below):

Field Attributes Object Information Scripts UDA sektensions Graphics Image: Integer Integer Data type: Integer Integer Data type: Integer Integer Integer Data type: Integer Integer Integer Data type: Integer Integer Integer Integer Data type: Integer	UD04DevUsers_001_001				
UDAs: DevValue DevValue Data type: Integer Category: User writeable Value This is an array Buffered Number of elements: 5 Free Access © Operate © Secured Write © Verified Write	ield Attributes Object Information Scripts	UDAs Extensions			
Name DevValue Category: User writeable Value Value This is an array Buffered Number of elements: 5 Free Access 9 Operate 9 Secured Write 9 Verified Write	+ ×	UDA name:	DevValue		
DevValue Category: User writeable Value Value Value S Free Access Operate S Verified Write	UDAs:				
Category: User writeable Value Value This is an array Buffered Number of elements: Free Access O Operate S Verified Write Verified Write		Data type:	Integer	•	
Image: Secured Write	Devvalue	Category:	User writeable	•	
This is an array Buffered Number of elements: Image: Comparison of the second s		- Value			
Number of elements: 5 Image: Secured Write Image: Secured Write Image: Secured Write			Buffered		
Free Access Operate Secured Write Verified Write					
Free Access Operate Secured Write Verified Write		-			
Secured Write Verified Write		5		_ <u> </u>	Free Access
Verified Write				Ģ	Operate
The shared up to a				Q	Secured Write
Inherited UDAs:				4	Verified Write
W Tune				J	Tune
Name Configure	Name			3	Configure
Read Only				3	Read Only

FIGURE 6: UDA DEVVALUE HAS THE TUNE OPERATIONAL PERMISSION

2. Check to see if the Administrator has **Tune** Operational permissions (**Configure Security** window):

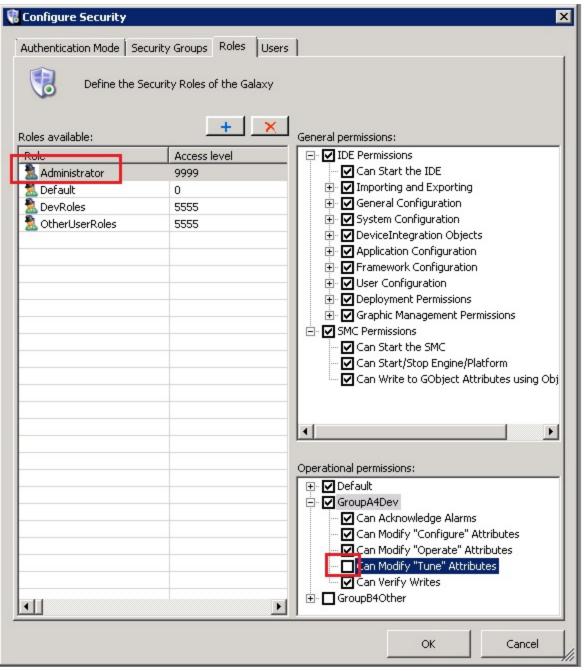


FIGURE 7: ADMINISTRATOR ROLE HAS NO "MODIFY" OPERATIONAL PERMISSION

Figures 6 and 7 (above) show that the value of the UDA (DevValue) requires Tune Operational permissions in order to write. However, the current logon user (administrator) does not have the Tune Operational permission.

• To fix the problem, make sure the current Galaxy logged on user has **Tune** Operational permissions.

References

- Wonderware Application Server 2012 R2 IDE.PDF: IDE User Guide for AppServer 2012 R2
- Tech Note 295 Security Features in InTouch 8.x
- A. Rantos, E. Xu

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