

## [Tech Note 856](#)

# Getting Started with the Remote Response Object (RRO)

---

All Tech Notes, Tech Alerts and KBCD documents and software are provided "as is" without warranty of any kind. See the [Terms of Use](#) for more information.

Topic#: 002653

Created: April 2012

## Introduction

Remote Response Objects monitor alarm conditions of other Galaxy objects, send notification messages when an alarm transition occurs, and allow users to respond to alarm notifications by acknowledging alarms.

This *Tech Note* provides detailed procedures to configure Remote Response objects to trigger an alarm and acknowledge it via Email or SMS.

## Assumptions

- Your network allows **SMTP** and **POP3** traffic out to the Internet. You may need a dedicated outside connection.
- These objects are not available for download on WDN. They are purchased from your local Wonderware distributor.

## Application Versions

- RemoteResponseObjects 1.0
- Wonderware Application Server 3.0 and later

## Creating a Platform, Engines, Areas and Analog Device

### For single node setup

1. Create Platform **P001** with two engines, **E001** & **E002**,
2. Each engine has its own area, **A001** & **A002** respectively (Figure 1 below).

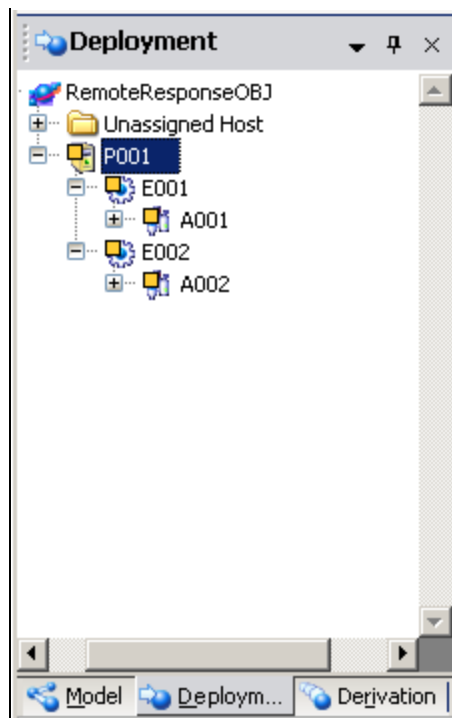


FIGURE 1: PLATFORM, ENGINES AND AREAS

2. Create a new instance of an AnalogDevice object or UDO called **AD1** and place it under area **A002** (Figure 2 below). You can use a UserDefined Object (instead of an AnalogDevice Object) but the settings will be different than that of Figures 3, 4 and 5.

Leave all settings as default values unless otherwise noted.

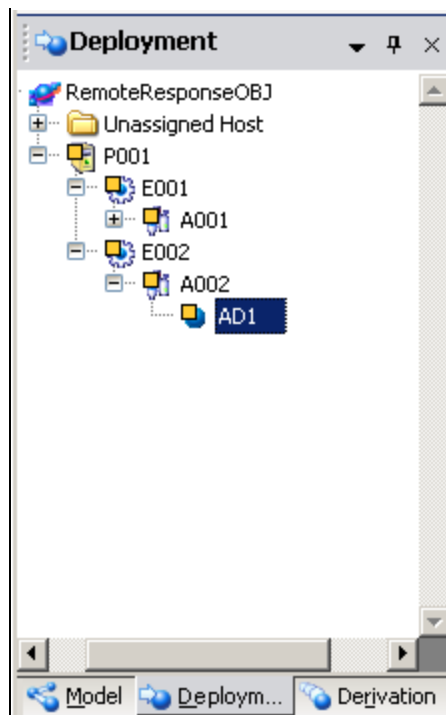


FIGURE 2: ANALOG DEVICE

3. In the **AD1 Alarms** Tab, do the following (Figure 3 below):

- Check **Detect PV level(limit) alarms**
- Check **Hi**
- Set the limit to **75.0**
- Set the Priority to **500**
- Set the AlarmMessage to **me.ShortDesc**

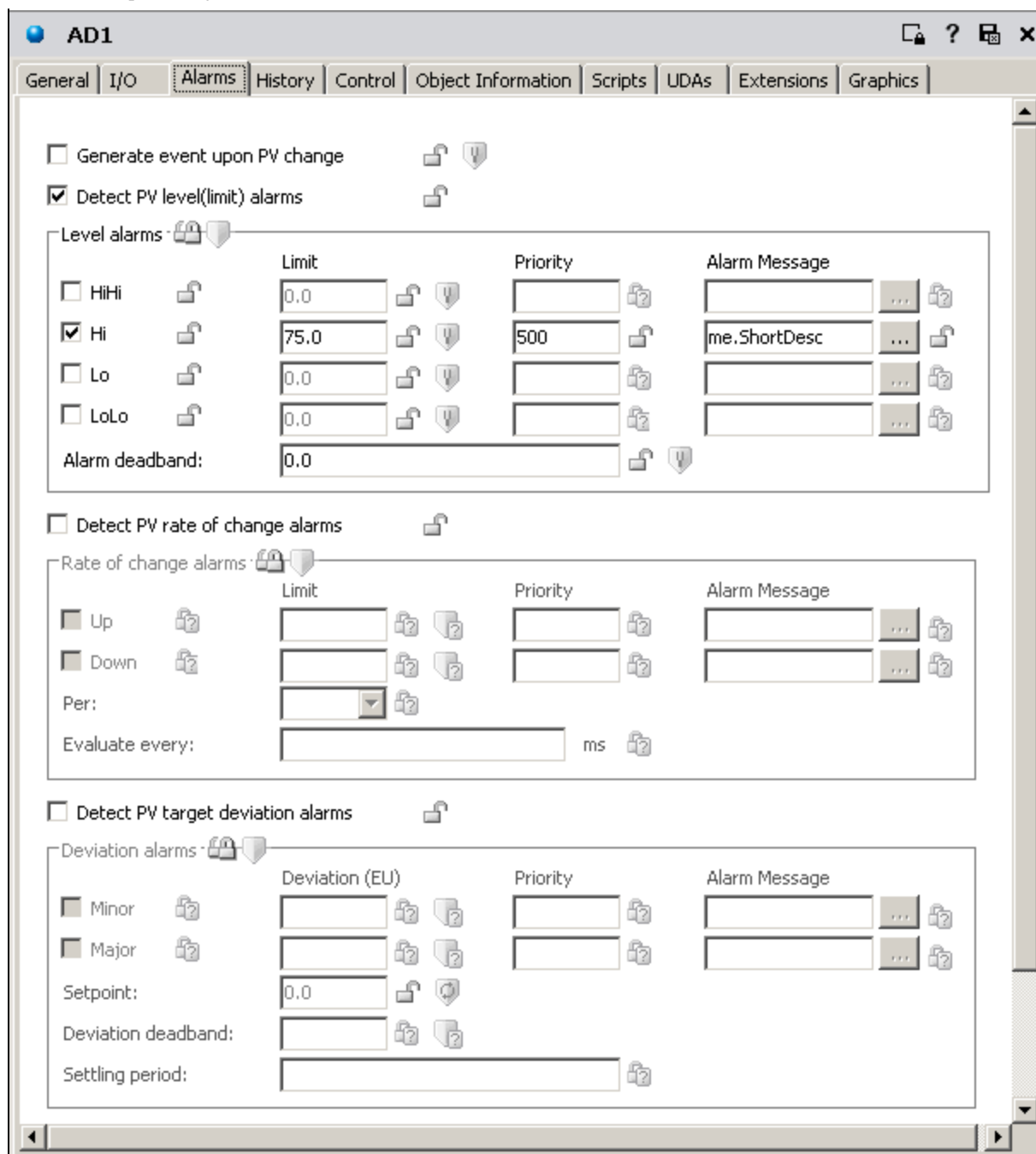


FIGURE 3: CONFIGURING HI ALARM IN ANALOG DEVICE AD1

- In the **UDAs** tab, create a new UDA with type **Double** and call it **UDA1** (Figure 4 below).

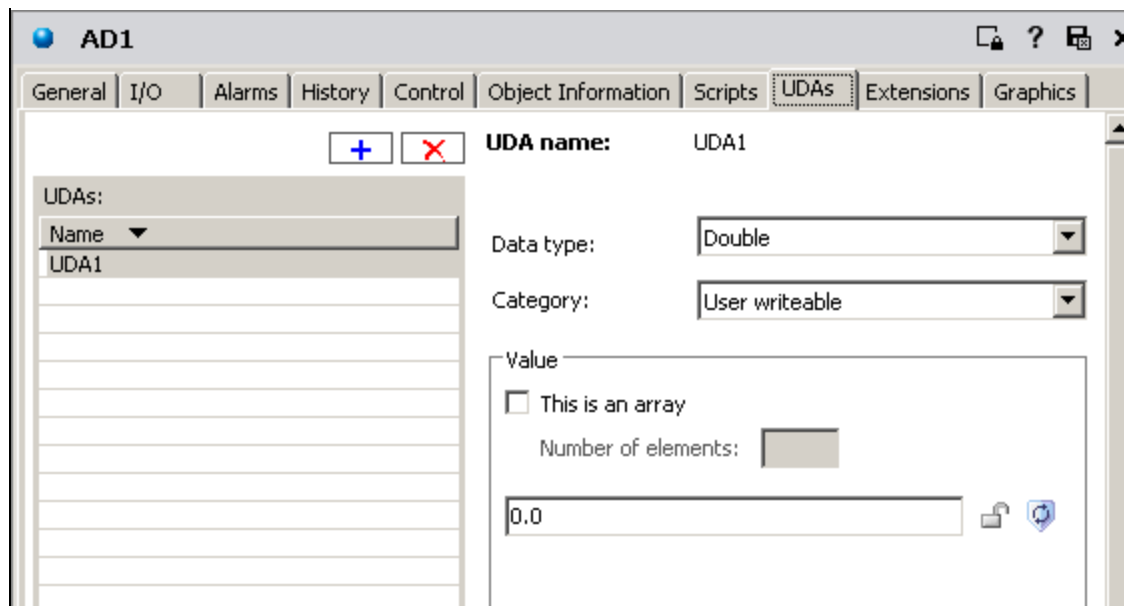


FIGURE 4: CREATE THE UDA IN ANALOG DEVICE AD1

- In the AD1 I/O tab, set the input source as AD1.UDA1 (Figure 5 below).

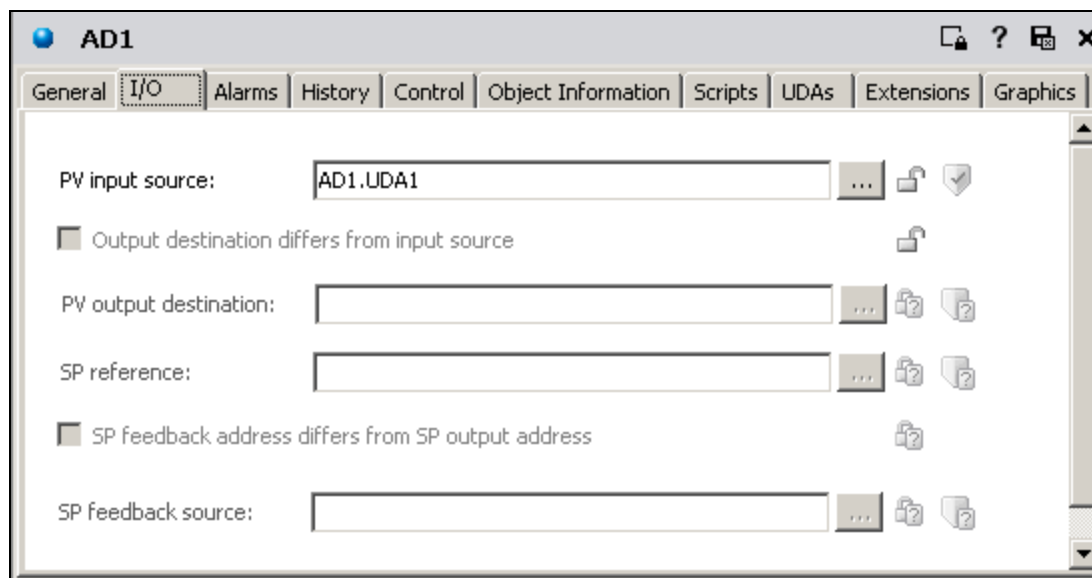


FIGURE 5: ASSIGN PV INPUT SOURCE TO ANALOG DEVICE AD1

## Configuring the Objects

### Configuring the RemoteResponse Object

1. Import the RemoteResponse objects into this Galaxy. The **RemoteNotifier** object detects that alarm has occurred and **RemoteCommunicator** relays it to the "outside" using SMS or Email.
2. Create derived templates from the base object instance of both the **RemoteNotifier** and the **RemoteCommunicator** objects called **RC** and **RN** respectively (Figure 6 below).

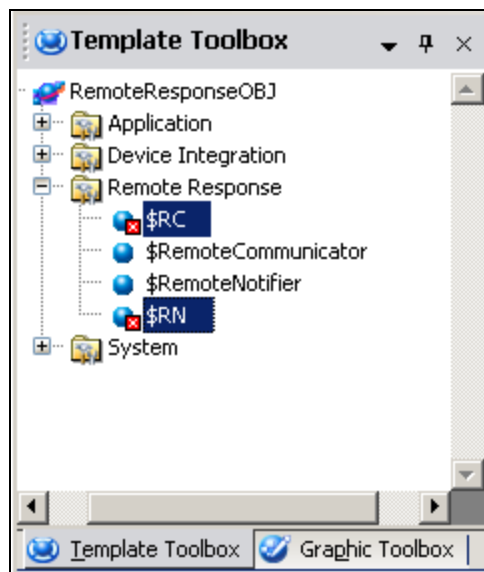


FIGURE 6: CREATING \$RC AND \$RN DERIVED TEMPLATES

3. From the derived templates, create a new instance of the RN called **RN1** and a new instance of RC called **RC1**. Put RC1 and RN1 under area **A001** (Figure 7 below).

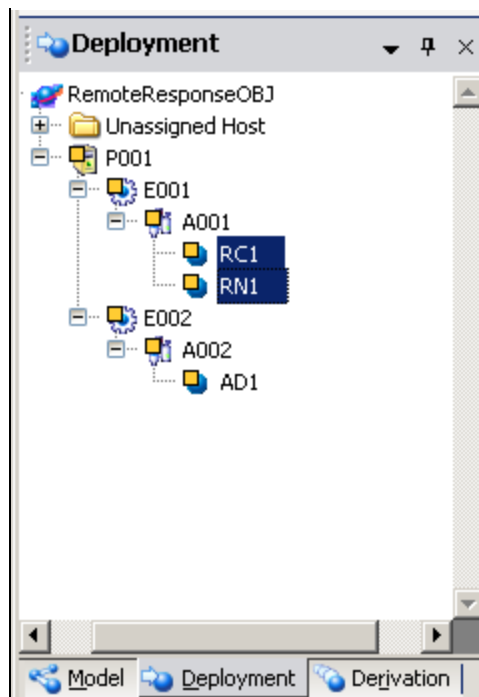


FIGURE 7: CREATING RC1 AND RN1 INSTANCES

## Configuring the RemoteCommunicator (RC1) Object

1. Open the **RC1** Object and click the **General** Tab.
2. Create a **From** email address for the **RemoteCommunicator**. This example uses: **gmailRC1@gmail.com**.
3. Create the **To** email address to receive alarm notifications. This example uses: **gmailOper1@gmail.com**.
4. Open **RC1** and do the following.

In the RC1 **General** tab (Figure 8 below)

- In the email address box enter the **From** email address.
- In the password field enter the password associated with that account.
- Configure **Outgoing Mail Server** settings (this example uses Gmail):
  - Outgoing mail server (SMTP): **smtp.gmail.com**
  - Outgoing mail server port: **587**
  - Check **This Server requires an encrypted connection (SSL)**
- Use the following for **Incoming Mail Server** settings (This example uses Gmail):
  - Incoming mail server (POP3): **pop.gmail.com**
  - Outgoing mail server port: **995**
  - Check **This Server requires an encrypted connection (SSL)**

- Leave rest of the settings at default on this tab.

The screenshot shows the 'RC1 \*' configuration window with the 'General' tab selected. The window is divided into three main sections: E-mail Setup, Outgoing Mail Settings, and Incoming Mail Settings.

**E-mail Setup:**

- Enable Notification
- E-mail Address: gmailRC1@gmail.com
- Password: [Redacted]
- E-mail Account Login is different than E-mail Address
- User Name: gmailRC1@gmail.com

**Outgoing Mail Settings:**

- Outgoing Mail Server Settings:
  - Outgoing mail server (SMTP): smtp.gmail.com
  - Outgoing mail server port: 587
  - This Server requires an encrypted connection (SSL):
- Notify remote users when alarms are acknowledged
- Maximum number of retries: 3
- Retry Period: 00:01:00.0000000

**Incoming Mail Settings:**

- Incoming Mail Server Settings:
  - Incoming mail server (POP3): smtp.gmail.com
  - Incoming server port: 995
  - This Server requires an encrypted connection (SSL):
- Remote users can acknowledge alarms via SMS/E-mail
- Require PIN for alarm acknowledgement

FIGURE 8: CONFIGURATIONS ON RC1 GENERAL TAB

In RC1 **Contacts and Scheduling Tab** (Figure 9 below), in the Contacts setup grid,

1. Type the user name under the First Name column. This example uses **user1**.
2. Type the email address under the E-mail Address column. This example uses "gmailOper1@gmail.com"
3. Type a four-digit PIN number (0000-9999) under the PIN column. This example uses **1111**.



4. Check the **Always Notify** option.
5. Type **User2** under the **First Name** column.
6. Type the Mobile number to which the alarm notification SMS needs to be sent under the **Mobile Phone** column. This example uses **9497273200**.
7. Type a four-digit PIN number (0000-9999) under the PIN column. This example uses **2222**.
8. Type the SMS Gateway for that mobile number in the SMSGateway column.
  - For AT&T Mobile: **txt.att.net**
  - For T-Mobile: **tmomail.net**
  - For Verizon: **vtext.com**
9. Check the **Always Notify** option.
10. Leave the default settings.
11. Save and close **RC1**.

**RC1**

General | **Contacts and Scheduling** | Object Information | Scripts | UDAs | Extensions | Graphics

Calendar Setup

Import Calendar | Export Calendar | Clear Calendar | Calendar Info | Launch Outlook(2007)

MeetingTitle Group1: CallGroup1

MeetingTitle Group2: CallGroup2  Include previous group (Group 1)

MeetingTitle Group3: CallGroup3  Include previous groups (Group 1 & 2)

Contacts Setup

Default SMS Gateway:

Import Contacts | Export Contacts | Clear Contacts

	First Name	Last Name	Mobile Phone	E-mail Address	PIN	SMSGateway	GalaxyUser	Always Notify
	User1			gmailOper1@gmail.com	1111			<input checked="" type="checkbox"/>
	User2		9497273200		2222	txt.att.net		<input checked="" type="checkbox"/>
▶*								<input type="checkbox"/>

FIGURE 9: CONFIGURATION ITEMS ON RC1 CONTACTS AND SCHEDULING TAB

## Configuring the RemoteNotifier (RN1) Object

Open **RN1** and do the following.

1. In the RN1 **General** tab configure the following attributes (Figure 10 below)
  - Set the **Communicator Object Name** as **RC1**.
  - Set the **Notification Type** to **Both**.
  - Leave the remaining settings at default on this tab.

**FIGURE 10: CONFIGURATIONS ON RN1 GENERAL TAB**

2. In the RN1 **Alarm Detection** tab (Figure 11 below)
  - Create a new Detector by clicking the blue + button located at the right of the **Detector List** item.
  - Call the newly-created detector **det1**.
  - Type **AD1.Hi.InAlarm** in the **Source** field.
  - Leave all other attributes as default.
  - Save and close **RN1**.

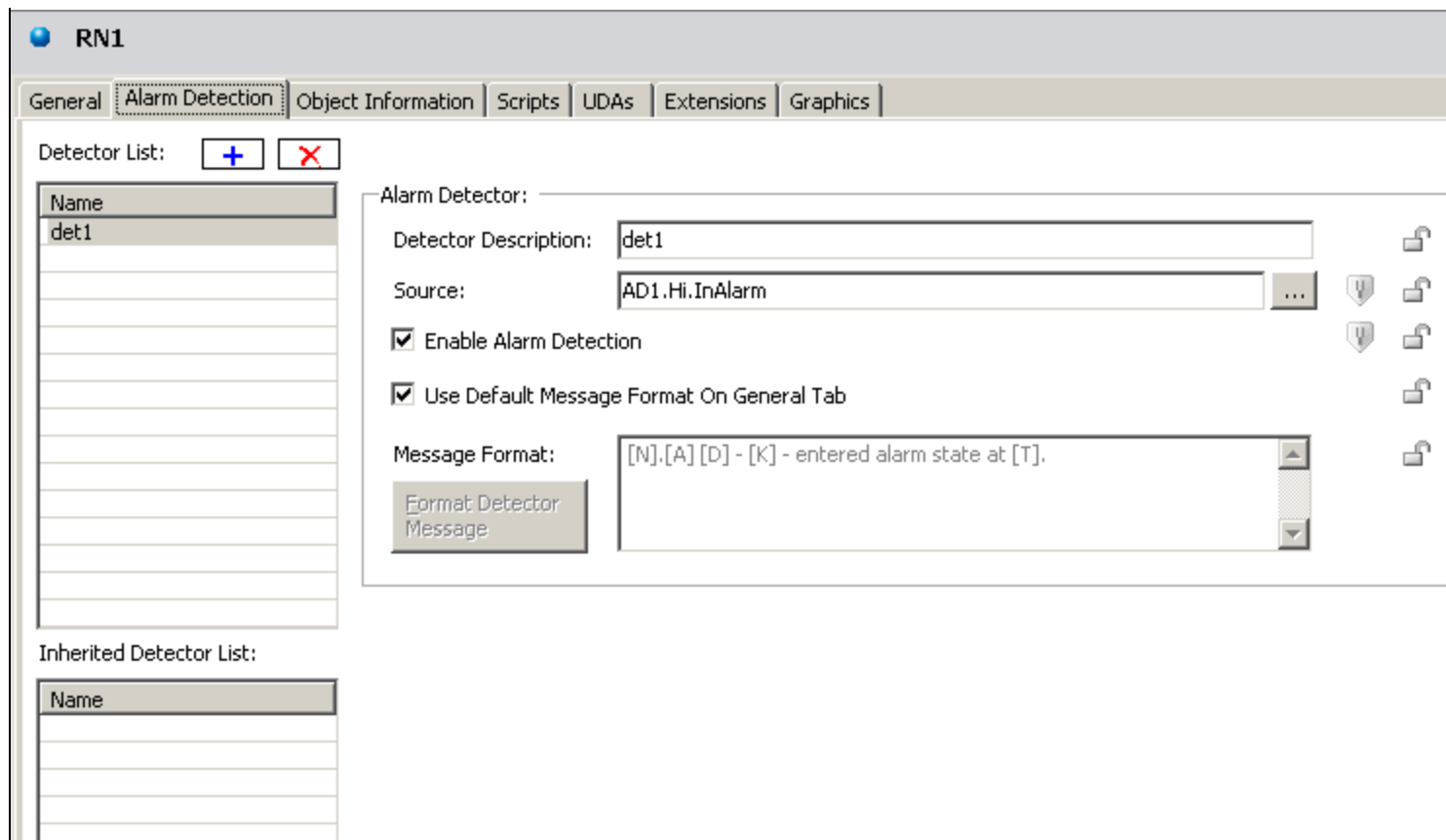
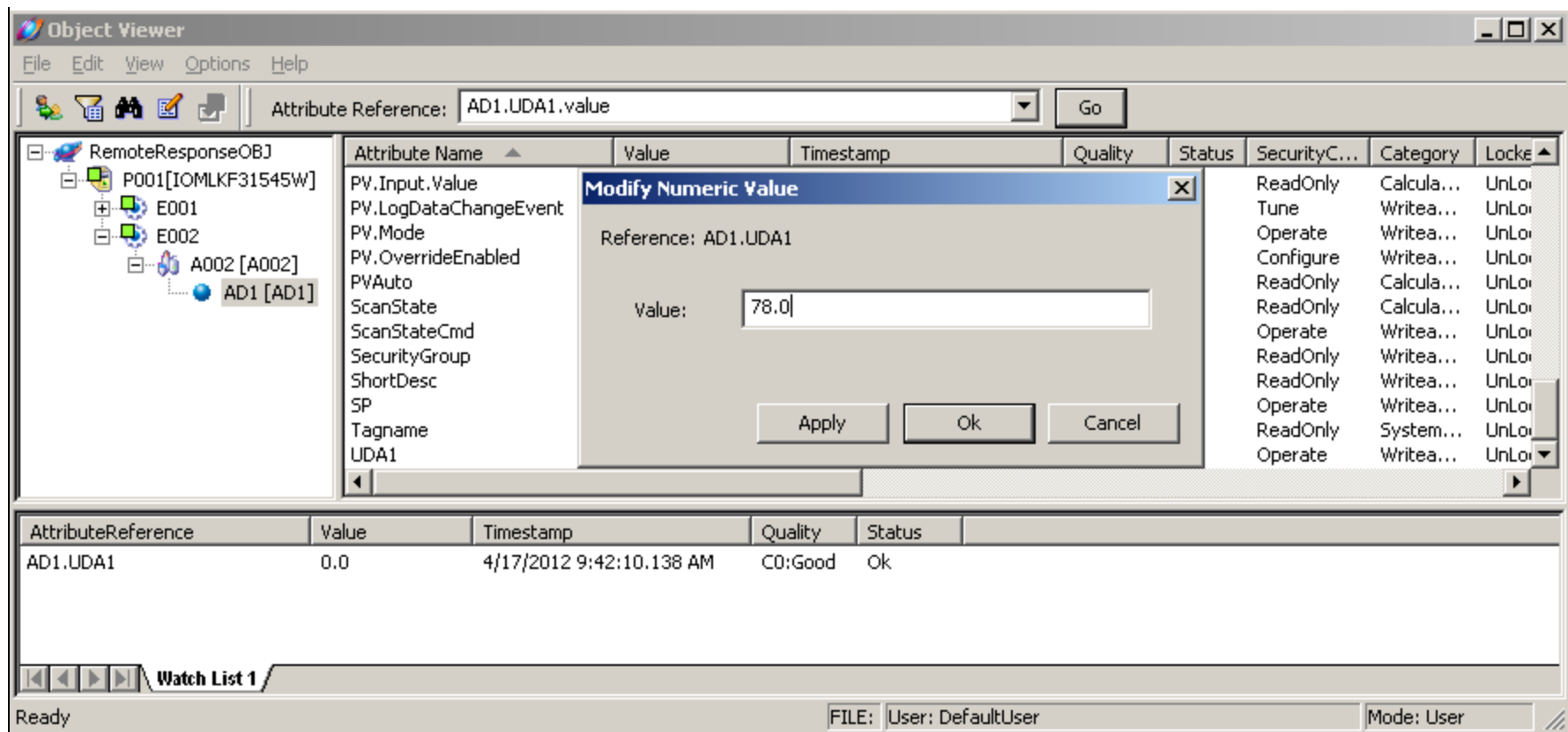


FIGURE 11: CONFIGURATIONS ON RN1 ALARM DETECTION TAB

## Deploying the Platform and Triggering an Alarm

1. Right-click **P001** and click **Deploy**, then **OK**.
2. Right-click the **AD1** object and click **View in Object Viewer**.
3. Locate the **UDA1** attribute in the Object Viewer.
4. Change the value to a value greater than **75** to trigger the alarm (Figure 12 below).



**FIGURE 12: CHANGE THE VALUE OF UDA AND TRIGGER AN ALARM IN OBJECT VIEWER**

When the alarm is triggered, you see the following in Object Viewer (Figure 13 below):

- AD1.InAlarm attribute will turn **true**.
- AD1.HI.Acked attribute will be **false**.
- Check the email and the Mobile phone of the contacts configured in the **RC1** object.

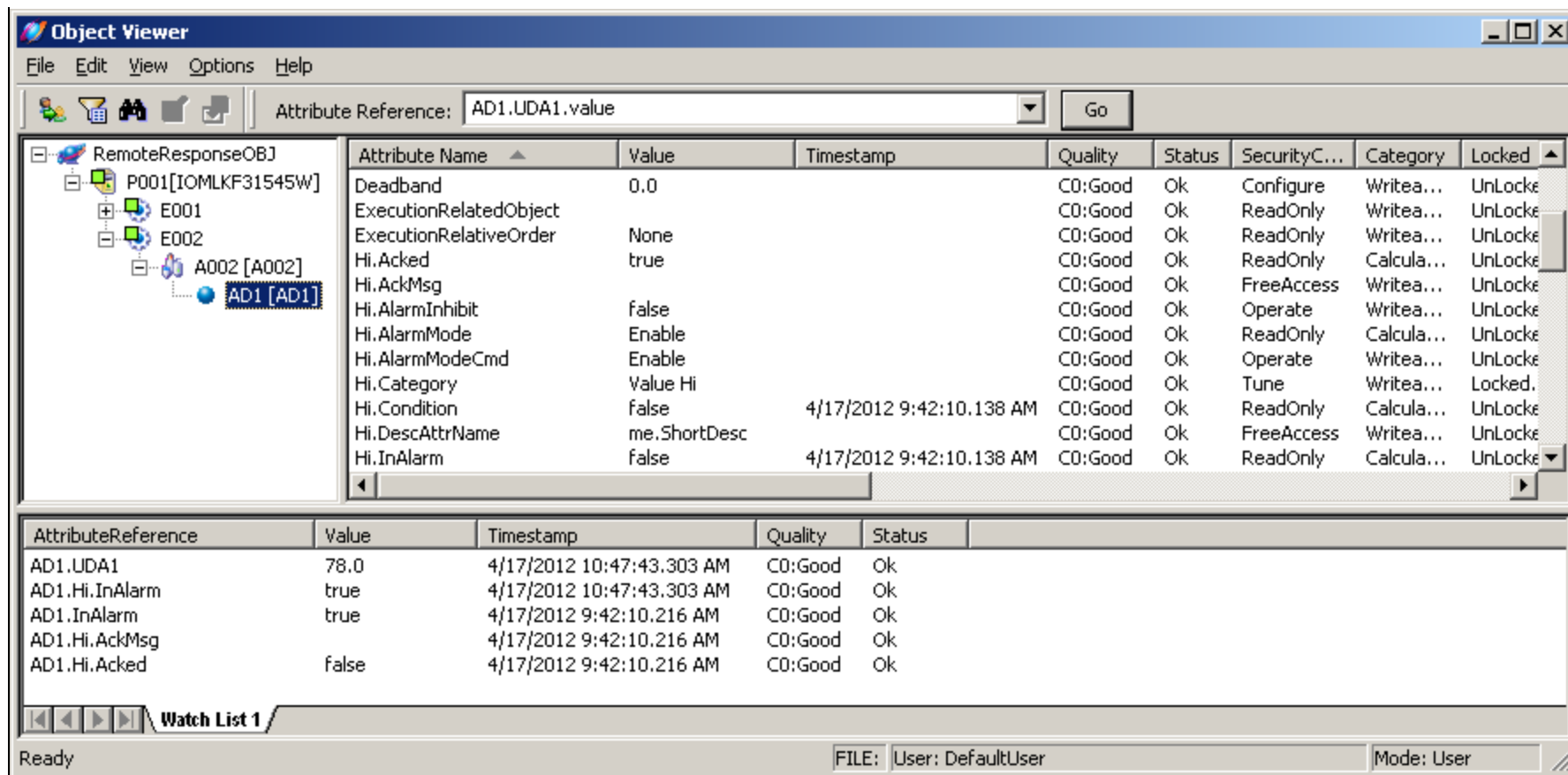


FIGURE 13: OBJECT VIEWER WATCH WINDOW WITH ATTRIBUTES SHOWING THAT AN ALARM WAS TRIGGERED

## Alarm Message Examples

```
(#AD1.Hi# Alarm G1)AD1.Hi The AnalogDevice provides supervisory control capabilities for instruments or equipment that have a key continuous variable.
- UnAcked - entered alarm state at 4/7/2012 10:47:43.303 AM.
```

```
AD1.Hi The AnalogDevice provides supervisory control capabilities for instruments or equipment that have a key continuous variable. - UnAcked -
entered alarm state at 4/7/2012 10:50:12.145 AM
```

## Acknowledging Alarms via Email

You can acknowledge the alarm by replying to the email as follows.

- If the RemoteCommunicator object requires a PIN number, the required format of the message body is as follows:  
For a PIN of 1111:

**1111**

- Optionally, you can add a message to your alarm acknowledgement by adding a space *after* the PIN, followed by your desired message. For example:

### 1111 my optional alarm comment is here

- If the RemoteCommunicator object does not require PIN number, the format of the message body is as follows:

#### ACK

- Optionally, you can add a message to your alarm acknowledgement by adding a space *after* the ACK followed by your desired message. For example:

### ACK my optional alarm comment is here

- **Note:** ACK is not case sensitive.

## Acknowledging Alarms via SMS

After receiving the alarm notification on your cell phone, the alarm can be acknowledged by replying to that SMS as follows.

- If the RemoteCommunicator object requires a PIN number, the required format of the message Subject and body is as follows:

Subject : (**#AD1.Hi# Alarm G1**)

Body : **2222**

- Optionally, you can add a message to your alarm acknowledgement by adding a space *after* the PIN followed by your desired message. For example:

### 2222 my optional alarm comment is here

- If the RemoteCommunicator object does not require PIN number, the required format of the message Subject and Body is as follows:

Subject : (**#AD1.Hi# Alarm G1**)

Body : **ACK**

- Optionally, you can add a message to your alarm acknowledgement by adding a space *after* the PIN followed by your desired message. For example:

### ACK my optional alarm comment is here

#### Notes:

- The SMS Gateway must retain the Subject line text format (**#TIC101.PV.Hi# Alarm G1**) in the response message that is converted from SMS into an E-mail. This is because the Remote Response Objects key off this Subject line to determine which alarm is being acknowledged.
- Acknowledgement will not work if SMS Gateway does not support a **Subject** line. Refer to page **50** of the [RemoteResponseObject User Guide](#) for more information.

After the alarm is acknowledged, you see the following in Object Viewer (Figure 14 below).

- **AD1.Hi.Acked** attribute should turn **True**
- **AD1.Hi.AckMsg** should display the optional alarm comment.

The screenshot shows the Object Viewer interface with a tree view on the left and a table of attributes on the right. The tree view shows a hierarchy starting with RemoteResponseOBJ, then P001[IOMLKF31545W], E001, A001 [A001], RC1 [RC1], RN1 [RN1], E002, and A002 [A002], with AD1 [AD1] selected under A002. The table below shows the following data:

Attribute Name	Value	Timestamp	Quality	Status	SecurityC...	Category	Locked
AckEnabled	true		C0:Good	Ok	Tune	Writea...	UnLocke
AckNotificationEnabled	true		C0:Good	Ok	Tune	Writea...	UnLocke
AckPINsEnabled	false		C0:Good	Ok	Tune	Writea...	UnLocke
AlarmInhibit	false		C0:Good	Ok	Operate	Writea...	UnLocke
AlarmMode	Enable		C0:Good	Ok	ReadOnly	Calcula...	UnLocke
AlarmModeCmd	Enable		C0:Good	Ok	Operate	Writea...	UnLocke
Area	A001		C0:Good	Ok	ReadOnly	System...	UnLocke
ConfigVersion	25		C0:Good	Ok	ReadOnly	Writea...	UnLocke
ConnectionMsgCntResetCmd	false		C0:Good	Ok	Tune	Writea...	UnLocke
ConnectionMsgRcvdCnt	0		C0:Good	Ok	ReadOnly	Calcula...	UnLocke
ConnectionMsgRcvdTime			C0:Good	Ok	ReadOnly	Calcula...	UnLocke
ConnectionMsgRcvFailure	false		C0:Good	Ok	ReadOnly	Calcula...	UnLocke

AttributeReference	Value	Timestamp	Quality	Status
AD1.UDA1	0.0	4/17/2012 3:27:50.428 PM	C0:Good	Ok
AD1.Hi.InAlarm	false	4/17/2012 3:27:50.428 PM	C0:Good	Ok
AD1.InAlarm	false	4/17/2012 9:42:10.216 AM	C0:Good	Ok
AD1.Hi.AckMsg	Hello	4/17/2012 9:42:10.216 AM	C0:Good	Ok
AD1.Hi.Acked	true	4/17/2012 9:42:10.216 AM	C0:Good	Ok

The bottom of the window shows the file path: FILE: C:\Remote Response Object\testww, User: DefaultUser, and Mode: User.

FIGURE 14: OBJECT VIEWER WATCH WINDOW WITH ATTRIBUTES SHOWING THAT AN ALARM WAS ACKNOWLEDGED

## Reference

For more details refer the [RemoteResponseObject User Guide](#).

R. Herunde and N. Khadikar

*Tech Notes* are published occasionally by Wonderware Technical Support. Publisher: Invensys Systems, Inc., 26561 Rancho Parkway South, Lake Forest, CA 92630. There is also technical information on our software products at [Wonderware Technical Support](#).

For technical support questions, send an e-mail to [wwwsupport@invensys.com](mailto:wwwsupport@invensys.com).

[Back to top](#)

©2012 Invensys Systems, Inc. All rights reserved. No part of the material protected by this copyright may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, broadcasting, or by any information storage and retrieval system, without permission in writing from Invensys Systems, Inc.

[Terms of Use.](#)