

Strategic Series-7006

Strategic Triggers 2

Version 9.0

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Workbook

Field Change Trigger

Field change triggers are executed when a specified field is changed. The trigger will go into effect the moment the focus leaves the edited field. Field change triggers allow you to regulate and keep track of the changes made to certain fields. For example, if you wanted to keep an eye on an employee's dependent count, you could set a field change trigger that would send you a message every time the Dependents field is changed in that employee's record. That way, you can keep track of that employee's dependents without having to check the employee record too often.

The Field Change Triggers process uses a three-tab screen.

Details Tab

The Details tab is used to enter setup information about the trigger.

Trigger Name	The name of the field change trigger.
Category	The category into which the field change trigger is to be placed. This category can also be used to secure field change triggers. A table that contains all of the existing categories for the current module supports this field. You can only select a valid entry from the table.
Trigger Field	The field whose changes are being monitored. This field is supported by the Select Field popup.
Row Modifier	If the Trigger Field is a multi-row field, this is the modifier that determines which row should have its changes monitored. If this field is left blank, then a change in any row of the Trigger Field will qualify. This field is supported by the Select Row Modifier popup.
Trigger Use	The use for the trigger: Validation or Process. Enter Validation if the trigger is to be used to validate an entry in the Trigger Field, or enter Process if the trigger is to be used to perform some processing after the entry in the Trigger Field. This field is defaulted to Process. The Trigger Use that is selected determines what Action Types (on the Actions tab) are available. If the Trigger Use field is changed and there were existing actions, those actions are deleted.

Conditions Tab

The Conditions tab is used to define the conditions under which the trigger is to be executed. The bottom part of the tab uses the standard query grid.

One thing that is unique to the query in this trigger grid is that to determine the value of a field, the transaction log is first checked. If there is a pending transaction for the field in the current session, that transaction value is used. If there is no transaction, the value in the database is used. This allows you to query on the most recent value of the field.

Both the Trigger Field condition specified in the If New Value Is fields AND the condition for other fields as specified in the query grid (if used) must be met in order for the trigger to be executed.

If New Value Is This field is composed of two separate fields that make up the field change trigger formula: operator and value.

Operator

The operator field allows you to set when the trigger will execute. The following are valid operators:

- Equal to
- Not equal to
- Less than
- Greater than
- In the list of
- Not in the list of
- Between
- Outside

Value

This field specifies the value that is to be compared to the contents of the Trigger Field using the operator

Actions Tab

The Actions tab is used to define the actions to be taken once the trigger is executed

Action Type The type of action to take when the trigger conditions are met and the trigger is executed. There can be more than one action to take, and the actions are executed in the order they are listed here. The action types available are determined by the Trigger Use field setting.

The following are the action types allowed for a field change trigger that is being used for validation (Trigger Use = Validation):

- Disallow Entry
- Execute Procedure

The following are the action types allowed for a field change trigger that is being used to perform some processing (Trigger Use = Process):

- Assign Task
- Display Message
- Display Prompt
- Display Screen
- Execute Procedure
- Insert Row
- Run Document
- Send Email
- Send Message
- Set Alarm
- Update Derived
- Update Field

Record Save Trigger

Record save triggers are very similar to field change triggers. The chief difference is *when* the action is triggered. As opposed to field change triggers that are executed when a field is changed, record save triggers are executed when the user saves changes to a field. A record save trigger is useful when you want to make sure that a field change is permanent before doing any actions. For example, if you have a lot of trigger actions that you want to kick off when entering an employee termination date, it would be extremely unwise to do that using a field change trigger. If you accidentally enter that date for the wrong person, the result could be extremely painful.

The Record Save Triggers process uses a three-tab screen.

Details Tab

The Details tab is used to enter setup information about the trigger.

Conditions Tab

The Conditions tab is used to define the conditions under which the trigger is to be executed. The bottom part of the tab uses the standard query grid.

Actions Tab

The Actions tab is used to define the actions to be taken once the trigger is executed.

Schedule Trigger

Schedule triggers are based on specified points in time. When the time is met (and the trigger has not already been executed on that date), the trigger is executed and its associated actions are taken. Schedule triggers are tested to see if their conditions are met when logging into People-Trak, switching between modules and executing NightRun.

Note: The Check Schedule Triggers check box in Enterprise Setup allows you to specify whether or not you want NightRun to check schedule triggers.

The Schedule Triggers process uses a three-tab screen.

Details Tab

The Details tab is used to name the trigger, assign it to a category, and define the Last and Next Execution dates.

Last Execution	The date the schedule trigger was last executed. This date is updated to the current date by the system whenever the trigger is executed and is for display only.
Next Execution	The date the schedule trigger will next execute. This date is updated by the system whenever the trigger is executed and is based on the value in the Frequency field. For example, if the Last Execution date is 7-31-09 and the Frequency is Monthly, the Next Execution date would be 8-31-09, one month later.

Note: If you change the conditions under which a schedule trigger is executed, you will need to clear the Next Execution field if it has a date in it. The next execution will then be done according to your new conditions.

Conditions Tab

The Conditions tab is used to define the conditions under which the trigger is to be executed.

Frequency	The frequency that the schedule trigger will be executed.	
	Daily	The trigger will be executed each day. If you set the Start Date field many days in advance, the trigger will not execute until that day.
	Weekly	The trigger will be executed each week on the weekday that matches the Start Date field.
	Monthly	The trigger will be executed each month on the day of the month that matches the day of the Start Date.
	Quarterly	The trigger will be executed every three months on the day of the month that matches the day of the Start Date.
	Annually	The trigger will be executed each year on the day of the year indicated by the month and day of the Start Date.
	One Time Only	The trigger will be executed just once on the day specified by the Start Date field. After the trigger is executed, the Active check box is deselected to ensure the trigger is not executed again.
	Every So Many Days	The trigger will be executed every “N” days beginning on the day specified by the Start Date field. The number of days “N” is specified in the Number of Days field.

Start Date The start date of the schedule trigger.

Day of Week/
Day of Month/
Number of Days

There will sometimes be a third field in the Conditions frame depending on the Frequency chosen. If the Frequency is Weekly, the Day of Week field displays the verbal day of the week on which the schedule trigger will be executed. If the Frequency is Monthly, the Day of Month field displays the day of the month on which the schedule trigger will be executed. If the Frequency is Every So Many Days, the Number of Days field allows you to enter the number of days between schedule trigger activation.

Note: If you set the Frequency to Monthly and the Day of Month is 28 or higher, People-Trak assumes that you want to run the report at the end of every month. This is required in the event that you have a Start Date of March 31 because not all months have 31 days.

Actions Tab

The Actions tab is used to define the actions to be taken once the trigger is executed.

Trigger Actions

The following is a list of all available trigger actions. The actions that are valid for a trigger vary depending on the type of trigger being updated. See the Actions tab information for each type of trigger for a listing of valid actions for that trigger.

For each action, the Detail:row button allows you to enter the detail for the action. When you click the button, a screen unique to that action is displayed for detail to then be entered.

- Assign Task Assign a task to a user
- Display Message Display a message
- Display Prompt Display message with Y/N prompt
- Display Screen Display a screen
- Execute Procedure Execute a procedure
- Execute Tool Execute a People-Trak tool
- Hyperlink Execute a hyperlink to the specified URL
- Insert Row Insert a row in a grid. Used before Update Field actions.
- Run Document Run a report, letter, label, etc.
- Send Email Send email
- Send Message Send a message to a user
- Set Alarm Set an alarm for a user
- Update Derived Update any derived fields on the current screen
- Update Field Update a field for the current record

Assign Task

The Assign Task action assigns a task to any user, including yourself. There are eight different types of tasks: activity, administration, create, document, edit, link, processing and table. Once the trigger takes effect, the selected task will be sent to the specified user's Inbox. From the Inbox, the user can execute that task, which will run an activity, launch an administrative action, create a new record, run a document, edit records, access a link, run a process, or maintain a table.

Display Message

The Display Message action displays a message on the user's screen. This can be an informative message or a reminder. The entry that executed the trigger is allowed.

Display Prompt

The Display Prompt action displays a prompt with a specified message and then the question "Do you wish to continue?". If the user answers "Yes", the rest of the actions defined for the trigger will be executed. If the user answers "No", the rest of the actions defined for the trigger are skipped. This action can be used to allow the user to escape out of the sequence of actions about to occur. For example, if a series of reports are about to be printed that would take a long time to generate, the user might decide to generate the reports at a later time.

Display Screen

The Display Screen action displays a specified screen.

Execute Procedure

The Execute Procedure action executes code that is not included in standard People-Trak features. This code can be written by you or People-Trak, depending on the feature.

Procedure Type	The type of procedure to execute.
Custom	Custom procedures created by People-Trak for specific customers. The custom code is compiled into a DLL and installed and registered in the People-Trak directory.
Database	Stored procedures in the ACTIVEDB database, which is used by People-Trak. These may be created by People-Trak personnel (for SQL or Access) or by members of your own IT staff (for SQL

only, because Access is password protected).

- External External procedures stored in EXE, VBS or BAT files.
- Internal Stored procedures already included in People-Trak.

Procedure Name The name of the procedure to execute. If the Procedure Type is:

- Custom Enter the name of the custom procedure, if any have been created for you by People-Trak.
- Database Enter the name of the procedure created in the ACTIVEDB database.
- External Enter the name of the EXE, VBS or BAT file. This file must be stored in the People-Trak root directory so it can be shared by all users.
- Internal Enter the name of the internal procedure. This field is supported by a popup that lists the internal procedures for the current module.

Parameters The parameters required by the procedure, separated by commas. You can enter literals or People-Trak Field IDs.

Execute Tool

The Execute Tool action executes the specified People-Trak tool. This action is only applicable for button triggers.

Hyperlink

The Hyperlink action executes a hyperlink to the specified URL. This action is only applicable for button triggers.

Insert Row

The Insert Row action inserts a row in a grid and is required before Update Field actions that require a new, blank row. Once the row is inserted, Update Field actions can then overwrite that blank row with the necessary data.

Run Document

The Run Document action runs a specified document.

Document Name The name of the document to run. This field is supported by the Select Document popup, which in this specific use includes Audit Reports.

Group Type The group type to use to select what records to include in the report query. For Alert Triggers, you have a choice of Current Record or Use Query. For Schedule Triggers, you only have a choice of Use Query because no records are opened for that type of trigger. All other triggers have all three options: Current Group, Current Record or Use Query. If an Audit Report is selected, you only have a choice of Use Query because there are no records involved in those types of reports.

- Current Group Current Group queries the whole group of the current record being viewed. This is valuable when you would prefer the document to

	include all records in a certain group as opposed to only the current record or the whole database.
Current Record	Current Record queries only the current record that is being viewed. This can be used when you want the user to view only his information on the document instead of all other records.
Use Query	Use Query uses the query assigned to the document in the Explorer.
Auto-Destination	The destination to which the document is to be sent.
Archive	Archives the document.
Email	Sends emails based on the document's email breaks and/or email distribution specified in the document's properties. If the selected document does not have an email break and does not have email distribution specified in its properties, no action is taken.
Printer	Sends the document to the default printer. Alert and Schedule triggers do not have this option because those types of triggers might be executed via NightRun.
Viewer	Sends the document to the Document Viewer. Alert and Schedule triggers do not have this option because those types of triggers might be executed via NightRun.

Send Email

The Send Email action sends an email to the specified recipients. When you select this action, the following screen is displayed. This is the standard Send Email screen used throughout People-Trak.

Send Message

The Send Message action sends a message to the specified user's Inbox.

Set Alarm

The Set Alarm action sets an alarm for yourself or another user for a specified date and time. It functions just like using the Set Alarm tool.

Update Derived

The Update Derived action updates any derived fields on the current screen. A Details screen is not necessary for this action.

Update Field

The Update Field action updates a field with a new value.

Field Name	The name of the field that is to be updated when the trigger is executed. This field is supported by the Select Field popup.
Row Modifier	For fields that are normally tracked on a grid, this is the row number on the grid where the field is to be updated. The following values are valid: Blank Top row

1- 99 Row indicated
 + Bottom row

Note: The Select Row Modifier popup screen shows codes 1-10, but higher row numbers can be manually entered as well. The Update Field action overwrites any existing data in the specified row. If you require a blank row to be inserted before the overwrite, an Insert Row action is required before the Update Field action(s). For example, if you want to update the Company Property grid with a new row of Property Type and Issue Date, you would have an Insert Row action inserting a row at the appropriate location followed by two Update Field actions overwriting that same row in the appropriate fields.

New Value Type The type of the new value. This field is supported by the Select Value Type popup.

New Value If the New Value Type is Derived Field or Field, this is the field that contains the new value and is supported by the associated popup. If the New Value Type is Value, this is the new value that is to be inserted into the field.

Row Modifier If the New Value Type is Field and the New Value field is one that is normally tracked on a grid, this is the row number on the grid where the new value resides. Otherwise, this field is not used.

Trigger Type/Trigger Action Matrix

The following is a matrix showing the trigger actions that are available for each type of trigger. The Field Change trigger type can be used for validation or process purposes, so that is so noted in the table.

Trigger Action	Alert	Button	Field Change Process	Field Change Validation	Record Save	Schedule
Assign Task	X	X	X		X	X
Disallow Entry				X		
Display Message		X	X			
Display Prompt		X	X			
Display Screen		X	X			
Execute Procedure	X	X	X	X	X	X
Execute Tool		X				
Hyperlink		X				
Insert Row	X	X	X			
Run Document	X	X	X		X	X
Send Email	X	X	X		X	X
Send Message	X	X	X		X	X
Set Alarm	X	X	X		X	X
Update Derived		X	X			
Update Field	X	X	X			

Lesson 4

Record Save Triggers

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This lesson covers when to use Record Save triggers and how to use them together with Field Change triggers.

Tutorials

When to Use Record Save Triggers: shows when to use Record Save triggers by using an example of when not to use them.

Field Change/Record Save Triggers: demonstrates how to use Field Change and Record Change triggers together.

Tutorial 4.1 – When to Use Record Save Triggers

The best way to show when to use Record Save triggers is by an example that shows when not to use them.

1. On the **Templates** menu, select **Email Templates**.
2. Create a new email template and name it **Security Termination Notification**.
3. Set the **Category** to **Status**.
4. Edit the template and enter the following text:

Employee: ~F~ (insert Full Name), ID Number: ~F~ (insert Employee ID) has been terminated. Please take all appropriate actions to disable building access rights. Please send an escort to remove this employee from the premises.

Thank you,

~F~ (insert User Name from the System category)

5. Close the **Email Template Editor** screen, saving your changes. Close the **Email Templates** screen, saving your changes.

This is a good time to review how to set up an Email Definition for emails that will be used more than once. We are going to use the same email in a field change trigger in this tutorial and then again in the next tutorial.

6. On the **Administration** menu, select **Email Definitions**.
7. On the **File** menu, select **New Email Definition** or on the Tool Bar, click the **New Email Definition** button to start a new email definition.
8. Change the **Definition Code** to **Security Notification Termination**.
9. In the **From Address Type** field, select **Address Book**.
10. Click the **Address Book** button and select the **HR User Timothy Carpenter** like you did in the last lesson.
11. Set the **Subject** to **Security Termination Notification**.
12. In the **Template** field, use the popup to select the **Security Termination Notification** template.
13. Close the **Email Definitions** screen, saving your changes.
14. On the **Tools** menu, select **Field Change Triggers**. Create a new Field Change trigger named **Termination Communication**. Base this trigger on the **Termination Date** field. Keep the **Trigger Use** field set to **Process**.
15. On the **Conditions** tab, set the condition to be any change in the date. (Hint: **New Value Not equal to blank**.)
16. On the **Actions** tab, add a **Send Email** action and open the **Detail** for it.

You would typically send this kind of notification to the position in your company that handled security. In our case, we will assume that is the IT manager.

17. So, set the **To Address Type** to **Position**.

18. In the **To** field, click the popup button.

The Lookup Position screen is displayed.

19. Click **Search** and then select **1005 - IT Manager**.

The position number for the IT Manager is returned to the To field. This allows you to send this email to anyone who is currently in that position.

20. Click the **Message** tab.

We will now use the Email Definition we created.

21. In the **Email Definition** field, select **Security Termination Notification**.

The information from our definition is defaulted. We could change this information now, if we wanted, but it is exactly as we need so we will leave it as is.

22. Close the **Send Email** screen, saving your changes. Close the **Field Change Triggers** screen.

Now let's demonstrate the use of this trigger in a "real-life" scenario.

23. Open **Donald Stern's** record. Select the **Status** screen.

Remember that it is Donald Stern you wish to terminate. Now, let's assume that you have just taken a phone call requesting employment verification for Julie Carrington.

24. Use the **Record** dropdown to select **Julie Carrington** and do your research. Your phone call is now complete and you return your attention to the **Status** screen and are ready to process the termination. (Of course, you have forgotten to return to Donald Stern's record.)

25. On the **Status** screen, enter a date in the **Termination Date** field.

You will see the email simulation, but in production, nothing will be visible. You will not necessarily know that you have just sent an email to the Security staff to come and forcibly remove Julie Carrington from the premises while Donald Stern remains free to roam the building causing unspeakable harm. And, worst of all, we might not know for an hour or more, if at all. However, let's assume we catch our mistake within minutes and make a few calls to fix things. If nothing else, we have wasted a lot of time and suffered some embarrassment when we meant to have timely communication.

How can this be remedied? There are a couple of ways. One way would be to display a warning message before the email is sent. The other is to establish a practice of using field change triggers for communication and record save triggers to actually perform the work. Record save triggers are executed when the record is actually saved. This means the trigger will not be executed until all changes are made. In companies where approvals are being used, it means that the trigger will not be executed until the changes are actually approved.

Here is another interesting scenario. Let's say that you have a field change trigger that notifies Payroll when there is a salary change. And let's say that the salary change transaction is subject to approval. One day, you make a tentative salary change for Donald Stern. Off goes the email to payroll for a pay raise and off goes the pay raise transaction into the approval loop. No problem thus far. Unfortunately, two approval levels up, Donald's salary change is rejected and the raise is never posted. Now, our overzealous communication method has caused HR and payroll to be out of sync. Donald is going to get a raise that was not approved and someone is going to be in trouble. Big problem!

The ultimate solution is to use field change and record save triggers in a balanced combination. We'll see how to do this in the next tutorial.

26. Clear the **Termination Date** for **Julie Carrington**. (At least we can correct the data.)
Close **Julie Carrington's** record, saving your changes.
27. Continue with the next tutorial.

Tutorial 4.2 – Field Change/Record Save Triggers

Let's use a field change trigger and a record save trigger together to best perform our mission.

1. On the **Tools** menu, select **Field Change Triggers**. Select the **Termination Communication** trigger.
2. On the **Actions** tab, delete the **Send Email** action. Add a new **Display Message** action, and open the **Detail** for it. Enter the following in the **Message Text** field:

You have just set a termination date for an employee. This will set several things in motion when this record is saved. Are you sure you are terminating the right person? If not, clear the termination date to disable the trigger.

3. Close the **Display Message** screen, saving your changes. Close the **Field Change Triggers** screen.

This trigger is now purely informational. It lets you know what will happen (you would, of course, provide more meaningful details) if the termination is allowed to proceed. However, the actions will not be taken until the record is saved. This happens when the Save button is used or when the record is closed if approvals are not in use. If approvals are in use, the trigger will be executed if and when the transaction is actually approved, which is when the record is actually saved. Before we can test this, we need to create a Record Save trigger.

4. On the **Tools** menu, select **Record Save Triggers**. Create a new Record Save trigger and name it **Termination Actions**. Place it in the **Status** category. Set the **Trigger Field** to be **Termination Date**.

The Row Modifier is used when you are dealing with a grid field. The Termination Date is a single field, so we will leave the Row Modifier field blank.

5. Click the **Conditions** tab.

Like the Field Change trigger you learned about in an earlier lesson, the Record Save trigger uses the standard query grid. Enter the query equation shown below:

Termination Date <> *leave blank*

where “leave blank” means the **Contents** field should be left blank.

6. On the **Actions** tab, add a **Send Email** action. Open the **Detail** for that action and set the fields as shown below:

To Address Type	Position
To	<i>use popup to select 1005 - IT Manager</i>
Email Definition	Security Termination Notification

7. Close the **Send Email** screen, saving your changes.

With a termination in your organization, there might be a number of other emails sent. For example, you might notify IT to close down network access, payroll to prepare a final check, and benefits administration to generate COBRA information. In addition, the termination can notify the hiring manager to open a requisition for a replacement

employee. The more you look at the communication now occurring (for better or worse), the more you can automate.

8. Close the **Record Save Triggers** screen.

Now, let's see how record save triggers work.

9. Open **Julie Carrington's** record. On the **Status** screen, enter a **Termination Date**.

The warning message should be displayed immediately. However, no email has been sent.

10. Clear the **Termination Date**. Close **Julie Carrington's** record, saving your change.

The email is not sent because the Termination Date was cleared before the record was actually saved.

11. Open **Julie Carrington's** record again. Set the **Termination Date**, and then close and save the record.

This time, you will see the simulated email indicating that the Record Save trigger has been executed.

12. Use the **Record Save Triggers** process to delete the **Termination Actions** trigger we have been demonstrating.

13. This concludes this tutorial and lesson.

Lesson 5

Execute Procedure Action

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This lesson covers how to use the Execute Procedure action in triggers.

Tutorials

Execute Procedure: Database: shows how to use the Execute Procedure action with a database type procedure.

Execute Procedure: Internal: demonstrates how to use the Execute Procedure action with an internal type procedure.

Execute Procedure: External: demonstrates how to use the Execute Procedure action with an external type procedure.

Execute Procedure: Custom: shows how to use the Execute Procedure action with a custom type procedure.

Tutorial 5.1 – Execute Procedure: Database

There may come a time when the features of the provided trigger actions are not sufficient for your needs. If so, you may be able to utilize the Execute Procedure action. This action enables you to execute four different types of procedures: database, internal, external and custom. Each will be demonstrated below.

We'll demonstrate the Execute Procedure action using one of the Field Change triggers we have already created.

1. On the **Tools** menu, select **Field Change Triggers**. Select the **Termination Communication** trigger. On the **Actions** tab, delete any actions that have been defined. Add a new **Execute Procedure** action, and open the **Detail** for it.
2. In the **Procedure Type** field, click the popup button to display a list of the available procedure types.

As indicated earlier, there are four different procedure types. We'll start with database procedures.

3. Select **Database**.

Database procedures are written and stored in the database. A database procedure must be created, named, and saved before you can use it. These may be created by People-Trak personnel or by members of your own IT staff. Regardless of who creates the procedure, you must have the precise name of the procedure.

For demonstration purposes, a stored procedure named VistaToBonsall has been created and saved in the demonstration database. It finds each record with an employee address with the City named Vista and converts the City to Bonsall. It is our local version of a hostile takeover.

4. In the **Procedure Name** field, enter **VistaToBonsall**.

The Parameters field is used if there are parameters that need to be passed to a procedure. The VistaToBonsall procedure does not require any parameters so we will leave that field blank.

5. Close the **Execute Procedure** screen, saving your changes. Close the **Field Change Triggers** screen.

Before we test this trigger, it should be noted that the Field Change trigger that is going to run this procedure is irrelevant in this matter. Changing the termination date to cause city names to be updated is not a typical way of doing things. However, we needed a way to demonstrate the feature and you are well-versed in this particular trigger.

6. Open a record group. Browse through records noting that several of them have cities named **Vista**. Stop on any record and select the **Status** screen. Enter a **Termination Date**.

You will not see anything happen. What has happened is that the stored procedure was executed in the background at the database level. In short, the database updated itself. All we did was trigger the procedure.

7. Select the **Personal** screen. Browse through the records again.

Note that there are no more records with a city named Vista. Our hostile takeover is complete. Vista residents, welcome to Bonsall!

Database procedures are incredibly powerful and must be used with appropriate caution. In addition, database procedures bypass all auditing features within People-Trak and do not honor the approval process.

8. Close the record group.
9. Continue with the next tutorial.

Tutorial 5.2 – Execute Procedure: Internal

People-Trak also allows the use of internal procedures. Internal procedures contain existing People-Trak program code in encapsulated form with a name. You can execute the named procedure and obtain the same results you would receive had the procedure been executed where it is normally placed in the software. We'll demonstrate this procedure using the same Field Change trigger we used in the last tutorial.

1. On the **Tools** menu, select **Field Change Triggers**. Select the **Termination Communication** trigger. On the **Actions** tab, open the **Detail** for the **Execute Procedure** action. Change the **Procedure Type** to **Internal**.
2. In the **Procedure Name** field, click the popup button to display a list of the available procedures. This list will vary over time and from module to module.
3. Select the procedure named **SwitchEmergencyContacts**.

This procedure is normally executed by the Switch button on the Emergency Contacts screen, but we are now also executing this procedure whenever the Termination Date changes.

4. Close the **Execute Procedure** screen, saving your changes. Close the **Field Change Triggers** screen.
5. Open **Julie Carrington's** record. On the **Personal** screen, click the **Emergency** button to display the **Emergency Contacts** screen. There is a button labeled **Switch** that is used to switch the primary and secondary contacts. Click the button now. The contacts are indeed switched. Make note of which contact is currently the primary contact and which is the secondary contact. Close the **Emergency Contacts** screen, saving your changes.
6. Click the **Save** button to save this record.
7. Select the **Status** screen.

Julie is currently terminated. However, the Field Change trigger will be executed as long as the field is changed and the change is not to clear the field.

8. Enter a different **Termination Date**.

Nothing visible happens because there are no emergency contact fields on this screen. If there were, you would see the fields change and the change color set.

9. Return to the **Personal** screen and display the **Emergency Contacts** screen.

Note that the contacts have been switched and the change color set. These changes exist just as if the Switch button had been used.

10. Close the **Emergency Contacts** screen. Click the **Save** button to make the changes permanent, effectively setting the emergency contacts back to how they were when we started.

Internal procedures honor auditing and approval features to the extent that they are programmed to do so. In this specific example, they do.

11. Close **Julie Carrington's** record and continue with the next tutorial.

Tutorial 5.3 – Execute Procedure: External

People-Trak also allows the use of external procedures. External procedures can be contained in EXE, VBS or BAT files. Either People-Trak personnel or someone on your IT staff can write a procedure that can then be executed using the Execute Procedure action. The procedure file must be stored in the People-Trak root directory so it can be shared by all users. We have created an EXE procedure for you to use, and we'll demonstrate it using the same Field Change trigger we used in the last tutorial.

1. On the **Tools** menu, select **Field Change Triggers**. Select the **Termination Communication** trigger. On the **Actions** tab, open the **Detail** for the **Execute Procedure** action. Change the **Procedure Type** to **External**.
2. In the **Procedure Name** field, enter **BONSALLDOMINATION.EXE**.

This procedure will select all records with the name of the city equal to that passed in the Parameters field and change the city to Bonsall.

The Parameters field allows you to enter field IDs or literals separated by commas. These are then passed to the procedure. Our procedure requires a city name passed by a parameter. Let's use Bonsall's neighbor, Fallbrook.

3. In the **Parameters** field, enter **Fallbrook**.
4. Close the **Execute Procedure** screen, saving your changes. Close the **Field Change Triggers** screen.
5. Open all records and browse to see that there are some employees with a **City** of **Fallbrook**.
6. On **Julie Carrington's** record, select the **Status** screen.

Like we did for the internal procedure tutorial, we will change the Termination Date to get the trigger to execute.

7. Enter a different **Termination Date**.

The procedure includes a message to let you know the dirty deed it has done.

8. Browse all records and check the **City** field.

Fallbrook has been dominated by Bonsall.

9. Close the record group.
10. Continue with the next tutorial.

Tutorial 5.4 – Execute Procedure: Custom

The fourth type of procedure is a custom coded procedure. These are written by People-Trak personnel for specific customers. The custom code is compiled into a DLL and installed and registered in the People-Trak directory. As with all procedures, the custom coded procedure has a unique name. We'll demonstrate a custom procedure using the same Field Change trigger we have used in the prior tutorials.

1. On the **Tools** menu, select **Field Change Triggers**. Select the **Termination Communication** trigger. On the **Actions** tab, open the **Detail** for the **Execute Procedure** action. Change the **Procedure Type** to **Custom**.

A custom procedure named TESTPROCEDURE has been programmed and saved for this lesson.

2. In the **Procedure Name** field, enter **TESTPROCEDURE**, being sure to enter it in all capital letters.
3. Close the **Execute Procedure** screen, saving your changes. Close the **Field Change Triggers** screen.

TESTPROCEDURE displays a message and then changes the name of the city to Bonsall. It is an extension of our overall hostile takeover program, but it can be run record by record and is not limited to cities named Vista.

4. Open a record group. Browse through the record group until you find a **City** that has not yet been taken over by Bonsall.
5. Select the **Status** screen. Set or change the **Termination Date** to execute the trigger. The message indicating what is to happen is displayed. Close the message and let's find out if it worked.
6. Return to the **Personal** screen and note that the **City** is now changed to **Bonsall**. Our plan is working. By the completion of this day of training, Bonsall will rule the world!

Programmed procedures can do almost anything. They are more powerful than internal or database procedures. They can be programmed to honor auditing and approvals if that is desired. When you have a custom procedure written for you, your Support Representative will let you know the name of the procedure to use.

7. Close the record group.
8. This concludes this tutorial and lesson.

Lesson 6

Multiple Trigger Actions

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This lesson covers how to use multiple actions in more complex triggers.

Tutorials

Use Messages to Introduce Actions: demonstrates how to use messages to introduce actions.

Use Multiple Communication Methods: shows how to use multiple types of actions to communicate what a trigger is doing or has done.

Fill Multiple Rows in a Grid: demonstrates how to use multiple Update Field actions in a trigger to fill multiple rows in a grid.

Tutorial 6.1 – Use Messages to Introduce Actions

It can be disconcerting to have triggers go off with little warning. It could seem as if some unknown force has seized control of your computer and is having its way. Worse than that, it may cause you to think that there is something wrong with People-Trak. This cannot be! This is where message actions come in handy. Rather than just executing an action out of the blue, you can start with a message action to warn the user that something different is about to happen. Let's create this scenario and then resolve it.

1. On the **Tools** menu, select **Field Change Triggers** and create a new trigger. Name the trigger **Multi-Action Test**. Set the **Category** to **Personal**. Set the **Trigger Field** to **City**. Keep the **Trigger Use** field set to **Process**.

1. On the **Conditions** tab, change the conditions to the following:

If New Value is **Equal to**
 Vista

2. On the **Actions** tab, add a **Run Document** action that runs the **Alphabetic Employee List** report in the **General** category for the **Current Group**. Set the **Auto-Destination** to **Viewer**.
3. Close the **Run Document** action, saving your changes. Close the **Field Change Triggers** screen.

Now let's try it.

4. Open **Donald Stern's** record and change the **City** to **Vista**.

The Document Viewer is displayed and there is a report. Do you know why that report was generated? Do you know what you are supposed to do with this report?

This particular report was generated in seconds. What would you have thought if this report dragged on for 20 or 30 seconds? Since you lose control of your PC while the report is running, you might have thought that your PC crashed. Some impatient users might have already rebooted assuming the PC had crashed and could lose changes in process in Donald Stern's record.

There is a better way and that is to use a message action to introduce the report action. Here's how to do it.

5. Close the **Document Viewer** and close **Donald Stern's** record, without saving your change. Return to the **Field Change Triggers** process and select the **Multi-Action Test** trigger.
6. On the **Actions** tab, insert a blank row above the **Run Document** action already defined. Add a **Display Message** action, and open the **Detail** for it. In the **Message Text** field, enter the following:

Attention: A report will now be generated. This will take a few seconds. When the report is displayed, please email it to joe@bigcompany.com.

7. Close the **Display Message** action, saving your changes. Close the **Field Change Triggers** screen.

8. Now go back into **Donald Stern's** record and enter **Vista** as his **City** again.

When the trigger fires this time, you will get the message that informs you that a report is about to be run. The message also instructs you on what to do with the report when it is displayed. When you close the message screen, the report will be run.

This is your first multi-action trigger. As you learn how to string multiple actions together in a single trigger, you can see how important it is not to alarm the user. You can put multiple messages in the string if you need to.

9. Close the **Document Viewer** and close **Donald Stern's** record, without saving your change.
10. Continue with the next tutorial.

Tutorial 6.2 – Use Multiple Communication Methods

A famous baseball player once said something like this:

“Business is 90% communication. The other half is communication.”

The point of this statement is that communication is essential. While it is possible to over communicate, more often than not communication is lacking. In this lesson, we’ll show you how to make certain you get your point across.

1. Return to the **Field Change Triggers** process and select the **Multi-Action Test** trigger. Change the **Trigger Field** to **Hire Date**. On the **Conditions** tab, enter the condition as follows:

If New Value is **Not Equal to**
leave blank

Note: The “leave blank” above indicates that you are to leave the field blank.

2. On the **Actions** tab, open the **Detail** for the **Display Message** action already listed. Change the **Message Text** field to the following:

**This is a new hire. Remember to notify payroll so that this person will get paid.
Remember to notify security so that this person will get a badge.**

Now, when you enter a Hire Date, you will receive a nice, gentle message reminding you to perform a few actions. Ah, but we know that a single message will not be enough. We need more communication.

3. Delete the second action (the **Run Document** action) that was created in the last tutorial. Then add a new **Set Alarm** action. Open the **Detail** for this action.

You learned about the Set Alarm action in Essential Tools training, but let’s review that action. Using this action, you can manually set alarms for yourself or for another user for any future date and time. When an alarm time is reached, the alarm text is automatically displayed. If you are not in People-Trak when the alarm is executed, it will be displayed upon your next login. Let’s set our alarm.

4. Set the **User ID** to your user ID, **DEMO**. Set the **Alarm Date** to the date variable **TODAY** and the **Alarm Time** to **4:00 PM**. In the **Alarm Text** field, add the text indicated in step 2 above.

Now when we change a hire date, we get a message and late in the day we receive an alarm. Is that enough communication? Perhaps, but not for this lesson.

5. For the third action, add a **Send Message**.

This is another action you learned about in Essential Tools training. This action allows you to send messages to your own People-Trak Inbox or to the People-Trak Inbox of any other user. Unlike alarms, messages must be read from the Inbox and do not popup based on a timer. While the system is quite simple, it is secure because it is maintained entirely within People-Trak. Thus, it can be more secure than email.

6. Open the **Detail** for that action and set the **User ID** to **DEMO** (your user ID once again). In the **Message Text** field, add the text indicated in step 2 above.

This message will place a reminder in your Inbox. Now you have three reminders. But, that may not be enough. For example, after you change the Hire Date field, you will get the message. However, if you then leave People-Trak and do not come back for a few days, you will not see the alarm or the message in your Inbox. What we really need is some type of communication outside of People-Trak. An email would be nice.

7. Add a **Send Email** action as the fourth means of communication. Open the **Detail** for that action and set the fields as shown below:

To Address Type	Position
To	<i>use popup to select 1043 - Human Resource Manager</i>
From Address Type	Address Book
From	<i>use Address Book button to select HR User Timothy Carpenter</i>
Subject	New Hire Notification
Text	<i>enter the text from step 2 above</i>

Immediately after you receive the first message, an email will be sent to your email address (you happen to be the HR Manager) reminding you of the actions you need to take. Even if you do not come back to People-Trak for days, you will still receive an email. Is this enough communication yet? I didn't think so. Here's one last method.

8. Add an **Assign Task** action. Open the **Detail** for that action and set the fields as shown below:

User ID	DEMO
Task Date	TODAY (select using the Select Date Variable popup)
Task Type	Document
Task Name	<i>pick a report from the New Hires category</i>

This action will place an automated reminder in your Inbox to run a new hire report. If the item in your Inbox is not a sufficient reminder unto itself, simply run the report and obtain a list of the new hires for which you need to take action. Of course, you could develop a really powerful report that looks back a set number of days and lists only those new hires that need immediate action. But that is up to you.

Now we have to test this communication dynamo.

9. Close the **Assign Task** screen, saving your changes. Close the **Field Change Triggers** screens.
10. Open **Donald Stern's** record. On the **Status** screen, change the **Hire Date**. The message is then displayed. When you close the message, a simulated email is displayed indicating that the email was sent.

Later in the afternoon an alarm will also pop up reminding you once again. We must manually check the other actions.

11. Close **Donald Stern's** record, without saving your change. Open your **Inbox**. You will see the message that was sent and the new hire report just waiting to be run. Close the **Inbox**.

In this example, you have been the object of this excessive communication, but that is not a restriction. You can make any user or group of users the object of any or all of the

communication actions. With email actions, including multiple email actions on the same trigger, you can reach out to just about anyone.

12. Continue with the next tutorial.

Tutorial 6.3 – Fill Multiple Rows in a Grid

Let's look at another example of using multiple actions. However, rather than running reports or sending messages, we will use a set of Update Field actions to put a stack of data into a grid. This simple example is a foreshadowing of a much more elaborate new hire process in the next lesson.

1. Return to the **Field Change Triggers** process and select the **Multi-Action Test** trigger. On the **Actions** tab, open the **Detail** for the **Display Message** action already listed. Change the **Message Text** field to the following:

Standard company property recorded, please issue the property promptly.

2. Delete the remaining actions in the list.
3. Add a pair of **Update Field** actions. Open the **Detail** for those actions and set the fields as shown below:

Note: The **Row Modifier** referenced below is the first **Row Modifier**. The second **Row Modifier** is not used in this example. That would be used if the **New Value** was a grid field.

Field Name	Property Type
Row Modifier	1
New Value Type	Value
New Value	Policy Manual

Field Name	Issue Date
Row Modifier	1
New Value Type	Value
New Value	TODAY (must select using Date Variables popup)

4. Add another pair of **Update Field** actions. Open the **Detail** for those actions and set the fields as shown below:

Field Name	Property Type
Row Modifier	2
New Value Type	Value
New Value	ID Card

Field Name	Issue Date
Row Modifier	2
New Value Type	Value
New Value	TODAY (must select using Date Variables popup)

5. Add a third pair of **Update Field** actions. Open the **Detail** for those actions and set the fields as shown below:

Field Name	Property Type
Row Modifier	3
New Value Type	Value
New Value	Keys

Field Name	Issue Date
-------------------	-------------------

Row Modifier	3
New Value Type	Value
New Value	TODAY (must select using Date Variables popup)

It is important to make certain that the Row Modifier fields are set correctly, as they determine the row on the grid on which the data will be placed. This will overwrite any existing data in that row. In our case, the record is going to be new so we will only replace blanks.

6. Close the **Field Change Triggers** screen.
7. Click the **New Employee** shortcut, and then click **Create** to create a new employee from scratch.
8. On the **Status** screen, enter a **Hire Date**.

You receive the message that the standard company property has been recorded. Let's verify that this was indeed done.

9. Click the **Property** button to display the **Company Property** screen.

Note that the standard company property defined in the trigger has been issued to this new employee. There are three individual lines with two fields on each line. We could have added more, but you understand the point. You can use multiple Update Field actions to update multiple fields, and you can use the Row Modifier field to place data on different lines in a grid.

10. On the **File** menu, select **Delete Employee** and delete this new employee.

We just used the Update Field action to put data in specific rows. This was OK because we had just created the employee and knew that there was no data in those rows. But what if we wanted to add data to a grid with existing data. If the grid has rows used for a specific purpose, then you would still want to update a specific row. But if you just want to add something to the end of the existing data, you wouldn't know where the first blank row is. You need to use "+" modifier to do this. But if all the update field actions use "+", they will all overwrite the last row. We need to insert a row before each set of update fields to take care of that.

11. Return to the **Field Change Triggers** process and select the **Multi-Action Test** trigger. On the **Actions** tab, insert a row before the first **Update Field** action and add an **Insert Row** action. Open the **Detail** for that **Insert Row** action.

The Insert Row screen is displayed.

12. In the **Grid Name** field, select **Company Property**.
13. In the **Insert at Row** field, select "+".

This will insert a row at the end of the existing data in the Company Property grid.

14. Close the **Insert Row** screen.
15. Open the **Detail** for the first **Update Field** action, which should be the **Policy Manual** update.

16. In the **Row Modifier** field, change **1** to **+**.

This is going to overwrite the last row, which was newly inserted with the Insert Row action, and populate the Property Type field with a value of Policy Manual.

17. Close the **Update Field** screen, saving your changes.
18. Open the **Detail** for the second **Update Field** action, which should be the **Issue Date** update for row **1**.
19. In the **Row Modifier** field, change **1** to **+**.

This is going to overwrite the last row and populate the Issue Date field with today's date.

We have two more rows of data to add to our grid. They are the next two pairs of Update Field actions. Before each pair of Update Field actions, you need to add an Insert Row action as you did before the first pair.

20. Before the second pair of **Update Field** actions, insert another **Insert Row** action just like you did for the first pair. Then change the following two **Update Field** actions to use a **“+” Row Modifier** rather than a **2**.
21. Before the third pair of **Update Field** actions, insert another **Insert Row** action just like you did for the first pair. Then change the following two **Update Field** actions to use a **“+” Row Modifier** rather than a **3**.

When you are done, you will have three sets of Insert Row, Update Field, Update Field actions all using the **“+” Row Modifier**. Each set will insert a new last row and then update that row.

22. Close the **Field Change Triggers** screen.
23. Click the **New Employee** shortcut, and then click **Create** to create a new employee from scratch.
24. On the **Status** screen, enter a **Hire Date**.

As before, you receive the message.

25. Click the **Property** button to display the **Company Property** screen.

The screen should look like it did for the previous new employee. The Insert Row and Update Field actions using the **“+” Row Modifier** allow you to add rows of data whether data exists or not. Unless you have a specific purpose for a row in a grid, this is the best procedure to use to add rows to a grid. If you wanted to add rows to the top of a grid, you would just use a **“1”** as the Row Modifier rather than the **“+”**.

Archimedes once said, “Give me a lever long enough and I can move the world”. I say, “Give me enough Update Field actions and I can populate a whole record”. In case it hadn't crossed your mind, you can add an unlimited number of actions to any trigger.

26. On the **File** menu, select **Delete Employee** and delete this new employee.
27. This concludes this tutorial and lesson.