3

HR On-Boarding

WHAT'S IN THIS CHAPTER?

- Your first real-world workflow solution
- Learning about the world's oldest business pattern - CRUD
- Creating tasks
- Using workflow parameters

Nothing is more frustrating to a company and its new employees (or contractors) than showing up to for the first big day at work just to get stuck at the front door sitting around for hours and twiddling thumbs while people figure out what to do. How many times have you seen this happen? Probably too many times to count. This kind of future event is not hard to understand conceptually, and everyone agrees that it's important to execute properly. Yet, something manages to go wrong with frustrating regularity. If you've left a new hire cooling her heels in the lobby while people scramble to locate a desk, you're not alone.

The HR on-boarding process provides you with an opportunity to solve this easily preventable problem using some automation via workflow and exception management via dashboards. Workflow can ensure that everyone knows what they are supposed to do and when they are supposed to do it. Dashboards enable the HR managers to follow up and actively manage the process when needed. This way, when new employees walk up to the door, they can not only go straight to their desk, but also be assured that they have a network ID set up, a waiting laptop, new employee orientation scheduled, and so on.

This is the first hands-on chapter of the book, which covers certain steps in greater detail than in future chapters. For instance, you create a custom list to create a lookup site column for the model company's office locations (for example, New York, London, and such). This is a common technique that won't be explained in detail elsewhere.

Before you dive into the solution, consider how to arrive at a true and clear definition of the problem (via interviews) and validate that discovered business knowledge with a swim lane diagram. After this critical planning step is successfully concluded, you crack open SharePoint and build the solution, step by step. This chapter emphasizes the full life cycle of the process, including creating, updating, and deleting operations and how to meet those requirements using SharePoint and workflow.

WHAT IS THE HR ON-BOARDING PROCESS?

The HR on-boarding process is straightforward, which is a big reason why it's the first hands-on chapter in the book. You know that a new person will be joining the company at a future date. That person might be a new full -time employee or might be a contractor. When the new hire arrives in the parking lot, certain things need to be completed for that first day to go smoothly:

- Security access to the physical premises
- Laptop or desktop procurement
- Office space and location
- Phone configuration
- Network credentials
- Payroll
- Scheduling day-one activities (new employee orientation)

The list goes on and on. Every company has a different set of day-zero activities that must be completed, and different employees may have different day-zero activities as well. For instance, sales reps may be issued a light-weight laptop suitable for traveling the country whereas a developer is issued a heavy-duty laptop with more horsepower.

The company is not the only responsible party. The new hires have responsibilities, too. They typically need to fill out some paperwork (acknowledge receipt of employee handbook), make some benefits selections and take a security course. It's not a one-way street, and SharePoint can help you to manage this part of the process as well.

The on-boarding process encapsulates all the activities that both the company and its new employees must complete. These activities start before the new hires walk in the door for the big day and doesn't end until the new hires complete all the "newbie" stuff.

PROBLEM CLASS

HR on-boarding exemplifies the "future event" class of business problems. You know that something important is going to happen at a future date. For that future event to proceed smoothly, a variety of people and business groups need to coordinate their activities and complete tasks before the event takes place. Otherwise, the event won't run smoothly and may even fail altogether!

After you solve this HR on-boarding problem, you have implemented a pattern that you can reuse later with minor variations. These other problems include the following:

- Event planning
- New store opening

- Product launch (marketing event)
- Webinar

TECHNICAL PATTERNS

While solving the HR on-boarding problem, you can implement the following technical patterns:

- **Basic CRUD:** This chapter talks a lot about CRUD (Create, Read, Update, and Delete), which is the core technical pattern for almost every imaginable business process. Job offers are made and accepted, but sometimes, plans change (that is, they are created and updated). Start dates may change or new hires may turn down previously accepted offers and go to work somewhere else (that is, deleted). HR managers need to view the status of new hire activities (that is, read).
- **Delegation:** You have lots of people involved. You can assign tasks to them until you're blue in the face, but what happens if they are on vacation?
- **Dashboard feeder:** The bedrock beneath manage-by-exception principles, dashboards show just the right information in an easily digestible format that requires little or no interpretation. Dashboards represent a snapshot in time of an entire set of processes, and to display that snapshot, the data must be available. The dashboard feeder pattern ensures that your workflows provide appropriate status information so that you can provide meaningful dashboards to the people entrusted and responsible for making sure the business process works smoothly.

BUSINESS PATTERNS

While solving the HR on-boarding problem, you need to implement the following business patterns:

- **Routing:** Who is assigned these tasks?
- **Calendars:** Who is doing what and when?
- **Delegation:** Similar to the technical pattern of the same namesake, delegation enables users to meet their obligations by identifying a responsible team member to handle their responsibilities while they are away. If I'm the guy on the IT team responsible to provision a network security account for a new hire and I'm going to be on vacation, I need to have someone take care of that while I'm away. Delegation enables me to do that.

BUSINESS PROBLEM DESCRIPTION

You can arrive at this via a standard process and pattern that the chapters of this book generally follow. For HR on-boarding, you need to identify the core problem, who are the actors (people and systems) and what actions they need to take to ensure a successful outcome. You identify and dispose of any obvious or not-so-obvious problems.

Requirements Discussion

This section is named "Requirements Discussion" not just because it's going to discuss the requirements (which it does), but also because it's important to actually discuss, out loud, the requirements with all affected users. This is the interview process that Chapter 2, "Workflow Basics," laid out for you.

When you start to analyze the requirements around this process, you need to first figure out who you are going to meet. Different groups of people have different goals, hopes, and dreams in mind. If you don't talk to the right people, you might get a skewed set of requirements. If you talk to too many people, you'll never finish talking. Neither leads to a good outcome.

Imagine that you're meeting with the HR department and a hiring manager. Be prepared for some finger pointing and frustration during the initial meeting. If your company doesn't have an automated process in place today, there's a good chance that things don't work well when new employees join, and as a result, more than once people have done a bit of yelling.

The goal of this initial interview session is to find out several pieces of information:

- Which departments need to be involved in the new hire process?
- What role does the new hire's manager have?
- Who is the watchdog? Who pays attention to the process to make sure that it goes smoothly and cracks the whip when necessary?
- How often does the process change?

When you know who's involved, you can schedule additional interviews. For example, an on-boarding process is almost certainly going to involve the IT department. With that list of departments, schedule additional in-person meetings to cover topics such as the following:

- What information does the group need to prepare for the new employee?
- Does it matter if this employee is in sales, technology, administration, or some other group? If so, what is the impact? For instance, your company typically provides a laptop to a new sales rep but may provide a heavy-duty desktop for on-site development staff.
- Does it matter if this is a contractor and not an employee? Does the department need to be notified about certain types of employees or contractors?
- How much time does the group need to complete these preparations? It may need two weeks to procure and provision a laptop, whereas security may need just a few days to update its employee database.
- Who takes the lead within the group and is primarily responsible to ensure that the group performs its new-hire tasks on time and accurately?
- Does the group have a proper delegation process if the primary responsible person is on vacation?
- Which systems do they need to interface with for the new employee? For instance, IT needs to create an account in Active Directory.

These questions may prompt some soul-searching. For instance, the group may not have any kind of official delegation process; merely asking the question may prompt them to create one.

This chapter makes some assumptions using a model of a company that includes the following departments:

- Human resources department
- IT department
- Accounts payable
- Security

Each of them and their role in the process is discussed next.

Actors

The model on which this hands-on chapter is built coordinates activities between the following departments and individuals:

- **Human resources:** At least one member of the HR department needs to be responsible to launch the process, change start dates, and monitor the dashboard.
- **New hire:** This is the new employee or contractor. You might frequently think in terms of new employees, but many organizations treat temporary contractors in a similar way as new full-time employees. After all, contractors still need an email address, a place to work, and so forth.
- **Hiring manager:** The hiring manager is effectively the HR department's customer. As a customer, the hiring manager wants to be kept in the loop and be involved only if there are issues that require direct intervention.
- **Information technology department (IT):** Procuring hardware, setting up internal network accounts, and access.
- **Accounts Payable:** Setting up payroll.
- **Security:** Providing physical access to the work area.

Different companies can have a varying number of groups involved in making sure that the on-boarding process is successful. This model isn't meant to be exhaustive but does represent a fair cross section of responsible parties.

Actions

Who does what and when do they do it? Now walk through this in detail so that you understand your eventual automated workflow process.

To begin, you can assume that the new hire has a defined and expected start date. Someone needs to enter that information into the system to begin the process. The HR manager fulfills this role.

SharePoint is an actor. SharePoint is often referred to more dryly as "the system." SharePoint creates tasks, alerts people that a new person is beginning on some future date (or changes to the start date) and feeds the dashboard so that the HR manager can exercise control. The IT Department needs to provision hardware and create network credentials for the new hire. Accounts payable sets up the new hire in the payroll system.

In this model, the hiring manager doesn't actively participate. However, the hiring manager is clearly interested in what's happening with the new hire, so the system sends alerts to the hiring manager.

Challenges

If you take a simple view of this problem, it's not all that hard to solve. However, you need to solve three key challenges for this to be a high-quality solution. This chapter discusses two of these but leaves the last (delegation) for Chapter 4, "Helpdesk Ticketing."

First, plans change. Someone may accept a job offer but actually end up taking an entirely different job offer with another firm. Sometimes, people plan to start on a specific date, but for some reason they need to change that start date. In both cases, you need to manage two exceptional conditions: delete and change. These are three of the four pillars in your CRUD requirements. (Create, Update, and Delete; Read is managed via a dashboard.)

Second, a complex process like this involves many different people, some of whom cannot always be available when they are needed. Sometimes it's difficult to predict but many times (for example, scheduled vacation time), it's entirely predictable. Your solution needs to address these cases. You acknowledge this problem here (it's called delegation) in this chapter but wait for Chapter 4, "Helpdesk Ticketing," to see a detailed walk-through of the solution.

Lastly, you have a technical challenge. Company dates don't follow calendar dates. You need realistic due date assignments. For this, you need to calculate due dates that don't fall on weekends or company holidays. You can't solve this easily out-of-the-box, but you can via a custom action. Chapter 12 discusses custom activities.

HIGH-LEVEL SOLUTION

This section describes the high-level solution of the problem upon which the detailed walk-through is built. This section outlines the overall solution, provides a visualization of the workflow by way of a swim lane, and defines the necessary content types and their purpose.

Solution Overview

Kick off the process when an HR manager accesses the system and says in simple terms, "Hey, here's a new hire starting on future date [x]." HR's action triggers task assignments to the departments in the model (IT, AP and security). To this end, you need a custom list to manage the new hire (name, start date, and so on) and three different types of logical task lists, one for each department in the model. You create three logical task lists but implement this as one physical task list with the aid of four site content types.

The new hire custom list and related task list provides the cornerstone of the solution's dashboard. The HR manager (and other authorized and interested parties) use the dashboard to obtain a single unified view of everything that's happening and can manage unusual situations (primarily, when the tasks are overdue). Because the dashboard is driven off tasks and the new hire list, any changes to the underlying data result in an immediate update to the dashboard, providing a real-time view into the state of every new hire on-boarding process in the company.

You meet the CRUD requirements via three distinct physical workflows, all of which are started manually by the HR manager:

- **Launch new hire process:** After the new start date is known, the HR manager creates the new hire entry in the custom list and starts the process.
- **Change new hire start date:** If the new hire's start date changes, HR to provides the new expected start date and updates the workflow for all associated tasks as needed.
- **Cancel new hire:** Notify all the interested parties that the new hire won't be starting.

Swim Lane Diagrams

The swim lane diagram shows the workflow visually (recall that you learned about swim lane diagrams in Chapter 2). (See Figure 3-1.)

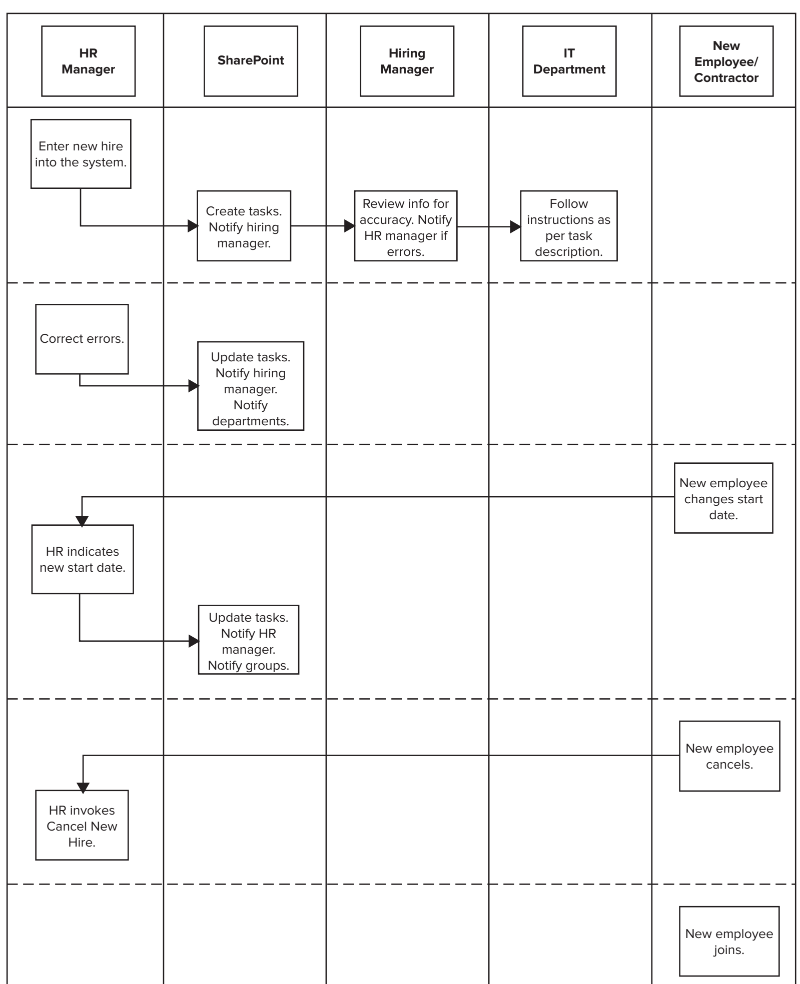

FIGURE 3-1

The swim lane diagram depicts four variations of the new hire process:

1. Entering a new hire
2. Correcting errors
3. Changing the employee's start date
4. Canceling the process

Each variation is separated from the others by way of the heavy dashed line.

The swim lane depicts the actors, actions they may take, and the sequence in which they occur. The diagram shows only the IT department because it can represent all the departments involved in the solution. (All departments take the same actions.)

The technical implementation takes this diagram into account as it describes the actual SharePoint configurations that you need make to create this solution.

Technical Implementation Overview

The technical implementation of this solution relies upon SharePoint content types. To meet the requirements of this solution, you create six content types: one for the new hire, four for tasks, and one final content type for a user experience purpose.

You create several different workflows to support the preceding swim lanes. The first workflow kicks off the grand process. Because this process is all about new hires, you need to provide some way for HR managers to create a new hire in the system. Define a content type for this purpose and allow the new hire custom list to manage it. This provides your basic data entry function and starting point. Workflows that support your various CRUD processes hang off that list.

> *Developers use a lot of jargon in their daily routine. The idea of a workflow "hanging off a list" is just a colorful way to say that a workflow is defined and attached to a specific list. In this case, the workflows that you create to support this solution will all be associated with the New Hire list itself. More on that as the chapter progresses.*

Multiple departments need to work off task lists. Not only do they guide those departments and help to keep everyone accountable, they will also serve as core components to the dashboards. You could use the default SharePoint task list for this purpose, but instead you create a custom list tailored to the specific needs of this business process (and follow best practices to boot). As with the new hire list, you create a content type and associate it with the list. This time, you create four different types (one base type and three specialized per department).

Lastly, you want to build some flexibility into your solution. In particular, you assign tasks to IT, accounts payable, and the good people in security. The description for each department task is quite different from the next and may change over time. You could hard-code these descriptions in the workflow, but instead you separate them into a custom list. This way, if they change, the department owners can update the description.

Content Types

The on-boarding solution uses the following content types:

- **New Hire:** Name, start date, title, and so on
- **New Hire Base Task**: Generic task that defines the most important elements of all the tasks in the system
- **New Hire IT Task**: A specialized form of the new hire base task for the IT department
- **New Hire AP Task**: Specialized task for the AP department
- **New Hire Security Task:** Specialized task for the security group
- **New Hire Task Description:** A simple content type that enables departments to control the description of tasks assigned to them. For instance, a specific set of instructions for IT is distinct and separate from instructions to accounts payable.

> *What is a content type? If you're relatively new to the SharePoint world, this is a word you will quickly become familiar with. In SharePoint, a content type is similar to a header row you might create in an Excel document. Each column is labeled, and each row in that column normally contains the same kind of data (for example, a number, hyperlink, date, and so on). After you define a content type, you can use it to quickly and easily create items in custom lists (such as your New Hire list or department tasks). SharePoint provides a handy default user interface for this purpose. If you want to learn more about content types, check out Microsoft's introduction here at* `http://office.microsoft.com/en-us/windows-sharepoint-services-help/introduction-to-content-types-HA010121570.aspx`.

Custom Lists

The solution builds upon the following key custom lists:

- **New Hire:** The core list in the solution, holding all key new hire information
- **New Hire Tasks:** Workflows create and update items in this list, assigning tasks to the three corporate departments in the model.
- **New Hire Task Descriptions:** A supporting list that enables you to avoid hard-coding the task descriptions

> Hard-coding *is more technical jargon best explained by example. Your workflow assigns tasks to the IT department, and that task has a detailed description of what the IT department must accomplish. You can embed those instructions directly into the workflow. When you take that route, you* hard-code *the instructions into the workflow. Hard-coding is generally considered a bad thing because if you want to change those instructions in the future, you need to change the "code" (in this case, the workflow) directly. Any time you touch a functioning application, you risk introducing an error. Use the New Hire Task Descriptions custom list to avoid hard-coding descriptions. Instead of embedding instructions directly into the workflow, look up the instructions from this list. If you need to change instructions in the future, you can go to the list and update it instead of risking making changes to an existing and tested workflow. In this way, you create data-driven descriptions. Data-driven configuration is almost always preferable to hard-coded configuration. This is an important technical pattern used throughout the book.*

Workflows

It may feel like it took quite a while to get to this point, but you've finally arrived at the root of things. Although people might think of HR on-boarding as one unified process, you can't actually implement it that way in SharePoint using SharePoint Designer. Although it's true that there is one logical process, you need to break that up into several smaller physical processes to fully automate the solution. Three physical workflow processes suffice:

- **Confirm New Hire Start Date:** Launches the workflow process, assigning tasks to the departments
- **Change New Hire Start Date:** If the new hire's start date changes, you need to update the due date on the tasks and notify the appropriate people.
- **Cancel New Hire:** Similar to the change start date workflow, you need to notify the departments that the new hire won't be starting. However, you should also delete the tasks and clean up after yourself.

To start automatically or manually — that is the question. You run these manually. In general you don't want end users to have to learn the relatively complicated set of steps to launch it manually. However, this is a good example of when you should do it that way. First, the HR folks want to exert specific controls over the process, and there are not normally that many of them. This reduces the scope of the training effort. Second, you can get into a real mess if you start workflows automatically for this process. Each of the preceding three workflow solutions need to decide whether it's actually supposed to run this time. There are times when you want to go to that trouble, but this is not one of them. Finally, these three workflows map to a straightforward and real scenario. New hires plan to start on a certain date; events intrude, forcing start dates to change; and occasionally, new hires never actually start.

Dashboard

Your dashboard strives to meet one primary and one secondary goal. The primary goal is to allow the HR manager to quickly identify problems, which you accomplish this way:

- ➤ Defining views on the task list that filter by department and task status
- ➤ Creating a web part page
- ➤ Adding the task list to the web part page, taking advantage of the views you just created

You frequently create dashboards using this technique. Create views on the primary lists or libraries involved and then add the lists/libraries to a web part page.

DETAILED TECHNICAL IMPLEMENTATION

It's now time to create your first moderately complex workflow solution in SharePoint 2010. The following sections walk you through the process step by step.

Setup

The setup process for the HR on-boarding process follows the same pattern as for any other technical workflow implementation. First, create any custom lists you need to support lookup type site columns. In this case, you create one custom list to provide lookups for the new hire's office location. With supporting lists in place, you create site columns and then organize them into site content types. Lastly, you create the last batch of custom lists and bind them to these content types.

Supporting Lists

There is one supporting list for this workflow: the office lookup. This particular list couldn't be simpler because it's an out-of-the-box SharePoint custom list. Create a standard custom list named "Locations" in your sandbox site using SharePoint Designer. Populate the title field with a handful of office locations, as shown in Figure 3-2.

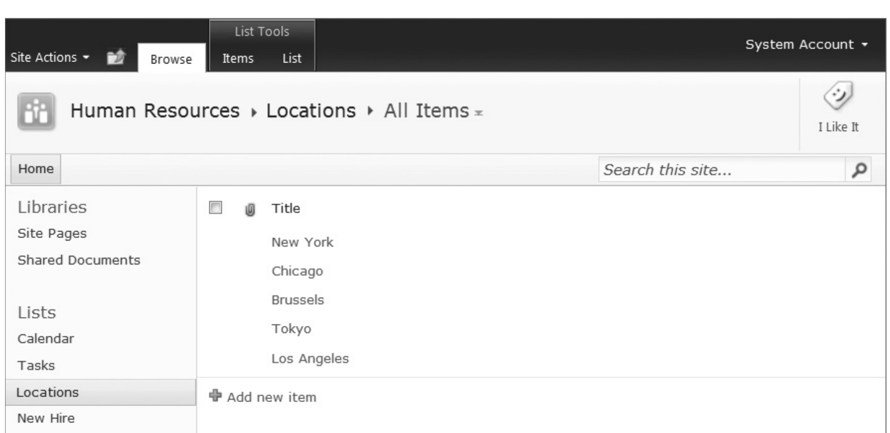

FIGURE 3-2

Content Types

Content types play a critical role in any good SharePoint business solution. As discussed in the high-level overview, you need to create a half dozen content types to support the business process.

When building content types, always begin with the site columns and build up from there. Further consider technical versus business site columns. A technical site column is never (or rarely) intentionally displayed to end users. Technical columns enable the workflow to maintain key information about the process or serve some technical purpose that is of great interest to developers but of no interest to end users (and indeed, would be quite confusing). A business column is, of course, the opposite. In some cases, a site column may play both roles. In such cases, consider it to be a business column so that you don't forget that end users can view and edit this column.

To create a site column, navigate to your sandbox site in which you are developing this solution. Click the Site Actions button in the upper left corner and select Site Settings (typically the last option in the list). SharePoint responds with the site settings page broken into a major sections including Users and Permissions, Galleries, Site Administration, and so forth. The first sub-choice underneath Galleries is Site Columns. Click Site Columns and SharePoint responds with a list of all the site columns defined and/or available to your sandbox site. Create a site column by clicking Create (the upper left hand corner of the main site column display area).

Because the HR on-boarding process begins with the New Hire, start with that.

> *In the halcyon days of MOSS and WSS, the SharePoint community often searched out some way to implement column-level security. It would be helpful if you could prevent end users from viewing (and especially editing) your technical site columns. There wasn't any surefire way to handle this in MOSS or WSS and sadly, there's no good way to solve this problem in SP2010.*

New Hire Content Type

The new hire content type requires the following site columns. You can break this down into business level information and technical information for use by the workflow.

Business columns:

- **New Hire Name:** Because this person hasn't actually joined the company yet, he won't have a network ID, so you just need a place holder for the person's name.
- **New Hire Office:** This is the new hire's office location. It may affect things such as security procedures.
- **New Hire Job Title:** Self-evident
- **New Hire Manager:** The manager will have a network ID, and as a result, you can use the person or group column type.
- **New Hire Start Date:** The date the new hire is expected to walk in the door

Technical columns:

- **Instance Count***:* In general, it's helpful to know how many times a given workflow process has run. In this specific case, you use it to prevent workflows from running more than once.
- [X] **Task ID:** Assign tasks to multiple departments. When you assign that task, record its ID so that you can easily cross reference it later. These columns are critical to change a start date or handle the case when an employee doesn't join the company .

Table 3-1 lists site columns.

TABLE 3-1: New Hire Site Columns

COLUMN NAME	COLUMN TYPE	ADDITIONAL SETTINGS
New Hire Name	Single Line of Text	None
New Hire Home Office	Lookup	Source this from the Office custom list ("locations") you previously created.
New Hire Start Date	Date and Time	Date Only
New Hire Manager	Person or Group	Accept default values
New Hire Title	Single line of Text	None
New Hire IT Task ID	Number	None
New Hire AP Task ID	Number	None
New Hire Security Task ID	Number	None
GP Instance Run Count	Number	Create in a group named: General Purpose WF Technical

Following are important notes:

- Excepting the last Column Name (GP Instance Run Count), attach them to the group Hr.Onboarding. You can select any group name that you want, but select a meaningful label that helps you organize this content type, along with all the many other site columns and site content types that you create in your environment.
- Associate GP Instance Run Count with the group *General Purpose WF Technical*.
- It may seem awkward to pre-fix every field with New Hire. This is necessary, however, because a site column's name must be unique with a site collection. Don't worry — SharePoint enables you to relabel these fields later.
- The purpose of the various Task ID site columns becomes clear as you proceed through the rest of the solution. They are crucial to supporting the U and D in CRUD.
- Add a helpful description to the business columns. Your end users will thank you.
- Add each column to a group named "HR.Onboarding".

After creating the New Hire site columns, group them together into a site content type. Figure 3-3 shows the end result.

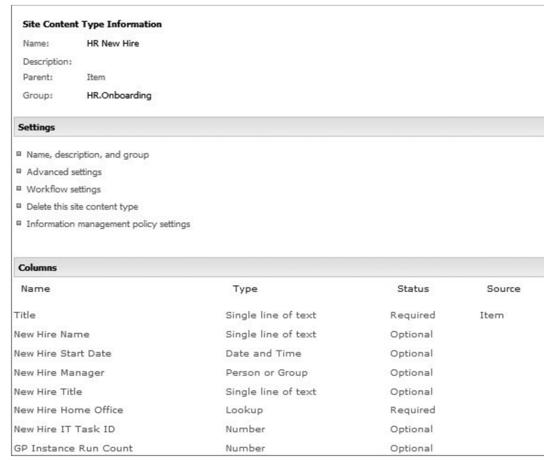

FIGURE 3-3

Create the new content type based off the item content type and name it: HR New Hire. Recall that the SharePoint content type named "Item" is part of the "list" content types. Help yourself and add columns in the sequence shown (refer to Figure 3-3). It's not strictly necessary to add them in sequence, but it helps to do that because they show up on the default data entry form that way. You can always correct it later if you make a mistake.

Lastly, hide the technical columns. Humans won't be editing those values directly. (At least when things are running normally — you might want to leverage them for debugging purposes at some point.) These are there for the workflow process. Click the Title column (refer to Figure 3-3) and mark it as hidden, as shown in Figure 3-4.

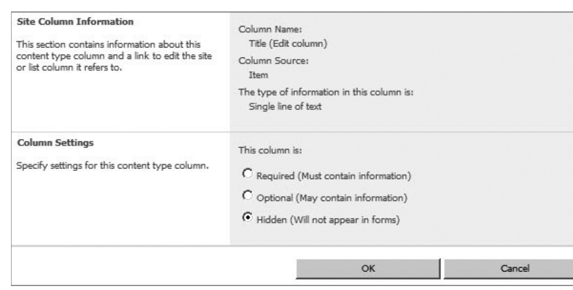

FIGURE 3-4

Next up: tasks.

New Hire Tasks

As per your design, when a new hire joins, the system should assign tasks to the appropriate person in each of the three departments in your model. Because these tasks are in the service or business process, you create them entirely from scratch. In other words, you won't use the out-of-the-box SharePoint task but instead create a new HR New Hire Task. This task includes the following site columns:

- All the business fields of the New Hire content type
- **New Hire Task Due Date:** The task should be completed by this date. This drives your dashboard and supports the design objective of managing by exception.
- **New Hire Task Description:** Multiple lines of text that will represent the instructions you wish AP, IT, and Security to follow when they are assigned one of these tasks.

It also includes one technical column:

- **New Hire Master ID:** The workflow updates this ID with the ID of the New Hire record. This enables you to connect individual tasks back to the new hire record that spawned them in the first place. See Table 3-2, which shows the New Hire Site columns.

TABLE 3-2: New Hire Site Columns

COLUMN NAME	COLUMN TYPE	ADDITIONAL SETTINGS
New Hire Name	Single Line of Text	Added from existing column
New Hire Home Office	Lookup	Added from existing column
New Hire Start Date	Date and Time	Added from existing column
New Hire Manager	Person or Group	Added from existing column
New Hire Title	Single line of Text	Added from existing column
New Hire IT Task ID	Number	Added from existing column
New Hire AP Task ID	Number	Added from existing column
New Hire Security Task ID	Number	Added from existing column
GP Instance Run Count	Number	Added from existing column

Create a base task content type named New Hire Base Task. The New Hire Base Task includes all of the same columns as the New Hire content type (as per Figure 3-2). In addition, add the three additional New Hire Task columns (New Hire Task Due Date, New Hire Task Description, and New Hire Master ID) that were described at the bottom of page 44.

When you have your base content type, create the three task content types to support the model. These are: New Hire IT Task, New Hire AP Task, and New Hire Security Task.

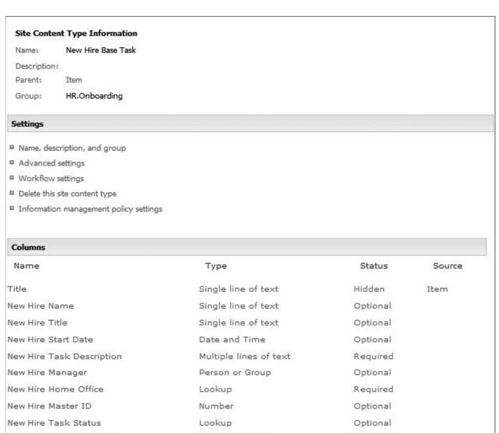

FIGURE 3-5

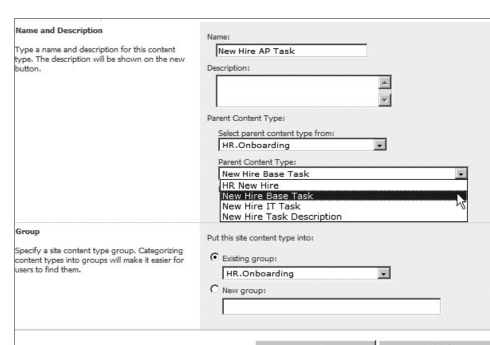

FIGURE 3-6

New Hire Task Descriptions

Create a new content type named New Hire Task Descriptions. The new hire task descriptions content defines just one site column named New Hire Task Descriptions. This site column should be defined as "multiple lines of text."

Create Lists

Now that the site content types have been created, it's time to create new SharePoint custom lists that use these content types. Create three custom lists in your sandbox site named:

1. HR New Hire (backed by the New Hire site content type)
2. New Hire On-boarding Tasks. Back this with all three task types (IT, AP and Security)
3. New Hire Task Descriptions backed by the site content type New Hire Task Description

Create Workflows

As is nearly always the case, it takes multiple physical SharePoint Designer workflows to implement a single logical business process. In this case, three distinct SharePoint Designer workflows operate together to support the HR on-boarding process.

Given the managerial nature of these workflows, each will be configured to start manually.

These three workflows follow:

- **Confirm New Hire Start Date:** This is the master workflow that starts the whole process. It has several features, including creating tasks, sending emails, instance management, and others.
- **Change New Hire Start Date:** Plans change and when that happens, so you need to let everyone know. This is a little tricky because you have all these tasks hanging out there. They need to be updated right along with the new hire master.
- Can**cel New Hire:** HR managers fire off this workflow if the previously expected new hire will not be joining the company.

Confirm New Hire Start Date

The Confirm New Hire Start Date workflow is attached to the New Hire list:

1. Determine whether the workflow should run.
2. Perform initializations.
3. Create the tasks.
4. Remember the Unique ID.

Determine Whether It Should Run

The first thing you need to do is make sure that you didn't already run this workflow for the same new hire more than once. You leverage the singleton pattern to accomplish this. To implement the singleton pattern, use a technical site column on the main list (New Hire in this case) that is implemented as a number. Every time the workflow runs, it checks the value of the counter. If it's >= 1 then you know you've run it at least once.

You already defined the site column GP Instance Run Count. The first step in your workflow checks the value of the counter and gracefully exits if the value is >= 1. Otherwise, it sets the value to 1 and proceeds to subsequent steps. Figure 3-7 demonstrates how this works.

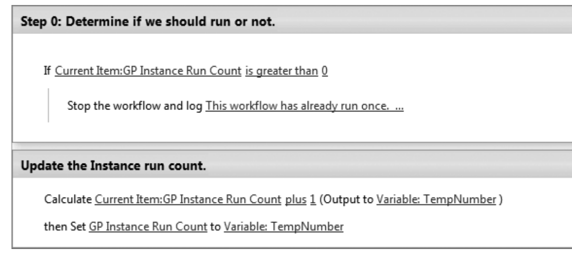

FIGURE 3-7

Following are a couple important notes:

- ➤ **Name your steps.** By default, SharePoint assigns a generic label to the step (Step 1, Step 2, Step 3, and so on). It's usually a good idea to keep the numbering intact, but take care to add some additional description so that you and your colleagues understand the objective of that step.
- ➤ **Always provide clear explanations when stopping.** This workflow always stops immediately if it has been run before because of the combination of GP Instance Run Count and the Stop action. Some users may find this confusing, so be sure to provide some explanation in the text of the stop action.

Now that you're secure in the knowledge that you won't run this workflow multiple times, go ahead to perform some initializations.

Perform Initializations

The first order of business is to obtain the appropriate descriptions of the tasks. Assign IT's task description to the value from the custom list you defined previously (thereby avoiding a hard-coded description) by way of a workflow variable named IT Task Description. Walk through this step by step.

1. Define the variable. Select Local Variables from the SharePoint Designer tool bar, as shown in Figure 3-8.

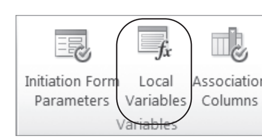

FIGURE 3-8

2. Click the Add button. Name the variable IT Task Description, and specify its type as String.
3. Look up the string value from the task descriptions list. Use the Set Workflow Variable action. SPD enables you to specify the workflow variable and the value to which you want to assign it. The latter part is tricky. Start with the end result and work your way backward. (See Figure 3-9.)

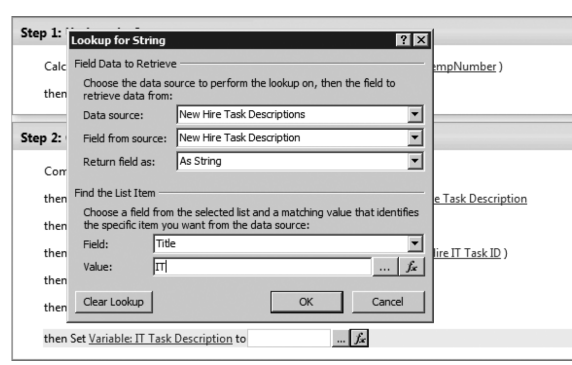

FIGURE 3-9

The dialog box in Figure 3-9 boils down to the following simple English:

- ➤ Find the New Hire Task Descriptions row in the list, where the Title is equal to the literal value IT.
- ➤ Return back to the New Hire Task Description column in that list.

This dialog box is common and used frequently in SharePoint Designer workflow solutions. Refer to Chapter 2 two for a refresher on how to manage this dialog box.

You can now repeat this process for the AP and security tasks that you create next.

Create the Tasks

It's now time for the big moment, and it's bound to be a little disappointing because you spent so much time preparing for it. Creating the task is a simple Create Item action, as shown in Figure 3-10.

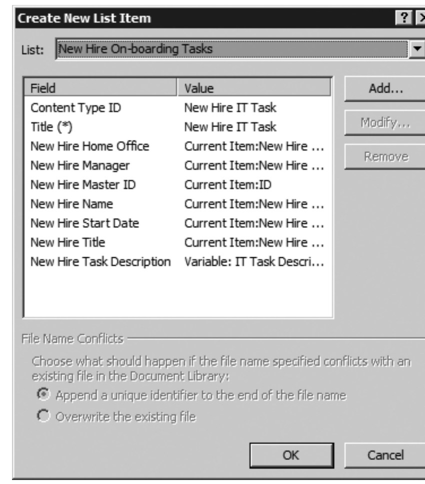

FIGURE 3-10

Tell SharePoint Workflow to create an entry in the New Hire On-Boarding Tasks list you previously created, and assign the values as previously shown. Most of the data comes directly from the new hire with three exceptions:

- **Content Type ID:** Specify this for each of the three tasks: IT, AP, and Security.
- **Title:** You won't actually use the title for anything; however, it's a required field on custom lists, and it's easier to go with the flow instead of fighting.
- **New Hire Task Description:** Assigned from the workflow variable you populated in the prior section "Perform Initializations."

Remember the Unique ID

At this point, you have one final step to perform to finalize this workflow. Going back to CRUD, this workflow represents the C. At some point, for some new hire, the start date will change, or the new hire will never actually join the company. The next sections walk through these kinds of updates. For them to succeed, they need to access the specific tasks associated with the new hire. The Create Item action returns to you the ID of the item that it created. Every row in a SharePoint custom list has one unique ID. You take that ID and then store it into the New Hire custom list. Later, when you need to update a start date or a delete a task entirely, you have the ID on hand. Figure 3-11 shows how SharePoint Designer handles it:

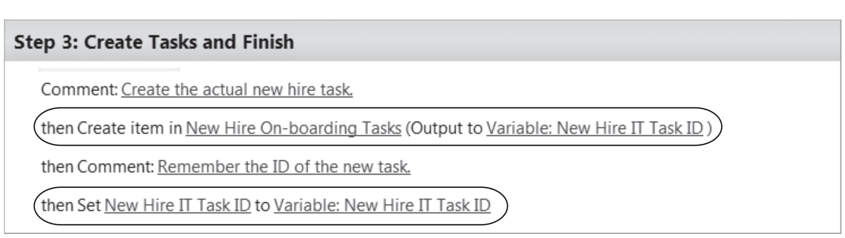

FIGURE 3-11

Figure 3-11 shows that first, you created the new item in New Hire On-Boarding Tasks and saved the ID of the new task into a workflow variable named New Hire IT Task ID. You then set the current item's site column named New Hire IT Task ID to the value of this workflow variable. It's now saved as part of the New Hire record and is available for updates and deletes.

Figure 3-12 shows the final result of this workflow.

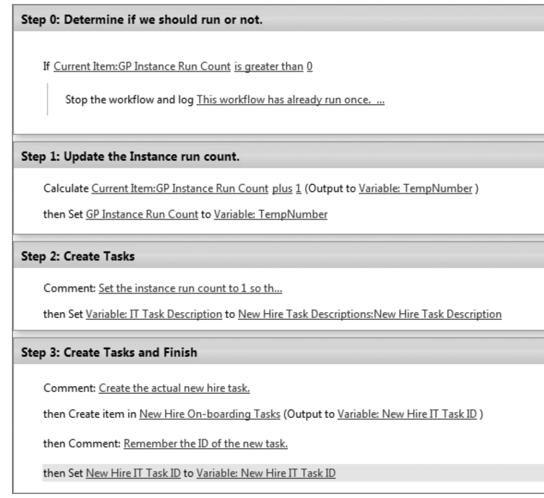

FIGURE 3-12

Change Start Date

Use a new workflow named Change Start Date to handle the common business scenario when a new hire's start date changes. You add a slight twist to your previous work by way of an initiation parameter. When the HR manager needs to indicate that a new hire's start date has changed, how can she do that? It may be tempting to simply open up the new hire and directly change the start date. It is better to use an initiation parameter. SharePoint prompts the HR manager for the new start date when she runs the Change Start Date workflow, as shown in Figure 3-13.

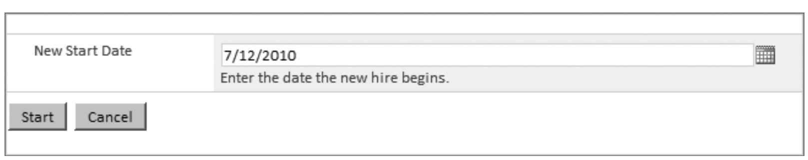

FIGURE 3-13

The initiation parameter approach provides a sensible and easy-to-understand user interface. SharePoint automatically prompts for the new start data, and it's unambiguous to the end user.

> *SharePoint displays only initiation parameters when users start workflows manually. Your design calls for a manual launch, but you should keep this in mind for future scenarios. It's not uncommon for new SharePoint Designer users to assume that their initiation parameters work the same way when their associated workflow starts automatically.*

Follow these steps to define the initiation parameter:

1. Access the initiation form parameter dialog via the Ribbon menu, as shown in Figure 3-14.
2. Add a new parameter named `New Start Date`.
3. Select Date and Time as the Information Type.
4. Leave default values for the rest.

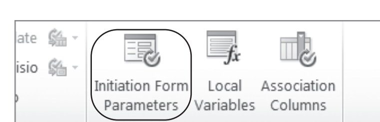

FIGURE 3-14

Now that you have your initiation parameter, you can create the workflow. This is a simple workflow that locates each of the three tasks you originally created and changes their associated start date. Use the Update Item workflow action to accomplish this, as shown in Figure 3-15.

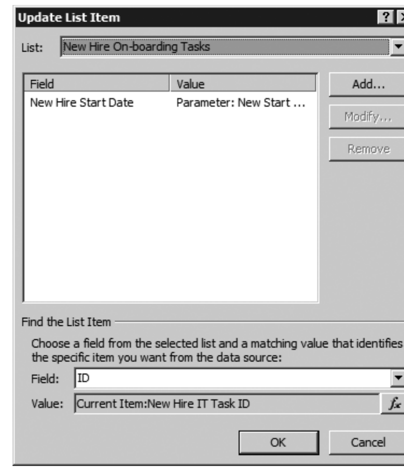

FIGURE 3-15

Figure 3-15 shows that the Update Item activity is broken down into three chunks:

- **The List:** In this case, it's the New Hire On-Boarding Tasks list. An important take-away from this is that you update items in the New Hire On-Boarding Tasks SharePoint custom list from a workflow running on an altogether different custom list (New Hires). Keep this in mind for the future because it's a handy capability.
- **What to Update:** You can update any column in the target list (New Hire On-Boarding Tasks) so long as the column is not a read-only column. Figure 3-15 shows you updating the new hire start date, but you could also update the new hire's name, title, and so on.
- **Find the List Item:** The bottom section of the dialog shows that you can find a specific row in New Hire On-Boarding Tasks whose ID is equal to the value of the current item's column, New Hire IT Task ID.

Cancel Start Date

Last but not least, you need to handle the D in CRUD. This workflow is implemented almost identically to the change start date workflow, so we won't go into great detail. Consider the following:

- Use an initiation parameter for are-you-sure logic. The Cancel New Hire Workflow is a potentially dangerous workflow because it can delete tasks assigned to IT, AP, and Security. This is what you want, but take care to avoid mistakes. Use the initiation parameter to get the users to confirm they mean to cancel the new hire start date. Then, test this value in the first step of your workflow, and stop if the users don't check the Yes box.
- The delete item workflow activity works similar to the update item activity. The only difference is that you don't specify the fields to update. You do specify the list and how to find the specific row you want to delete.

ADVANCED TOPICS

The main focus of this chapter has been on the CRUD pattern that you see in virtually every workflow solution you create. The HR on-boarding process cannot be considered complete until you address three common business and technical issues:

- Dashboards
- Delegation
- Data cleanup

The following chapters in the book delve into each of these areas in detail. This closing section of the HR on-boarding chapter outlines high level solutions to these issues. Come back when you're ready to implement them.

Dashboards

This HR process is begging for two different kinds of dashboards. First, it would be nice to see new hires and their start date superimposed over a calendar. This is straightforward to accomplish. Because all the pertinent new hire data is stored in one custom list, you can create a SharePoint view on the list based off the default calendar view.

Beyond calendars, the solution is also calling out for a more complex dashboard that enables HR to manage exceptional conditions. You can put together a comprehensive dashboard by creating three different views on the New Hire Tasks List: Overdue IT, Overdue AP, and Overdue Security. When you have these tasks, you can create a web part page, add the web part three times, and configure each of these three instances to use the "overdue" view. Whenever a task shows up on this dashboard, HR knows there's a risk that the new hires won't be ready to hit the ground running (through no fault of their own). HR can take steps to try and solve or mitigate the problems.

Delegation

Delegation can be complex, especially in financial approval style workflows. A more simple approach can work for most HR on-boarding scenarios. Recall that you use a custom list to manage the actual descriptions of tasks that workflow assigns to IT, AP, and Security. This technique enables you to avoid hard-coding these descriptions and provides more overall flexibility in the solution. You can use the same technique to specify task owners. When workflow creates a task, instead of hard-coding the user in the workflow, look up the user from another custom list. This now affords you the same flexibility that you baked into the workflow vis-à-vis task descriptions but also allows a simple delegation process to boot. If the primary task owner is going on vacation, simply update the task owner list with the new temporary owner, and all tasks will be assigned to that temporary owner until it is changed.

Chapter 4, "Helpdesk Ticketing," addresses this topic in great detail.

Data Cleanup

SharePoint can maintain new hire information and associated tasks forever. This means that you could have July 2010 new hires still in the system three or four years later. Sometimes, you want to hold onto information like this for an extended period of time, but rarely do you want it or need it to stick around, taking up system resources.

Sadly, SharePoint doesn't provide a good cleanup mechanism for things such as the New Hire custom list or the on-boarding tasks list. This chapter does not take up the challenge. However, Chapter 12, "Custom Activities," does provide a solution (albeit requiring custom coding). Look ahead if you need this problem solved sooner rather than later. There are some issues here that weren't addressed in detail.

SUMMARY

This chapter introduced a number of bedrock SharePoint designer workflow principles and techniques focusing primarily on the requirements for a vigorous and comprehensive CRUD solution. The HR on-boarding process developed in this chapter enables you to create, update, and operate in a clean manner and via a pattern you follow throughout this book.