LANDesk® Process Manager 3.0

User's Guide

LANDesk®

Nothing in this document constitutes a guaranty, warranty, or license, express or implied. LANDesk disclaims all liability for all such guaranties, warranties, and licenses, including but not limited to: Fitness for a particular purpose; merchantability; non infringement of intellectual property or other rights of any third party or of LANDesk; indemnity; and all others. LANDesk products are not intended for use in medical, life saving, or life sustaining applications. The reader is advised that third parties can have intellectual property rights that can be relevant to this document and the technologies discussed herein, and is advised to seek the advice of competent legal counsel, without obligation of LANDesk.

LANDesk retains the right to make changes to this document or related product specifications and descriptions at any time, without notice. LANDesk makes no warranty for the use of this document and assume no responsibility for any errors that can appear in the document nor does it make a commitment to update the information contained herein.

Contents

LANDesk® Process Manager

LANDesk® Process Manager is a workflow platform that operates as an integrated business process and workflow management system. It enables you to establish workflows and processes, as well as exercise change management in order to achieve a higher level of efficiency and more effectively manage your areas of responsibility. Process Manager assists you with implementing defined procedures into every aspect of your business, including IT, helpdesk, engineering, human resources, sales, marketing, documentation, training, and so on in order to assign ownership, drive task and objective completion, enhance business performance, and maximize profitability. The benefits of Process Manager can be measured in the following ways:

- **Unity:** Provide clearly defined process that everyone knows, understands, and can commit to.
- **Visibility:** Maintain constant oversight of your business by developing workflows and using the process models to visualize procedures.
- **Productivity:** Balance tasks by evenly distributing the workload.
- **Flexibility:** Respond to new ideas and techniques and be able to adapt to changes in your environment.
- **Versatility:** Employ workflows and processes in a variety of ways to accomplish your objective.
- **Quality:** Make continuous improvements to processes until you've reached maximum operating efficiency.
- **Control:** Assign tasks to the appropriate participants or automate tasks to drive completion of the final objective.
- **Integration:** Interface with other applications and departments to increase communication and build tighter collaboration.
- **Performance:** Measure the impact of your processes in terms of quality, timeliness, return on investment, and so on.

Process Manager is the ideal tool for employing process management within your business. Use Process Manager to continuously improve and standardize process and workflow procedures, foster a collaborative environment, and ultimately execute processes. You'll see the positive results manifested in terms of customer and employee satisfaction, productivity, and return on investment.

Process Manager also extends and enhances the functionality of client applications that participate in the workflow process. This means immediate returns on your existing investments in addition to the benefits that Process Manager provides.

Understanding process management

Process management incorporates the use of intelligence, expertise, tools, methods, and technologies to devise and implement workflows and processes. This orchestration of activities enables you to arrange, control, measure, and manage procedures in order to achieve an end result. In any business function, process management is intended to reach a specific objective. Process management is the conceptualization of a particular objective, the formulation of how to achieve that objective, and then the execution of each task to meet the final objective.

Using Process Manager

As a process management system, Process Manager has several functional components that collectively form the workflow system. A workflow involves the utilization of these workflow system components to move data in a logical, systematic flow through a defined set of parameters. This involves automated (procedural) and manual (participant) processes that determine the outcome of the workflow.

The workflow system components consist of the following:

- **Client applications:** Interactive applications, also known as vertical applications, that work in conjunction with Process Manager to initiate workflows or perform tasks in support of workflows. Client applications can have several levels of involvement with workflows or processes, depending on how they are designed. Several actions are designed specifically for a particular client application.
- **Workflow engine:** The core management component that interacts with client applications, interprets process definitions, and provides run-time execution of workflow instances. The workflow engine resides on the server and maintains internal control of data as it progresses through the system.
- **Database:** Stores, delivers, and receives data as part of a workflow system. You can only use Microsoft SQL database as the workflow database
- **Process definer:** Used to design, model, create, and implement processes.
- **Task handler:** Enables participants to perform tasks as part of a workflow, specifically a change request.

Process Manager tools

Process Manager consists of several tools that enable you to orchestrate workflows and implement processes:

- **Database Utility:** This tool enables you to conduct database management for Process Manager from the server. This includes connecting to the workflow database, creating and deleting workflow databases, changing databases, and saving and restarting services. You also update product licenses using this tool. See Database Utility overview.
- **Process Designer:** This tool enables you to define, design, model, create, and implement processes. In addition, you can use the tool to configure event listeners and field mappings for Web services, databases, and e-mail applications that perform tasks in conjunction with Process Manager. You can also generate detailed reports and obtain auditing information. See Process Designer overview.
- **Web application:** This change request tool enables participants to perform their tasks as part of a workflow. These manual tasks are completed through a Web application accessed from your Internet browser. See Web application overview.
- **Workflow engine:** This server component serves as the primary management tool that controls the movement of data through the system according to the workflow definition. The workflow engine doesn't have a user interface, so any configuration is done through the other tools. All time stamps, date formats, and other global configurations are determined by the server.

Installation and set up

These instructions assist you with installing and setting up LANDesk® Process Manager. During the installation, you select which components you would like to have installed. If you are installing the software on a server, you can either install just the server components, or include Process Designer with the installation. If you are installing on a workstation, you can only install Process Designer.

Being able to install the server functionality separate from the Process Designer is advantageous since there might be different people using the tools. For example, the system administrator could be responsible for installing the software on the server and setting up the database connectivity, whereas an IT or business manager could be responsible for creating and implementing workflows within their environments.

If Process Designer won't be used frequently from the server machine itself, you might want to reserve the server for solely server functions by installing Process Designer on individual workstations. It's more common that people using Process Designer will install it and use it from their own workstations, rather than working in a server room, keeping the server physically at their desk, or using a remote control tool.

Note: You need Administrator credentials in order to install Process Manager.

For a rapid, streamlined deployment of the application, as well as the implementation of an initial workflow, refer to the Rapid deployment section.

System requirements

In order for your system to function properly, you need to ensure you have the correct system requirements. Before you install Process Manager components on a server or workstation, check to see that your hardware and software meet or exceed the system requirements.

Note: Running Process Manager with server components installed on XP or any desktop OS with IIS is only supported for a testing or development environment. You are limited to 10 connections both on the engine and IIS. This setup will not work for your production environment.

If any of the software requirements are missing, they can be downloaded from the following location: http://www.landesk.com/tools/prereq/lpm.aspx

Process Manager Server requirements

The Process Manager server should run on a dedicated machine to ensure maximum performance. The server should have at least the following hardware and software requirements before installing Process Manager Server on the machine.

Hardware

The hardware requirements for a server are based on the number of workflow actions to be performed on an hourly basis:

Workflow actions per hour	CPU	Speed	RAM	Network
60 or less	Pentium III	1 GHz	512 MB	10/100
61 - 600	Dual Pentium III	1.5 GHz	2 GB	100/1000
600 or more	Dual Pentium IV	2.8 GHz	2 GB	100/1000

Software

- Windows 2000 Server or Advanced Server with SP 4
- Windows Server 2003 Standard or Enterprise edition
- Microsoft Data Access Components (MDAC) 2.8
- Microsoft .NET Framework 2.0
- Web Services Enhancements (WSE) 2.0 SP3 for Microsoft .NET (use Runtime setup type)
- Microsoft ASP .NET 2.0
- Microsoft SQL Server (2000 or higher)
- Internet Explorer 6 SP 1 or higher
- Internet Information Services (IIS) 5.0 or 6.0
- A static IP address (only one network adapter in the server)
- Microsoft NT File System (NTFS)
- The server you use for your core server must be installed as a standalone server, not as a primary domain controller (PDC), backup domain controller (BDC), or Active Directory controller
- The servers should be dedicated to hosting Process Manager

Process Designer requirements

The workstation should have the following hardware and software requirements in order to install Process Designer on the machine.

Hardware

- Pentium III processor (Pentium IV processor recommended)
- 512 MB of RAM
- 180 MB of free disk space

Software

- Windows XP Professional with SP 1 or later; Windows Server 2003 Standard Edition and Enterprise Edition; Windows 2000 Professional, Server, and Advanced Server with SP 4
- Internet Explorer 6.x SP 1
- Microsoft .NET Framework 2.0
- Microsoft Data Access Components (MDAC) 2.8

Installing Process Manager

Follow these instructions to install Process Manager. These instructions assume you have the proper system requirements. Make sure you review the system requirements to ensure a successful installation.

To install Process Manager

1. Insert the LANDesk Process Manager CD into the CD-ROM drive. Navigate to your CD-ROM drive and double-click **autorun.exe**. If you are installing from an FTP site or the Internet, you need to download the files to the server and run **ProcessManager.exe**.
2. From the **Welcome** page, select the type of installation you would like to perform.
    - **Server components only:** Installs all required server components, including the Database Utility and the Workflow engine.
    - **Process Designer only:** Installs the tool that enables you to define, design, model, create, and implement processes. It can be installed on servers or workstations.
    - **Both Server components and Process Designer:** Installs the server components and Process Designer on the server.
3. From the **Install requirements** page, click **Install now**. If you're missing any requirements, download the components and install them. Then click **Check now**. Once you've passed the prerequisite check, click **Install now**.
4. From the **Choose Setup Language** dialog, select the language you want installed and click **OK**.
5. From the setup wizard page, click **Next**.
6. From the **License Agreement** page, if you agree, click **I accept the terms in the license agreement**, and click **Next**.
7. From the **Custom Setup** page, ensure the type of installation you selected in Step 2 applies and click **Next**. You can also change where to install the application.
8. From the **Ready to Install** page, click **Install**.
9. Once the installation is complete, click **Finish**. For a server installation, selecting **Launch the Database Utility** will take you directly to the application in order to set up your database.

Setting up the database

For server installations only, after you've installed the Process Manager server components, you need to set up the database. Setting up the database consists of authenticating to your SQL server, creating a container (or database), creating the tables or schema, establishing and testing the connection to the database, saving and restarting services, entering your SMTP e-mail server information, and providing a system e-mail address. The Database Utility, a tool of Process

Manager, enables you to complete these tasks. Establishing the connection between the Process Manager server and database is imperative. You must be a database operator to connect to an existing database and a system administrator to create a new Process Manager database. The default database is named Workflow, however, you can name it whatever you want, and even have multiple databases. The server uses the last database it connected to as the active database.

To set up the database

1. Access the Database Utility by clicking **Start | All Programs | LANDesk Process Manager | Database Utility**. If you selected the **Launch the Database Utility** checkbox from the final installation screen, you are automatically taken to the application.
2. Insert your database system administrator credentials and your SQL server name. You can use the default database name or rename it.
3. Click **Test connection**. If a database with that name exists, you'll be connected to the database. If a database with that name doesn't already exist, you will be prompted to create a new database.
    - For an existing database, click **Save and restart services**.
    - For a new database, click **Yes** to create it. Enter your database system administrator credentials. Make sure you have the correct SQL server name and database. Enter the name of your database. Select **Create new Process Manager database** and click **OK**. You can select **Load default content** to place existing content into your environment. Click **Execute**. When the script has finished, click **OK** and then click **Close**.
4. Enter your SMTP information, which should not be confused with your exchange server. Provide an e-mail address for the system, which can be any e-mail address as long as it follows the standard syntax. Enter optional information, if applicable. Click **OK**.
5. Click **OK** to verify the changes have been made and the service restarted.

Your Process Manager server is now connected to the database. You can close the Database Utility.

Setting up Process Designer

After you've installed Process Designer, you need to designate which server to connect to by providing the display name and server name, or the IP address of the server.

To set up Process Designer

1. Click **Start | All Programs | LANDesk Process Manager | Process Designer**.
2. From the **Select server** dialog, click **Add new**.
3. In the **Add server** dialog, insert the display name and server name, or IP address for the server you want to connect to and then click **OK**.
4. From the **Select server** dialog, select the server from the connection list and then click **Connect**. Selecting the **Always connect to this server** option will cause the application to bypass the server selection dialog on every subsequent access of process designer and go directly to the designated server.

You've now accessed Process Designer and you're connected to the server. You can begin designing and implementing workflows.

Integration with other LANDesk products

In order to integrate with other LANDesk products, you need to perform the following tasks:

- Install the LANDesk Message-based SDK
- Configure the local scheduler service in LANDesk Management Suite

Installing the LANDesk Message-based SDK

In order to use LANDesk actions in Process Manager, you need to install the LANDesk Message-based SDK on your LANDesk Management Suite core server.

Note: LANDesk Management Suite versions 8.6.1 and 8.7 are supported.

For more information about LANDesk actions, see Action types.

To install the LANDesk Message-based SDK

1. From the LANDesk Management Suite core server, insert the LANDesk Process Manager CD into the CD-ROM drive. Navigate to your CD-ROM drive and open the **MBSDK** folder. If you are installing from an FTP site or the Internet, you need to download the files to the server and access the folder.
2. From the **MBSDK** folder, double-click **setup.exe**.
3. Complete the installation wizard.

Configuring the local scheduler service in LANDesk Management Suite

The local scheduler service in LANDesk Management Suite needs to be changed from running as local scheduler to a user account. This user account also needs to have permission on the Process Manager servicehost Web services. For example, if both the Process Manager core and the Management Suite core are part of a domain, then you would run local scheduler on the Management Suite core as a user that is part of the Management Suite user group and make sure that user has rights to the Process Manager core.

Rapid deployment

The rapid deployment instructions will assist you with installing Process Manager on your server, setting up your environment, and orchestrating a workflow. Use the **Additional information** section to help you access more detailed information and instructions about a particular step. Once you're familiar with the components and understand how they interact, you'll be able to implement your own workflows.

To rapidly deploy Process Manager

Step Test	Additional information
Step 1: Make sure you have the proper system requirements.	System requirements
Step 2: Insert the LANDesk Process Manager CD into the CD-ROM drive. Navigate to your CD-ROM drive and double-click **autorun.exe**. If you are installing from an FTP site or the Internet, you can download the files to the server and run **ProcessManager.exe**.	Installing Process Manager
Step 3: From the **Welcome** page, you can select the type of installation you would like to perform. Click **Both Server components and Process Designer**. • **Server components only:** Installs all required server components, including the Database Utility and the Workflow engine. • **Process Designer only:** Installs the tool that enables you to define, design, model, create, and implement processes. It can be installed on servers or workstations. • **Both Server components and Process Designer:** Installs the server components and Process Designer on the server.	
Step 4: From the **Install requirements** page, click **Install now**. If you're missing any requirements, download the components and install them. Then click **Check now**. Once you've passed the prerequisite check, click **Install now**.	
Step 5: From the **Choose Setup Language** dialog, select the language you want to install and click **OK**.	
Step 6: From the setup wizard page, click **Next**.	
Step 7: From the **License Agreement** page, select **I accept the terms in the license agreement** and click **Next**.	
Step 6: Click **Next**. If you change this folder location, remember this path for subsequent usage.	
Step 7: From the **Custom Setup** , ensure the type of installation you selected in Step 3 applies and click **Next**.	
Step 8: From the **Ready to Install** page, click **Install**.	
Step 9: Select **Launch the Database Utility** and then click **Finish**.	
Step 10: From the **Database Utility**, insert your database system administrator credentials and your SQL server name. Insert a unique database name.	Connecting to databases
Step 11: Click **Test connection**. Click **Yes** to create it. Enter your database system administrator credentials. Make sure you have the	

Step Test	Additional information
correct SQL server name and database. Enter the name of your database. Select **Create new Process Manager database** and click **OK**. Click **Execute**. When the script has finished, click **OK** and then click **Close**.	
Step 12: Enter your SMTP information, which should not be confused with your exchange server. Provide an e-mail address for the system, which can be any e-mail address as long as it follows the standard syntax. Click **OK**. Click **OK** to verify the changes have been made and the service restarted. You can close the Database Utility.	
Step 13: Click **Start | All Programs | LANDesk Process Manager | Process Designer**.	Setting up Process Designer
Step 14: From the **Select server** dialog, click **Add new**. In the **Add server** dialog, insert the display name, server name, or IP address for the server you want to connect to and click **OK**.	
Step 15: In the **Select server** dialog, select the server from the connection list and click **Connect**.	
Step 16: From Process Designer's main menu, click **Manage | Users**. Click **Add**. Insert the information for the new user. The user must be valid in order to test the workflow. You can enter your own user information. When creating a user in Process Manager, the username must match a user on the domain or server. Otherwise, users (or participants) of processes will not be able to log in to the Web Application and perform their tasks. Make sure the username includes the domain or server name, for example: LPM-Server\Administrator. Click **Start | Programs | Administrative Tools | Computer management**. Expand **Users and Groups** and right-click **Users**. Click **New User**. Insert the user information and click **Create**.	Users and groups
Step 17: From Process Designer, click the **Permissions** tab. Select the **Approve and deny requests** right and then click the **> (right arrow)** button. Click **OK** to verify the user has been added. Click **Close**.	
Step 18: Click **File | New | Folder**. In the **Attributes** window, rename the folder to **Engineering**.	Using the workflow explorer
Step 19: Right-click the **Engineering** folder and click **New | Sub-folder**. Rename the sub-folder to **Software**.	
Step 20: Right-click the **Software** sub-folder and click **New | Workflow**. Rename the workflow to **Approval**.	
Step 21: From the **Workflow explorer**, double-click the **Approval** workflow. The canvas opens with the **Approval** primary action (workflow node).	
Step 22: From the **Actions** toolbox, drag and drop the **Get approval**	Using the canvas

Step Test	Additional information
action onto the canvas.	
Step 23: In the canvas, click and hold the **Approval** primary action and draw a line to the **Get approval** action.	
Step 24: Click the **Get approval** action on the canvas. From the **Attributes** window, under the **E-mail** heading, click **Approvers**. Then click the ellipsis button (**...**).	Attributes
Step 25: From the **Contact Picker** dialog, select the user you created and click the right arrow button (**>**) button. Click **OK**.	
Step 26: On the canvas toolbar, click the **Save** button.	
Step 27: Click **Manage | Event listeners** and then click **Add**.	Event listeners
Step 28: In the **Event listener** dialog, enter **Approvals** as the name and **E-mail** as the type. Click the ellipsis button (**...**) and expand the **Engineering** folder and the **Software** sub-folder. Select the workflow you created and click **OK**.	
Step 29: Click the **Settings** tab and enter your e-mail server and recipient account information. In your e-mail program, create a folder (mailbox) and name it **Workflow**. Configure your e-mail program to filter all **LANDesk Workflow** e-mail to the **Workflow** folder. In the **Event listener** dialog, insert this folder name as the mailbox name. Use your own username and password.	
Step 30: For the columns, you'll need to create a text file (.TXT) with the appropriate columns. Remember where you save the file. The columns are:UserId=1 ReferenceId=8900 Description=This is a test.	
Step 31: In the **Event listener** dialog, click **Get columns**. Navigate to where you saved the text file, select it, and click **Open**. In the **Unique system identifier** field, select **Reference**. Click **Test**. Click **OK** for the e-mail server connection verification. Click **OK** and then click **Close**.	
Step 32: Click **Manage | Event listeners**. Select **Approvals** and click **Edit**. In the **Details** tab, click **Start listener**. Click **OK** and then click **Close**.	
Step 33: Click **Tools | Manually start a workflow**. Select the **Approval** event listener that you previously created. Insert any reference number and then click **Start**. Click **OK**.	
Step 34: From your e-mail account, select the e-mail that was generated and sent to you by Process Manager. In the body of the e-mail, click **Click**	

Step Test	Additional information
here to see the details.	
Step 35: Log in to the **Web application**. Select the task and click the **Approve** button. Click **OK**.	Web application

Congratulations! You've completed installing Process Manager and have implemented a fully functional workflow.

Database Utility

The Database Utility, a tool of the LANDesk Process Manager, enables you to configure and manage your databases. The Database Utility resides on the server and connects Process Manager to the database server and specific database being used in conjunction with your workflow platform. The database server can reside either on the same machine as the Process Manager server or on a separate machine.

Note: Process Manager currently supports Microsoft SQL databases only.

You also manage product licenses from the Database Utility. Any changes or updates to the product license after the initial installation of Process Manager are handled via the Database Utility.

Connecting to the database

Process management relies on the exchange of data between the server and the database. The Database Utility enables you to connect the server to the intended database by providing the proper authentication information, testing the connection, and saving configurations, and restarting the services. By using the Database Utility to establish the connection to the database, you are provided with status information, such as verification that the server is in fact connected to the database, validation of the user credentials being used to authenticate to the database, and content information, such as version, date, number of folders, and so on.

Simply by connecting to a database it becomes the active database. If you want to connect your server to a different database, you follow the same process of connecting to that database. Once you have authenticated to the database, tested the connection, and saved and restarted the services, it becomes the active database that the Process Manager server interfaces with.

You also need to designate the SMTP e-mail server. Since many SMTP e-mail servers require authentication, you may have to set up anonymous security for outgoing e-mail from the server (localhost). You can set up a local relay and set up the security so it only allows e-mails from the localhost.

To connect the database

1. From the Database Utility, insert your username, password, the database server, and the database name.
2. Click **Test connection**. Check the results to verify you have been connected to the database.
3. Click **Save and restart services**.
4. Enter your SMTP e-mail server information and click **OK**.
5. Click **OK**.

Database management

The Database Utility enables you to perform database management from the server. You specify the database Process Manager should interface with. You can have several databases, but Process Manager connects to one database at a time. Process Manager uses the most recently connected database as the active database. The Database Utility requires a database administrator to perform most of the configuration tasks.

Creating databases

The Database Utility enables you to create databases on the database server to be used with Process Manager. You can create several databases, but only one will be connected to Process Manager at a time. Only system administrators have rights to create databases. You can also load default content to your database, which provides usable workflows, event listeners, templates, and so on (see Adding default content).

To create a database

1. From the Database Utility, click **Tools | Create database**.
2. From the **Create database** dialog, insert the username and password for the database administrator, the database server name, and the database.
3. Select **Create new Process Manager database**. Click **OK**.
4. (Optional) Select **Load default content**.
5. Click **Execute**.
6. Once the database has been created successfully, click **OK**.
7. Click **Close**.
8. Once the changes have been saved and the services restarted, click **OK**.

Adding default content

Process Manager provides a significant amount of default content that you can load into your environment. The default content consists of workflows, event listeners, templates, and so that you can adapt and use in your processes. The default content can only be loaded when a database is being created. You cannot load default content on an existing database. Once loaded, the content can be configured for your environment and used in Process Designer.

To add the default content, see Creating databases.

Note: Only system administrators have rights to add default content to databases.

Deleting databases

The Database Utility enables you to delete Process Manager databases from the database server. Only system administrators have rights to delete databases.

To delete a database

1. From the Database Utility, enter the name of the database you want to delete.

2. Click **Tools | Delete database**.
3. Click **Yes** to verify you want to delete the specified database.
4. From the **Delete database** dialog, insert the username and password for the database administrator and the database server name.
5. Click **Execute**.
6. Click **OK** to verify the database has been deleted successfully.
7. Click **Close**.

Changing the SMTP e-mail server

In order to change the SMTP e-mail server, you need to authenticate to the database with the proper credentials, test the connection to the database, and then save and restart the services. Then you are prompted to enter the SMTP e-mail server information, as well as provide a system e-mail address, which can be changed as well. Your SMTP e-mail server should not be confused with your exchange server (smtp.[company name].com).

Note: Remember, Process Manager uses the database that most recently had its services saved and restarted. Make sure you are connecting to the intended database when you change the SMTP e-mail server.

To change your SMTP e-mail server

1. From the Database Utility, insert your username, password, database server, and database name.
2. Click **Test**.
3. Once you have successfully connected to the server, click **Save and restart services**.
4. Insert your outgoing SMTP e-mail server information.
5. Insert an e-mail address for the system and click **OK**.

   Note: The e-mail address you provide is not verified as a valid address, but all system-generated e-mails use the address and the sender.
6. Click **OK**.

Product licenses

The Database Utility enables you to update your product license in the event of an extension of your trial license, purchase of a full license, or acquisition of additional functionality or technology, such as Process Integration Modules. You obtain your new product license or extend your trial license through the LANDesk Web site or by contacting customer support and requesting the product license.

Importing product licenses

You update your product license by importing a new license file to the database. This replaces the existing licensing definition.

To import a product license

1. From the Database Utility, insert a valid username and password for the database, the database server name, and the database name.
2. Click **Tools | Import license**.
3. Select the product license file and click **Import**.
4. Once the license has been imported successfully, click **OK**.

Process Designer

Process Designer, a tool of the LANDesk Process Manager, enables you to define, design, model, create, and implement processes. In other words, your modeling engine and processing (execution) engine are combined into one. As you construct models of your processes, you are not just designing the layout, but actually creating the physical flow of the process. Processes are comprised of a series of ordered actions. Once you've mapped the sequence of actions, every instance within the process can be configured with the appropriate attributes to process the data and perform the intended function.

An important piece of a workflow is the event listener, as well as any corresponding field mapping that normally applies. Processes rely on event listeners and associated field mappings, if applicable, as the mechanism for instantiating the processes. You can configure event listeners and field mappings from the Process Designer.

Use Process Designer to create users (and groups) who serve as participants in processes. Once created, you can assign one or more participants to a specific manual action within a process. Once you put the process into production, the Web application also uses the participants, so they can execute their tasks and allow the process to advance.

Process Designer maintains a history of your workflows for auditing and reporting purposes. This valuable information helps you understand your environment and make improvements to your processes. This information is also available from the Web Application.

Connecting to the server

In order to use Process Designer, you need to connect to a server. Typically, you connect to the server when you first access the Process Designer, but you can also switch to a different server if you're already using the application. The first time you access a server, you'll need to provide the display name, server name, or the IP address. For every subsequent access of the server, you'll only need to select the server from the list. You can also specify a server to load every time you access the Process Designer and bypass the server selection process entirely.

To connect to the server

1. Click **Start | All Programs | LANDesk Process Manager | Process Designer**. If connecting to another server from the Process Designer, click **File | Select server**.
2. If this is the first time you'll connect to the server, click **Add new**.
3. In the **Add server** dialog, insert the display name and the server name or IP address and click **OK**.
4. In the **Select server** dialog, select the server from the drop-down box.
5. Click **Connect**.

Users and groups

Users and groups in Process Manager are utilized as actual participants in formal processes. They can be active participants where they approve or deny change requests, or passive participants where they simply receive notifications of changes. Various workflow actions involve users and groups, such as decisions, sending e-mails, getting approvals, and so on. The users also have important roles in the Web application approving or denying change requests.

Process Designer enables you to manage your users and groups. It treats groups essentially the same way as users where everyone receives the information, except only one member of a group needs to approve or deny the action. The other members of the group must accept the action that has been taken and act accordingly. The audit history maintains a record of who approved or denied the change request for accountability purposes.

Creating users and groups

Process Designer enables you to create users and groups. They become participants of your processes and are assigned roles as either approvers or recipients of information.

IMPORTANT: When creating a user in Process Manager, the username must match a user on the domain or server. Otherwise, users (or participants) of processes will not be able to log in to the Web application and perform their tasks. Also, make sure the users have read/write permission on the two virtual directories created by Process Manager.

To create a user

1. From the main menu, click **Manage | Users**.
2. Click **Add**.
3. Insert the user's information and click **OK**. Make sure the domain or server name precedes the username (domain\username), for example: **LPM-server\Administrator**.
4. Click **Close**.

To create a group

1. From the main menu, click **Manage | Groups**.
2. Click **Add**.
3. Insert the group's information and click **OK**.
4. Click **Close**.

Assigning users and groups

Users can belong to several groups, and groups can contain any number of users. Groups are an effective way of categorizing users.

To assign groups to a user

1. From the main menu, click **Manage | Users**.
2. Select the user you want to assign groups to. You can search for a specific name, or use the asterisk (*) to return all users.
3. Click **Groups**.
4. Select the groups you want to add and click the right-arrow key **(>)**.
5. Click **OK**.

To assign users to a group

1. From the main menu, click **Manage | Groups**.
2. Select the group you want to assign users to. You can search for a specific name, or use the aster (*) to return all groups.
3. Click **Users**.
4. Select the users you want to add and click the right-arrow key **(>)**.
5. Click **OK**.

Assigning permissions

You can assign permissions to users and groups. These permissions determine the type of participation users can have in a workflow process. The following permissions can be assigned to users:

- **Approve and deny requests:** Allows users to perform approval or denial tasks for a workflow or process that applies to them.
- **Receive e-mail notifications:** Allows users to receive notifications for a workflow or process that applies to them.

To assign permissions to a user

1. From the main menu, click **Manage | Users**.
2. Select the user you want to assign permissions to.
3. Click **Permissions**.
4. Select the permission you want to give to the user and click the right-arrow key **(>)**.
5. Click **OK**.

To assign permissions to a group

1. From the main menu, click **Manage | Groups**.
2. Select the group you want to assign permissions to.
3. Click **Permissions**.
4. Select the permissions you want to give to the group and click the right-arrow key **(>)**.
5. Click **OK**.

Editing users and groups

You can edit user and group profiles after their initial configuration. Edit a user by changing the user information, the assigned groups, or the permissions. Edit a group by changing the group information, the assigned users, or the permissions.

To edit a user

1. From the main menu, click **Manage | Users**.
2. Select the user and click **Edit**. You can search for a specific name, or use the asterisk (*) to return all users.
3. Make the desired changes and click **OK**.
4. Click **Close**.

To edit a group

1. From the main menu, click **Manage | Groups**.
2. Select the group and click **Edit**. You can search for a specific name, or use the asterisk (*) to return all groups.
3. Make the desired changes and click **OK**.
4. Click **Close**.

Deleting users and groups

You can delete users and groups. Deleting a user or group will permanently delete it from the database. You will not be able to use the deleted user or group as a participant in your processes or any Process Manager tool.

To delete a user

1. From the main menu, click **Manage | Users**.
2. Select the user click **Delete**. You can search for a specific name, or use the asterisk (*) to return all users.
3. Click**Yes** to verify you want to delete the user.
4. Click **OK**.
5. Click **Close**.

To delete a group

1. From the main menu, click **Manage | Groups**.
2. Select the group and click **Delete**. You can search for a specific name, or use the asterisk (*) to return all groups.
3. Click**Yes** to verify you want to delete the group.
4. Click **OK**.
5. Click **Close**.

Assigning users and groups as process participants

Assigning users and groups to workflow actions makes them participants of the process. As participants, users and groups can only be involved in manual tasks, which require human interaction. Since actions represent steps in a process, you assign the participants needed to accomplish a particular action (task) by configuring the action's attributes.

The **Contact Picker** dialog is used to assign participants to the action. You need to select users or groups as the contact type in order to institute human participation. If you have more than one approver, you can configure the action to be approved by all participants or any participant.

Note: Before you can assign participants, you must first create the users and assign them permissions.

To assign process participants

1. From the **Workflow Explorer**, double-click the workflow containing the desired process.
2. From the canvas, click the action you want to assign participants to. If the action is not already on the canvas, drag and drop it onto the canvas from the actions toolbox.
3. From the **Attributes** window, click the **Approvers** row or the **Notification recipients** row.
4. Click the **... (ellipsis)** button.
5. From the **Contact Picker** dialog, select the desired participants and click the **> (right arrow)** button.
6. Click **OK** to verify the users have been added.
7. Click **Close**.

Workflows

A workflow consists of several components that manually and automatically move tasks sequentially through a process in order to accomplish an objective. A workflow is a sum of all of its parts—client applications, workflow engine, database, task handler, participants— anything required by the system to process the work or data. These workflow patterns form the basis for how data travels through the system and define how a process is performed. All elements must be in place and properly configured in order for the workflow to function correctly.

Note: Sample workflows can be loaded from the Database Utility. You can modify them for your own use. For more information, see the Database Utility help.

How a workflow operates

Workflows have several dependencies and working parts that need to be configured in order for the workflows to function properly. Typically, a workflow operates in the following fashion:

1. A workflow instance is started when a client application triggers an event listener, or a user manually starts a workflow.
2. The event listener or the manual entry signals the initiation of the workflow process.
3. The workflow's primary action is invoked and the process begins.
4. The primary action instance invokes one or more subsequent actions.
5. Each action has attributes assigned that govern how it should operate. The action in turn invokes one or more actions according to its configuration.
6. The sequential or parallel routing continues until each thread reaches a termination point.

Required components of workflows

Based on how workflows operate, you need to configure at least the following components in order to successfully run a workflow:

- Event listeners, as well as associated field mappings when required.
- Processes, meaning the layout or order of actions.
- Actions with the appropriate attributes.
- Attributes with the appropriate values, including participants, authentication information, parameters, and so on.
- Participants, also called contacts, to perform tasks. Animate participants, specifically users and groups, perform manual tasks based on their permissions and user information. Inanimate participants, specifically Process Manager and other applications, perform automatic tasks based on system configuration.

Optional components of workflows

You can also apply optional components to your workflows:

- E-mail templates to customize the formatting and messaging of e-mails sent to participants of processes.

- Auditing templates to format data provided in the audit history.

Using workflow explorer

The workflow explorer has several key functions necessary for creating processes and setting up workflows. The workflow explorer enables you to create, store, and categorize workflows. It requires a three-tier folder structure consisting of folders, sub-folders, and workflows in that order. You can't have sub-folders above folders or workflows above sub-folders. However, you can have several sub-folders under a folder and several workflows under a sub-folder.

Conceptually, each workflow in the folder structure represents an entire workflow. Yet, it actually serves as an intermediary component between an event listener and a process. When designing a process, you launch the canvas by double-clicking a workflow from the workflow designer. The workflow node in the workflow designer and the primary action (top-tier node) of the process are essentially the same component.

You can also drag additional workflow nodes from the workflow explorer onto the canvas when designing processes. In this instance, you can consider the secondary workflow node as a sub-process, usually with several subsequent actions already defined.

Importing workflows

You can import workflows from other Process Manager servers to be used within your environment. The format of the workflows is .XML. When you import a workflow, it maintains the folder structure that it had previously. Workflows require these folder relationships in order to function properly. Once imported, the workflow and corresponding folders appear in the workflow explorer, ready for you to apply your own participants, listeners, templates, field mappings, and so on.

Note: This feature is not active by default. Contact customer support for information on how to active the functionality.

To import a workflow

1. From the main menu, click **File | Import**.
2. Select the workflow you want to import and click **Open**.
3. Click **OK** to verify the workflow was imported successfully.

Manually starting workflows

In order to manually run workflows, you need to specify which event listener to use, so Process Manager knows the proper context to use the data. Once you have defined the event listener, you can manually provide the values for the fields, which would've been pulled from the database, Web service, or e-mail. With the necessary values in place, you can start the workflow.

To manually start a workflow

1. From the main menu, click **Tools | Manually start a workflow**.
2. Select the event listener you want to use.
3. Insert the values for the field mappings.
4. Click **Start**.

Processes

A critical part of a workflow is the process. At a high level, a process simply can be described as a model or graphical representation of a procedure. It diagrams the logical flow and relationship of the individual components that comprise the procedure. This unique combination of components forms a methodical process.

At a low level, a process is a network of actions, each serving a distinct and functional purpose that work in tandem with one another to drive toward an end result. Each process can function individually or be used as part of several other processes.

This interconnectivity and multi-purpose use model enables you to design and implement complete and integrated processes. Since most processes are used iteratively and interchangeably, you can continually make adjustments and improve performance. Eventually, you'll have a set of efficient, repeatable best practices you can use, as well as a model for other processes.

As an example, think of a process as a segment of a major interstate with roads constantly merging and diverging. There are several entrance and exit points and every junction leads to a different destination. Each segment can be used to get from one particular point to another, or be combined with several other segments to reach another destination. From this example you can see that you can employ processes in a variety of ways to reach your end objective.

Sub-processes

A sub-process is a process in and of itself, however, it's used as part of a larger process. A process or a higher sub-process in the chain instantiates a sub-process.

Using the canvas

The canvas provides you with an environment for constructing your processes. Use the canvas to layout your processes and assemble the pieces in the proper order. This helps you visualize your processes by being able to see how data will flow and branch as it passes through the various actions. Then you create the relationships between the separate actions and configure them individually to complete the process.

The canvas also has a process monitor below it that reports missing or incorrect information an aids you with your process development. This is a valuable resource when building your processes. Use it to help you know what you still need to configure. You can stop and start the monitoring service as needed.

Launching the canvas

You access the canvas from the workflow explorer. Every workflow has a corresponding canvas that is used to model, configure, and implement the process. Locate the workflow that represents the desired process and double-click it.

Building processes

Once you have launched the canvas, you build your processes by dragging and dropping actions onto the canvas from the workflow explorer and the actions toolbox. By default, every process begins with a primary action (workflow). Drawing a line from one node to another node establishes the directional flow of the data. To drawn the line, place your cursor over the first action. Once the cursor changes (to a hand pointer), click and hold your mouse and drag the line to the next action. Then select each action and configure it with the proper attributes to perform the desired function. Make sure you save the process once you have finished building it. The process will not run until you have saved.

Note: If a process does not have any actions assigned, the task engine throws an error when it runs and does not process the workflow.

Actions

Actions are the pre-defined system response following a trigger condition from an event listener, a manual instantiation, or a preceding action. Actions serve as the building blocks of a process. Each action constitutes a logical step or instance within the process. Processes generally consist of several actions logically ordered to complete a procedure. Most actions have specific attributes applied that define how the action should function (see Attributes).

Actions can be manual or automatic:

- **Manual action:** Requires human interaction where a participant performs the action during the process.
- **Automatic action:** Requires proper system configuration where the application automatically performs the action during the process.

Using actions

As you drag and drop actions onto the canvas to build your processes, keep in mind that with several different action types, you can use the actions in a variety of ways to achieve your objective. You may want to streamline a process to finish as quickly as possible, whereas you might have another process that you want to insert several checks and balances to make sure the job is done correctly. There are several processes you can fully automate as well.

Action types

Actions have been categorized based on their typical usage as part of a process. Most actions are located in the toolbox, but, primary actions are located in the workflow explorer.

LANDesk action types

The LANDesk actions provide specialized integration of Process Manager with other LANDesk applications and tools. This enables you to leverage the features of the LANDesk applications, which greatly extends and enhances the capabilities of Process Manager.

Note: In order to use LANDesk security and patch manager actions in Process Manager, you need to install the LANDesk Message-based SDK on your LANDesk Management Suite core server (see SDK for installation instructions).

Important: The local scheduler service in Management Suite needs to be changed from running as local scheduler to a user account. This user account also needs to have permission on the Process Manager servicehost Web services. For example, if both the Process Manager core and the Management Suite core are part of a domain, then you would run local scheduler on the Management Suite core as a user that is part of the Management Suite user group and make sure that the user has rights to the Process Manager core.

Primary actions

Primary actions, also called workflows nodes, serve as the entry point or top-tier node of a process or sub-process. It serves as a bridge, linking an event listener with a process or sub-process. Every process has a root-level primary action or starting point (represented as a lightning bolt in the workflow explorer and the process canvas). These actions have few attributes, but are connected to event listeners, which are responsible for starting processes.

You can have additional primary actions within your processes. These primary actions represent the start of another process and can be considered a sub-process of the current process. You can double-click these additional primary actions, which will launch the process associated with that primary action (workflow). In this manner, processes can exist independently or be part of other processes.

System actions

These basic actions constitute the most common or standard actions performed during a process and are specific to Process Manager. They provide the capability of integrating with other applications, systems, services, and so on. System actions consist of the following and are described below:

- Assign manual task
- Decision
- Execute JavaScript
- Execute program
- Execute SQL
- Execute VB script
- Get approval
- Modify approvals
- Modify manual tasks
- Modify request information
- Request information
- Send e-mail
- Timer
- Update request
- Web service

Assign manual task

This action enables you to define a task and assign it to one or more users or groups. You can also configure when the task should be completed. The task can represent any type of work to be performed. When the action occurs in the course of a process, an e-mail is sent to the designated participants. Any user assigned to perform the task is provided with controls to mark the task as completed or not completed. These same controls are also provided in the Web Application.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.

- **Due date:** The amount of time users have to complete the manual task before it is due.
- **Assignment recipients:** List of users assigned to perform the manual task (see Contact picker dialog).
- **E-mail template:** The e-mail template to use (see E-mail template).
- **Notification recipients:** List of users to notify of the action (see Contact picker dialog).

Decision

This action enables you to implement system-initiated decisions based on predefined conditions that you configure. When the action occurs in the course of a process, the system evaluates the conditions and acts accordingly based on if the results are true or false.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Conditions:** Set of conditions that are processed when executing the action (see the Conditions dialog).
- **Name:** The name of the action.

Execute JavaScript

This action enables you to define a JavaScript command to be executed by the system. Process Manager only executes JavaScripts referenced in two separate configuration files, which are located in two local directories on the server. Both must be present and must be set to the exact same value:

- \\Program Files\LANDesk\Process Manager\Web Services\LANDesk.Workflow.ServiceHost\Web.config
- \\Program Files\LANDesk\Process Manager\TaskEngine\LANDesk.Workflow.TaskEngine.exe.config

When the action occurs in the course of a process, the specified JavaScript command is executed. When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Results:** The field where the results of executing the JavaScript are placed (see Insert field dialog).
- **Arguments:** The arguments to pass to the JavaScript at runtime (see Arguments dialog).
- **Script names:** The JavaScript to run. The JavaScripts are stored in the Web. config file on the Process Manager server in the following location: LANDesk\Process Manager\Web Services\LANDesk.Workflow.ServiceHost.

Execute program

This action enables you to define a program to be invoked by the system. When the action occurs in the course of a process, the specified program is initiated.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Arguments:** The arguments to pass to the executable at runtime (see Arguments dialog).
- **Executable name:** The executable to run. The executables are stored in the Web. config file on the Process Manager server in the following location: LANDesk\Process Manager\Web Services\LANDesk.Workflow.ServiceHost.
- **Results:** The field where the results of executing the program are placed (see Insert field dialog).

Execute SQL

This action enables you to define an SQL command to be executed by the system. When the action occurs in the course of a process, the specified SQL command is executed.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Password:** The password to log in to the SQL server.
- **Username:** The username to log in to the SQL server.
- **Name:** The name of the action.
- **Results:** The field where the results of executing the SQL are placed (see Insert field dialog).
- **Database:** The name of the SQL database.
- **Database type:** Specifies the type of database, which can be SQL or Oracle.
- **Server name:** The name of the SQL server.
- **SQL:** The SQL statement to run (see the SQL dialog).

Execute VB script

This action enables you to define a VB script command to be executed by the system. Process Manager only executes VB scripts listed in two separate configuration files, which are located in two local directories on the server. Both must be present and must be set to the exact same value:

- \\Program Files\LANDesk\Process Manager\Web Services\LANDesk.Workflow.ServiceHost\Web.config
- \\Program Files\LANDesk\Process Manager\TaskEngine\LANDesk.Workflow.TaskEngine.exe.config

When the action occurs in the course of a process, the specified VB script is executed. When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Results:** The field where the results of executing the VB script are placed (see Insert field dialog)._Ref-907278124
- **Arguments:** The arguments to pass to the VB script at runtime (see Arguments dialog).
- **Script name:** The VB script to run. The scripts are stored in the Web. config file on the Process Manager server in the following location: LANDesk\Process Manager\Web Services\LANDesk.Workflow.ServiceHost.

Get approval

This action enables you to assign one or more users or groups to act as an approval authority. You can also configure when the approval should be completed. When the action occurs in the course of a process, an e-mail is sent to the designated participants. Any user assigned to perform the approval is provided with controls to mark the task as approve, deny, or approve with conditions. These same controls are also provided in the Web Application. If several users are assigned the task, the first person to respond determines the result for the group.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Approver's comments:** The comments provided by approvers (see Insert field dialog).
- **Denier's comments:** The comments provided by deniers (see Insert field dialog).
- **Name:** The name of the action.
- **Due date:** The amount of time users have to complete the approval before it is due.
- **Approvers:** The users assigned to approve or deny the request (see Contact picker dialog).
- **E-mail template:** The e-mail template to use (see E-mail template).
- **Notification recipients:** List of users to notify of the action (see Contact picker dialog).

Modify approvals

This action enables you to modify a get approval action and mark it as approved or denied in order to allow the process to continue. Normally, the get approval action is modified if it doesn't get approved or denied in the **Get approval** action in the process. Typically, this action is attached to a timer action. When the modify approvals action occurs in the course of a process, it assigns a value for any approval not yet completed. You determine whether the approvals are changed to approved or denied.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Auto respond comments template:** The auditing template to use as the response of the action.
- **New value:** Changes all outstanding approval requests to the selected value.

Modify manual tasks

This action enables you to modify an assign manual task action, which marks the task as not completed and allows the process to continue. Normally, the assign manual task action gets modified if it doesn't get marked as completed or not completed in the primary manner it was designed in the process. Typically, this action is attached to a timer action. When the modify manual tasks action occurs in the course of a process, it assigns a not completed value for any manual task not yet completed.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.

Modify request information

This action enables you to modify a request information action, which marks it as not completed and allows the process to continue. Normally, the request information action gets modified if it doesn't get marked as form completed or form not completed in the primary manner it was designed in the process. Typically, this action is attached to a timer action. When the modify request information action occurs in the course of a process, it assigns a form not completed value for any form not yet completed.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Auto respond comments template:** The auditing template to use as the response of the action.

Request information

This action enables you specify a form that you can have recipients fill out in order to acquire certain information. When the action occurs in the course of a process, an e-mail is sent to the recipients informing them of the information request. They click a link provided in an e-mail, which launches the browser. They can either agree or decline to fill out the form. If they agree, the form opens in InfoPath so they can fill it out. The recipients then submit the information and the action is marked as form completed. If they decline, the action is marked as form not completed.

Note: In order for users to fill out the forms, InfoPath forms must be installed on the machine.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Due date:** The amount of time users have to complete the form before it is due.
- **E-mail template:** The e-mail template to use (see E-mail template).
- **Form:** The form to send to recipients to fill out.
- **Form recipients:** List of users to receive the form (see Contact picker dialog).

- **Notification recipients:** List of users to notify of the action (see Contact picker dialog).

Send e-mail

This action enables you to create a preformatted e-mail. You can designate the e-mail recipients and the messaging to be used. When the action occurs in the course of a process, an e-mail is generated with the predefined content and sent to the designated recipients.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **E-mail template:** The e-mail template to use (see E-mail template).
- **Notification recipients:** List of users to notify of the action (see Contact picker dialog).

Timer

This action enables you to specify a date and time value, which determines when the subsequent action in a process will occur. You can use the current date and time, a proposed date and time, or any other date/time field that you set up. The proposed date is required if you want the action to occur at a specified time. You can configure the number of days, hours, and minutes until the action occurs. The number of days can be according to the work week (five-day) or full week (seven-day) schedule. You can also configure the action to occur a certain amount of time before or after the action occurs.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Timeout:** Amount of time to wait before timing out.

Update request

This action enables you to change the state of the workflow instance to canceled, closed, open, pending, or reopened. When the action occurs in the course of a process, the status of the entire workflow is determined by the designated state.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Request state:** The state the request should be set to.

Web service

This action enables you to define a Web service to use in order to communicate with another application. You select a particular method on the Web service. Some methods contain input parameters, output parameters, or both. The input parameters come from Process Manager fields

or fixed values that you can specify. The output fields come from Web service fields that you can specify. When the action occurs in the course of a process, the specified Web service enables the interchange of data between Process Manager and the target application.

This action does not support asynchronous exchanges, so any data transfer occurs at that instance. Complex types are not supported, such as arrays or structures. Only simple types such as integers, dates, strings, and floats are supported.

Note: In order to incorporate more complex Web services into your workflows, you need to write your own wrapper Web service that can be called by Process Manager, which would then construct the complex arguments and pass them to the real Web service. For help with writing a Web service wrapper, contact customer support.

When implementing this action, you need to configure the following attributes:

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Endpoint URL:** The Web address used to invoke the Web service (see Web service configuration wizard).
- **Password:** The password to log in to the Web service.
- **Timeout:** Amount of time to wait for the Web service to respond. The time is given in seconds.
- **Username:** The username to log in to the Web service.

LANDesk security and patch manager actions

These actions enable you to incorporate LANDesk Management Suite's security and patch manager functionality with Process Manager.

LANDesk security and patch manager actions consist of the following and are described below:

- Add vulnerability to a group
- Autofix vulnerabilities
- Create custom security group
- Delete custom security group
- Get vulnerabilities
- Scan/repair vulnerabilities

Add vulnerabilities to a group

This action enables you to add vulnerabilities to a security group. When the action occurs in the course of a process, the designated vulnerabilities are added to the specified security group. The updated group with the added vulnerabilities can then be used from the LANDesk Management Suite core server.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.

- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.
- **Group name:** The security group to add the vulnerabilities to (see Custom security group name dialog).
- **Vulnerability IDs:** The vulnerabilities to add to the group. The ID can be a field (recommended) or a comma-delimited list of the vulnerabilities (see Vulnerability IDs dialog).

Autofix vulnerabilities

This action enables you to automatically fix vulnerabilities. When the action occurs in the course of a process, it causes LANDesk Management Suite to fix the vulnerability immediately.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Content option:** Specifies whether to fix the entire security group or a specific vulnerability within the group.
- **Group name:** The name of the security group to fix (see Custom security group name dialog).
- **Vulnerability ID:** The vulnerability ID to fix (see Insert field dialog).
- **Name:** The name of the action.

Create custom security group

This action enables you to create a security group. When the action occurs in the course of a process, the custom security group is created on the LANDesk Management Suite core server.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.
- **Group name:** The name of the custom security group. In order to avoid duplicate group names, it's recommended that you use a variable as the group name or part of the group name (see Custom security group name dialog).
- **Results:** The field in which to place the new custom security group (see Insert field dialog).

Delete custom security group

This action enables you to delete a custom security group. When the action occurs in the course of a process, the designated custom security group is deleted from LANDesk Management Suite.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.
- **Group name:** The name of the custom security group to delete (see Custom security group name dialog).

Get vulnerabilities

This action enables you to get vulnerabilities. When the action occurs in the course of a process, vulnerabilities are obtained from LANDesk Management Suite.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.
- **Custom filter SQL:** A filter that returns vulnerabilities based on the provided SQL statement. This portion of the statement is the "and" clause (see SQL dialog).
- **Severity:** A filter that returns vulnerabilities based on the given severity level.
- **Vulnerability filter:** A filter that returns vulnerabilities based on if they are custom or downloaded vulnerabilities.
- **Vulnerability status:** A filter that returns vulnerabilities based on the given vulnerability status.
- **Vulnerability type:** A filter that returns vulnerabilities based on the given vulnerability type.
- **Results:** The field in which to place the list of vulnerabilities that are returned as a result of the applied filters (see Insert field dialog). If no filter is applied, all vulnerabilities are returned. The list is a comma-delimited.

Scan / repair vulnerabilities

This action enables you to scan for vulnerabilities on a managed LANDesk device and repair them. When the action occurs in the course of a process, a scheduled task is created in LANDesk Management Suite and run immediately in order to scan or repair the designated device(s).

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Content option:** Specifies whether to fix an entire security group or a specific vulnerability within a group.
- **Group name:** The name of the security group to scan for (see Custom security group name dialog).
- **Vulnerability ID:** The vulnerability ID to scan for. If you specify a vulnerability ID, it scans for that particular vulnerability. If you don't specify a vulnerability, it scans for whatever is present on your LANDesk Management Suite core (see Insert field dialog).
- **Name:** The name of the action.
- **Repair option:** Specifies whether to scan or repair the device and which method to use.
- **Success percentage:** The percentage of devices to have their vulnerabilities scanned or repaired in order for the action to be successful.
- **Device name:** The device to be scanned or repaired (see Insert field dialog).
- **Query name:** The query name of a LANDesk query that will resolve at least one device, which is accessible by the LANDesk Management Suite user (see Insert field dialog).
- **Target option:** Specifies whether to target a single device or a query.

LANDesk software distribution actions

These actions enable you to incorporate LANDesk Management Suite's software distribution functionality with Process Manager.

LANDesk security and patch manager actions consist of the following and are described below:

- Reschedule task
- Schedule distribution
- Schedule script

Reschedule task

This action enables you to reschedule a task. When the action occurs in the course of a process, a scheduled task is created in LANDesk Management Suite and executed.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.
- **Success percentage:** The percentage of devices that have to perform the rescheduled task in order for the action to be successful.

- **Task ID:** The task to reschedule and execute (see Insert field dialog).

Schedule distribution

This action enables you to schedule the distribution of a package. When the action occurs in the course of a process, a scheduled task is created in LANDesk Management Suite and the package is distributed.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.
- **Delivery method:** The delivery method to use to distribute the package (see Insert field dialog).
- **Device name:** The device to receive the package distribution (see Insert field dialog).
- **Package:** The package to distribute (see Insert field dialog).
- **Query name:** A query used to return the devices to receive the distribution package (see Insert field dialog).
- **Success percentage:** The percentage of devices that have to receive the distributed package in order for the action to be successful.

Schedule script

This action enables you to schedule a script. When the action occurs in the course of a process, a scheduled task is created in LANDesk Management Suite and the script is executed.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.
- **Device name:** The device to execute the schedule script on (see Insert field dialog).
- **Query name:** A query used to return the devices to execute the script on (see Insert field dialog).
- **Script details:** The details to modify in the script before it is run (see Schedule script dialog).
- **Script name:** The script to execute. The script name must match an existing script on the LANDesk Management Suite core server (see Insert field dialog).
- **Script type:** Specifies whether to execute an existing script or the script where some of the details have been modified, such as values, fields, or a combination of the two.
- **Script percentage:** The percentage of devices that have to execute the script in order for the action to be successful.

LANDesk inventory actions

These actions enable you to incorporate LANDesk Management Suite's inventory functionality with Process Manager.

LANDesk inventory actions consist of the following and are described below:

- Add/delete device
- Set machine data

Add/delete device

This action enables you to add or delete devices. When the action occurs in the course of a process, the designated devices are deleted from the inventory of the LANDesk Management Suite core server.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.
- **Add or delete device:** Specifies whether to add or delete the device.
- **Device name:** The device to add or delete (see Insert field dialog).
- **IP address:** The IP address of the device to add or delete (see Insert field dialog).
- **IP name:** The full-qualified name of the device to delete. For example: "Computer"."landesk.com" (see Insert field dialog).

Set machine data

This action enables you to set the machine data for devices. These attributes are inserted into the database and expand the inventory information for all devices. When the action occurs in the course of a process, it causes LANDesk Management suite to set the machine data, which adds the designated attributes to the inventory of the LANDesk Management Suite core server.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Attribute Value**: Inserts any proper value for the LANDesk inventory key. The proper value is dependent on the type of key. A **string key** is any string value including special characters. An integer key is any whole number. A date key is any recognized date format like mm/dd/yy or mm/dd/yyyy hh:mm:ss (see Insert field dialog).
- **Device Name:** The device to have the machine data set (see Insert field dialog).

- **Fully Qualified Attribute:** Must be a full LANDesk BNF string. For example "Computer"."LANDesk Management"."Workflow_Key" (see Insert field dialog).

LANDesk agent deployment action

This action enables you to incorporate LANDesk Management Suite's agent deployment functionality with Process Manager.

Deploy agent to unmanaged device

This action enables you to deploy agents to an unmanaged devices. When the action occurs in the course of a process, a scheduled task is create in LANDesk Management Suite and run in order to deploy the agent configuration package to one or more unmanaged device.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.
- **Client configuration package:** The client configuration package to deploy to the unmanaged device (see Client configuration package dialog).
- **Distribution task name:** The name to assign to the distribution task (see Distribution task name dialog).
- **Unmanaged node's ID:** The unmanaged device (see Insert field dialog). This is usually provided by the event listener.

LANDesk licensing manager action

This action enables you to incorporate LANDesk Management Suite's product licensing functionality with Process Manager.

Set product license

This action enables you to assign additional product licenses. When the action occurs in the course of a process, it causes LANDesk Management Suite to add one or more product licenses to the designated product.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Core name:** The hostname or IP address of the core server.
- **Password:** The password to log in to the LANDesk Management Suite core server.
- **User name:** The user name to log in to the LANDesk Management Suite core server.
- **Name:** The name of the action.

- **License Number:** The number of product licenses (see Insert field dialog).

Note: If the license number, product group, and product match up to an existing license, that license takes on or adds any new values. Otherwise, a new license is created under the existing product group and product.

- **License Type:** Provides a valid product type numbers (see Insert field dialog):
  - **0:** Unknown
  - **1:** New Purchases
  - **2:** Product Upgrade
  - **3:** Competitive Upgrade
  - **4:** Shareware
  - **5:** Freeware
  - **6:** Public Domain
  - **7:** OEM
- **Location:** The location of the product license (see Insert field dialog).
- **Note:** Any notes to include with the product license (see Insert field dialog).
- **Order number:** The order number for the license (see Insert field dialog).
- **Owner:** The owner of the product (see Insert field dialog).
- **Product Group:** The product group (see Insert field dialog).

Note: See license number above.

- **Product:** An existing product that is in the specified product group (see Insert field dialog).

Note: See license number above.

- **Purchase Date:** The purchase date of the product's license in any recognized date format, such as mm/dd/yyyy or mm/dd/yyyy hh:mm:ss (see Insert field dialog).
- **Quantity:** A whole number for the number of product licenses (see Insert field dialog).
- **Reseller:** The name of the reseller of the product (see Insert field dialog).
- **Serial Number:** The serial number of the product (see Insert field dialog).
- **Unit Price:** A whole number for the amount of the product (see Insert field dialog).

LANDesk Service Desk actions

These actions enable you to incorporate LANDesk Service Desk's functionality with Process Manager.

LANDesk Service Desk actions consist of the following and are described below:

- Add assignment
- Add note
- Add task
- Close incident
- Create incident
- Get incident info
- Resolve incident

Add assignment

This action enables you to designate a user to perform an assignment. When the action occurs in the course of a process, a LANDesk Service Desk user is given the designated assignment.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Description:** The description of the assignment (see Insert field dialog).
- **Incident ID:** The incident the assignment pertains to (see Insert field dialog).
- **Service desk user:** The service desk user to give the assignment to (see Insert field dialog).
- **Title:** The title of the assignment (see Insert field dialog).

Add note

This action enables you to add a note to an incident. When the action occurs in the course of a process, the note is added to the designated incident with the specified values.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Category:** The category the note belongs to (see Insert field dialog).
- **Description:** The description of the note (see Insert field dialog).
- **Incident ID:** The incident the note pertains to (see Insert field dialog).
- **Title:** The title of the note (see Insert field dialog).

Add task

This action enables you to add a task to an incident. When the action occurs in the course of a process, the task is added to the designated incident with the specified values.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Description:** The description of the task (see Insert field dialog).
- **Incident ID:** The incident the task pertains to (see Insert field dialog).
- **Title:** The title of the task (see Insert field dialog).

Close incident

This action enables you to close an incident. When the action occurs in the course of a process, the designated incident is closed.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Category:** The category the incident belongs to (see Insert field dialog).
- **Description:** The description of the incident (see Insert field dialog).
- **Incident ID:** The ID of the incident (see Insert field dialog).
- **Title:** The title of the incident (see Insert field dialog).

Create incident

This action enables you to create an incident. When the action occurs in the course of a process, an incident is created in LANDesk Service Desk.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Category:** The category the incident belongs to (see Insert field dialog).
- **Description:** The description of the incident (see Insert field dialog).
- **Priority:** The priority of the incident (see Insert field dialog).
- **Service desk customer:** The service desk customer to create the assignment for (see Insert field dialog).
- **Severity:** The severity of the incident (see Insert field dialog).
- **Title:** The title of the incident (see Insert field dialog).
- **Incident ID:** The field where the ID of the incident is placed (see Insert field dialog).

Get incident info

This action enables you to acquire information about an incident. When the action occurs in the course of a process, the details of the designated incident are obtained from LANDesk Service Desk.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Attribute name:** The parameter to obtain information about (see Insert field dialog).
- **Incident ID:** The ID of the incident (see Insert field dialog).

- **Results:** The field where the data obtained from the service desk is placed (see Insert field dialog).

Resolve incident

This action enables you to resolve an incident. When the action occurs in the course of a process, the incident is marked as resolved in LANDesk Service Desk.

When implementing this action, you need to complete the configuration of the attributes (not all are required):

- **Auditing template:** The auditing template to use (see Auditing templates).
- **Name:** The name of the action.
- **Category:** The category the incident belongs to (see Insert field dialog).
- **Description:** The description of the incident (see Insert field dialog).
- **Incident ID:** The ID of the incident (see Insert field dialog).
- **Title:** The title of the incident (see Insert field dialog).

Process Integration Module actions

These actions are provided in conjunction with a Process Integration Modules. The modules provide specialized integration of Process Manager with external systems and applications. They let you leverage your existing investments and extend their capabilities by actively involving them in process management. This close integration enables the systems to cooperatively communicate with one another, exchange data, and execute tasks.

Process integration modules are sold separately from Process Manager. Contact your LANDesk representative. For more information, see the user's guide included with every module.

Adding custom deny reason codes

You can add custom deny reason codes to the get approval, assign manual task, and request information actions. These reason codes are used as the messaging to explain why an action has been denied. You can enter custom deny reason codes, so they appear in the drop-down menu. This is done by modifying the **actionctrl.ascx** file on the Process Manager server. Adding custom deny reason codes requires knowledge of HTML or XML since you need to modify the code.

Note: Custom reason codes are lost during an upgrade. You should make a copy of the file when upgrading (or reinstalling) in order to restore the reason codes.

To add a custom deny reason code

1. Access the **actionctrl.ascx** file from the following location: **\\LANDesk\Process Manager\Web Services\LANDesk.Workflow.Web\Controls**.
2. Locate the drop-down list for the action you want to add a reason code to (the drop-down lists are labeled with comment tags).

3. Insert a new list item in the list: <asp:ListItem Value="**[value written to the database]**" Text="**[text that displays in the UI]**"></asp:ListItem>

   Note: The only required parameters are Value and Text. Typically, they are the same.
4. Save and close the file.

Attributes

With the exception of primary actions, every action has a specific set of attributes that govern how it functions. Since each type of action already has a defined function, these attributes enable you to uniquely configure the actions based on their role in a process. These unique attribute configurations are critical for the success of the action and overall process.

Configuring attributes

In order to configure the attributes of an action, you need to select the action in the canvas. Once the action has focus, the attributes will be displayed in the **Attributes** window. To edit a specific attribute, click on the row you want to change the value for. Either you will be able to type a value into the row, or a button will appear that you can click. This will access a drop-down box or a dialog, so you can insert the intended value for the attribute. All changes are applied immediately.

Each action has a unique set of attributes. Refer to the specific action for information on its attributes (see Action types).

Event listeners

Event listeners are the integration point between client applications and Process Manager, enabling them to interface with one another to exchange the required data needed to conduct workflow processes. Each event listener serves as a triggering mechanism for initiating a workflow process. The event listeners enable you to predefine specific conditions that must be met in order to cause Process Manager to start a workflow process. Process Manager can use the following client applications to initiate a workflow process:

- Databases
- E-mail applications
- Web services

Note: Sample event listeners can be loaded from the Database Utility. You can modify them for your own use. For more information, see the Database Utility help.

Database event listener

Database event listeners enable Process Manager to use databases to initiate workflow processes. The database event listener monitors its designated client application and initiates the process whenever the predefined conditions are met.

Setting up database event listeners

Setting up a database event listener requires in-depth knowledge of your database. To set up your database event listener, you first need to select which workflow to initiate when the conditions of the event listener are met. Then you provide the name and authentication information for the ODBC database connection on the server where the servicehost is installed. Once you've specified the database, you need to configure the query settings, which tells the database where to look for new records, what to specifically look for, and what to do with new records.

The first query setting to configure is the select statement. The first part of the select statement specifies the record or record type for the database listener to watch for. The second part of the statement specifies one or more tables and columns in the database where the event listener monitors for new records to arrive. Finally, it defines the status or state of the column. The syntax of your select statement should resemble the following:

select * from CallLog where CallStatus ='Open'

In this example, **CallLog** is the table and **CallStatus** the column. The database returns any record from the designated table and column currently in an open state.

Note: If you don't know the name of the column, you can enter a select statement for the table(s) and click **Get Columns**, which will give you a list of columns. Then you can complete your select statement with the appropriate column(s). You can use this list as well to help you select a unique system identifier

The second query setting you need to configure is the external system identifier. You select a database column, which is actually a cell or container of a value. Process Manager pulls that value and inserts into the listener. The value serves as the external system identifier within all Process Manager applications. The external system identifier pinpoints the application that initiated the workflow and serves as a reference number to the client application. By having this unique reference number to the client application, Process Manager knows where to obtain the most current information from the database and can continually pull up-to-date information at each stage of the workflow process.

Note: The external system identifier should normally be a unique value. If an earlier record exists with the same external system identifier, it will be terminated when the new record initiates a workflow process. You should only intentionally use a duplicate external system identifier if you want to terminate the previous instance of the workflow process.

The final query setting to configure is the update statement. The update statement enables you to change the status of the record, so it can be removed from the queue and not be initiated again. The syntax of your update statement should resemble the following:

update CallLog set CallStatus ='Pending' where CallID={|CallID|}

In this example, the first part of the update statement changes the status of the **CallStatus** column in the **CallLog** table from open to pending. The second part of the statement tells the database which record to update. The syntax of the where clause tells the database to use the value of the column (**{|CallID|}**) from the select statement to know which record to update. Now, when the event listener runs the first query again, a workflow won't be initiated for the same record since it's no longer in an open state.

Once you start the database listener, it continually runs the query and watches for new records in the database column. Once a value is returned from the query, the listener initiates a workflow process.

To set up a database event listener

1. From the main menu, click **Manage | Event Listeners**.
2. Click **Add**.
3. From the **Details** tab, insert a name for the event listener. Select **Database** as the event listener type. Select the workflow you want to be initiated when the conditions of the event listener are met.
4. From the **Settings** tab, insert the ODBC database connection information as well as the username and password.
5. In the **Query settings**, insert your select statement, the external system identifier, and the update statement.
6. Click **Test**. Click **OK** to verify the database event listener is configured correctly.
7. Click **OK**.
8. Select the database event listener you just created and click **Edit**.
9. Click **Start listener**.
10. Click **OK**.
11. Click **Close**.

Note: You likely still need to set up the field mapping. You can auto-generate the field mapping from the event listener, or use the field mapping tool to manually map it (see Field mapping).

E-mail event listener

E-mail event listeners enable Process Manager to use an e-mail application to initiate workflow processes. The e-mail event listener monitors its designated client application and initiates the workflow process whenever the predefined conditions are met.

Setting up e-mail event listeners

To set up your e-mail event listener, you need to select which workflow to initiate when the conditions of the listener are met. You also need to provide the e-mail event listener with an e-mail account that it can constantly monitor to know when to initiate a workflow process. The e-mail account information includes the name of your e-mail server, the type of mail it supports, the specific mailbox (or folder) where the e-mails are accessed, and the username and password needed to authenticate to the server.

Note: The mailbox (or folder) you designate as the recipient e-mail account will automatically have a sub-folder created called **Archive**. Whenever a new e-mail (record) is sent to the account, the older e-mails are archived.

Once you have configured your e-mail server, then you need to specify which flat file from the client application to use that contains the required columns and corresponding values. A flat file consists of text separated by a delimiter. It can be a variety of file types, including .TXT, .XML, .RTF, and so on. You can then select a specific column from the flat file. The e-mail event listener pulls the value from the column, which serves as the external system identifier. You can also have the system automatically generate the external system identifier. The external system identifier pinpoints the application that initiated the workflow and serves as a reference number to the client application. It is used within all Process Manager applications to tell the database where to look for new records, what specifically to look for, and what to do with new records.

To set up an e-mail event listener

1. From the main menu, click **Manage | Event Listeners**.
2. Click **Add**.
3. From the **Details** tab, insert a name for the event listener. Select **E-mail** as the listener type. Select the workflow you want to be initiated when the conditions of the event listener are met.
4. From the **Settings** tab, select the mail type and insert your mail server, mailbox (folder), and authentication information.
5. Click **Get columns**. Select the appropriate file and click **Open**.
6. Either select **Autogenerate external system identifier** or choose one from the drop-down list.
7. Click **Test**. Click **OK** to verify the e-mail event listener is configured correctly.
8. Click **OK**.
9. Select the e-mail event listener you just created and click **Edit**.
10. Click **Start listener**.
11. Click **OK**.
12. Click **Close**.

Note: You likely still need to set up the field mapping. You can autogenerate the field mapping from the event listener, or use the field mapping tool to manually map it (see Field mapping).

Web service event listener

Process Manager's Web service is used to initiate workflow processes. The Web service event listener waits to be prompted by the Web service. When the Web service receives values or parameters from another application, the event listener is notified of the event and initiates a workflow process based on the data it received.

Setting up Web service event listeners

To set up your Web service event listener, you first need to select which workflow to initiate. Then you specify which .XML file from the client application to use, which contains the required columns and corresponding values. You can then select a specific column from the .XML file. The Web service event listener pulls the value from the column, which serves as the external system identifier. You can also have the system automatically generate the external system identifier. The external system identifier pinpoints the application that initiated the workflow and serves as a reference number to the client application. It is used within all Process Manager applications.

Once the Web service event listener is set up, you need to configure the Web service itself to send records to Process Manager. Sending the records to the following location initiates the workflow process:
http://[server]/LANDesk.Workflow.ServiceHost/WebServiceListener.asmx?WSDL

To set up a Web service event listener

1. From the main menu, click **Manage | Event Listeners**.
2. Click **Add**.
3. From the **Details** tab, insert a name for the event listener. Select **Web service** as the listener type. Select the workflow you want to be initiated when the conditions of the event listener are met.
4. From the **Settings** tab, click **Get columns**. Select the appropriate .XML file and click **Open**.
5. Either select **Autogenerate external system identifier** or choose one from the drop-down list.
6. Click **OK**.
7. Click **Close**.

Note: You likely still need to set up the field mapping. You can autogenerate the field mapping from the event listener, or use the field mapping tool to manually map it (see Field mapping).

Importing and exporting event listeners

You can import and export event listeners, so they can be used on any Process Manager server. The event listeners are stored as .XML files. They contain all of the critical data required to use the event listener, although some parameters, such as database passwords, may need to be reentered after import.

To import an event listener

1. Click **Manage | Event listeners**.
2. Click **Import**.
3. Locate the event listener (.XML) file and click **Open**.
4. Click **OK**.

To export an event listener

1. Click **Manage | Event listeners**.
2. Select the event listener and click **Export**.
3. Select where to save the event listener (.XML) file and click **Save**.
4. Click **OK**.

Fields

Fields are repositories of data that hold constant or variable values. These values consist of all data types, including characters, numbers, dates, times, integers, strings, and so on. The fields serve as representatives or aliases of those values. Everywhere you insert a field essentially places the actual value or variable into that location. Since fields can contain any data type, they play a pivotal role throughout the application, allowing you to implement internal or external system values in order to institute processes, perform tasks, and execute processes.

Process Designer enables you to create, assign, and implement fields, so they can be passed to data controllers and used in the proper context to provide the intended value when and where it is needed. When working with external systems, fields work hand-in-hand with event listeners to get the data to where it is needed. Several fields are dependent on field mappings to obtain the values and the process will not run without them, such as external system ID, requestor, proposed date, and so on.

Field categories

Every field belongs to a field category. Fields are placed into categories based on their usage. There are three types of categories:

- Internal
- Workflow
- Custom

Internal category

Contains internal fields with internal values. Since the fields and their values are affixed by Process Manager, no field details or field mapping are required. This category is provided by the system and cannot be deleted or edited. You should avoid placing new fields into this category. The internal category contains the following default fields:

- All approval comments
- All denial comments
- All who have acknowledged
- All who have approved
- All who have denied
- All who have not acknowledged
- All who have not responded
- Current date and time
- Request ID
- Starting workflow
- Workflow instance ID

Workflow category

Contains internal fields with internal or external values. The default fields of this category are affixed by Process Manager, but you can define the field mapping. Any new field added to this group can have the field details assigned in addition to the field mapping. This category is provided by the system and cannot be deleted or edited. The workflow category contains the following default fields:

- **External system identifier:** Always required.
- **Proposed request date:** Required if you want to have information show up in the Requestor tab in the Web Application.
- **Requestor:** Required if you want the action to occur at a specified time.

Custom category

Contains internal or external fields with internal or external values. Custom categories are created by users, so they contain custom fields. The custom fields are new fields created by users to perform a specific function.

To create a category

1. From the main menu, click **Manage | Field mappings**.
2. In the **Category details** tab, click **New category**.
3. Insert a name for the category and a description.
4. Click **OK**.
5. Click **Yes**.

Field details

The field details provide specific information about the selected field. In order to properly use the default and custom fields in processes, you need to understand how the fields function, primarily their data types, and know how to implement them. Remember, the actual value of a field is provided by the field mapping or through the system where the context of the process provides the value. The key is defining the field and providing a data type, so the system knows how to interpret the data and how to use it. Field details consist of the following:

- **Field name:** Enter a name for the field.
- **Description: Enter a description for the field.**
- **Datatype:** Select a datatype for the field.
    - **Contact:** A Process Manager participant.
    - **Datetime:** A date and time stamp.
    - **General:** Text.
    - **Numeric:** Numbers.
- **Category:** Enter a category for the field.
- **Show value in Web application on details tab:** Show the field's value on the Details tab in the Web Application.

Field mapping

Each field mapping defines the relationship between a field in Process Manager and a column from a client application. Once this relationship is established, Process Manager is able to direct the data and populate the field every time an event listener is run. In other words, while event listeners tell Process Manager where to pull identified values from, field mappings specify where to place them. Whenever the event listener runs, the associated fields are populated with the corresponding values.

The field mapping is the resolution between the alias (field) and the event listener. Once the field mapping is in place, you only have to create your workflow processes once and then configure the mapping to the parallel values in the external systems.

Note: A single field can be mapped to several external systems. Each mapping to a external system constitutes another mapping. Yet the same field can be used in Process Designer for all systems, so that's how the process only needs to be designed once.

Aside from delivering the data to Process Manager, field mappings have no further involvement in the process.

Note: Certain field mappings are required for running workflows:

- External system ID is always required.
- Requestor is required if you want to have information show up in the Requestor tab in the Web Application. You must provide a user ID or username that can be matched in Process Manager in order to resolve the user and maintain the relationship between systems.
- Proposed date is required if you want the action to occur at a specified time.

Creating a field

You can create fields in Process Designer to be used in conjunction with your processes. Fields are applied in a variety of ways and are responsible for providing data to the designated locations, so the processes can be run and task can be completed.

For more information, see Fields and Field details.

To create a field

1. From the main menu, click **Manage | Field Mappings**.
2. In the **Field mapping details** tab, click **New field mapping**.
3. Insert a name for the field and a description.
4. Select a data type for the field.
5. Select the category to assign the field to.
6. Click **OK**.
7. Click **Yes**.

To create a field that links to an external system

1. Perform steps 1-5 for creating a field (above).
2. Click the **Event listener mapping** tab.
3. Select the event listener you want to use to draw the data from to populate the field.
4. Click **Insert event listener column** and select the specific column to pull the value from.
5. (Optional) If you have multiple columns that you want to treat as one value, select **Treat mapping as a collection**. Insert a delimiter to separate the columns.
6. Click **OK**.

Templates

Templates within Process Manager function similarly to form letters, delivering consistent, formatted, and relevant information or data. Templates enable you to insert text that can function as a message, description, explanation, or even actual values for specific fields. You format the text based on your intended usage. Every template configuration must specify a type of action that it applies to. For every instance of this type of action in any workflow, you can configure it to use the template. By default, no template is applied, so you'll need to configure each instance of the action to use the desired template.

There are two types of templates:

- E-mail templates
- Auditing templates

Note: Sample templates can be loaded from the Database Utility. You can modify them for your own use. For more information, see the Database Utility help.

E-mail template

Use e-mail templates to provide approvers or notification recipients with pertinent information or values, which they use as part of a workflow process. E-mail templates can be applied to specific actions, so every occurrence of that action will cause Process Manager to send a formatted e-mail to the designated recipients.

E-mail templates serve an important role for providing the functionality that enables participants to approve or deny a change request directly from the e-mail itself. These approval controls require HTML, so the e-mail template enables you to configure the e-mail to be sent using HTML. Therefore, you must apply an e-mail template to an e-mail action and select the **Send e-mail using HTML** option in order for the approval controls to appear in the e-mail correspondence.

To create an e-mail template

1. From the main menu, click **Manage | Templates | E-mail**.
2. Click **Add**.
3. Enter a name for the template.
4. Select the type of action to apply it to.
5. (Optional) Select the **Send e-mail using HTML** option to enable approval controls to be provided in e-mails.
6. Enter an e-mail address as the sender of the e-mail.
7. Enter the source of information or the title.
8. Enter the text or body of the e-mail. You can also right-click to insert a field mapping.
9. Click **OK**.
10. Click **Close**.

Auditing template

Use auditing templates to produce preformatted messages that can be written to the audit history. You can create global audit templates that apply to all action types, or apply auditing templates to specific actions, so every occurrence of that particular action will cause Process Manager to write the text to the workflow's audit history.

To create an auditing template

1. From the main menu, click **Manage | Templates | Auditing**.
2. Click **Add**.
3. Enter a name for the template.
4. Select the type of action to apply it to.
5. Enter the details. You can also right-click to insert a field mapping.
6. Click **OK**.
7. Click **Close**.

For more information, see Audit history.

Forms

The forms tool enables you to incorporate Microsoft InfoPath forms into your processes. Use InfoPath to create the forms and specify the fields you want to be filled out by users. Use the forms tool to set up Process Manager with the InfoPath forms. Then Process Manager can read the forms and obtain the values by mapping fields in the form to fields in Process Manager. When a form is issued in the context of a workflow, users receive the form and fill out the fields. Once the users submit the form, the values of the fields are passed to Process Manager according to the mapping you've set up.

In order to implement forms, you need to do the following:

- Configure InfoPath
- Set up forms
- Apply forms to process actions

Note: Microsoft InfoPath must be installed on the server, as well as any workstation that will use forms. Refer to the InfoPath documentation for information on installing the application, creating forms, and understanding how to use InfoPath.

IMPORTANT: When designing InfoPath forms for use with LANDesk Process Manager, you must have a field called **ActionInfoId** in the forms. The field doesn't have to be a visible on the form itself, but this field needs to be present in order to allow Process Manager to create a unique system identifier, which is used by the system.

Configuring Microsoft InfoPath

In order to integrate Microsoft InfoPath with Process Manager, you need to configure InfoPath to be properly aligned with your environment.

InfoPath configuration consists of the following:

- Installing certificates
- Defining data connections
- Publishing forms
- Converting forms

Installing certificates

In order for a form to be used in conjunction with Process Manager, the certificate of the form needs to be installed, so it can be used by InfoPath. Whenever an InfoPath form is created, a certificate is produced containing the digital signature of the author. The certificate is what gives permission to use the form. You need to install the certificate on all devices that will use the form.

To install a certificate

1. From InfoPath, click **File | Open**. Navigate to the form for which you want to install the certificate and implement into your environment.

   Note: If you loaded default content as part of your install, you can access the default forms from the following location: \\Program Files\LANDesk\Process Manager\DatabaseManager\DBUtilScripts\Content\.
2. Click **Open**.
3. From the **Security Warning** dialog, click **Details**.
4. From the **Certificate** dialog, select **Install Certificate**.
5. From the **Certificate Import Wizard**, click **Next**.
6. Select **Automatically select the certificate store based on the type of certificate**.
7. Click **Next**.
8. Click **Finish**.
9. If prompted, click **Yes** to verify the use of the certificate.
10. Click **OK** and close all dialogs.
11. Click **File | Open** and select the same form that you just added the certificate for.
12. From the **Security Warning** dialog, select **Always trust files from this publisher and open them automatically**.
13. Click O**pen**.

You've installed the certificate for the form. Now you need to define the data connections.

Defining data connections

You need to define the data connections for each form.

To define a form's data connections

1. From InfoPath and with the form open, click **Tools | Design this form | OK | OK**.
2. Click **Tools | Data Connections**.
3. Select **Main Submit** and click **Modify**.
4. Change the path to the location where InfoPath and the Web service are installed. Replace **[localhost]** with your server name.
5. Click Next.
6. Authenticate to the server where the Web service resides.
7. From the **Data Connection Wizard**, select **CompleteRequestInformationAction** and click **Next**.
8. Insert a name for the data connection. You can verify the server connection information is correct.
9. Click **Finish**.
10. Click **Close**.

You've defined the data connections for the form. Now you need to publish the form.

Publishing forms

You need to publish your forms to a location where they can be accessed, whether on a network folder or a shared folder on a computer.

To publish a form

1. From InfoPath and with the form open, click **Tools | Design this form | OK | OK**.

   Note: You need to be in design mode to publish a form. Click **Tools | Design this form**.
2. Click **File | Publish**.
3. From the **Publish Wizard**, click **Next**.
4. Select whether to publish to a shared folder or a network folder and click **Next**.
5. Insert the path and file name of where to publish the form. Include the full path, file name, and .XSN extension.

   Note: Don't use a network mapping. Use a UNC path.
6. Click **Next | Finish**.
7. Click **Close**.
8. Close the form.

You've published the form. Now you need to convert the form.

Converting forms

You need to convert the forms from .XSN files to .XML files. When you set up the forms to be used in processes, you link Process Manager to the .XML file. This association enables the incorporation of Infopath forms into the workflow system. Users can then be assigned tasks where they access the forms and fill them out in InfoPath.

To convert a form

1. From InfoPath, click **File | Open** and access the form you want to convert.
2. Click **File | Save As**.
3. Select .XML as the file type. It's recommended that you keep the filename the same as the .XSN file.
4. Click **Save**.

You are now ready to set up the form in Process Manager to be used in processes.

Setting up forms

You need to set up Process Manager to use the appropriate forms. The forms tool enables you to name forms, define the pathway to the .XML file (InfoPath form), and create the field mapping between the InfoPath form and Process Manager. Once the forms are set up, they can be applied to actions and used in processes. This allows Process Manager to obtain the values from the fields in the forms.

To set up a form, you can:

- Add a form
- Edit a form

IMPORTANT: Before you can set up forms to be used in processes, you need to configure InfoPath to integrate with Process Manager (see Microsoft InfoPath integration).

Adding forms

Adding a form consists of naming the form, defining the pathway to the .XML file (InfoPath form), and creating the field mapping between the InfoPath form and Process Manager.

To set up a form

1. From the main menu, click **Manage | Forms**.
2. Click **Add**.
3. Enter a name for the form.
4. Click the ellipsis button (**...**).
5. Browse to the form (.XML file) and click **Open**.
6. Click **Autogenerate field mappings**. You can also create new field mappings and assign them manually.
7. Click **OK**.
8. Click **Close**.

Editing forms

Editing an existing form consists of defining the pathway to the .XML file (InfoPath form). You can also redefine the field mapping between the InfoPath form and Process Manager.

To set up an existing form

1. From the main menu, click **Manage | Forms**.
2. Select the form and click **Edit**.
3. Click the ellipsis button (**...**).
4. From the **Select form** dialog, click **Yes**.
5. Browse to the form (.XML file) and click **Open**.
6. Click **OK**.
7. Click **Close**.

Applying forms

Forms can be applied to **Request information** actions. When these actions occur as part of a process, the applied form is sent to the designated recipients to be filled out.

To apply a form

1. Double-click the workflow node (from the Workflow explorer) for the process that contains the action you want to apply a form to.
2. From the canvas, select the specific **Request information** action.
3. From the **Attributes** window, select **Form** and click the drop-down arrow.
4. Select the form to apply to the action.
5. Once you've made your changes, save the workflow.

The form is now applied to the action and will be used as part of the workflow process when it is put into production.

Audit history

Process Manager performs an audit of your workflows and maintains a history of important events that occur. The audit history captures the progress of a workflow's process from start to completion or termination. Each event that occurs during a process has a record logged in the audit history. The records consist of a header and one or more details. The header, or event record, contains information pertaining to the overall workflow. The details, or action records, contain information pertaining to each action that occurs in the process. They provide vital information on the status of the workflow.

For example, if a workflow fails to execute as expected, you can find error message from the task engine log in the audit history next to the action which failed to execute. This gives a starting point for troubleshooting the failure.

Note: The Web application has more detailed audit history information.

The audit history can be used for a variety of secondary purposes as well. Not only does it simply maintain a record of what transpired during a workflow, it also contains information directly impacting the following areas, including several that constitute improvements to the processes themselves:

- Accountability
- Execution
- Statistical analysis
- Resource management

Accessing audit history

Every workflow has an audit history that records everything that has transpired concerning the workflow. You access a workflow's audit history from the workflow explorer. Process manager assigns every workflow instance an ID number, which you can use as a reference tool.

Note: You can only obtain audit history information at the workflow level, not at the folder or sub-folder level.

To access audit history

1. From the workflow explorer, expand the folder and sub-folder containing the workflow you want to obtain audit history for.
2. Right-click the workflow and click **View | Audit history**.
3. Use the dates to find the workflow instance the first time. Then you can use the workflow identifier.

Adding audit history notes

You can add notes to the header and detail records of the audit history. The notes enable you to insert additional information about each event or action.

To add audit history notes

1. From the workflow explorer, expand the folder and sub-folder containing the workflow you want to add audit history notes to.
2. Right-click the workflow and click **View | Audit history**.
3. Using the dates or workflow identifier, find the workflow instance.
4. If necessary, expand the header record to locate the detail record.
5. Double-click in the comments section of the record (usually white space below the record data).
6. Insert your text and then click on another record.

Reports

Process Manager provides several specialized reports that provide detailed information about your system. These system reports cover the most critical areas of your workflows and help you maintain continual oversight of the status of your workflows and processes. They also incorporate historical and auditing data that give you a broader view and understanding of several key areas. Each report has parameters that you can configure to get more relevant information. The reporting tool takes advantage of the robust workflow engine, which handles and processes the data, in order to produce useful, informative, and up-to-date reports

Report types

There are several reports you can generate that provide you with the information you need to keep track of your workflows and processes:

- **Volume summary:** Shows the total number of times that each workflow has been run based on the date range you specify. For example, the New Hire workflow has been run 19 times in the last 12 months.
- **Volume detail:** Provides a list of every workflow that has been run within the given date range based on the specified folder, sub-folder, or workflow. For example, if you specify the Hire sub-folder, which contains the New Hire and Contractor workflows, the report lists every occurrence of both workflows with the supporting data.
- **Timed-out timers:** Shows every workflow with a timer that expired within the given date range. Expired timers are regularly used for escalations purposes, so this report helps identify where and when escalation occurs.
- **Errors:** Shows any action in any workflow process that experienced an error within the given date range. Process Manager gathers this information from the auditing history.
- **Workflow status:** Shows the progress of all workflows within the given date range.
- **Waiting workflows:** Shows any workflow waiting on a timer or an approval.
- **Time to complete:** Evaluates your history and your completed workflows, not anything currently executing, and provides the values of various time measurements. The list includes every workflow that has been run within the given date range based on the specified folder, sub-folder, or workflow.

Using reports explorer

The reports explorer serves as the container of all of the reports. You access the desired report from the workflow explorer by double-clicking it. This launches a dialog that enables you to configure the parameters of the report. You can view the information within Process Designer or have a formal report generated in a report viewer. The report viewer formats the data and makes it more readable and the information more accessible. It also enables you to print the report, go to a particular location within the document, change the size of the text for reading purposes, or export the report.

The report explorer also enables you to group columns, providing a minor level of customization, so you can associate data and arrange the information. This allows you produce more relevant reports particular to your needs or information requirements.

Process Designer dialogs

This section provides context-sensitive help for dialogs used within Process Designer. Use this information to assist you with understanding the functionality and knowing how to use the dialogs.

Arguments dialog

Use the **Arguments** dialog to pass the command-line arguments to the designated executable or script when the assigned action occurs. When the program or script is executed, the string you provide is passed exactly as you have it, except the fields are replaced with their actual values. This further qualifies the unique action being performed and enables you to be very precise with what you're passing on during a process.

To insert your arguments, just paste or type the text into the dialog. You can also insert fields as arguments, which you can easily assign. For example, if you're running a Javascript and it needs some values provided during the routine, the values would be pulled from the arguments dialog.

Client configuration package dialog

Use the **Client configuration package** dialog to insert a client configuration package. This client configuration package is used when the action occurs in a process. This value can be a static value or a variable. Using variables is recommended, so you always have a unique value and avoid duplicate records, which can cause errors.

For more information, see Fields.

Conditions dialog

Use the **Conditions** dialog to apply conditional parameters to obtain certain values. If the conditions are met, the action returns a state of true; if not, a state of false. Either of the two states is acceptable and the process can continue. The conditions consist of the following columns:

- **Group:** Enables you to group conditions to be handled jointly or individually. Conditions have specific rules of function:
    - Conditions with the same group name are interpreted as "and" statements, so all conditions must be met in order for the action to be deemed true. A blank group field is still considered a value, so if you leave the group fields blank, then all the conditions are grouped together.
    - Conditions with different group names are interpreted as "or" statements, so only one condition needs to be met for the condition to be deemed true.
- **Category:** Enables you to select an existing field category type.
- **Field:** Lists the fields based on the selected field category. You can select which field to apply.

- **Operator:** Provides the parameters you can use to qualify the data based on selected field type. You need to ensure the conditional logic is valid. The operators vary based on the selected operator type. When using contact types, groups function as an "or" statement, meaning if a group is assigned a task, only one member of the group need to actually perform the task. When several users or groups are involved, an "or" statement applies as well, unless otherwise configured.
- **Value:** Enables you to specify the value or result.

Conditions are similar to queries where the parameters you provide determine the result. The key is configuring your conditions to return the proper state or value.

For more information, see the decision action type.

Contact Picker dialog

Use the **Contact Picker** dialog to assign performers of actions, which may be animate (manual) or inanimate (automated) participants. You define the specific contact type in the dialog. Once you've specified the contact type, all associated contacts are listed in the window. Select the participants from the list and click the right-arrow button (**>**) in order to add the contact as a participant. When the action is called during the course of a process, the participant is prompted to perform the associated task, whether it's a human or the system.

For example, if you select **{Internal}** as the contact type and add **All who have approved** as the participant, all approvers of the preceding action are assigned as approvers of the current action.

Note: For the User contact type, when users are passed in to Process Manager, they are resolved using only two unique identifiers, which are the User ID or username. The first name, last name, or any other parameter doesn't work.

You must also determine if the action should be approved by all participants, or if a single participant can approve the action. You configure this behavior in the dialog as well.

Custom security group name dialog

Use the **Custom security group name** dialog to insert a custom security group. This custom security group is used when the action occurs in a process. This value can be a constant or variable value. Using fields to insert variables is recommended, so you always have a unique value and avoid duplicate records, which can cause errors.

For more information, see Fields.

Distribution task name

Use the **Distribution task name** dialog to assign a name to the distribution task being created. This distribution task is used when the action occurs in a process. This value can be a constant or variable value. Using fields to insert variables is recommended, so you always have a unique value and avoid duplicate records, which can cause errors.

For more information, see Fields.

Insert field dialog

Use the **Insert field** dialog to insert fields that function as aliases of values. The dialog lists all field categories in the left-side window. When you select a field category, the associated fields are listed in the right-side window. You can select any one of these fields and insert it as the value for the designated parameter. The parameter then uses the value of the selected field as its value. The values can be constant or variable data.

For more information, see Fields.

Note dialog

Use the **Note** dialog to insert a note. This value can be a constant or variable value. Using fields to insert variables is recommended, so you always have a unique value and avoid duplicate records, which can cause errors.

For more information, see Fields.

Scheduled script dialog

Use the **Schedule script** dialog to insert a script. The script you insert is executed when the action occurs in a process. This value can be a constant or variable value. Using fields to insert variables is recommended, so you always have a unique value and avoid duplicate records, which can cause errors.

For more information, see Fields.

SQL dialog

Use the **SQL** dialog to insert SQL statements, which are assigned to specific actions. Whenever an action occurs in the course of a process, the assigned SQL statement is executed. These SQL statements can be used to perform internal functions, such as returning a value to populate a field to be used in the process as it advances forward. It can also be used to perform external functions, such as updating a specific value in an external database for a trouble ticket application.

To insert your SQL statement, just paste or type the text into the dialog. You can also insert fields to provide the values to execute the SQL. All insert, update, and delete statements can be handled and a limited number of select statements. Select statements can only have a single return type or a single column. For example, if there are multiple columns, only the first column can be handled and this column has to be in a collections field mapping data type, such as Users.

Example of an internal statement:

`Select username from Users where userId =` ‘`5496`’ (Users is a table that gets installed when Process Manager is installed)

Example of an external statement:

`select * from CallLog where callstatus = 'open' Update CallLog set callstatus = 'pending' where callid = {|callid|}` (the value callid is obtained from a field mapping from an external system)

Vulnerability IDs dialog

Use the **Vulnerability IDs** dialog to insert a vulnerability ID. This vulnerability ID is used when the action occurs in a process. This value can be a constant or variable value. Using fields to insert variables is recommended, so you always have a unique value and avoid duplicate records, which can cause errors.

For more information, see Fields.

Web service configuration wizard

This wizard enables you to configure Web service actions, which allows Process Manager to use Web services to exchange data with client applications. The format of the data is XML, which can easily be exchanged between applications. Each Web service has a Web service description language (WSDL) file, which Process Manager uses to communicate with the Web service and obtain all of the details.

Configuring a Web service action consists of the following:

1. Entering a URL for the Web service
2. Selecting the method to call
3. Assigning values to input parameters (if applicable)
4. Assigning values to output parameters (if applicable)
5. Reviewing your settings

1. Entering a URL for the Web service

You need to provide the URL that the action uses to call the Web service. This enables Process Manager to interface with the Web service and acquire all the details needed to configure the Web service action. The URL should reference the Web service's WSDL file. The following is an example: **http://<server>/WebService/Service.asmx?WSDL**.

Once you have specified the Web service URL, you click **Next**.

2. Selecting the method to call

Each Web service has a variety of methods. The Web service action can use only one of these methods. You need to select which method to call.

Once you have specified the method to call, you click **Next**.

3. Assigning values to input parameters

Not all methods have input parameters. For methods that have input parameters, you can assign fields or values to the parameters, which are passed to a client application.

Once you have assigned values to the input parameters, you click **Next**.

4. Assigning values to output parameters

Not all methods have output parameters. For methods that have output parameters, you can assign values to the parameters, which are passed to Process Manager from a client application.

Once you have assigned values to the input parameters, you click **Next**.

5. Reviewing your settings

Before you complete the configuration of a Web service action, review your settings to verify they are correct.

Once you have finished reviewing your settings, click **Finish**.

Web Application

The Web Application, a tool of LANDesk Process Manager, is a change management system that enables employees to serves as participants in company processes where they receive detailed information about change requests and complete their assigned tasks. It is the key to performing all manual tasks.

The Web Application plays a vital role in conducting process management by turning standard company processes into formal, mechanical processes. Instead of the ad hoc approach of tracking down approvers, sending around memorandums, waiting for signatures, and performing tasks in the wrong order, now you have the advantage of a workflow management system that simplifies your processes and keeps them organized, follows the processes as they are designed and implemented, provides a method for participants to easily complete their tasks without having to interface with others directly, and maintains an audit history of the transactions to ensure efficiency, accountability, and so on.

As a Web application, you can access your change request system from virtually any location as long as you have an Internet connection. The accessibility of the Web Application provides you with the ability to complete your tasks and keep the processes flowing through the system until the point of conclusion.

Connecting to the Web application

In order to connect to the Web application, you first need to launch the application. You can launch the Web Application using three different methods:

- Click on the link in the e-mail that is generated and sent to you by Process Manager as part of a change request. A Web browser session will be launched.
- Launch your Internet browser and insert the following web address (URL): **http://[server_name]/LANDesk.Workflow.Web/newhost.aspx**
- If you have access to the Process Designer tool, you can click **Tools | Web application** from the main menu.

Once you have launched the Web application, you need to authenticate to the server. The server uses Windows authentication, so the username of a user created in Process Manager must match the domain username (domain\username) on the server. This means you must have an account on the server and in Process Manager in order to access the Web application.

Contact your system administrator for assistance.

To do

This page enables you to access your task list and complete your individual tasks. A task is a change requests, except you are the owner of the task, or one of a group of owners. Since you are the owner of a task, it is listed in your task list. This enables you to approve or deny your assigned tasks (see Approving or denying tasks).

More detailed information about the task is available. Click **View details** in order to access the task from the **Requests** page. The task is then treated like any other change request, except you can still approve or deny the task (see Requests).

Approving and denying tasks

Approving and denying your tasks can be done via the Web Application or the system-generated e-mails received by process participants. The method for approving or denying the task is the same. You have three options for handling your tasks.

- **Approve:** Accepts the task.
- **Deny:** Rejects the task and enables you to select a reason for denial.
- **Approve with conditions:** Accepts the task and allows the approver to add comments to the approval.

Note: Pop-up blockers will block you from entering comments when approving with comments or denying a change request. You need to turn off the pop-up blocker in order to complete the task.

To approve or deny a task from an e-mail

1. From your e-mail application, open the system-generated e-mail from Process Manager.
2. Click **Approve**, **Deny**, or **Approve with Conditions**.

Note: Even though the task is performed in the e-mail application, Process Manager still launches the Web Application and displays the task. This forces you to log in to the Web Application, unless you've already authenticated.

To approve or deny a task from the Web Application

1. From the Web Application, select **Open requests** from the filter.
2. In the task list, select the change request you want to approve or deny.
3. Click **Approve**, **Deny**, or **Approve with Conditions**.

Requests

Use the change request functionality to access and complete your tasks. Each change request serves a task in the task list. The change request functionality enables you to approve or deny change requests, as well as apply conditions to your approvals.

If you access the Web Application via an e-mail, the change request is provided in the task list whether you approve or deny it from the e-mail itself or from the Web Application. If you access the Web Application from an Internet browser, no tasks are listed in the task list and you must use the filters to access your tasks. (This is also the case when accessing the Web Application from the Process Designer.)

Filtering requests

The request filters help you locate the desired requests. Use the filters to narrow the scope of the requests, so you can access the ones you need. You can filter the requests using one of the following parameters:

- **Request:** Provides an additional field for inserting a request ID, which returns a specific change request. Enables you to look up requests for all users.
- **My open requests:** Returns all requests pending your approval. Shows your requests only.
- **My closed requests:** Returns all requests you have approved or denied. Shows your requests only.
- **Request date:** Provides an additional field for inserting a date, which returns all change requests with that time signature. Enables you to look up change requests for all users.

Once you have found the desired request, you can access detailed information about it. If you are the owner of the request, you can approve or deny the task.

Properties of requests

Every request has a set of properties that provides detailed information about the request itself, as well as the entire workflow. In order to access the property information for a specific request, click on the request in the list. The properties of each request consist of the following sections (tabs) of information, which are described below:

- To do
- Summary
- Details
- Requester
- Approval history
- Audit history

Note: You cannot manipulate the values from the Web Application.

To do

Provides specific information about the selected task or request. If you are the owner of the task, you can approve or deny it from the tab. Information provided in this tab consists of the name of the action, when it was requested, who the reviewer is, and the due date.

Summary

Provides summary information regarding the request and the workflow it pertains to. Information provided in this tab includes the request ID, the external system ID, the date the request needs to be put into affect, the date the request was received, and the name of the person making the request.

Details

Provides more detailed information regarding the request and the workflow it pertains to. The **{Internal}** values pertain to data gathered from Process Manager. In addition to the request ID, it identifies the initiating workflow, provides the workflow ID, and lists all participants that have approved, denied, acknowledged, responded, or added comments at any point in the workflow process. The **Workflow** values pertain to data gathered from external systems. In addition to the external system ID and the requester, it provides the proposed request date. It also provides information for any category that has a field being used in conjunction with the request.

Requester

Provides the name and e-mail address of the requester of the workflow that the request pertains to. This value can be taken from an external system or application.

Action history

Provides the action history for the workflow the request pertains to. It provides you with status information to track the progression of the workflow and know what step you are on at any given time. The actions are listed in the same order they occur in the process. Each action provides information about its status and any comments given, and also identifies who the reviewer of the action is, who completed it, who acknowledged it, when it was approved, and what the reviewer type is.

Audit history

Provides a list of the workflow processes that pertain to the selected request. The processes are ordered according to the date and time they occur. The header of each record tells you the most recent date and time the workflow was updated, the external system ID, and any auditing notes provided. You can expand the header to reach the detail record, which lists the actions of the workflow in the order they occur. The name of the action, the last time it was updated, and the auditing notes are provided for each action as well.

Calendar

The Web Application provides a calendar that visually shows which workflows are running each day. You can click on the requests represented in the calendar, which opens the request in the **Requests** page. The request is highlighted in the list, so all the information applicable to the request is available.

Note: Only time-sensitive actions with a proposed request date are registered in the calendar.

The calendar also helps you keep track of your processes and requests by showing which days have less traffic than others. For example, if you are an approver of a task and there are already several process running that day, you may want to wait to approve the task, provided you don't have a time constraint.

Resources and troubleshooting

This section provides helpful information for optimizing your workflow environment, implementing useful features, and resolving issues that you may encounter with the product. If you are unable to find the information you need in the resources and troubleshooting section or other sections of the user's guide, refer to the release notes or contact customer support.

Workflow engine resources and troubleshooting

This section contains resources and troubleshooting information for the workflow engine.

Changing the Landesk.TaskEngine.config file

Any time you make edits to the Landesk.TaskEngine.config file, you need to restart the service.

Web service resources and troubleshooting

This section contains resources and troubleshooting information for the Web listener.

Using InfoPath forms to initiate workflows

An InfoPath form can be used to initiate a workflow by submitting the form to Process Manager's Web service. The process for using an InfoPath form to initiate a workflow is as follows:

IMPORTANT: You must update Microsoft Office's InfoPath component before performing this procedure.

1. Create the InfoPath form. Provide an event listener name and a system ID in the form. Save it as an .XML file.
2. In Process Manager, create or choose an event listener with a Web service type. The event listener name must match the name provided in the InfoPath form. Designate the workflow to be used in conjunction with the event listener. Select the InfoPath form (.XML file) to provide the columns and values for the event listener. Apply a unique system identifier and any field mapping as necessary. See Web service event listener.
3. Fill out the InfoPath form you created and submit it to the Web service.

Creating an InfoPath form

Create the InfoPath form by modifying a template. You will need to provide the name of the event listener that the Web service will initiate.

To create an InfoPath Form

1. From InfoPath, select the **Absence Request** form.
2. Click **Design This Form**.
3. Click **Data Source** in the right hand pane.
4. Add two fields to the data source for the event listener name and the system ID.
5. Add two text field controls to the form associated with the listener name and system ID.
6. Select **Tools | Submitting forms**.
7. Select **Enable Submit commands and buttons**.
8. From the **Submit to** drop-down box, select **Web Service**.
9. Click **Add**.
10. Enter the URL for the Web service and click **Next**. The Web service is located in the following location:
    <http://[server]/LANDesk.Workflow.ServiceHost/WebServiceListener.asmx?WSDL>
11. Select **ProcessExternalMessage** and click **Next**.
12. Select **tns:connectorName**, click **Field or Group**, and click the button to the right of the text box to select the data source for the web service listener name.
13. Select **tns:fieldContext**, click **Entire form**, select **Submit data as string**, and click **Next**.
14. Name the data connection**Absence Request Listener** and click **Next**.
15. Click **OK** .
16. Save the form to obtain a .XSN file.
17. Double click the .XSN file created to launch InfoPath in form fill-out mode.
18. Click **File | Save**. Save the form as an .XML document. (You don't need to fill out the fields first.)

The XML document is now ready to be inserted into your Web service event listener to define the columns and values.

To automatically generate the system ID in a form

1. Open the form in design mode in InfoPath.
2. Select **Tools | Programming | On Load Event** .
3. Write or insert script code to initialize the value of the **SystemId** field. The following script code will initialize the **SystemId** field with a date/time stamp value, which will be unique for a given machine:

```
initializeNodeValue("//my:SystemId", GetSystemId(new Date())); where
GetSystemId is defined as: function GetSystemId(now) { return
(getDateString(now) + getTimeString(now)).replace(/[-:]/g, ""); }
```

This assumes that when you add the data source for the system ID it is named **SystemId**.

Submitting an InfoPath form to a Web service to initiate a workflow

You can submit an InfoPath form to the Process Manager Web service to initiate a workflow. This assumes you have already created the form and have set up the event listener. Typically, a form is accessed by the file itself by double-clicking it from a folder, e-mail, intranet, Internet, and so on. It can also be access from InfoPath. The format of the file is .XSN. When you access an .XSN file, it opens in fill-out mode by default.

To submit an InfoPath form to a Process Manager Web service

1. Double-click the file or open it from InfoPath.
2. Fill out the form.
3. Click **Submit**.

Web Application resources and troubleshooting

This section contains resources and troubleshooting information for the Web Application. You can use Process Designer to configure parts of the Web Application. This gives you greater control of the overall workflow and process.

Changing the web.config file

If you change the web.config file in the Landesk.Workflow.ServiceHost directory, an IIS restart is required.

Accessing the Web Application

When creating a user in Process Manager, the username must match a user on the domain or server in order to access the application. Make sure the users have read/write permission on the two virtual directories created by Process Manager. Otherwise, users (or participants) of processes will not be able to log in to the Web application and perform their tasks. Even if the users try to approve or deny a change request from an e-mail, it will generate an error.

Disallowing approve with conditions

You can hide the **Approve with conditions** button from the Web Application to disallow participants from using the functionality. To hide the approve with conditions button, put the following in your **Web.Config** file under LANDesk\Process Manager\Web Service\LANDesk.Workflow.Web:

<add key="Web.HideApproveWithConditions" value="true"/>

Now make the same change in the file at the following location: \\LANDesk\Process Manager\TaskEngine\LANDesk.Workflow.TaskEngine.exe.config.

Restricting approval controls in e-mails

Approval controls in e-mails are directly linked to the approval controls in the Web Application. You can withhold the controls from an e-mail by either not applying an e-mail template to the e-mail action, or by making sure the **Send e-mail using HTML** option is not selected in the e-mail template. This forces the process participants to have to access the Web Application in order to perform their change request tasks.

Turning off pop-up blockers

Pop-up blockers will restrict users from users from being able to use the **approve with comments** and **deny** change request tools. You need to turn off the pop-up blocker.

Database Utility resources and troubleshooting

This section contains resources and troubleshooting information for the Database Utility.

Manually changing your SMTP setting

To manually change your SMTP setting, use the configuration file, which you can access from the following location: c:\Program Files\LANDesk\Process Manager\Task Engine\TaskEngineExe.Config.

PDAs and handhelds

This section provides helpful information about using PDAs and handhelds in conjunction with Process Manager. Being able to perform tasks from a handheld or PDA increases the productivity of process participants, as well as extend their capabilities and enhance flexibility. For example, an IT administrator could reboot a server while attending a meeting at a remote site.

Process Manager currently supports Pocket PC and Blackberry devices. You use the same credentials to authenticate as you do when logging in to the Web Application.

How handhelds and PDAs are used

There are a few actions that require manual input from process participants. These actions generate e-mails that are delivered to the appropriate individuals. The e-mails contain the functionality required to complete the tasks. The e-mails can be accessed from your handheld or PDA device, so you can complete the tasks assigned to you.

Actions supporting handhelds and PDAs

Only a few actions support the use of a handheld or PDA. PDAs and handhelds can be used when performing the following actions:

- **Assign manual action:** You can mark the task as complete or not complete. You can also see the details. When you mark a task as complete, you are asked to provide the amount of time it took to complete the task, as well as provide any comments.
- **Get approval:** You can approve, approve with conditions, or deny approvals. Not all of the details are available like in the Web application, but you receive an e-mail with the URL to perform the action.**Note:** With Blackberry handhelds, if you receive a 500 error when you click on the URL to perform the approval, make sure you are using the Blackberry browser.

- **Request Information:** You can see the request and mark it as cannot complete, but since forms are required to complete this action, you cannot complete it using a PDA or handheld because they don't support Microsoft InfoPath. It is recommended that you access the Web Application to complete the task.