



Getting Started Guide for Developing a Solution for Deployment

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Chapter 1. About this document

The Getting Started Guide for Developing a Solution for Deployment describes IBM® Express Runtime.

This document provides basic information to help you understand the benefits of using Express Runtime and the process for using it effectively. For detailed information, refer to the Express Runtime information center.

This document provides the following information:

- Introducing Express Runtime
- Installing Express Runtime
- Using Express Runtime
- Finding more information

Who might use this information

This document is intended for business partners who plan to use Express Runtime to create, configure, and deploy solutions containing IBM middleware. It assumes you have no previous experience with Express Runtime.

This document provides a description of basic processes necessary to use Express Runtime effectively. After reading this document, you can use the more detailed information sources as a step-by-step guide for creating, configuring, and deploying Express Runtime solutions.

This document provides an overview of the following topics:

- The value of using Express Runtime
- Tools and components included with Express Runtime
- User roles typically required to use Express Runtime
- Process for developing an Express Runtime solution
- Options for deploying an Express Runtime solution
- Finding more detailed information

Chapter 2. Introduction to Express Runtime

Total business solutions for mid-sized company customers usually involve multiple products that work and share data together. These solutions often depend on middleware, such as a Web server, a database, and an application server. Express Runtime offers a cohesive set of middleware components as a single offering, that you can bundle with custom applications. It also provides an easy method for integrating custom applications with the middleware components to deliver a total business solution to end users as a single package.

When you provide a total business solution to end users as a single package, you simplify the process of deploying a solution and guarantee that a solution is configured correctly. Using Express Runtime, you specify configuration parameters during solution creation, which later prevent end users from installing a solution incorrectly. You also have the ability to provide a solution directly to end users for installation as needed, without requiring further assistance for configuration or integration. Express Runtime greatly reduces the complexity and time required to deploy a total business solution to mid-sized company customers.

This chapter provides information on the tools included with Express Runtime that help you create total business solutions. The chapter covers:

- Express Runtime user roles
- Express Runtime middleware components
- Express Runtime solution assembly toolkit
- Express Runtime system management components

Express Runtime typical user roles

Using Express Runtime effectively to create, configure, and deploy total business solutions requires several core skills. A user role defines a set of the core skills required to perform a specific activity. Express Runtime users can be described by four user roles. One person might complete the tasks of multiple user roles, but each user role must have at least one person capable of completing its necessary tasks. You need to identify people to take on the following user roles:

Application developer

The application developer creates the business partner application.

Solution developer

The solution developer builds Express Runtime solutions to integrate the installation and configuration of applications with selected middleware. The solution developer should be familiar with Java™ and XML.

Solution distributor

The solution distributor distributes solutions to customers.

End User

The end user completes the deployment of a solution and might perform solution maintenance and administrative tasks.

Express Runtime middleware components

As a business partner, you create custom applications that meet the specific needs of mid-sized company customers. To create a total business solution, you need to provide the middleware that these applications depend on to share data. Express Runtime offers a cohesive set of middleware components that you can bundle with custom applications to deliver a total business solution to end users.

Express Runtime includes the following middleware components that you can install as part of a solution:

IBM DB2™ Express for Windows® and Linux™ (the OS/400® or i5/OS™ database is embedded in the operating system)

Designed for small and medium business needs, DB2® Express features self-tuning, self-managing, self-configuring capabilities that increase reliability while reducing complexity and required skills.

Informix® Dynamic Server - Express

Informix Dynamic Server is an extensible object-relational database. Informix Dynamic Server supports on-demand computing, WebSphere®, and OLTP and OLAP data management applications in the SQL, Dynamic SQL, C++, and Java language.

IBM WebSphere Application Server – Express (server only)

IBM WebSphere Application Server – Express helps you develop, deploy, and manage static and dynamic Web sites with wizards and templates that actually generate code for you. You can view information in databases, perform updates, and create and use Web services.

IBM HTTP Server for Windows, Linux, and OS/400 or i5/OS

The foundation of any e-business application is the Web server. The IBM HTTP Server provides support for SSL secure connections, a fast response cache accelerator, and an administration server that helps to administer and configure itself.

Express Runtime solution assembly toolkit

The solution assembly toolkit is the heart of Express Runtime and is used by the solution developer, solution distributor, and end user. The solution assembly toolkit helps you create Express Runtime solutions, deploy solutions to end users, and provide a simple method for helping end users to deploy solutions themselves. The following tools are included with the Express Runtime installation as part of the solution assembly toolkit:

- Express Runtime developer
- Solution launcher
- Deployment wizard

Express Runtime developer

The Express Runtime developer is an Eclipse-based plug-in that provides a standard platform for solution development. To create Express Runtime solutions, you must develop or modify existing wrappers. A wrapper is an XML definition of an application or solution. The Express Runtime developer includes custom editors that help you assemble solutions quickly and easily. The custom editors automatically generate necessary XML wrappers as you provide simple information about applications and solutions.

Express Runtime also includes sample application and solution wrappers for use with the Express Runtime developer. You can edit existing wrappers and create new wrappers to deliver tailored solutions to customers.

Solution launcher

The solution launcher is a utility that helps you start the deployment wizard and deploy a solution directly from a CD or DVD. With a solution launcher image, you can give your solution directly to end users for easy installation. Creating a solution launcher image is simple. The image can be created by an export wizard within the Express Runtime developer. The solution developer should complete the creation and testing of your solution. Then, export a completed solution as a solution launcher image. With the image exported, the solution distributor can use media burning software to create CDs or DVDs of a solution for distribution to end users.

Deployment wizard

The deployment wizard is an easy-to-use tool for deploying solutions. It can be used by solution distributors and end users. End users can use solution launcher image CDs or DVDs to automatically start the deployment wizard. With the deployment wizard started, the end customer is guided through the deployment of your solution. A solution developer can choose to expose as much or as little of the configuration information of a solution as you believe necessary for end users. By limiting the configuration information, the solution is installed with the configuration that optimizes the performance of the solution and provides the necessary security to run according to your recommendations.

The deployment wizard enables the deployment of solutions either locally or remotely and provides help with the following tasks:

- Selecting tasks to deploy
- Specifying target computers for each task
- Configuring deployment parameters for each task
- Reviewing task summary information
- Deploying one or more tasks
- Monitoring deployment status

Express Runtime system management components

The end user can maintain and perform administrative tasks on the middleware components installed as part of a solution. Express Runtime offers a system management component for performing routine maintenance and administrative tasks on the middleware components.

Express Runtime console

The Express Runtime console helps end customer manage servers on multiple platforms from a single Web-based location. It provides a simple method for performing administrative tasks on servers hosting Express Runtime middleware components with a consistent user interface. Using the Express Runtime console, you can perform the following tasks:

- Managing the Express Runtime middleware
- Common logging for Express Runtime middleware components for a single, integrated point of problem determination for all the software components in a middleware solution for improved troubleshooting
- Performing frequent administrative tasks
- Customizing tasks to an individual's user role

To use the Express Runtime console, you deploy the console to target computers, just like the IBM middleware components. The deployment installs the console software, and you refer to the Express Runtime console documentation for instructions on how to configure the console to monitor and administer other software.

Chapter 3. Installing Express Runtime

Express Runtime supports multiple platforms for development and deployment. Before installing Express Runtime, you should verify that the computer where you plan to install Express Runtime, and all computers that you plan to deploy a solution to remotely, meet the minimum system requirements.

This chapter includes the following information:

- System requirements for Express Runtime development
- Supported operating systems for Express Runtime development
- Supported operating systems for Express Runtime deployment
- Installing Express Runtime

Express Runtime system requirements

This topic lists the system requirements for installing and using Express Runtime in these environments:

- **Development environment**

To get the Express Runtime development environment, you perform the **Installation for development**. This environment contains the tooling necessary to integrate and package your application with IBM middleware so that you can deliver an integrated solution to customers: your application plus IBM middleware bundled together in one installable solution.

- **Deployment server environment**

To get the Express Runtime deployment server environment, you perform the **Installation for deployment**. This environment includes the deployment wizard and can also include the IBM middleware components and the IBM Console for Express Runtime. The deployment server environment is the platform where the installation of the solution originates.

- **Deployment target environment**

The deployment target environment is the local and remote target computers on which the solution is installed.

- **Administration Console environment**

The administration console environment is where the central console server is installed.

Deployment packages bundled by operating system

The following table shows the size of the different middleware deployment packages for each operating system.

Table 1. Deployment package sizes

Function	Package size	Comments
Middleware for Windows	1.39 GB	Contains all middleware deployment packages for Windows
Middleware for Linux	1.74 GB	Contains all middleware deployment packages for Linux
Middleware for i5/OS	1.15 GB	Contains all middleware deployment packages for i5/OS
Middleware for Linux on IBM POWER	1.21 GB	Contains all middleware deployment packages for Linux on POWER
Total for all deployment packages	4.75 GB	

Individual deployment package sizes

The following table shows the size of the individual middleware deployment packages.

Table 2. Individual deployment package sizes

Function	Package size
IBM DB2 9.1 Express Edition for Windows	335 MB
IBM DB2 9.1 Express Edition for Linux	292 MB
IBM DB2 9.1 Express Edition for Linux on POWER	289 MB
IBM Informix Dynamic Server Express 10.00 UC5 for Windows	148 MB
IBM Informix Dynamic Server Express 10.00 UC5 for Linux	580 MB
IBM HTTP Server 6.1 for Windows	86 MB
IBM HTTP Server 6.1 for Linux	82 MB
IBM HTTP Server 6.1 for Linux on POWER	90 MB
IBM HTTP Server 6.1 for i5/OS V5R3	194 MB
IBM HTTP Server 6.1 for i5/OS V5R4	258 MB
IBM HTTP Server 6.1 configuration for i5/OS	1 KB
IBM WebSphere Express 6.1 for Windows	543 MB
IBM WebSphere Express 6.1 for Linux	540 MB
IBM WebSphere Express 6.1 for Linux on POWER	548 MB
IBM WebSphere Express 6.1 for i5/OS	502 MB
IBM WebSphere Express Fixpack 6.1.0.3 for i5/OS	317 MB
IBM WebSphere Express 6.1 Security for Windows, Linux, Linux on POWER and i5/OS	1 KB
IBM Webserver Plugin for WebSphere Application Server 6.1 for Windows	90 MB
IBM Webserver Plugin for WebSphere Application Server 6.1 for Linux	88 MB
IBM Webserver Plugin for WebSphere Application Server 6.1 for Linux on POWER	95 MB
IBM Express Runtime Console 2.2 for Windows, Linux and Linux on POWER	265 MB

Middleware requirements

DB2 Express 9.1

The hardware and software requirements are provided in the DB2 Express information center:

<http://publib.boulder.ibm.com/infocenter/db2luw/v9/index.jsp>

Note: DB2 9.1 admin support is not available on the POWER PC platform.

The DB2 Developer Workbench replaces the Development Center from DB2 UDB Version 8 on Windows. It is on a separate CD in your DB2 package. The Developer Workbench is a comprehensive development environment for creating, editing, debugging, deploying, and testing DB2 stored procedures and user-defined functions. You can also use this tool to create, edit and run SQL statements and XML queries, and develop SQLJ applications. You can learn more about the DB2 Developer Workbench at the following URL: <http://publib.boulder.ibm.com/infocenter/db2luw/v9/index.jsp>.

Informix Dynamic Server - Express TC5 for Windows and Informix Dynamic Server UC5 for Linux

The hardware and software requirements are provided in the Informix Dynamic Server information center:

<http://publib.boulder.ibm.com/infocenter/idshelp/v10/index.jsp>

For Linux platforms, the following prerequisite RPM packages are required:

- libstdc++-3.*
- pam-0.75*
- libgcc-3.2*
- glibc-2.3.*
- ncurses-5.*

For Linux platforms, the following are required for Informix Storage Manager:

- glibc-devel-2.3.*
- pdksh*

For Linux platforms, the following are required to use optional graphical tools:

- openmotif-2.2*
- XFree86-libs-4.* (xorg-x11-libs-6.8.1 on Red Hat Enterprise Linux 4.0)

Note: * = the build number is irrelevant.

If Informix Dynamic Server is to be used on Windows platforms, the drive where Informix Dynamic Server is to be installed must be formatted as NTFS.

WebSphere Application Server - Express 6.1

The hardware and software requirements are provided in the WebSphere Application Server - Express information center:

<http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/index.jsp>

IBM HTTP Server 6.1

The hardware and software requirements are provided in the WebSphere Application Server - Express information center:

<http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/index.jsp>

Language support

The language of the computer running the IBM Express Runtime launch pad is the language in which the IBM Express Runtime and the IBM middleware components are installed (except DB2 Express, which prompts for languages to install). If the launch pad is not used to begin the installation, the language of the system locale is used. English is the default language if IBM Express Runtime does not support the system locale.

Installing Express Runtime

This section provides basic information on installing Express Runtime. The solution developer should install Express Runtime. You might also choose to install only the deployment wizard on a computer that you plan to use for initiating deployments.

Installing Express Runtime

Begin the installation of Express Runtime from the Express Runtime launch pad panel. The launch pad automatically starts from the Express Runtime installation CD or DVD. If you are deploying from a network location, or the launch pad does not automatically start, start it by using `launchpad.exe` on Windows or the `launchpad.sh` on Linux.

The launch pad provides controls for performing the following tasks:

- Viewing release information
- Viewing prerequisite information
- Viewing migration information
- Installing Express Runtime

For more information on installing Express Runtime, consult the Express Runtime information center.

Chapter 4. Using Express Runtime

This chapter presents an end-to-end scenario for developing and deploying a total business solution using Express Runtime. It contains an overview of the following tasks:

- Developing a solution
- Testing a solution
- Deploying a solution
- Distributing a solution

For more detailed information on any of the tasks, consult the Express Runtime information center.

Developing a solution

The solution developer completes the development of a solution. To create the solution, the solution developer uses the Express Runtime developer to generate application and solution wrappers. The wrapper file uses XML to describe an application or solution. Express Runtime includes application wrappers for each Express Runtime middleware component. A solution developer can use these middleware applications as part of a solution. The solution developer writes application wrappers for custom applications. The solution developer must also create a solution wrapper to define the applications that a solution includes. Express Runtime provides a sample solution that the solution developer can use as a guide, or modify to reuse as a solution.

The Express Runtime developer includes several useful resources for solution developers. The Express Runtime developer includes custom editors that create XML wrappers for the solution developer as they provide descriptive information about applications or solutions. The Express Runtime developer also includes cheat sheets that guide the solution developer through the process of creating a wrapper.

You should decide the method you plan to use for distributing your solution and the licensing that is most appropriate for your solution during solution development. The licensing you decide on for a solution affects areas such as packaging, pricing and support. Consult expert legal counsel for advice on a solution's licensing requirements.

Once a solution has been developed, the solution developer generates the solution and begins testing. Generating the solution produces a file with a .ser extension. You can open this file in the deployment wizard.

Testing a solution

The solution developer needs to test the solution before providing it to the solution distributor or end customer. The Express Runtime developer includes a test and debug environment. The solution can be tested in the Express Runtime developer with the "Test in deployment wizard" option. This option launches the deployment wizard inside the Express Runtime developer and helps the solution developer to see how the solution is presented to the end customer and to verify that the deployment can be completed successfully. The Express Runtime developer provides a plug in to the Eclipse-based debugger and therefore can be used by a solution developer to debug problems before distribution begins.

Distributing a solution

The solution distributor might distribute a solution as a solution launcher image, or by creating a staging server. If the solution is provided as a solution launcher image, the end customer is provided with a set of CDs or DVDs. When the first CD or DVD is inserted in the end user's computer, the deployment wizard starts with a solution open and ready to be deployed. The solution distributor might decide to

create a staging server instead of providing a solution launcher image to end users. To create a staging server, the solution distributor installs only the deployment wizard to a computer. The solution distributor then deploys your solution, either locally or remotely, to target computers from the staging server.

Deploying a solution

The solution can be deployed by the solution distributor or the end customer using the deployment wizard. The deployment wizard provides a simple graphical interface for deploying a solution.

A solution is presented as a list of tasks in the deployment wizard. The solution developer has specified in the Express Runtime solution which tasks should be visible, required, or optional. The solution developer has also specified the configuration parameters that can be specified by the end user at deployment.

To deploy a solution, perform the following steps:

1. Open the deployment wizard.
2. Click **File > Open**.
3. Locate the file provided by your solution developer with a .ser extension.
4. Click **Open**.
5. The deployment wizard welcome screen is displayed with information provided by your solution developer about your solution. Click **Next**.
6. On the Select Tasks panel, select at least one task to deploy. Click **Next**. Repeat for all Select Tasks panels.
7. On the Target Computers panel, specify a target computer hostname or IP address and click **Add**. To deploy to more than one target computer, add additional target computer hostnames. To deploy to your computer, enter localhost as the target computer hostname. Click **Next**. Repeat for all Target Computers panels.
8. On the Specify Parameters panel, complete all required configuration parameters. Click **Next**. Repeat for all Specify Parameters panels.
9. On the Summary panel, review the tasks you have configured to deploy.
10. To deploy all configured tasks, click **Deploy All**. To deploy only a specific task, click **Deploy** associated with the task if this option is available.
11. Monitor the deployment status until deployment is complete.

Chapter 5. Other documentation available

The following table provides information about other documentation that you can use:

Table 3. Other documentation

Information unit	Purpose	How to access
Express Runtime information center	Describes pertinent product information from installation, development, deployment, and maintenance instructions, to concept and troubleshooting information	On the Web or from the Help menu in the deployment wizard.
Express Runtime console information center	Describes pertinent product information from installation, development, deployment, and maintenance instructions, to concept and troubleshooting information	On the Web.
Express Runtime release notes	Sometimes called a readme, describes product information that was not captured in the Express Runtime information center	From the Express Runtime CD or DVD.
IBM Installation Agent information center	Describes how to install and configure the IBM Installation Agent. Conceptual and troubleshooting information is also included.	From the IBM Installation Agent CD or DVD.
IBM Installation Agent release notes	Sometimes called a readme, describes product information that was not captured in the IBM Installation Agent information center	From the IBM Installation Agent CD or DVD.

The Express Runtime and Express Runtime console documentation resides on the Web at the following URL:

<http://publib.boulder.ibm.com/infocenter/eruin/v2r2/index.jsp>

For IBM middleware documentation, install the middleware components to view each product's documentation. You can also access documentation for each middleware component on the World Wide Web:

IBM DB2 Express:

<http://publib.boulder.ibm.com/information center/db2help/index.jsp/>

Informix Dynamic Server Express:

<http://publib.boulder.ibm.com/information center/ids9help/index.jsp>

IBM WebSphere Application Server - Express

<http://publib.boulder.ibm.com/information center/wasinfo/v6r0/index.jsp>

IBM HTTP Server for Windows, Linux, and OS/400 or i5/OS

<http://publib.boulder.ibm.com/information center/wasinfo/v6r0/index.jsp>

Business partners might provide documentation regarding solutions they provide separately from the Express Runtime documentation.

Chapter 6. Troubleshooting

If you encounter errors during a deployment, perform the following tasks to identify the cause of the problem:

- On the Status dialog, click **Detailed Messages**. A table of messages appears in a new dialog. Double-click on a message to view more detailed information and to print the error details.
- Verify that your staging server can communicate with all of the target computers. Use the left navigation in the deployment wizard to click on the Specify Targets link. Click **Test Connections** on each Specify Targets dialog to verify that the agent is running on all of the target computers.
- View the log file: <InstallPath>\logs\IRU_DeploymentWizard.log, where <InstallPath> is the location where you installed Express Runtime.
- Record any displayed error messages.

Chapter 7. Accessibility

You can use screen-reader software to hear what is displayed on the user interface of the deployment wizard. You can operate all features using the keyboard instead of the mouse. Express Runtime honors system accessibility settings, such as font and color settings. Accelerator and mnemonic keys are enabled throughout Express Runtime. These are identified on the Menu bar and its associated pull-down menus.

You can use keys or key combinations to perform operations that can also be done through mouse actions. Many menu actions can be initiated from the keyboard. In those cases, the keyboard equivalent is displayed to the right of the menu item or the shortcut letter is underlined. In addition, the following keyboard shortcuts are enabled:

Tab Navigates through the user interface.

Arrow keys

Navigate within each panel in the user interface.

F3 Decreases size of selected column incrementally.

F4 Increases size of selected column incrementally.

F5 Moves selected column to the left.

F6 Moves selected column to the right

Navigating in Linux

If you have trouble navigating a panel in Linux using CTRL+Tab, use CTRL+ALT+Tab instead. If this is not your default navigation method, refer to your operating system documentation to change the navigation settings.

Chapter 8. Notices and trademarks

The following terms are trademarks of the IBM Corporation in the United States, other countries or both:

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- DB2
- IBM
- i5/OS
- Informix
- OS/400
- WebSphere

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