

# Study Guide

## Exam PL-400: Microsoft Power Platform Developer

### Purpose of this document

This study guide should help you understand what to expect on the exam and includes a summary of the topics the exam might cover and links to additional resources. The information and materials in this document should help you focus your studies as you prepare for the exam.

Useful links	Description
<a href="#">How to earn the certification</a>	Some certifications only require one exam, while others require more. On the details page, you'll find information about what skills are measured and links to registration. Each exam also has its own details page covering exam specifics.
<a href="#">Certification renewal</a>	Once you earn your certification, don't let it expire. When you have an active certification that's expiring within six months, you should renew it—at no cost—by passing a renewal assessment on Microsoft Learn. Remember to renew your certification annually if you want to retain it.
<a href="#">Your Microsoft Learn profile</a>	Connecting your certification profile to Learn brings all your learning activities together. You'll be able to schedule and renew exams, share and print certificates, badges and transcripts, and review your learning statistics inside your Learn profile.
<a href="#">Passing score</a>	All technical exam scores are reported on a scale of 1 to 1,000. A passing score is 700 or greater. As this is a scaled score, it may not equal 70% of the points. A passing score is based on the knowledge and skills needed to demonstrate competence as well as the difficulty of the questions.
<a href="#">Exam sandbox</a>	Are you new to Microsoft certification exams? You can explore the exam environment by visiting our exam sandbox. We created the sandbox as an opportunity for you to experience an exam before you take it. In the sandbox, you can interact with different question types, such as build list, case studies,

Useful links	Description
<a href="#">Request accommodations</a>	and others that you might encounter in the user interface when you take an exam. Additionally, it includes the introductory screens, instructions, and help topics related to the different types of questions that your exam might include. It also includes the non-disclosure agreement that you must accept before you can launch the exam.
<a href="#">Take a practice test</a>	We're committed to ensuring all learners are set up for success. If you use assistive devices, require extra time, or need modification to any part of the exam experience, you can request an accommodation.  Taking a practice test is a great way to know whether you're ready to take the exam or if you need to study a bit more. Subject-matter experts write the Microsoft Official Practice Tests, which are designed to assess all exam objectives.

## Objective domain: skills the exam measures

The English language version of this exam was updated on September 19, 2022.

Some exams are localized into other languages, and those are updated approximately eight weeks after the English version is updated. Other available languages are listed in the **Schedule Exam** section of the **Exam Details** webpage. If the exam isn't available in your preferred language, you can request an additional 30 minutes to complete the exam.

### Note

The bullets that follow each of the skills measured are intended to illustrate how we are assessing that skill. Related topics may be covered in the exam.

### Note

Most questions cover features that are general availability (GA). The exam may contain questions on Preview features if those features are commonly used.

## Skills measured

- Create a technical design (10–15%)
- Configure Microsoft Dataverse (10–15%)
- Create and configure PowerApps (5–10%)
- Configure business process automation (5–10%)
- Extend the user experience (15–20%)
- Extend the platform (20–25%)

- Develop integrations (5–10%)

## Functional groups

### Create a technical design (10–15%)

#### Validate requirements and design technical architecture

- Design and validate the technical architecture for a solution
- Design authentication and authorization strategy
- Determine whether you can meet requirements with out-of-the-box functionality
- Determine when to use Logic Apps versus Power Automate flows
- Determine when to use serverless computing, plug-ins, or Power Automate
- Determine when to build a virtual table data source provider and when to use connectors

#### Design solution components

- Design a Microsoft Dataverse data model
- Design Power Apps reusable components
- Design custom connectors
- Design server-side components
- Determine when to extend business process flows by using server-side and client-side code or Power Automate

#### Describe Microsoft Power Platform extensibility points

- Describe Power Virtual Agents extensibility points including Bot Framework skills and Power Automate flows
- Describe Power Apps portal extensibility points including CRUD APIs and custom styling
- Describe Dataverse custom APIs and their uses

### Configure Microsoft Dataverse (10–15%)

#### Configure security to support development

- Troubleshoot operational security issues
- Create or update security roles and column-level security profiles
- Configure business units and teams

#### Implement tables and columns

- Configure tables and table options
- Configure columns
- Configure relationships and types of behaviors

#### Implement application lifecycle management (ALM)

- Create solutions and manage solution components

- Import and export solutions
- Manage solution dependencies
- Implement source control for projects including solutions and code assets
- Create and use environment variables
- Describe how to use Package Deployer and associated tools to create a package
- Describe application lifecycle management concepts

## **Create and configure Power Apps (5–10%)**

### **Create model-driven apps**

- Configure a model-driven app
- Configure forms
- Configure views
- Configure commands and buttons

### **Create canvas apps**

- Create and configure a canvas app or a custom page
- Implement complex formulas to manage control events and properties
- Build reusable component libraries
- Test an app by using Test Studio
- Embed an app in Microsoft Teams

### **Manage and troubleshoot apps**

- Troubleshoot app issues by using Monitor and other browser-based debugging tools
- Identify and resolve connector and API errors
- Optimize app performance including pre-loading data and query delegation

## **Configure business process automation (5–10%)**

### **Configure Power Automate**

- Build a cloud flow
- Configure steps to use Dataverse connector actions and triggers
- Implement complex expressions in flow steps
- Implement error handling

### **Implement processes**

- Create and configure business process flows
- Create and configure business rules
- Create, manage, and interact with business process flows by using server-side and client-side code
- Troubleshoot processes

## Extend the user experience (15–20%)

### Apply business logic using client scripting

- Create JavaScript or Typescript code that targets the Client API object model
- Register an event handler
- Create client-side scripts that target the Dataverse Web API

### Create a Power Apps Component Framework (PCF) component

- Describe the code component lifecycle
- Initialize a new code component
- Configure a code component manifest
- Implement component interfaces
- Package, deploy, and consume a component
- Configure and use Device, Utility, and WebAPI features

### Create a command button function

- Create a command function
- Design command button rules and actions
- Manage dependencies between JavaScript libraries

## Extend the platform (20–25%)

### Create a plug-in

- Describe the plug-in execution pipeline
- Design and develop a plug-in
- Debug and troubleshoot a plug-in
- Implement business logic by using pre-images and post-images
- Perform operations on data by using the Organization service API
- Optimize plug-in performance by configuring concurrency, and transactions
- Configure a Dataverse custom API message
- Register custom assemblies by using the Plug-in Registration Tool
- Develop a plug-in that targets a custom action message

### Create custom connectors

- Create a definition for the API
- Configure API security
- Use policy templates to modify connector behavior at runtime
- Create custom connectors for public APIs by using Postman

### Use platform APIs

- Interact with data and processes by using the Dataverse Web API or the Organization Service

- Implement API limit retry policies
- Optimize for performance, concurrency, transactions, and batching
- Perform authentication by using OAuth

## Process workloads

- Process long-running operations by using Azure Functions
- Configure scheduled and event-driven function triggers in Azure Functions
- Authenticate to Microsoft Power Platform by using managed identities

## Develop Integrations (5–10%)

### Publish and consume Dataverse events

- Publish an event by using the API
- Publish an event by using the Plug-in Registration Tool
- Register service endpoints including webhooks, Azure Service Bus, and Azure Event Hub
- Implement a Dataverse listener for an Azure solution
- Create an Azure Function that interacts with Microsoft Power Platform

### Implement data synchronization

- Configure table change tracking
- Read table change records by using platform APIs
- Create and use alternate keys

# Study Resources

We recommend that you train and get hands-on experience before you take the exam. We offer self-study options and classroom training as well as links to documentation, community sites, and videos.

Study resources	Links to learning and documentation
<b>Get trained</b>	<a href="#">Choose from self-paced learning paths and modules or take an instructor led course</a>
<b>Find documentation</b>	<a href="#">Developer learning catalog - Power Apps</a> <a href="#">Planning a Power Apps project</a> <a href="#">Canvas apps</a> <a href="#">Model-driven apps</a> <a href="#">Portals</a> <a href="#">Microsoft Dataverse</a> <a href="#">Tables and metadata</a> <a href="#">Dataverse developer</a> <a href="#">Model-driven apps developer</a>

Study resources	Links to learning and documentation
<b>Ask a question</b>	<a href="#">Canvas apps developer</a> <a href="#">Implement healthy ALM using solutions</a> <a href="#">Use Microsoft Power Platform Build Tools</a>
<b>Get community support</b>	<a href="#">Microsoft Q&amp;A   Microsoft Docs</a>  <a href="#">Power Apps - Power Platform Community</a> <a href="#">Microsoft Power Automate - Power Platform Community</a>
<b>Follow Microsoft Learn</b>	<a href="#">Microsoft Learn - Microsoft Tech Community</a>
<b>Find a video</b>	<a href="#">#LessCodeMorePower   Shows</a> <a href="#">Browse other Microsoft Learn shows</a>