Cloud Flow Designer Guide

Version 47.0, Winter '20

@salesforcedocs

Last updated: October 16, 2019

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CLOUD FLOW DESIGNER GUIDE

NOTE: Cloud Flow Designer has been replaced with a better and faster tool. See **Flow Builder** in Salesforce Help.

Automate business processes by building applications, known as flows, that collect, update, edit, and create Salesforce information. Then make those flows available to the right users or systems.

Flows can either require user interaction—perhaps a wizard or guided UI for data entry—or run in the background on their own—perhaps something that automatically transfers records when a user's role changes.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Which Automation Tool Do I Use?

Salesforce provides multiple tools to automate your organization's repetitive business processes: Approvals, Process Builder, Workflow, and Flow Builder.

Flow Limits and Considerations

When designing, managing, and running flows, consider the permissions, use limits, and data issues.

Create a Flow

Once you understand the process that you want to automate, design a flow in the Cloud Flow Designer for that process.

Flow Reference

Bookmark this page for quick access to information about flow elements, resources, events, and more.

Manage Your Flows

Use the flow detail page to do anything with your flow outside of designing it—such as activating a flow, testing it, or viewing its properties.

Distribute Your Flow

Once you've designed and tested your flow, it's time to put it to work! Flows can be executed in several ways, depending on who the flow is designed for. Internal users, external users, or systems can run a flow, or a flow can be deployed for another organization.

Why Did My Flow Interview Fail?

To troubleshoot a failed flow interview, use the flow fault email. To test the flow and observe what happens as it runs, use the debug option in Cloud Flow Designer. Or add temporary Screen or Send Email elements to the flow.

Flow Terminology

Which Automation Tool Do I Use?

Salesforce provides multiple tools to automate your organization's repetitive business processes: Approvals, Process Builder, Workflow, and Flow Builder.

The best automation tool for your needs depends on the type of business process that you're automating.

- How a record gets approved

  Example: Managers approve their direct reports' requests for vacation.

- What to do when a record has certain values

  Example: Notify the account owner when a related case is escalated.

- Collecting information from users or customers and then doing something with that information

  Example: Customer support uses a wizard to step through a call script, and cases are created based on the information that they enter.

EDITIONS

Available in: Lightning Experience and Salesforce Classic

Processes and flows are available in: **Essentials, Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Approvals and Workflow are available in **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

How a Record Gets Approved

For example, when an employee requests time off, that time has to be approved by the employee's manager. You need to ensure that when a time-off request is submitted for approval, the right person (the employee's manager) receives the request.

To automate your organization's processes for approving records, create approval processes.

What to Do When a Record Has Certain Values

Three of our tools can address this use case: Workflow, Process Builder, and Flow Builder. Respectively, these tools create workflow rules, processes, and flows.

We recommend starting with Process Builder, especially for business processes that can be simplified to if/then statements. For example: if a case is escalated, then notify the account owner.

Process Builder includes almost all the functionality that's available in workflow rules, and more. In fact, a single process can do what it would normally take multiple workflow rules to do. The only thing you can do with workflow that you can't do with processes is send outbound messages without code. However, you can work around this limitation by calling Apex code from a process.

If the process is too complicated for the Process Builder or requires more advanced functionality, create a flow by using Flow Builder. For example, create a flow to:

- Use complex branching logic (if certain conditions are true, evaluate for further conditions)

  Example: First, check whether a case is escalated. If the case is escalated, check the account's region and route the case accordingly.

- Sort through, iterate over, and operate on several records

  Example: After an opportunity is closed and won, calculate the opportunity's discount. Then apply that discount to all the related opportunity products.

Getting Information from Users or Customers and Then Doing Something with It

If you need to build a wizard to collect information, Flow Builder is the tool for you. Create a flow that displays information to and requests information from a user. Then take the information that they enter and perform actions in Salesforce with it.

For example, create a flow that walks customer support representatives through a call script. The flow uses information that the representative entered, such as the caller's name and account number, to create a case that's assigned to the right person.

You can add more complexity to the flow to match your business process. For example:

- Route the representative to different screens, depending on earlier choices. This prevents the representative from doing things like trying to upsell a product to a customer who already bought that product.
- Check whether the reported problem is blocking the customer's business and the account is high-value. If so, the flow notifies the region director.

Automation Tool Features

Here's the breakdown of all the features and actions that are supported in each of our automation tools. Use it to figure out which tool is best for your business needs.

	Process Builder	Flow Builder	Workflow	Approvals
Complexity	Multiple if/then statements	Complex	A single if/then statement	A single if/then statement
Visual designer	✔	✔		
Starts when	• Record is changed • Invoked by another process • Platform event message is received	• User clicks button or link • User accesses Lightning page, Community page, Visualforce page, or custom tab • User accesses item in a utility bar • Process starts • Apex is called	Record is changed	• User clicks button or link • Process or flow starts that includes a Submit for Approval action • Apex is called
Supports time-based actions	✔	✔	✔	
Supports user interaction		✔		
		Supported Actions		
Call Apex code	✔	✔		
Create records	✔	✔	Tasks only	Tasks only
Invoke processes	✔			

	Process Builder	Flow Builder	Workflow	Approvals
Delete records		✓		
Launch a flow	✓	✓	✓ (Pilot)[1]	
Post to Chatter	✓	✓		
Send email	✓ (Email alerts only)	✓	✓ (Email alerts only)	✓ (Email alerts only)
Send custom notification	✓	✓		
Send outbound messages without code			✓	✓
Submit for approval	✓	✓		
Update fields	Any related record	Any record	The record or its parent	The record or its parent

[1]The Process Builder has superseded flow trigger workflow actions, previously available in a pilot program. Orgs that are using flow trigger workflow actions can continue to create and edit them, but they aren't available for new orgs.

Flow Limits and Considerations

When designing, managing, and running flows, consider the permissions, use limits, and data issues.

IN THIS SECTION:

Flow Limits
When using flows, keep flow limits and Apex governor limits in mind.

Flow Usage-Based Entitlements
Like feature licenses, usage-based entitlements don't limit what you can do in Salesforce; they add to your functionality. If your usage exceeds the allowance, Salesforce will contact you to discuss additions to your contract.

Flow Best Practices
Before you begin building and distributing flows, understand the best practices.

Considerations for Designing Flows
When you design flows, keep the guidelines in mind.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Considerations for Managing Flows
When managing flows, consider the administration and activation limits.

Considerations for Running Flows
When you test or distribute a flow, keep the allocations and guidelines in mind.

Flow Accessibility
Flows are 508-compliant with a few exceptions.

SEE ALSO:

Considerations for Debugging Flows in Cloud Flow Designer
Cloud Flow Designer
Considerations and Limitations for Flows in Lightning Pages
Considerations for Translating Flows

Flow Limits

When using flows, keep flow limits and Apex governor limits in mind.

EDITIONS

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Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Per-Org Limit	Essentials or Professional Editions	Enterprise, Unlimited, Performance, or Developer Editions
Versions per flow	50	50
Executed elements at runtime per flow	2,000	2,000
Active flows	5 per flow type	2,000 per flow type
Total flows	5 per flow type	4,000 per flow type
Flow interviews that are resumed or groups of scheduled actions (from processes) that are executed per hour	1,000	1,000
Total resume events (defined in flow Pause elements) or schedules (defined in processes) based on a record field value	20,000	20,000

IN THIS SECTION:

Apex Governor Limits that Affect Flows
Salesforce strictly enforces limits to ensure that any runaway flows don't monopolize shared resources in the multitenant environment. Per-transaction limits, which Apex enforces, govern flows. If an element causes the transaction to exceed governor limits, the system rolls back the entire transaction. The transaction rolls back even if the element has a defined fault connector path.

Flows in Transactions

Each flow interview runs in the context of a *transaction*. A transaction represents a set of operations that are executed as a single unit. For example, a transaction can execute Apex triggers and escalation rules in addition to a flow interview. If one interview in a transaction fails, all the interviews in the transaction are rolled back, as well as anything else the transaction did. The transaction doesn't retry any of the operations—including the flow interview.

Flow Bulkification in Transactions

Programmers can design their code so that similar actions are performed together in one batch. For example, one operation to create 50 records rather than 50 separate operations that each create one record. This process is called *bulkification*, and it helps your transaction avoid governor limits. If you're working with flows, you don't even have to think about bulkification. Flow interviews bulkify actions for you automatically.

SEE ALSO:

Cloud Flow Designer

Flow Limits and Considerations

Apex Governor Limits that Affect Flows

Salesforce strictly enforces limits to ensure that any runaway flows don't monopolize shared resources in the multitenant environment. Per-transaction limits, which Apex enforces, govern flows. If an element causes the transaction to exceed governor limits, the system rolls back the entire transaction. The transaction rolls back even if the element has a defined fault connector path.

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Per-Transaction Limit[1]	Value
Total number of SOQL queries issued (All executions of Get Records elements, and executions of Update Records or Delete Records elements that use filter conditions)	100
Total number of records retrieved by SOQL queries (All executions of Get Records elements, and executions of Update Records or Delete Records elements that use filter conditions)	50,000
Total number of DML statements issued (Create Records, Update Records, and Delete Records executions)	150
Total number of records processed as a result of DML statements	10,000

[1] Autolaunched flows are part of the larger transaction through which they were launched. For example, flows launched from a process are executed with the process actions as part of the larger transaction. Flows with Screen elements can span multiple transactions. A new transaction begins each time the user clicks **Next** in a screen. Flows with Pause elements span multiple transactions. A transaction ends when a flow interview pauses for an event. When the flow interview resumes, a new transaction begins. Everything after the Pause

element is executed as part of a batch transaction that includes other resumed interviews. The batch includes interviews executed by the same user ID, have the same execution time, and have the same flow version ID.

SEE ALSO:

Apex Developer Guide : Execution Governors and Limits

Flow Limits

Flows in Transactions

Each flow interview runs in the context of a *transaction*. A transaction represents a set of operations that are executed as a single unit. For example, a transaction can execute Apex triggers and escalation rules in addition to a flow interview. If one interview in a transaction fails, all the interviews in the transaction are rolled back, as well as anything else the transaction did. The transaction doesn't retry any of the operations—including the flow interview.

In each transaction, Salesforce enforces governor limits to prevent shared resources from being depleted. Because multiple Salesforce organizations share the same resources, Salesforce prevents one organization from depleting all the resources and leaving the other organizations high and dry. It's similar to an apartment building that uses one cache of water to service every tenant. If your neighbor uses all the water, you can't take a shower. (It's trite, but hopefully you get the idea.) Per-transaction governor limits help prevent such things from happening.

IN THIS SECTION:

When Does a Flow's Transaction Start?

Depending on how the flow was distributed, a transaction that runs an interview for that flow starts in different ways.

When Does a Flow's Transaction End?

When a transaction ends depends on whether the flow contains certain elements and whether it originally started because a record was changed.

SEE ALSO:

Flow Bulkification in Transactions

When Does a Flow's Transaction Start?

Depending on how the flow was distributed, a transaction that runs an interview for that flow starts in different ways.

Distribution Method	Transaction starts when...
Process Builder[1]	A record is created or updated.
Flow URL	The URL is accessed.
Custom button or link	The button or link is clicked.
Visualforce page	The page is accessed.
`Interview.start()` method	If the method starts via a `before` or `after` trigger, the transaction starts when a record is created or updated. Otherwise, the transaction starts when the method (or a parent method) is invoked.

Distribution Method	Transaction starts when...
	The `start()` method shares its limits with other operations in the transaction and other methods in the class.
REST API (Custom Actions or Flows resource)	When the REST call is made. Depending on how the REST call is implemented, the limits can be shared with other operations.

[1]The same also applies if the flow is distributed through a workflow rule. The pilot program for flow trigger workflow actions is closed. If you've already enabled the pilot in your org, you can continue to create and edit flow trigger workflow actions. If you didn't enable the pilot in your org, use the Flows action in Process Builder instead.

Note: When a Screen or Wait element is executed, the existing transaction ends and a new one begins.

When Does a Flow's Transaction End?

When a transaction ends depends on whether the flow contains certain elements and whether it originally started because a record was changed.

The transaction ends when:

- A Screen, Local Action, or Wait element is executed
- The order of execution has completed—if the flow was triggered when a record was created or updated
- All the interviews in the transaction have finished

Tip: If you think that a flow's interview is likely to hit governor limits within its transaction, consider adding a Screen, Local Action, or Wait element.

If the interview is one of many things being done in a given transaction, that interview shares the transaction's governor limits with the other operations.

Example: You update 100 cases through Data Loader. Due to the order of execution in a transaction and the customizations in your organization, here's what happens.

	Transaction Operation	DML Statement Used	SOQL Query Used
1	Cases are saved to the database, but aren't committed yet.		
2	Case assignment rules are executed. Each case's owner is updated.	✅	
3	Case escalation rules are executed. If any case has been open for 10 days, an email is sent to the owner.		
4	Process is started.		
5	Process looks up the case's account.		✅
6	If the account is hot, process uses Chatter to notify the account owner that there's a new case associated with the account.	✅	
7	Process launches a flow interview.		
8	Flow interview looks up the parent account and how many cases it has.		✅

	Transaction Operation	DML Statement Used	SOQL Query Used
9	Flow interview checks whether the account has more than five open cases.		
10	If it does, flow interview looks up the account's division manager then posts on the account's Chatter feed to notify the division manager and account owner.	✅	✅
11	If it doesn't, flow interview posts on the account's Chatter feed to notify only the account owner.	✅	

SEE ALSO:

Apex Developer Guide : Triggers and Order of Execution

Flow Bulkification in Transactions

Programmers can design their code so that similar actions are performed together in one batch. For example, one operation to create 50 records rather than 50 separate operations that each create one record. This process is called *bulkification*, and it helps your transaction avoid governor limits. If you're working with flows, you don't even have to think about bulkification. Flow interviews bulkify actions for you automatically.

IN THIS SECTION:

How Does Flow Bulkification Work?

Interview operations are bulkified only when they execute the same element. That means that the interviews must all be associated with the same flow.

Which Flow Elements Can Be Bulkified?

Flows can bulkify any element that performs a DML statement or SOQL query or does something else external to the flow, like sending an email.

Example of Flow Bulkification

This example demonstrates how operations are bulkified for a flow when 100 cases are updated through Data Loader.

SEE ALSO:

Flows in Transactions

How Does Flow Bulkification Work?

Interview operations are bulkified only when they execute the same element. That means that the interviews must all be associated with the same flow.

When multiple interviews for the same flow run in one transaction, each interview runs until it reaches a bulkifiable element. Salesforce takes all the interviews that stopped at the same element and intelligently executes those operations together. If other interviews are at a different element, Salesforce then intelligently executes those operations together. Salesforce repeats this process until all the interviews finish.

If, despite the bulkification, any interview hits a governor limit, all the interviews in the transaction fail. Any operations that the interviews performed are rolled back, and the transaction doesn't try to perform the operations again.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example: When you upload 100 cases, the flow MyFlow_2 triggers one interview for each case.

- 50 interviews stop at Record Create element **Create_Task_1**.
- The other 50 interviews stop at Record Create element **Create_Task_2**.

The result? At least two groups of bulk operations to execute.

- One for the 50 interviews that execute **Create_Task_1**
- One for the 50 interviews that execute **Create_Task_2**

Which Flow Elements Can Be Bulkified?

Flows can bulkify any element that performs a DML statement or SOQL query or does something else external to the flow, like sending an email.

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Elements that create, update or delete records

When a record is created, updated, or deleted, the transaction performs a DML statement.

- Create elements (Record Create, Fast Create)
- Update elements (Record Update, Fast Update)
- Delete elements (Record Delete, Fast Delete)
- Quick Action elements
- Post to Chatter elements
- Submit for Approval elements
- Apex elements—depending on your organization (invocable Apex only)

Elements that look up records

When fields on a record are looked up, the transaction performs a SOQL query.

- Lookup elements (Record Lookup, Fast Lookup)
- Record Update elements
- Record Delete elements
- Apex elements—depending on your organization (invocable Apex only)

Elements that send emails

- Send Email elements
- Email Alert elements

- Apex elements—depending on your organization (invocable Apex only)

Note:

- Unlike invocable Apex, Apex Plug-in elements aren't bulkified.
- Although invocable Apex is bulkified, the flow has no way of knowing what the invoked methods' operations are. If you want those operations to also be bulkified, make sure the code follows bulkification best practices.

SEE ALSO:

Apex Developer Guide : Running Apex within Governor Execution Limits

Example of Flow Bulkification

This example demonstrates how operations are bulkified for a flow when 100 cases are updated through Data Loader.

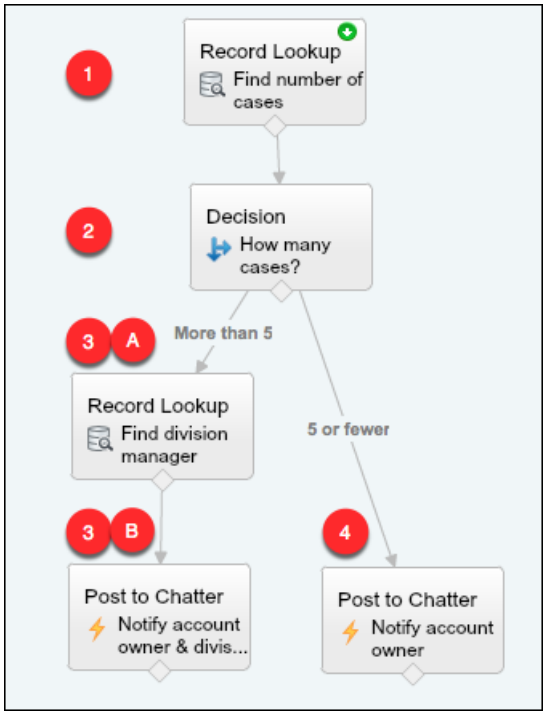
EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

The Associated Flow

You'll understand the concepts better if you understand the design of the associated flow.



The flow:

1. Looks up the case's parent account and how many open cases that account has.
2. Checks whether the account has more than five cases open.
3. If the account has more than five open cases:
   a. Looks up the division manager for the account.

b. Posts on the account's Chatter feed to notify the division manager and the account owner.

4. If the account has five or fewer open cases, posts on the account's Chatter feed to notify only the account owner.

The Bulkified Interviews

When you update the records, one flow interview is created for each case simultaneously. All of the interviews are associated with the same flow. Each interview runs until it gets to a bulkifiable element.

The first interview goes through the Record Lookup element **(1)**. Because Record Lookups can be bulkified, the interview waits there until all the other interviews have done the same. Then, Salesforce executes all the Record Lookup operations together (because they're all for the same element in the same flow). Instead of 100 SOQL queries, the transaction issues one SOQL query.

The first interview is evaluated by the Decision element **(2)**. The account has six cases, so the interview is routed down the "More than 5" path. The interview proceeds to the second Record Lookup element **(3a)**. Because it's a bulkifiable element, the interview waits there.

The second interview is evaluated by the Decision element **(2)**. This account has one case, so the interview is routed down the "5 or fewer" path. The interview proceeds to the Post to Chatter element **(4)**. This element is also bulkifiable, so the interview waits there.

After all the interviews have been processed, 30 are waiting to execute the second Record Lookup element **(3a)** and the remaining 70 are waiting to execute the Post to Chatter element **(4)**.

Salesforce executes all the Record Lookup **(3a)** operations for the first 30 interviews together. Instead of 30 separate SOQL queries, the transaction issues one.

Next, the transaction returns to the Post to Chatter element **(4)**, where the 70 interviews are ready to execute their Post to Chatter operations. Remember, these are the interviews whose accounts don't have more than five cases. Salesforce executes the Post to Chatter operations together. Instead of 100 separate DML statements to create each Chatter post, the transaction issues one DML statement to create all 100 posts at one time. Because the Post to Chatter element isn't connected to a subsequent element, those 70 interviews finish.

The 30 interviews—which looked up the relevant division manager—proceed to the final Post to Chatter element **(3b)**. When all 30 interviews are ready, Salesforce executes all 30 Post to Chatter operations together. Instead of issuing 30 separate DML statements for the individual Chatter posts, it issues one. Because the Post to Chatter element isn't connected to another element, those 30 interviews finish.

Flow Usage-Based Entitlements

Like feature licenses, usage-based entitlements don't limit what you can do in Salesforce; they add to your functionality. If your usage exceeds the allowance, Salesforce will contact you to discuss additions to your contract.

To see your org's usage-based entitlements and usage from Setup, enter `Company` in the Quick Find box, then select **Company Information**. See the Usage-based Entitlements related list.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Per-Org Usage-Based Entitlement	What's Counted	Essentials and Professional Editions	Performance and Developer Editions	Enterprise and Unlimited Editions
Maximum paused and waiting flow interviews	Paused flow interviews and groups of scheduled actions from processes	30,000	50,000	50,000

Per-Org Usage-Based Entitlement	What's Counted	Essentials and Professional Editions	Performance and Developer Editions	Enterprise and Unlimited Editions
Maximum flow interviews with UI per month	Interviews of flow types that can have screen elements, such as screen flows, user provisioning flows, Field Service Snap-in flows, contact request flows, and surveys built in Survey Builder	2,000	20,000,000	20,000,000
Maximum flow interviews without UI per month	Interviews of flow types that can't have screen elements, such as autolaunched flows, transaction security flows, and processes built in Process Builder	10,000,000	10,000,000,000	10,000,000,000

If you have questions about increasing your allocation, contact your Salesforce account executive.

SEE ALSO:

Usage-based Entitlements

Flow Best Practices

Before you begin building and distributing flows, understand the best practices.

EDITIONS

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Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Plan out your flow before you start building.

Write or draw out all the details of your business process. That way, you have a clear idea of what information you need, where you're getting that information from, and what logic and actions to perform. Doing so makes building the corresponding flow much easier.

Build your flows in a test environment—like a sandbox or Developer Edition org.

The last thing you want to do is accidentally change records in your company's production org. Build your flows in a separate environment. That way, you can enter fake data and test various permutations of your flow without worrying about changing or deleting data that your users actually need.

Never hard-code Salesforce IDs.

IDs are org-specific, so don't hard-code new or existing IDs. Instead, let Salesforce create the IDs, and pass them into variables when the flow starts. You can do so, for example, by using merge fields in URL parameters or by using a lookup element.

Wait until the end of the flow to make changes to the database.

Have you heard about flow limits? Because flows operate under Apex governor limits, the sky is not the limit. To avoid hitting those limits, we recommend bunching all your database changes together at the end of the flow, whether those changes create, update, or delete records.

Control when running users can navigate backward.

If the flow commits changes to the database between two screens, don't let users navigate from the later screen to the previous screen. Otherwise, the flow can make duplicate changes to the database.

Provide an error handler.
Sad to say, but sometimes a flow doesn't perform an operation that you configured it to do. Perhaps the flow is missing crucial information, or the running user doesn't have the required permissions. By default, the flow shows an error message to the user and emails the admin who created the flow. However, you can control that behavior. See Customize What Happens When a Flow Fails for more information and recommendations.

Save early and often.
Sometimes the Cloud Flow Designer falls victim to unexpected problems, like losing Internet access. Salesforce doesn't save your changes automatically, so it's up to you to save your work. Save as often as possible, so that you don't accidentally lose a few hours' worth of work.

Test as many permutations of your flow as you possibly can.
As with all customizations in Salesforce, it's important to test your work. This is especially true if your flow uses branching or other complex logic. Make sure that you test as many possibilities as you can think of before you distribute the flow to your users.

Considerations for Designing Flows

When you design flows, keep the guidelines in mind.

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Deleting Variables
If you delete an sObject variable or sObject collection variable, variable assignments that use the deleted variable are set to `null`.

Manipulating Percentage Values
Test your flows carefully if they use sObject variables to manipulate percentage values. When you insert a value into an sObject variable's percentage field and then reference that field in a formula, the value is automatically divided by 100.

For example, an opportunity's Probability field is set to 100. If you assign that value to the `{!Opportunity.Probability}` sObject variable, the value is still 100. But if you create a formula whose expression is `{!Opportunity.Probability}`, the value is 1.

Referring to Blank Fields or Resources
If you leave any field or resource value blank, that value is `null` at run time. To treat a text value as an empty string instead of `null`, set it to `{!$GlobalConstant.EmptyString}`.

Boolean Types Treat `null` Differently than `false`
Flow treats `null` as a different value than `false`. For example, if you try to find a record whose checkbox field is set to `null`, no records are returned. Instead, look for records where the checkbox field is set to `false`. If you're using a variable (such as `myCheckbox = {!varBoolean}`), make sure that the variable isn't set to null before you reference it in your record filter or condition.

Setting the Record Type
To set the record type for a record, use the ID of the record type. Look up the record type by its name and then store its ID in the flow.

For example, use a Record Lookup element to find the RecordType record whose Name is "Reduction Order". Then store that record type's ID in a variable. You can then use the variable to set the `Order Record Type` field on an order record.

Working with Person Accounts

If your org uses person accounts, reference `Contact.Salutation` instead of `Account.Salutation`.

Shield Platform Encryption
Encrypted fields aren't supported for filtering or sorting records. This limitation applies to the following elements and resources.

- Record Update element

- Record Delete element
- Record Lookup element
- Fast Lookup element
- Dynamic Record Choice resource

External Objects

External object records are used in, but don't trigger, flows.

- A platform event or event on external objects can kick off a flow.
- A flow can edit, create, delete, and reference external object records.

Tracking Additional Information About a Flow Interview

To store additional information about an interview when it's saved as a Salesforce record, build a custom object that references the interview's GUID. An interview is assigned an 18-character Salesforce ID only when it's paused and saved as a Salesforce record. Each interview, whether in-flight or paused, has a GUID.

IN THIS SECTION:

Considerations for the Cloud Flow Designer

When you create a flow in the Cloud Flow Designer, familiarize yourself with its limitations and behaviors. For example, it supports a handful of locales and can't open flows from managed packages.

Considerations for Flow Stages

Before you add stages to your flow, understand how stage references and default active stages work, as well as considerations for troubleshooting stages.

Guidelines for Working with Large Flows

Business processes can be complex. When your flow is too large for the canvas, control the zoom, search in the Explorer tab, or collapse the left side panel.

Best Practices for Designing Flows for Translation

Review these best practices if you plan to translate flows.

Considerations for Two-Column Flows

If your org has Lightning runtime enabled, you can control whether a flow displays in one column or two columns. Before you use this feature, understand how the flow layout currently behaves.

Limitations for Multi-Select Choice Fields

Multi-select checkboxes and multi-select picklist fields let flow users select multiple choices in a screen field. Before you start using multi-select choice fields, understand how they work in flows, both when you design the flows and when your users run them.

Limitations for Flow Formulas

When you create a formula resource or add validation to a screen input field, understand the formula limitations in flows.

Limitations for Waiting Flows

Before you design flows that contain one or more Wait elements, understand the limitations and guidelines.

Flow Operations and Read-Only Fields

Understand when flows have read-only access to field values. You can control the behavior when a flow tries to update a read-only field and remove read-only field values from flow operations.

SEE ALSO:

Create a Flow

Flow Operators

Flow Limits and Considerations

Cross-Object Field References in Flows

Considerations for the Cloud Flow Designer

When you create a flow in the Cloud Flow Designer, familiarize yourself with its limitations and behaviors. For example, it supports a handful of locales and can't open flows from managed packages.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

- At run time, time zones for date/time values can differ from what you see in the Cloud Flow Designer. During run time, date/time values reflect the running user's time zone settings in Salesforce. In the Cloud Flow Designer, date/time values reflect the time zone set on your computer. The Cloud Flow Designer appends the GMT offset to your date/time value.
- The Cloud Flow Designer doesn't support UTF-8 encoding for text in user input fields.
- The Cloud Flow Designer contains embedded fonts for all locales it supports. The supported locales are:
  - English (US)
  - French (France)
  - German (Germany)
  - Spanish (Spain)
  - Japanese (Japan)
  - Chinese (Traditional)
  - Chinese (Simplified)

  If you enter unsupported characters for a supported locale, they're displayed using system fonts instead of the embedded fonts.

  In unsupported locales, your system font settings are used to display all characters in the Cloud Flow Designer.
- The Cloud Flow Designer can't open flows that are installed from managed packages.
- Don't enter the string `null` as the value of a text field in the Cloud Flow Designer.
- The Cloud Flow Designer has access to information that exists when you open it. If you modify data or metadata in your organization and need to refer to it in a flow, close and reopen the Cloud Flow Designer. For example, if you add a custom field or modify an Apex class with the Cloud Flow Designer open, close and reopen the Cloud Flow Designer.
- The Cloud Flow Designer uses the permissions and locale assigned to the current user.
- If you open a flow that was last opened in Winter '12 or earlier, each Boolean decision is converted to a multi-outcome Decision element that:
  - Uses the same name as the old decision.
  - Takes the unique name of the old decision, appended with "_switch".
  - Has an outcome labeled "True". This outcome's unique name matches that of the old decision, and its conditions are migrated from the True outcome of the old decision.

- Has a default outcome labeled “False”.

IN THIS SECTION:

Requirements for the Cloud Flow Designer
To use the Cloud Flow Designer, you need an up-to-date browser and Adobe® Flash® Player.

Search Within a Flow
As a flow grows and becomes more complex, it becomes more challenging to find things within it. The Cloud Flow Designer offers tools for quickly finding flow elements and resources.

Search Within the Palette
As you add more flows, actions, and Apex classes to your organization, it becomes more challenging to find a specific item in the Palette. You can, however, search in the Palette to quickly find the right element for your flow.

Requirements for the Cloud Flow Designer

To use the Cloud Flow Designer, you need an up-to-date browser and Adobe® Flash® Player.

We recommend:

- Windows® Internet Explorer® versions 8 through 11, Google® Chrome™, or Mozilla® Firefox®. Internet Explorer 6 and 7 are not supported.
- Adobe® Flash® Player version 10.1 and later. The minimum version required to run the Cloud Flow Designer is 10.0.
- A minimum browser resolution of 1024x768.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Search Within a Flow

As a flow grows and becomes more complex, it becomes more challenging to find things within it. The Cloud Flow Designer offers tools for quickly finding flow elements and resources.

Open the flow in the Cloud Flow Designer. Then find an element or resource in the flow by using one or more of the following options.

- On the Explorer tab, enter search text.
  The Explorer tab displays only the elements and resources whose properties contain the entered text.
- Filter the Explorer tab contents to one type of element or resource by clicking 🔍.
  To remove the filter, click 🔍 and select **SEARCH ALL**.
- Dim all visible elements on the canvas other than the results by selecting **Highlight Results on Canvas**.
- Zoom in and out as desired using the controls near the top right corner of the canvas area.
- To see the location of an Explorer item on the canvas, complete one of the following procedures.
  If the Explorer item is a canvas-visible element or a screen field:
  1. Hover over the item on the Explorer tab.
  2. Click 🔍.

  If the Explorer item is a resource that doesn’t appear on the canvas:

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:
- Manage Flow

1. Click the item on the Explorer tab.
2. Click the Usage tab in the Description pane.
3. Hover over an element listed on the Usage tab.
4. Click its 🔍.

The canvas shifts to display the element and momentarily highlights it.

SEE ALSO:

Tour the Cloud Flow Designer User Interface

Search Within the Palette

As you add more flows, actions, and Apex classes to your organization, it becomes more challenging to find a specific item in the Palette. You can, however, search in the Palette to quickly find the right element for your flow.

From the Palette tab, use the following options to find a specific item.

- Next to 🔍, enter search text.
  The Palette displays only the items that contain the entered text.
- To filter the Palette tab contents to one type of element, click 🔍 and select what you want to see.
- To remove the filter, click 🔍 and select **SEARCH ALL**.

SEE ALSO:

Tour the Cloud Flow Designer User Interface

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:
- Manage Flow

Considerations for Flow Stages

Before you add stages to your flow, understand how stage references and default active stages work, as well as considerations for troubleshooting stages.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Stage References

When you reference a stage merge field in a display text field or other label, it resolves to the stage's label. Everywhere else, a stage merge field resolves to the stage's fully qualified name: `namespace.flowName:stageName` or `flowName:stageName`.

Whenever possible, use the stage merge field to refer to stages, such as {!myStage}. When you reference a stage in a subflow, use the fully qualified name.

Default Active Stages

When you mark a stage resource **Active by Default**, the flow automatically sets values for the system variables. Use this setting when a stage applies to every branch of the flow.

At runtime, the default active stages are sorted in ascending order. How the flow uses the default active stages to update `$Flow.ActiveStages` and `$Flow.CurrentStage` depends on whether the flow is a master flow or a referenced flow.

Master flows

The default active stages are added to `$Flow.ActiveStages` in ascending order. `$Flow.CurrentStage` is set to the default active stage with the lowest order.

Referenced flows

The default active stages are inserted in `$Flow.ActiveStages` in ascending order. `$Flow.CurrentStage` isn't automatically updated.

- When `$Flow.CurrentStage` is included in `$Flow.ActiveStages`, the default active stages are inserted in `$Flow.ActiveStages` after `$Flow.CurrentStage`.

  For example, Flow1 sets `$Flow.ActiveStages` to "1, 2, 3, 4" and `$Flow.CurrentStage` to "3." It then uses a Subflow element to call Flow2. Flow2's default active stages are "A, B, C." When Flow2 starts, `$Flow.ActiveStages` becomes "1, 2, 3, **A, B, C**, 4." `$Flow.CurrentStage` is still "3."

- When `$Flow.CurrentStage` isn't included in `$Flow.ActiveStages`, the default active stages are added to the end of `$Flow.ActiveStages`.

  For example, Flow1 sets `$Flow.ActiveStages` to "1, 2, 3, 4" and doesn't set `$Flow.CurrentStage`. It then uses a Subflow element to call Flow2. Flow2's default active stages are "A, B, C." When Flow2 starts, `$Flow.ActiveStages` becomes "1, 2, 3, 4, **A, B, C**." `$Flow.CurrentStage` remains unset.

- When `$Flow.CurrentStage` is duplicated in `$Flow.ActiveStages`, the default active stages are appended after the first occurrence.

  For example, Flow1 sets `$Flow.ActiveStages` to "1, 2, 2, 3, 4" and `$Flow.CurrentStage` to "2." It then uses a Subflow element to call Flow2. Flow2's default active stages are "A, B, C." When Flow2 starts, `$Flow.ActiveStages` becomes "1, 2, **A, B, C**, 2, 3, 4." `$Flow.CurrentStage` remains "2."

Troubleshooting Stages

The flow error email doesn't specify the values of `$Flow.ActiveStages` and `$Flow.CurrentStage` at the start of an interview. To confirm what the initial values are, add temporary elements to display the initial values, such as in a screen display text field.

SEE ALSO:

Show Users Progress Through a Flow with Stages

Flow Stage Resource

Guidelines for Working with Large Flows

Business processes can be complex. When your flow is too large for the canvas, control the zoom, search in the Explorer tab, or collapse the left side panel.

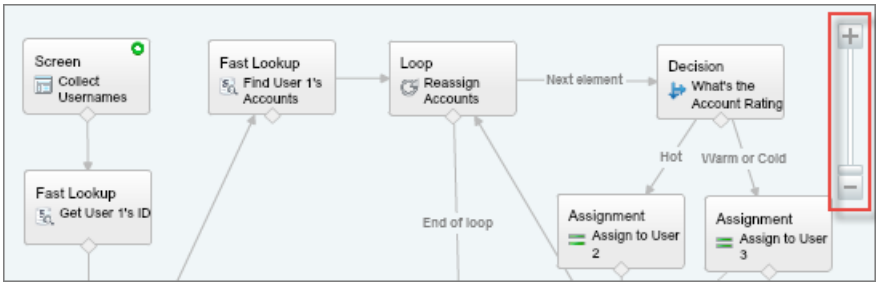
EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Zoom

To zoom in and out of your flow, use the + and - buttons on the right side of the canvas.

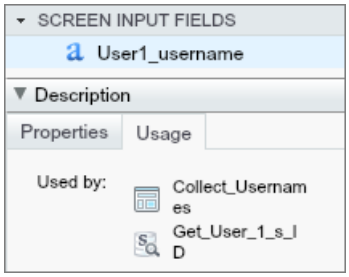


Search in the Explorer tab

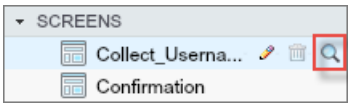
Looking for a specific element or resource? Search for it in the Explorer tab.

- To find an element with a specific name, type in the search box.
- To find all instances of a certain element or resource, click the magnifying glass and select the type.

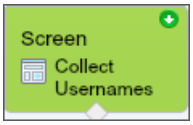
Once you find the right resource in the Explorer tab, see which elements are using the resource. In the Description pane, click the Usage tab.



Once you find the right element in the Explorer, find that element in your canvas. Hover over the element, and click the magnifying glass.



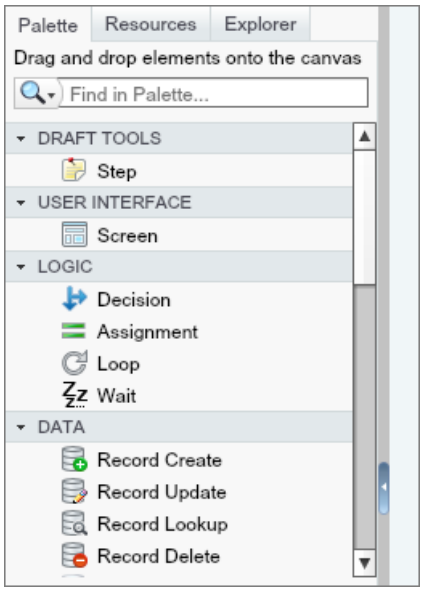
The element is highlighted in green in your canvas.



If the element wasn't in view, the Cloud Flow Designer automatically scrolls to show the element.

Collapse the left side panel

To hide the Palette, Resources, and Explorer tabs from your view, click the left arrow next to the side panel. That way, you get even more space in the canvas.



Best Practices for Designing Flows for Translation

Review these best practices if you plan to translate flows.

- Keep your labels as short as possible. The translated label can't exceed 1,000 characters (or 255 characters for definition name and version name). If you have a long label for a display text field, consider breaking it up into multiple fields.
- When you update a master label, check if it has translations and update as needed.
- Avoid text templates if you need to translate an email body or other formatted block text.
- Avoid using logic that references translated values.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Considerations for Two-Column Flows

If your org has Lightning runtime enabled, you can control whether a flow displays in one column or two columns. Before you use this feature, understand how the flow layout currently behaves.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Granularity

The layout setting is applied at the flow level. So you can't control the layout at the screen or field level. If you set a flow to use two columns, every screen in that flow displays in two columns.

Order of Fields

You can't manually control which fields go in which columns. If the flow is set to display two columns, the fields alternate in each column. The odd fields (first, third, fifth, and so on) are placed in the left column. The even fields (second, fourth, sixth, and so on) are placed in the right column.

If your users navigate screens with the TAB key, they'll tab through all the fields in the left column and then all the fields in the right column. You can't configure the fields to tab left-to-right.

Responsiveness

The flow layout isn't responsive to the user's screen dimensions. It uses the same layout whether the user's screen is one inch wide or twenty inches wide.

Tip: Don't apply two-column layout to a flow if users will run it from a phone or small tablet.

SEE ALSO:

Flow Limits and Considerations

Considerations and Limitations for Flows in Lightning Pages

Render Two-Column Screens from a Flow URL

Limitations for Multi-Select Choice Fields

Multi-select checkboxes and multi-select picklist fields let flow users select multiple choices in a screen field. Before you start using multi-select choice fields, understand how they work in flows, both when you design the flows and when your users run them.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Configuring a Multi-Select Resource Field

- A multi-select choice field can have only one default value.
- A dynamic record choice resource can be configured to assign field values from a user-selected record to variables in the flow. When a multi-select choice field uses a dynamic record choice, only values from the last record that the user selects are stored in the flow variables. If multiple multi-select choice fields on one screen use the same dynamic record choice, the variable assignments obey the first of those fields.

Using Values from a Multi-Select Resource Field

- At run time, a multi-select field's value is a concatenation of the user-selected choice values, separated by semicolons. If any of the selected choices' values included semi-colons, those semi-colons are removed.
- If you referenced multi-select choice fields in flow conditions, follow these best practices.
  - Configure a stored value for each choice that you use in multi-select choice fields.

- Don't use the same choice in multiple multi-select choice fields on the same screen.

SEE ALSO:

Choice Screen Fields

Limitations for Flow Formulas

When you create a formula resource or add validation to a screen input field, understand the formula limitations in flows.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

- Flow formulas can't contain more than 3,000 characters.
- A formula returns `null` if:
  - The value that the formula returns doesn't match its data type
  - The formula contains an unsupported function

  For example, if your formula resource has a data type of Number, the output must be numeric.
- These functions aren't supported in a flow formula.
  - GETRECORDIDS
  - IMAGE
  - INCLUDE
  - ISCHANGED
  - ISNEW
  - PARENTGROUPVAL
  - PREVGROUPVAL
  - PRIORVALUE
  - REQUIRE SCRIPT
  - VLOOKUP

  For a complete list of operators and functions for building formulas in Salesforce, see Formula Operators and Functions.
- In a flow, the `CONTAINS` function checks all characters within its parentheses. For cross object field references, `CONTAINS` works like it does in the rest of Salesforce. It checks only the first 250 characters in the reference.

  Here's an example. `varContract` refers to an sObject variable that contains the values of a contract record. This formula expression checks only the first 250 characters.

  ```
  CONTAINS({!varContract.Account.Description}, "description")
  ```

  This formula expression checks all characters in the field.

  ```
  CONTAINS({!varContract.Description}, "description")
  ```
- If a Display Text screen field contains an invalid formula resource, the flow displays an empty string at run time.
- If a formula expression has an error at run time, it resolves to null.
- If a flow contains an invalid formula resource, you can't activate the flow.

- To reference a platform event in a formula, pass the event data into an sObject variable in the Wait element. Then reference the appropriate field in that sObject variable.

SEE ALSO:

Flow Formula Resource

Flow Resources

Limitations for Waiting Flows

Before you design flows that contain one or more Wait elements, understand the limitations and guidelines.

- After you deactivate a flow or flow version, the associated waiting interviews continue as usual. You can't delete a flow or flow version if it has associated waiting interviews.
- An interview can execute only one event path per Wait element. After one of its events is processed, the remaining events are removed from the queue.
- An org can process up to 1,000 events per hour. When an event is processed, the interview that it's associated with is resumed and any other events for that interview are removed from the queue. If an org exceeds this limit, Salesforce processes the remaining events in the next hour.

  For example, an org has 1,200 events scheduled to be processed between 4:00 PM and 5:00 PM. Salesforce processes 1,000 events between 4:00 PM and 5:00 PM and the additional 200 events between 5:00 PM and 6:00 PM.
- An org can have up to 50,000 interviews waiting at a given time.
- If the user who started the interview is deactivated when Salesforce tries to execute an event path, the interview fails to resume.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Alarm events are available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Platform events are available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Transactions and Waiting Interviews

A transaction ends as soon as a flow interview begins to wait for an event. When the flow interview resumes, a new transaction begins. Everything after the Wait element is executed as part of a batch transaction that includes other resumed interviews.

Interviews aren't resumed independently. They're grouped into a single batch that starts resuming within one hour after the first interview enters the batch. Actions that execute as a result of the grouped interviews are also executed in that transaction. The batch can have other interviews that resume at the same time, have the same flow definition version ID, and are executed by the same user ID. This behavior can cause you to exceed your Apex governor limits if the resumed interview executes DML operations or SOQL queries through:

- Flow elements, such as Record Create or Fast Lookup
- Apex plug-in elements
- Apex triggers
- Immediate workflow actions

For details on Apex governor limits, see Flow Limits on page 5.

If a Wait element precedes a flow element that executes DML operations or SOQL queries:

- Ensure that your flows don't let a single user execute DML operations or SOQL queries between Wait elements that can exceed limits.
- Consider using multiple Wait elements so that the DML operations and SOQL queries are performed in multiple transactions.

- Add fault paths for those elements so that the flow returns to the Wait element if the fault message contains:

  ```
  Too many SOQL queries
  ```

  or

  ```
  Too many DML operations
  ```

If an interview fails after it's resumed:

- Prior interviews in that batch's transaction are successful.
- Operations that the interview executed before it waited are successful.
- If a fault connector handles the failure, operations that the interview executed between when it resumed and when it failed are successful. The operation that caused the interview to fail isn't successful.
- If a fault connector doesn't handle the failure, operations that the interview executed between when it resumed and when it failed are rolled back. The operation that caused the interview to fail isn't successful.
- The remaining interviews in that batch are tried.

Limitations for Platform Events

Tip: Make sure to also review the considerations for platform events.

Formulas
To reference a platform event in a formula, pass the event data into an sObject variable in the Wait element. Then reference the appropriate field in that sObject variable.

Value Truncation
In event conditions, values can't be more than 765 characters.

Subscriptions Related List
On the platform event's detail page, the Subscriptions related list shows which entities are waiting for notifications of that platform event to occur. When at least one flow interview is waiting for that platform event to occur, a "Process" subscriber appears in the Subscriptions related list.

Uninstalling Events
Before you uninstall a package that includes a platform event, delete the interviews that are waiting for the event to occur.

Testing Events
Interviews that are waiting for platform events don't support Apex tests.

Limitations for General Alarms

- Alarms don't support minutes or seconds.
- If an interview is waiting for an event that's set for a time in the past, Salesforce resumes the interview within one hour.

  For example, a flow is configured to email an opportunity owner seven days before the close date. An interview is started for an opportunity with the close date set to today. Salesforce resumes the interview within an hour.

Limitations for Absolute Time Alarms

- Absolute time alarms are evaluated based on the time zone of the user who created the flow.

Limitations for Relative Time Alarms

- Relative time alarms are evaluated based on the org's time zone.
- Across all your flow versions, your org can have up to 20,000 defined relative time alarms.
- Alarms can't reference the following:
  - `DATE` or `DATETIME` fields that contain automatically derived functions, such as *`TODAY`* or *`NOW`*.
  - Formula fields that include related-object merge fields.
- If you change a date field that's referenced by an unexecuted relative time alarm in a waiting interview, Salesforce recalculates the events associated with the interview.

  For example, a flow is configured to email an opportunity owner seven days before the opportunity close date and the close date is 2/20/2014. The following things could happen.
  - The close date isn't updated before the interview resumes. Result: Salesforce resumes the interview on 2/13/2014 and sends the email.
  - The close date is updated to 2/10/2014 before the interview resumes. Result: Salesforce reschedules the relative time alarm and the interview resumes on 2/3/2014.
  - The close date is updated to a date in the past. Result: Salesforce recalculates the relative time alarm and resumes the interview shortly after you save the record.
- If a relative time alarm references a null date field when the interview executes the Wait element, Salesforce resumes the interview within an hour.
- If a relative time alarm references a date field that's that has a non-null value when the flow interview executes the Wait element and it's updated to `null` before the alarm is processed, Salesforce resumes the interview within an hour after the date field is updated.
- If a waiting interview has a relative time alarm and the referenced record or object is deleted, the alarm is removed from the queue. If the interview has no other events to wait for, the interview is deleted.
- You can't archive a product or price book that's referenced in a relative or absolute time alarm in a waiting interview.
- Lead Convert Limitations
  - You can't convert a lead that has associated relative time alarms in waiting interviews.
  - If Validation and Triggers from Lead Convert is enabled, existing operations on leads after a Wait element aren't executed during lead conversion.
  - If a campaign member based on a lead is converted before a waiting interview that's associated with that record finishes, Salesforce still executes the interview.

SEE ALSO:

Platform Events Developer Guide : Considerations for Defining and Publishing Platform Events

Considerations for Designing Flows

Flow Limits and Considerations

Operators in Flow Conditions

Flow Wait Element

Flow Operations and Read-Only Fields

Understand when flows have read-only access to field values. You can control the behavior when a flow tries to update a read-only field and remove read-only field values from flow operations.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Which Fields Are Inaccessible When a Flow Creates or Updates Records?

A flow can perform an operation only if the running user has permission to do so. When a flow tries to create or update records, fields that the running user can't edit are considered *inaccessible*, or read only. A field can be inaccessible because the user hasn't been granted permission to edit the field or because it's a system field that's always read only.

Control What Happens When a Flow Tries to Set Values for Read-Only Fields

When creating or updating records, the flow sets values for specific fields. But what happens if the running user doesn't have edit access to all those fields? For Fast Create and Fast Update elements, that's up to you. To control the behavior, select or deselect the `Filter inaccessible fields from flow requests` preference.

Remove Read-Only Fields from an sObject Variable

If a flow tries to update fields that the running user can't edit and `Filter inaccessible fields from flow requests` is not enabled for your org, the flow fails. If your sObject variable includes read-only fields and you can't grant your running users "Edit" permissions for those fields, remove the fields from the sObject variable. Use a Record Create or Record Update element instead of a Fast Create or Fast Update element, or copy the writable field values into a new sObject variable.

Which Fields Are Inaccessible When a Flow Creates or Updates Records?

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

A flow can perform an operation only if the running user has permission to do so. When a flow tries to create or update records, fields that the running user can't edit are considered *inaccessible*, or read only. A field can be inaccessible because the user hasn't been granted permission to edit the field or because it's a system field that's always read only.

To determine which fields are system fields, see the *Object Reference for Salesforce and Lightning Platform*. To determine which other fields aren't editable, review the running user's permissions.

How Did Read-Only Fields Get in My sObject Variable?

If the Variable Is Populated by ...	The Variable Includes ...
A Fast Lookup element	`Id` and any other read-only fields that you choose to include.
An Assignment or Record Lookup element	Any read-only fields that you choose to include.
A process or a workflow rule	All the object's system fields and any fields that the running user doesn't have permission to edit. The variable includes every field for the object by default.

What Do I Do When My sObject Variable Includes Read-Only Fields?

For each read-only field that's stored in your sObject variable:

1. Determine whether the flow uses that field anywhere. If it doesn't, update the flow so that it doesn't store a value for that field. This suggestion applies only if the variable is populated by an element in the flow, like Fast Lookup.

   For example, a Fast Lookup element stores `CreatedByDate`, but no other elements reference that field. You update the Fast Lookup so that it's no longer storing `CreatedByDate`.

2. If the read-only field is referenced in the flow, give the running users the permissions needed for the flow to execute its operations.
3. If you can't give the running users the needed permissions for a field, update the flow so that it doesn't try to update that field.

Example: Using a Fast Update element, a flow updates several fields on an account. While your users can edit `Description` and `Account Rating`, they can't edit `Owner ID` or `LastModifiedDate`. To prevent the flow from failing at runtime:

- Give your users "Edit" permission for `Owner ID`.
- Copy only the writable field values (`Description`, `Account Rating`, and `Owner ID`) from the original sObject variable into a new sObject variable. Reference the new sObject variable in the Fast Update element.

  Copying only the writable field values ensures that the flow doesn't try to set a value for `LastModifiedDate` at runtime.

SEE ALSO:

Remove Read-Only Fields from an sObject Variable

Control What Happens When a Flow Tries to Set Values for Read-Only Fields

Object Reference for Salesforce and Lightning Platform : System Fields

Control What Happens When a Flow Tries to Set Values for Read-Only Fields

When creating or updating records, the flow sets values for specific fields. But what happens if the running user doesn't have edit access to all those fields? For Fast Create and Fast Update elements, that's up to you. To control the behavior, select or deselect the `Filter inaccessible fields from flow requests` preference.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

User Permissions Needed

To edit process automation settings:	Customize Application

A flow request is when a flow tries to perform an operation, such as create or update records.

	When `Filter inaccessible fields from flow requests` **is**	
	Selected	**Not Selected (Recommended)**
Result when the running user doesn't have edit access to all fields	The operation partially succeeds. The flow filters read-only fields out of the operation. The fields that the user can edit are updated. The fields that the user can't edit aren't updated. The flow doesn't execute the fault path.	The operation fails. No fields in the operation are updated. The flow executes the fault path if there is one.

	When `Filter inaccessible fields from flow requests` is	
	Selected	**Not Selected (Recommended)**
Notification when one or more fields aren't updated	No notification is sent to the user or admin to indicate that some fields weren't updated.	The admin receives a flow error email with full details.
Compared to Record Create and Record Update elements	Inconsistent	Consistent

Tip: We recommend disabling this preference so that you always know when a flow doesn't set all expected field values.

1. From Setup, enter *Automation* in the `Quick Find` box, then select **Process Automation Settings**.
2. Select or deselect **Filter inaccessible fields from flow requests**.

   If your org was created in Winter '17 or earlier, the preference is enabled by default. Otherwise, the preference is disabled by default.

Example: Using a Fast Update element, a flow updates several fields on an opportunity. At runtime, the flow tries to update the Acme account on behalf of your user. The user can edit `Stage` and `Close Date` but not `Amount`. As a result, the flow doesn't have permission to update `Amount`.

- If `Filter inaccessible fields from flow requests` is selected, the flow successfully updates the account, but it only updates `Stage` and `Close Date`. The flow doesn't notify anybody that `Amount` wasn't updated.
- If `Filter inaccessible fields from flow requests` is not selected, the flow fails to update the account. The admin receives a flow error email. The email includes this error.

  ```
  INVALID_FIELD_FOR_INSERT_UPDATE: Unable to create/update fields: Amount
  ```

  That's API-speak for "The running user doesn't have permission to edit the Amount field."

Warning: If you change your org's selection for this preference, use a sandbox to test how the change impacts your flows. Consider following the same process as you would for a critical update.

SEE ALSO:

Which Fields Are Inaccessible When a Flow Creates or Updates Records?

Remove Read-Only Fields from an sObject Variable

If a flow tries to update fields that the running user can't edit and `Filter inaccessible fields from flow requests` is not enabled for your org, the flow fails. If your sObject variable includes read-only fields and you can't grant your running users "Edit" permissions for those fields, remove the fields from the sObject variable. Use a Record Create or Record Update element instead of a Fast Create or Fast Update element, or copy the writable field values into a new sObject variable.

Note: If the read-only fields are populated in the sObject variable in a Fast Lookup or Assignment element, consider updating those elements so that they don't populate that field at all.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Copy Field Values from One sObject Variable to Another
sObject variables and sObject collection variables can have values set for fields that the running user can't edit. However, you can use the other values to create or update records with Fast Create or Fast Update elements. To do so, map the writable values from the original sObject variable into a new sObject variable.

SEE ALSO:

Flow Record Create Element
Flow Record Update Element

Copy Field Values from One sObject Variable to Another

sObject variables and sObject collection variables can have values set for fields that the running user can't edit. However, you can use the other values to create or update records with Fast Create or Fast Update elements. To do so, map the writable values from the original sObject variable into a new sObject variable.

Note: With sObject collection variables, use loops to map the field values to a new collection.

1. Add an Assignment element to your flow. Make sure that the flow executes this element after the original sObject variable has been populated but before the Create or Update element.
2. For each writable field in the original sObject variable, add a row.
   - Variable—Select `{!sObjectVar2.field}`, where *`sObjectVar2`* is the name of the new variable and *`field`* is the field on that variable.
   - Operator—Select **equals**.
   - Value—Select `{!sObjectVar1.field}`, where *`sObjectVar1`* is the name of the original variable and *`field`* is the field on that variable.

   Note: If you plan to reference the variable in a Fast Update element, include the record's ID in the new sObject variable. Although `Id` is read only, the flow uses the value to determine which records to update.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

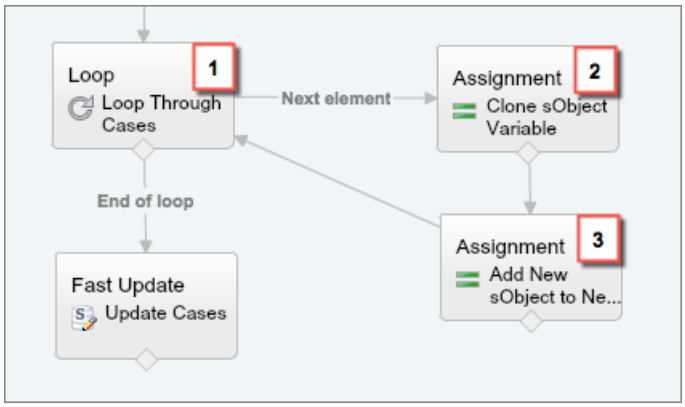
USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:
- Manage Flow

Example: You have a case sObject variable called `{!myCaseVar_all}`. It stores values for some read-only fields, so you can't use it in a Fast Update element. You copy the fields that you want to update to a new sObject variable: `IsEscalated` and `Status`. You also copy `Id`, because it's required for an update operation.Here's what those assignment rules look like.

Variable	Operator	Value
{!myCaseVar_final.Id}	equals	{!myCaseVar_original.Id}
{!myCaseVar_final.IsEscalated}	equals	{!myCaseVar_original.IsEscalated}
{!myCaseVar_final.Status}	equals	{!myCaseVar_original.Status}

The same example works for an sObject collection variable. However, because you can't directly change the values of a collection variable, you use a loop.



1. Using a Loop element, the flow passes each item's values into a loop variable (`{!myCaseLoopVar_original}`).
2. For each iteration, an Assignment element copies the `Id`, `IsEscalated`, and `Status` fields from the loop variable to another sObject variable (`{!myCaseLoopVar_final}`).
3. The flow then adds the `{!myCaseLoopVar_final}` variable's values to a new collection. The second Assignment element includes this rule.

Variable	Operator	Value
{!myCaseColl_updated}	add	{!myCaseLoopVar_final}

After the flow has iterated over every item in the original collection, it exits the loop.

SEE ALSO:

Which Fields Are Inaccessible When a Flow Creates or Updates Records?

Control What Happens When a Flow Tries to Set Values for Read-Only Fields

Flow Assignment Element

Considerations for Managing Flows

When managing flows, consider the administration and activation limits.

EDITIONS

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Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Activating Flows

When you activate a new version of a flow, the previously activated version (if one exists) is automatically deactivated. Any running flow interview continues to run using the version with which it was initiated.

Deleting Flows

To delete an active flow version, first deactivate it. If a flow has any paused or waiting interviews, it can't be deleted until those interviews are finished or deleted. Flows that have never been activated can be deleted immediately.

Flow Properties

The properties for a given flow's versions automatically match the active version's properties by default. In other words, if you have three versions and you activate version 2, Salesforce updates the properties for versions 1 and

3 to match version 2. However, if you edit the properties for an inactive version, that version's properties are no longer automatically updated to match the active version.

The flow's active (or latest) version determines the flow's type. For example, if a flow's active version contains a screen, its type is Flow. It can't be implemented through a system-based method, like the Process Builder.

IN THIS SECTION:

Considerations for Installed Flows

Keep these considerations in mind when you distribute, upgrade, or remove a flow that you installed from a package.

SEE ALSO:

Manage Your Flows

Flow Limits and Considerations

Considerations for Installed Flows

Keep these considerations in mind when you distribute, upgrade, or remove a flow that you installed from a package.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

- The Cloud Flow Designer can't open flows that are installed from managed packages.
- If you install a package that contains multiple flow versions in a fresh destination organization, only the latest flow version is deployed.
- If you install a flow from a managed package, error emails for that flow's interviews don't include any details about the individual flow elements. The email is sent to either the user who installed the flow or the Apex exception email recipients.
- If you install a flow from an unmanaged package that has the same name but a different version number as a flow in your organization, the newly installed flow becomes the latest version of the existing flow. However, if the packaged flow has the same name and version number as a flow already in your organization, the package install fails. You can't overwrite a flow.

Status

An active flow in a package is active after it's installed. The previous active version of the flow in the destination organization is deactivated in favor of the newly installed version. Any in-progress flows based on the now-deactivated version continue to run without interruption but reflect the previous version of the flow.

Distributing Installed Flows

- When you create a custom button, link, or Web tab for a flow that's installed from a managed package, include the namespace in the URL. The URL format is `/flow/namespace/flowuniquename`.
- When you embed a flow that's installed from a managed package in a Visualforce page, set the name attribute to this format: `namespace.flowuniquename`.

Upgrading Installed Flows

Upgrading a managed package in your organization installs a new flow version only if there's a newer flow version from the developer. After several upgrades, you can end up with multiple flow versions.

Removing Installed Flows

- You can't delete a flow from an installed package. To remove a packaged flow from your organization, deactivate it and then uninstall the package.
- You can't delete flow components from Managed - Beta package installations in development organizations.

- If you have multiple versions of a flow installed from multiple unmanaged packages, you can't remove only one version by uninstalling its package. Uninstalling a package—managed or unmanaged—that contains a single version of the flow removes the entire flow, including all versions.

Translating Installed Flows

You can translate flow definition names only on the Translate page.

SEE ALSO:

Flows in Lightning Bolt Solutions, Change Sets, and Packages

Considerations for Deploying Flows with Packages

ISVforce Guide: Installing a Package

Control Who Receives Flow and Process Error Emails

Considerations for Running Flows

When you test or distribute a flow, keep the allocations and guidelines in mind.

EDITIONS

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Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Date/Time Values

At run time, time zones for date/time values can differ from what you see in the Cloud Flow Designer. During run time, date/time values reflect the running user's time zone settings in Salesforce.

Testing Flows

Be careful when testing flows that contain delete elements. Even if the flow is inactive, it triggers the delete operation.

Distributing Flows

- Flow users always run the active version of a flow. As a flow admin, you run the latest version of the flow.
- For flows that interact with the Salesforce database, make sure that your users have permission to create, read, edit, and delete the relevant records and fields. Otherwise, users receive an insufficient privileges error when they try to launch a flow. For example, a flow looks up and updates a case record's status. The flow users must have "Read" and "Edit" permissions on the `Status` field of the Case object.
- When you distribute a flow, don't pass a currency field value from a Salesforce record into a flow Currency variable with a URL parameter. When a currency field is referenced through a merge field (such as `{!Account.AnnualRevenue}`), the value includes the unit of currency's symbol (for example, $). Flow variables of type Currency can accept only numeric values, so the flow fails at run time. Instead, pass the record's ID to a flow Text variable with a URL parameter. Then in the flow, use the ID to look up that record's value for the currency field.

Setting Input Variables

When a process or flow launches another flow, that flow's input variables can be assigned values during the launch. However, for a text, picklist, or multi-select picklist variable that isn't a collection, a value of null is converted to an empty string.

Flow Interviews

A *flow interview* is an instance of a flow, much like a record is an instance of an object. Depending on how you've configured the corresponding flow, the flow interview can do many things, including look up and manipulate Salesforce data. In an interview, you can pass data into variables and other resources. The data can come from a variety of sources, such as Salesforce records that the flow queried, information that a user entered in a screen input field, or something you manually entered.

Interviews don't perform actions—such as sending emails or creating, editing, or deleting records—until the associated transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element. In addition to the Record and Fast elements, the Post to Chatter, Submit for Approval, and Quick Actions elements also create and update records.

When an interview is in flight, the data in the interview isn't saved to the Salesforce database. If the flow executes an element that creates or updates records (such as Fast Update or Post to Chatter), only the information configured in that element is saved to the Salesforce database.

When an interview executes a Wait element or is paused by a user, all the interview data is serialized and saved to the database as a Paused Flow Interview record. When the interview is resumed, the Paused Flow Interview record is deleted.

When a user session expires, in-progress flow interviews are interrupted and can't be resumed. If the flow executed actions before the session ended, such as a Record Create or Post to Chatter element, those actions aren't rolled back. But other progress through the interview, such as what the user entered on the screen, is lost.

Tip:

- Set your session timeout settings to log out users after an appropriate period of time.
- Encourage your users to pay attention during interviews for alerts about their sessions expiring soon.
- Remind users to avoid running flows during release upgrades. A typical upgrade takes about 5 minutes.

Note: Paused or waiting flow interviews aren't affected by expired user sessions.

Lightning Flow Runtime Limitations

When Lightning runtime is enabled for your org, flows in Lightning Experience don't load in:

- Web tabs
- List buttons that are set to display an existing window with or without a sidebar

When Lightning runtime is enabled for your org, flows in Salesforce Classic don't load in:

- Web tabs
- Custom buttons or links that are set to display in an existing window with or without a sidebar

In number input fields, users can't enter more than 16 digits, including digits before and after a decimal point.

IN THIS SECTION:

What Happens When a Flow Finishes?

By default, when a flow interview that uses screens finishes, a new interview for that flow begins, and the user is redirected to the first screen. To override the default behavior, you can add a local action to your flow. Some distribution methods also offer other ways to override a flow's finish behavior, such as by setting the `retURL` parameter in a flow URL.

SEE ALSO:

Test a Flow

Flow Interviews

Flow Limits and Considerations

Flow Runtime Experiences

What Happens When a Flow Finishes?

By default, when a flow interview that uses screens finishes, a new interview for that flow begins, and the user is redirected to the first screen. To override the default behavior, you can add a local action to your flow. Some distribution methods also offer other ways to override a flow's finish behavior, such as by setting the `retURL` parameter in a flow URL.

Distribution Method	Default Finish Behavior	Override Options
URL (Direct URL, Web tab, custom button, custom link)	Starts new interview	• Add a local action to the flow • Set the `retURL` parameter
Lightning page	Starts new interview	Add a local action to the flow
Lightning Community page	Starts new interview	Add a local action to the flow
Flow action	Closes dialog	Add a local action to the flow
Utility bar	Starts new interview	Add a local action to the flow
lightning:flow Lightning component	Starts new interview	• Add a local action to the flow • Set the `onstatuschange` action
flow:interview Visualforce component	Starts new interview	• Add a local action to the flow • Set the `finishLocation` attribute

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

SEE ALSO:

- Redirect Flow Users with a Local Action
- Set Flow Finish Behavior with a Flow URL
- Control a Flow's Finish Behavior by Wrapping the Flow in a Custom Aura Component
- Configure the `finishLocation` Attribute in a Flow

Flow Accessibility

Flows are 508-compliant with a few exceptions.

- The title of the screen doesn't change when you click Next or Previous, so you might not realize you're on a new page.
- Radio button fields don't have labels. Screen readers can't distinguish between questions.
- Questions without defined prompts can read incorrectly.
- Errors are not noted when reading the fields.

SEE ALSO:

Flow Limits and Considerations

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Create a Flow

Once you understand the process that you want to automate, design a flow in the Cloud Flow Designer for that process.

Tip: Before you start creating your flow, plan it out. It's much easier to automate a business process by using a flow when you fully understand the details of your business process.

If you're new to the Cloud Flow Designer, we recommend walking through one or more of the flow projects in the Automate Your Business Processes trail on *Trailhead*. They're a great way to learn about the tool and discover how it works.

1. Open the Cloud Flow Designer. From Setup, enter *Flows* in the Quick Find box, then select **Flows**, and then click **New Flow**.
2. Drag the appropriate elements onto the canvas.

   Tip: If you're not sure which element you need for a node, add a Step element as a placeholder until you figure it out. You can always replace the Step later.
3. Connect the elements together so that it's clear what the order of the elements is.
4. Identify which element the flow should start with when it runs.
5. Save any changes that you made to the flow.
6. Test the flow to make sure it's working as you expect it to.
7. Activate the flow so that users can run it.
8. Distribute the flow to the appropriate users.

SEE ALSO:

Manage Your Flows

Considerations for Designing Flows

Flow Accessibility

Flow Building Blocks

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

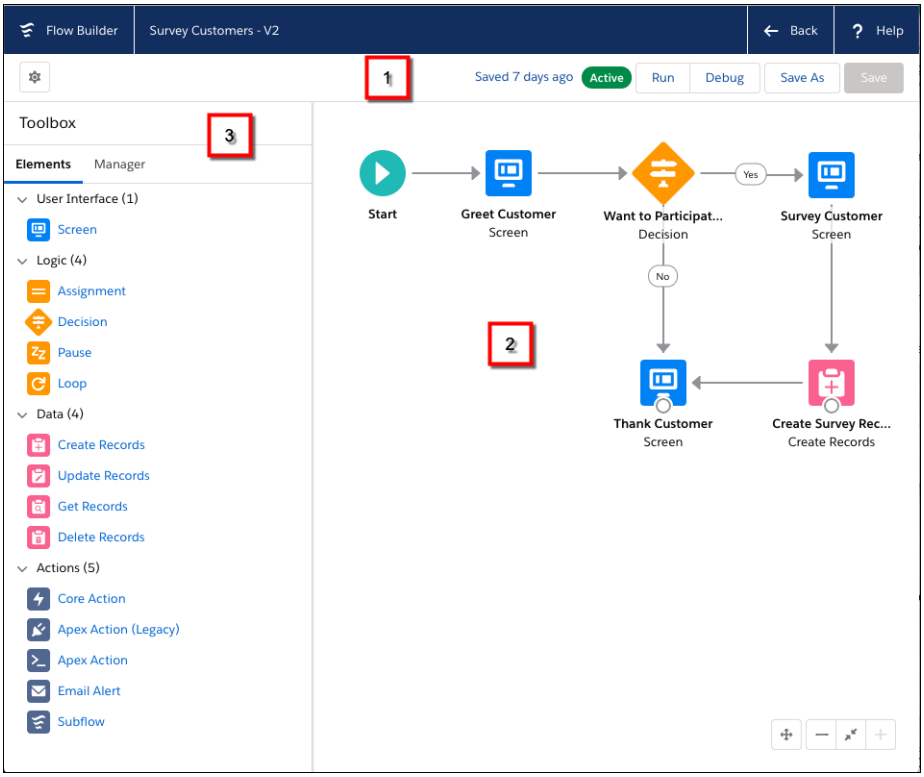
Tour the Cloud Flow Designer User Interface

Before you use the Cloud Flow Designer to design flows, understand the tool's main components.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions



Button Bar (1)

Manage your flow as you build it.

- **Run** runs the most recent saved version of the flow that you have open. If the flow contains subflow elements, each subflow runs the active version of its referenced flow. If the referenced flow has no active version, then the subflow element runs the latest version of its referenced flow.
- **Run with Latest** runs the most recent save of the flow you're working in. Each Subflow element runs the latest version of the referenced flow, even if that version isn't active. This option appears only if the open flow contains a Subflow element.
- **Debug** lets you enter values for the flow's input variables and display debug details while running the flow.
- The status indicator on the right side displays whether:
  - The flow is active or not
  - The latest changes to the flow are saved or not
  - There are any warnings or errors in the last saved version of the flow

    To see a list of the warnings or errors, click the indicator.

Canvas (2)

The canvas is the working area, where you build a flow by adding elements. As you add elements to the canvas and connect them together, you see a visual diagram of your flow.

Palette, Resources, and Explorer Tabs (3)

- From the Palette tab, add new elements, like Screens and Record Creates, to your flow.
- From the Resources tab, create variables, stages, choices, and other resources to use in your flow.
- The Explorer tab is a library of all elements and resources that you've added to the flow.

SEE ALSO:

Flow Properties

Manage Flow Elements, Resources, and Connectors

Search Within the Palette

Search Within a Flow

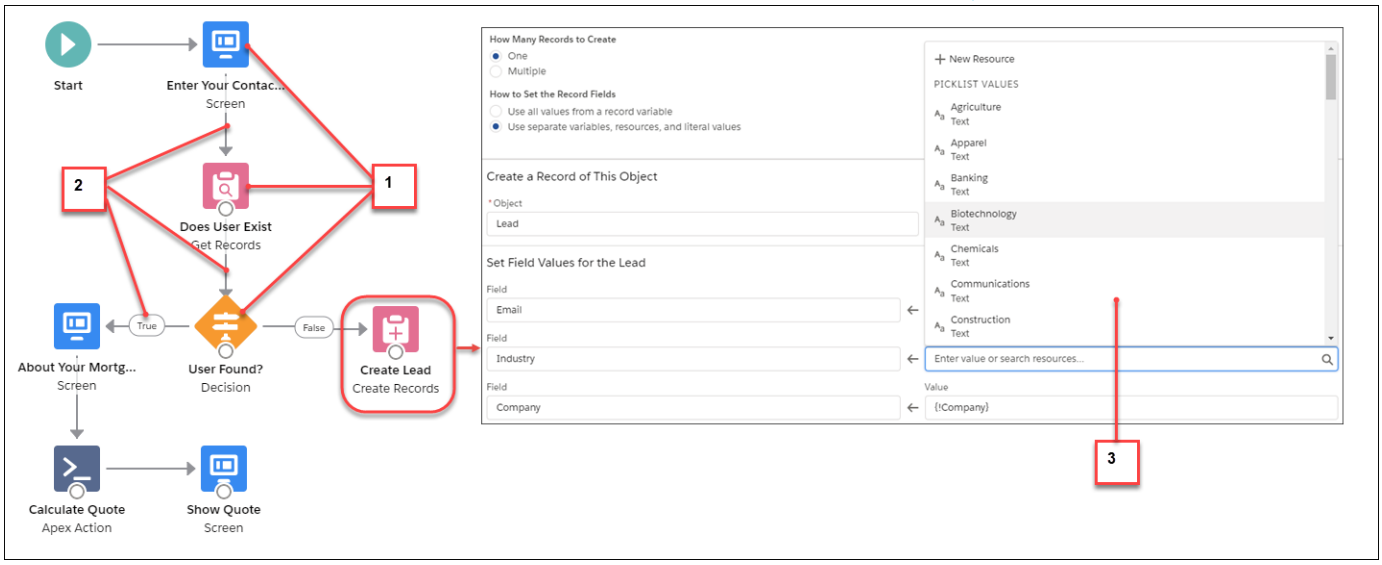
Flow Building Blocks

Use combinations of elements, connectors, and resources to build flows.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions



- Each element (1) represents an action that the flow can execute. Examples include reading or writing Salesforce data, displaying information to and collecting data from flow users, executing logic, or manipulating data.
- Each connector (2) defines an available path that the flow can take at run time.

- Each resource (3) represents a value that you can reference throughout the flow.

SEE ALSO:

Flow Elements

Flow Resources

Flow Connectors

Set a Flow's Start Element

Before you can save a flow, indicate which element to execute first.

1. Hover over the starting element in your flow.
2. Click .

SEE ALSO:

Save a Flow

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Save a Flow

After you create a flow in the Cloud Flow Designer, you have some options for saving the flow.

Initial save

When you save a new flow for the first time, a dialog box appears. Enter values for each of the flow's properties. Once you save the flow, the unique name can't be changed.

Quick save

After you've saved a flow once, the **Save** button works as a quick-save, overwriting your previous work. However, the **Save** button doesn't work when editing active flows. To save your changes as a new version or new flow, use **Save As**.

Save As

After you've saved your flow once, this button is enabled with two options:

- **Save as new flow** opens a dialog box where you can input a new name, unique name, and description, then save your changes as an entirely new flow.
- **Save as new version** saves the flow as a new version of the current flow. Use this option if you want to change a flow and keep the old configuration as a backup.

  Each flow can have up to 50 versions. You can't update the unique name when you save a new version.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

When saving a flow or flow version:

- If you have the flow detail page open in one browser tab, then edit a version in another tab, before you run the edited version:
  1. Save the version.
  2. Close the Cloud Flow Designer.
  3. Refresh the flow detail page in the first tab.
- If you've changed the flow properties and for some reason the flow fails to save, the flow properties don't revert to the previous values.

SEE ALSO:

Cloud Flow Designer

Activate or Deactivate a Flow Version

Common Flow Tasks

A handful of tasks are common to multiple flow use cases. For example, you can define conditions in both Decision and Wait elements.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Manage Flow Elements, Resources, and Connectors

Customize your flow by adding, editing, or removing elements, resources, and connectors.

Working with Data in a Flow

The real power of a flow is that it can automate updates to your data, whether the data lives inside your Salesforce org or in an external database. In a flow, you can look up values from records, connect to external systems, create records, update records, delete records—the whole shebang!

Validate Users' Inputs with Flow Formulas

Just like with regular validation rules, you can validate what users enter in flow screens.

Show Users Progress Through a Flow with Stages

Keep users informed about which stage they're in or how far they've progressed in a flow. For example, show where in a purchasing flow the user is with breadcrumbs or a progress indicator.

Define Flow Conditions

Control when a flow takes a specific decision outcome or waits for a specific wait event.

Redirect Flow Users with a Local Action

By default, when a flow finishes, a new interview starts and the user sees the first screen of the flow. To instead redirect the user to another page, build or install a Lightning component that does so. Then add the component to your flow with a Local Action element. For example, a Lightning component can use Lightning events to open a record, list view, or URL or to show a toast message. Or it can use the Lightning Console JavaScript API to close a console tab.

Send Email from a Flow

To send email from your flow, either call an email alert workflow action or create the email in the flow.

Extend Your Flow with Lightning Components

Sometimes your flow needs to do more than what the Cloud Flow Designer provides out of the box. To build a richer flow screen or perform an action without going through the server, add Lightning components to your flow.

Extend Your Flow with Apex

The Cloud Flow Designer comes with a lot of functionality, but sometimes your flow needs to do more than the default elements allow. In that case, call an Apex class from your flow by using one of two flow elements: Apex Plug-in or Call Apex.

View Inputs and Outputs of Other Referenced Flow Versions

While configuring a subflow element, view the variables of a specified version of the referenced flow. Doing so lets you configure draft master and referenced flows at the same time.

Upload Files Directly from a Flow

Let users upload files from a flow by adding the forceContent:fileUpload Lightning component to a flow screen.

Add Values to a Collection Variable

After you create a collection variable, populate it with values to reference throughout your flow. You can't use a Record Lookup or Fast Lookup element to populate a collection variable, but there are some workarounds.

Customize What Happens When a Flow Fails

If your flow contains an element that interacts with the Salesforce database—such as a Record Update or Submit for Approval element, it can fail. Modify the default behavior by adding fault paths to all elements that can fail.

Manage Flow Elements, Resources, and Connectors

Customize your flow by adding, editing, or removing elements, resources, and connectors.

	Add	Edit	Remove
Element	Drag from the Palette tab and drop it on to the canvas.	Double-click, or hover over it and click .	Hover over it and click .
Resource	From the Resources tab, double-click.	From the Explorer tab, double-click or hover over it and click .	From the Explorer tab, hover over it and click .
Connector	Click the node at the bottom of an element on the canvas and drag a line anywhere onto the target element.	n/a	Select it and press the DELETE key.

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USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

SEE ALSO:

Flow Elements

Flow Resources

Flow Connectors

Working with Data in a Flow

The real power of a flow is that it can automate updates to your data, whether the data lives inside your Salesforce org or in an external database. In a flow, you can look up values from records, connect to external systems, create records, update records, delete records—the whole shebang!

For each of those operation, you have at least two options to choose from in the Cloud Flow Designer. Understand the differences and decide which method is best for your use case.

Tip: Be familiar with the API names for the objects and fields that you want to work with. The Cloud Flow Designer displays API names instead of labels.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Pull Values from Salesforce Records into a Flow

Before you can use information from your Salesforce records in a flow, pull that information into variables in your flow. Use either a Record Lookup element or a Fast Lookup element. The right element depends on what the rest of your flow is doing.

Integrate with External Systems from a Flow

With Record Lookup and Fast Lookup elements, you can easily look up your Salesforce data in a flow. But what if you need data that lives outside of Salesforce? To connect your flow to an external database, use platform events, Lightning components, External Services, or Apex.

Create Salesforce Records from a Flow

To create Salesforce records, use either the Record Create, Quick Action, or Fast Create element. The right element depends on what the rest of your flow is doing.

Clone Records with a Fast Create Element

A flow can clone records in your org. First, populate an sObject variable with an existing record's values. Identify fields that the running user can't edit, and map all remaining fields to another sObject variable. Then use the second sObject variable in a Fast Create element to clone the record.

Update Salesforce Records from a Flow

To update field values on existing Salesforce records, use either the Record Update, Quick Action, or Fast Update element. The right element depends on what the rest of your flow is doing.

Delete Salesforce Records from a Flow

To delete Salesforce records, use either the Record Delete or Fast Delete element. The right element depends on what the rest of your flow is doing.

Pull Values from Salesforce Records into a Flow

Before you can use information from your Salesforce records in a flow, pull that information into variables in your flow. Use either a Record Lookup element or a Fast Lookup element. The right element depends on what the rest of your flow is doing.

Alternatively, pass values in from an element that interacts with the Salesforce database—such as the ID of the post created by a Post to Chatter element.

Example: You need to email a given account's owner. To do so, the flow needs to know the email address and name of that user.

To pull values into a flow from records in your organization, use either the **Record Lookup** or **Fast Lookup** element in the Cloud Flow Designer.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

How do I choose between flow lookup elements?

The two flow lookup elements are pretty similar. This table summarizes the two main differences between them.

	Can store values in ...	To map field values to flow variables ...	Number of records it looks up
Record Lookup	• Variables • sObject variables	1. Identify each field that you want to store. 2. For each field, identify a flow variable to store that specific value in. Because you directly map each field value to a variable, you get more granularity with this element. However, with more granularity comes more clicking.	Exactly one.
Fast Lookup	• sObject variables • sObject collection variables	1. Identify the flow variable in which you want to store all field values. 2. Identify the fields whose values you want to store in that flow variable.	If an sObject variable: one. If an sObject collection variable: at least one.

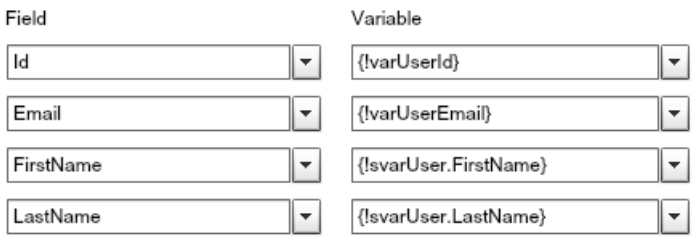
Unless you want to map each field to a variable with fewer mouse clicks, it can be hard to choose between the two elements. To choose the right lookup element, figure out what type of variable you need to store the values in.

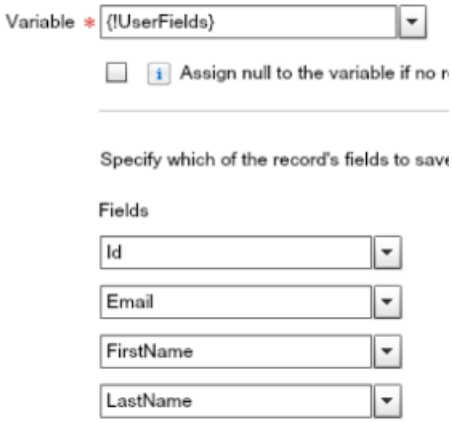
- To store the values in a single-value non-sObject variable, use the Record Lookup element.
- To store the values in an sObject collection variable, use the Fast Lookup element.
- To store the values in a single-value sObject variable, it's your choice. (Fast Lookup might save you some clicks!)

Tip: It's best practice to use Fast elements whenever possible, so that you save your org's limits. For more information, see Flow Bulkification in Transactions.

Example: Here's how you'd store a user's email and name by using each of the lookup elements.

Record Lookup



Fast Lookup	

SEE ALSO:

- Flow Fast Lookup Element
- Flow Record Lookup Element
- Working with Data in a Flow

Integrate with External Systems from a Flow

With Record Lookup and Fast Lookup elements, you can easily look up your Salesforce data in a flow. But what if you need data that lives outside of Salesforce? To connect your flow to an external database, use platform events, Lightning components, External Services, or Apex.

Platform Events

Deliver secure and scalable custom notifications within Salesforce or from external sources by using platform events. To publish event messages from your flow, add a Record Create or Fast Create element. To subscribe to messages, add a Wait element.

Lightning Components

Connect to a database that's behind your firewall without going through the Salesforce server by calling a Lightning component's client-side controller. All Lightning components that are available as flow actions appear in the Cloud Flow Designer as Local Action elements.

External Services

Connect to any external system without writing a line of code. You tell us which endpoint and schema you want to use, and we generate Apex classes for you. The Apex classes appear in the Cloud Flow Designer. External Services supports only the Interagent hyper-schema using JSON and Swagger / Open API 2.0.

Apex

If you want more control, write your own Apex code to integrate with an external system. To make your Apex code available in the Cloud Flow Designer, use either the `@InvocableMethod` annotation or the `Process.Plugin` interface.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Platform events, External Services, and Apex are available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Lightning components are available in: **Essentials, Professional, Enterprise, Performance, Unlimited, and Developer Editions**

Integration Option	Declarative	Server-Side	Client-Side	Synchronous	Asynchronous
Platform events	✔	✔			✔
Lightning components			✔	✔	✔
External Services	✔	✔		✔	
Apex		✔		✔	✔

SEE ALSO:

- Define Platform Events
- External Services
- Extend Your Flow with Apex
- Perform Flow Actions Locally
- *Lightning Aura Components Developer Guide* : Create Flow Local Actions Using Aura Components

Create Salesforce Records from a Flow

To create Salesforce records, use either the Record Create, Quick Action, or Fast Create element. The right element depends on what the rest of your flow is doing.

Example: When the customer's satisfaction score drops below a certain number, automatically create a case.

To create one or more Salesforce records, your flow:

1. Identifies the field values for the new records.
2. Saves those changes to the Salesforce database. (In other words, until the changes are saved to the database, the changes exist only within the flow.)

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

How do I choose between flow elements that create records?

The main difference between create elements lies in how many records the element can create and how it knows the field values to apply.

I need to create more than one record at a time.

To create more than one record at a time, use a Fast Create element with an sObject collection variable. It's best practice to use Fast elements whenever possible, so that you stay within your org's limits. For more information, see Flow Bulkification in Transactions.

Record Create and Quick Action elements can create only one record at a time. Fast Create elements can create either one record (if using an sObject variable) or multiple records (if using an sObject collection variable).

I need to create exactly one record.

If you've already populated an sObject variable with the values you want your record to have, use a Fast Create element.

If you want to use a combination of the values from an sObject variable and values from other resources (like single-value variables or screen input fields), use either a Record Create or Quick Action element. Those two elements differ in these ways.

- Which fields are available in the elements
- Whether the element provides any required fields for the object
- Whether the element lets you store the new record's ID

Storing the ID is useful, for example, if you create an account and then want to create a contact that's associated with that account (which you obviously need the ID for).

	Field Availability	Required Fields	New Record ID
Record Create	Every field on the object. You manually select the object and every field you want to have a value.	Not indicated	Lets you store the ID of the created record to use later in your flow.
Quick Action (of type Create)	Only fields that are included in the Quick Action layout. If you supplied default values for certain fields when you created the quick action, those values are used when the record is created.	Indicated Requiredness is based on what's marked required in the quick action layout.	Doesn't let you store the created record's ID for use later.

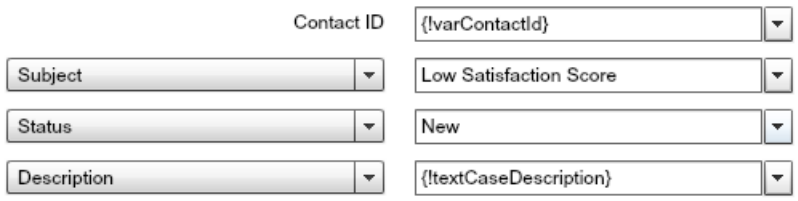
Tip: Use the Quick Actions element when all these statements are true.

1. The action is of type Create.
2. The action's layout includes all the fields that you want to update.
3. You don't need to reference the new record's ID later in the flow.

Otherwise, use the Record Create element.

Example: Here's how you'd create a case when a customer's satisfaction score is too low by using each of the create elements.

Record Create	 You can set any field on the record, but the Record Create element doesn't know which fields are required for this object.
Fast Create	 Assumes {!svarCase} is already populated with the right fields.

Quick Action (of type Create)	 These four fields are the only fields that you can set for this element, because they're the only ones available from the action layout. Contact ID is required by the associated action layout, so it's required in this element.

SEE ALSO:

- Flow Fast Create Element
- Working with Data in a Flow
- Flow Quick Action Element
- Flow Record Create Element

Clone Records with a Fast Create Element

A flow can clone records in your org. First, populate an sObject variable with an existing record's values. Identify fields that the running user can't edit, and map all remaining fields to another sObject variable. Then use the second sObject variable in a Fast Create element to clone the record.

Before you begin, review Which Fields Are Inaccessible When a Flow Creates or Updates Records?

1. Populate an sObject variable with the values from the existing record.
   For example:
   - Look up the record with a Fast Lookup element.
   - Obtain the record from a Flows action in a process.
2. In an Assignment element, copy the writable field values to a new sObject variable.

   Note: Make sure that `Id` isn't set in the new variable.
3. Add a Fast Create element to your flow. Select the new sObject variable to populate the values of the new clone record.

SEE ALSO:

- Copy Field Values from One sObject Variable to Another
- Flow Fast Create Element

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Update Salesforce Records from a Flow

To update field values on existing Salesforce records, use either the Record Update, Quick Action, or Fast Update element. The right element depends on what the rest of your flow is doing.

Example: On an opportunity record, when a user clicks the "Won" button, a flow updates the opportunity's stage.

To update fields on one or more existing Salesforce records, your flow:

1. Identifies the records to update.
2. Identifies the new field values for those records.
3. Saves those changes to the Salesforce database. (In other words, until the changes are saved to the database, the changes exist only within the flow.)

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

How do I choose between flow elements that update records?

The main difference between the elements lies in these areas: how it knows which records to update, how it knows the new field values to apply, and how many records it can update.

Quick Action elements can update only one record at a time, while Record Update and Fast Update elements can update multiple records.

	To identify records to update	To identify new field values for the records	Number of records it updates
Record Update	In the same element, use filter criteria.	In the same element, map each field that should be updated with a variable or other resource. All resources are supported, so long as the resource's data type matches the selected field's data type.	At least one.
Quick Action	Populate a single-value variable with the ID in another element. Use this ID for the Related Record ID parameter.	In the same element, map each field that should be updated with a variable or other resource. All resources are supported, so long as the resource's data type matches the selected field's data type.	Exactly one.
Fast Update	Populate an sObject variable or sObject collection variable in another element	In another element, such as an Assignment element, update the values in the sObject variable or sObject collection variable.	If an sObject variable: one. If an sObject collection variable: at least one.

If the following statement is true, use a Fast Update element:

- You've already populated an sObject variable or sObject collection variable with the values you want:

  Tip:

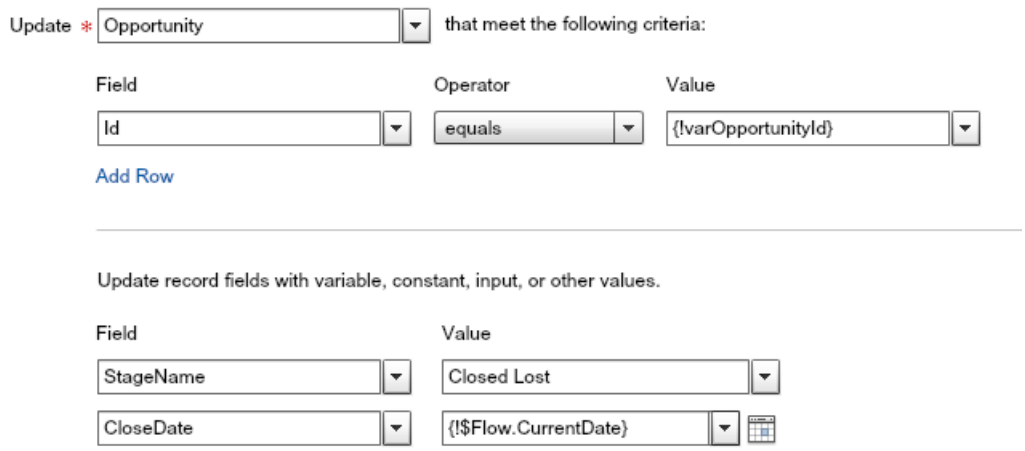
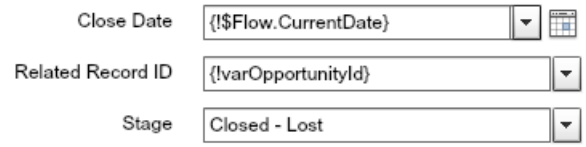
  - You can always update the field values in an sObject variable or sObject collection variable by using an Assignment element.
  - It's best practice to use Fast elements whenever possible, so that you save your org's limits. For more information, see Flow Bulkification in Transactions.

If all the following statements are true, use a Quick Action element:

- You need to update exactly one record
- You've already populated a variable with the record's ID
- The Quick Action's layout includes all the fields you need to update

If any of those statements aren't true, use a Record Update element.

Example: Here's how you'd update an opportunity's stage by using each of the update elements.

Record Update	 You can update any field on the record, but the Record Update element doesn't know which fields are required for this object.
Fast Update	 Assumes {!svarOpportunity} is already populated with the right fields.
Quick Action (of type Update)	 These three fields are required by the associated action layout, so they're required in this element. Related Record ID identifies which opportunity to update.

SEE ALSO:

- Flow Fast Update Element
- Flow Record Update Element
- Flow Quick Action Element
- Working with Data in a Flow

Delete Salesforce Records from a Flow

To delete Salesforce records, use either the Record Delete or Fast Delete element. The right element depends on what the rest of your flow is doing.

Example: When a customer accepts a quote, automatically delete the remaining quotes from the opportunity.

To delete one or more records, your flow:

1. Identifies the records that to delete.
2. Saves those changes to the Salesforce database. (In other words, until the changes are saved to the database, the changes exist only within the flow.)

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

How do I choose between flow elements that delete records?

The main difference between elements lies in how the element knows which records to delete.

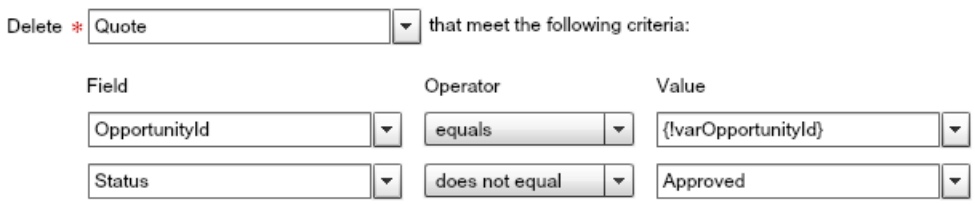
	To identify records to delete
Record Delete	In the same element, use filter criteria.
Fast Delete	In another element, populate an sObject variable or sObject collection variable with the ID of the record to be deleted.

If you've already populated an sObject variable or sObject collection variable with the records you want to delete, use a Fast Delete. (sObject collection variables are supported for record deletion only with a Fast Create element.) It's best practice to use Fast elements whenever possible, so that you save your org's limits. For more information, see Flow Bulkification in Transactions.

If you haven't yet identified which records to delete or you've stored the IDs in non-sObject resources—such as a single-value variable—use a Record Delete element. sObject collection variables aren't supported for this element.

Example: Here's how you'd delete remaining quotes from an opportunity by using each of the delete elements.

Record Delete



The flow finds all quotes that are associated with a specific opportunity and haven't been approved, and then deletes them.

Fast Delete	 Assumes {!svarQuotesUnnecessary} is already populated with the IDs of the quotes to delete. The flow deletes all records whose IDs are included in that variable.

SEE ALSO:

- Flow Fast Delete Element
- Flow Record Delete Element
- Working with Data in a Flow

Validate Users' Inputs with Flow Formulas

Just like with regular validation rules, you can validate what users enter in flow screens.

- The formula expression must return a Boolean value (`TRUE` or `FALSE`).
- If the expression evaluates to `TRUE`, the input is valid. If the expression evaluates to `FALSE`, the error message is displayed to the user.
- If the user leaves the field blank and the field isn't required, the flow doesn't validate the field.

When you configure a screen input field:

1. In the Input Validation section, select `Validate`.
2. Define the values allowed for the field by entering a Boolean formula expression.

   Note:

   - The formula expression must return a Boolean value.
   - If the formula expression evaluates to `TRUE`, the input is valid.
   - If the formula expression evaluates to `FALSE`, the error message is displayed to the user.
   - If the user leaves the field blank, and the field is *not* required, the flow doesn't validate.

3. Customize the error message that appears if the user's input fails validation.

   Click to switch between the plain text editor and the rich text editor. Using the rich text editor saves the content as HTML.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Example:

- Validate the format of an email address:

```
REGEX({!Email_Address},"[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\\.[a-zA-Z]{2,4}")
```

- Validate the format of a zip code:

```
REGEX({!Zipcode},"\\d{5}(-\\d{4})?")
```

Show Users Progress Through a Flow with Stages

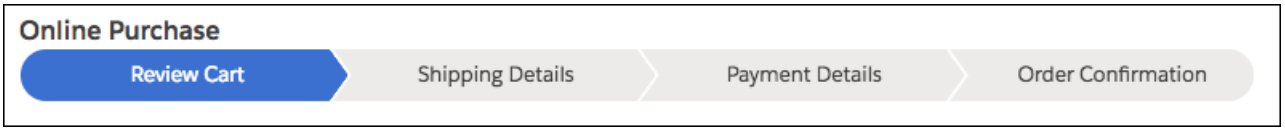
Keep users informed about which stage they're in or how far they've progressed in a flow. For example, show where in a purchasing flow the user is with breadcrumbs or a progress indicator.

First, define all the possible stages in your flow with stage resources. When you configure a stage, you set the stage's label, order, and whether it's active by default. Then, throughout the flow identify which of the stages are relevant to the flow user by setting stage system variables.

- The `$Flow.ActiveStages` system variable identifies all the stages that are relevant to the flow's current path.
- The `$Flow.CurrentStage` system variable identifies which stage the flow is at. Make sure that this stage is included in `$Flow.ActiveStages`.

Example: The Online Purchase flow includes stages for users to review their cart, enter shipping details, enter payment details, and confirm their order. The stages display at runtime using a custom Lightning component.

At this point, `$Flow.ActiveStages` contains the Review Cart, Shipping Details, Payment Details, and Order Confirmation stages, and `$Flow.CurrentStage` is set to Review Cart.



EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Plan the Stages in Your Flow

Before you start adding stages to your flow, plan out all the possible stages for your flow. If your flow includes decisions, you might want different stages for different branches of your flow.

Define the Stages in Your Flow

After you have identified the stages for each branch of your flow, configure the stages.

Identify the Relevant Stages in Your Flow

Throughout your flow, identify which stages are relevant to the user by assigning values to the stage system variables.

Represent Your Flow's Stages Visually

The standard flow runtime doesn't represent a flow's stages. However, you can add a custom component to visually represent the stages.

SEE ALSO:

Considerations for Flow Stages

Plan the Stages in Your Flow

Before you start adding stages to your flow, plan out all the possible stages for your flow. If your flow includes decisions, you might want different stages for different branches of your flow.

1. List all the possible stages for your flow.
2. Determine in which order the stages occur.
3. Identify which stages are active by default.

   This step is optional, but when you identify the default active stages, you don't have to populate `$Flow.ActiveStages` and `$Flow.CurrentStage` with an Assignment element at the beginning of your flow.

Example: Your flow has five sections: Review Cart, Shipping Details, Billing Details, Payment Details, and Order Confirmation. The corresponding stages are in the same order.

If the user's billing details are the same as the shipping details, the flow skips the Billing Details section. The other sections are required for every permutation of the flow. So configure Review Cart, Shipping Details, Payment Details, and Order Confirmation to be active by default.

Stage	Order	Active by Default
Review Cart	1	Selected
Shipping Details	2	Selected
Billing Details	3	Not selected
Payment Details	4	Selected
Order Confirmation	5	Selected

SEE ALSO:

Considerations for Flow Stages

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Define the Stages in Your Flow

After you have identified the stages for each branch of your flow, configure the stages.

1. On the Resources tab, double-click **Stage**.
2. Enter the stage's label and order, and specify whether it's active by default.

SEE ALSO:

Flow Stage Resource

Considerations for Flow Stages

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Identify the Relevant Stages in Your Flow

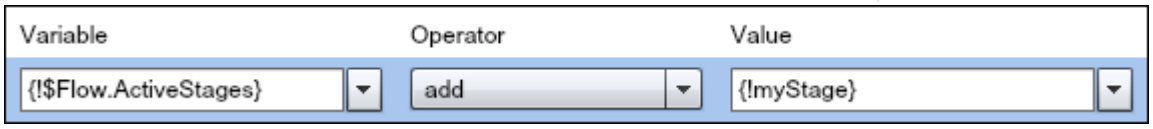
Throughout your flow, identify which stages are relevant to the user by assigning values to the stage system variables.

The system variable `$Flow.ActiveStages` identifies the stages that are relevant to the flow's current branch. `$Flow.CurrentStage` identifies which stage the flow is in. To update which stages are referenced in the system variables, use an Assignment or Subflow element.

- To add stages to `$Flow.ActiveStages`, use an Assignment element with one of these operators.

Operator	Description
add	Adds stages to the end of `$Flow.ActiveStages`.
add at start	Adds stages to the beginning of `$Flow.ActiveStages`.

For example, this assignment row adds a stage to the end of `$Flow.ActiveStages`.



- To add a stage to `$Flow.ActiveStages` in between two other stages, define it as a default active stage in another flow. Then use a Subflow element to call the second flow.
- To remove stages from `$Flow.ActiveStages`, use an Assignment element with one of these operators.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

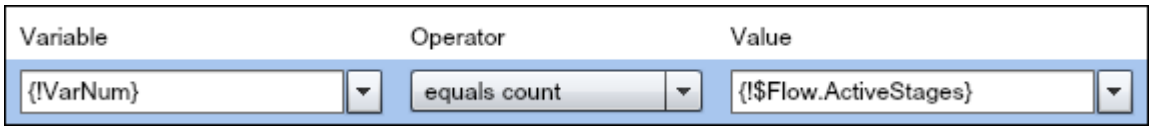
Operator	Description
remove after first	Removes all stages after the first instance of a specified stage.
remove all	Removes all instances of the specified stages.
remove before first	Removes all stages before the first instance of a specified stage.
remove first	Removes the first instance of a specified stage.
remove position	Removes the stage at a specified position.

For example, if `$Flow.ActiveStages` contains three items—stage1, stage2, stage3—this assignment removes stage2 because it's in position 2.

Or suppose that `$Flow.ActiveStages` contains four items—stage1, stage2, stage3, stage1. This assignment results in `$Flow.ActiveStages` containing three items—stage2, stage3, stage1.

- To change what's selected as `$Flow.CurrentStage`, use an Assignment element with the **equals** operator. Make sure that the selected stage is included in `$Flow.ActiveStages`.

- To count the number of active stages and assign that number to a variable, use an Assignment element with the **equals count** operator.



To reference a stage in another flow, enter the fully qualified stage name: `flowName:stageName` or `namespace.flowName:stageName`. At run time, the assignment works only if a Subflow element calls the stage's flow.

SEE ALSO:

- System Variables in Flows
- Flow Assignment Element
- Operators in Flow Assignment Elements
- Considerations for Flow Stages

Represent Your Flow's Stages Visually

The standard flow runtime doesn't represent a flow's stages. However, you can add a custom component to visually represent the stages.

To visually represent the stages, you can add a Lightning component to your flow's screens or create a custom lightning:flow component.

- **Lightning component screen field**—When you map a stage to a Lightning component attribute, the flow passes the stage's label into the attribute.
- **lightning:flow component**—The `onstatuschange` attribute in the standard lightning:flow component returns the names and labels for the flow's active stages and current stage.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

SEE ALSO:

Lightning Aura Components Developer Guide : Display Flow Stages with an Aura Component

Lightning Aura Components Developer Guide : Display Flow Stages By Adding a Progress Indicator to a Flow Screen

Define Flow Conditions

Control when a flow takes a specific decision outcome or waits for a specific wait event.

Before you begin, create the Decision or Wait element to add conditions to. To add conditions to a wait event, select **Wait for this event only if additional conditions are met**.

1. Set up the conditions.

   At run time, the conditions are evaluated in the order you specify.

Column Header	Description
`Resource`	Flow resource whose value you want to evaluate.
`Operator`	The available operators depend on the data type selected for `Resource`. For details, see Operators in Flow Conditions on page 177.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Column Header	Description
`Value`	The `Variable` and `Value` in the same row must have compatible data types. Options: • Select an existing flow resource, such as a variable, constant, or user input. • Select CREATE NEW to create a flow resource. • Manually enter a literal value or merge field. Note: When you add or subtract a number from a date value, the date adjusts in days, not hours.

2. Identify the logic between the conditions.

Option	Description
`All conditions must be true (AND)`	If one of the conditions is false, the flow evaluates the next outcome's conditions.
`One condition must be true (OR)`	If one of the conditions is true, the flow immediately takes this outcome's path.
`Advanced logic (Combination of ANDs and ORs)`	Custom logic. When you select this option, provide the customized `Logic` by entering up to 1000 characters. Use: • Numbers to refer to each condition • *AND*, *OR*, or *NOT* to identify which combination of conditions must true • Parentheses to group parts of the string together Tip: If you enter *AND*, it's the same as if you selected **All conditions must be true (AND)**. If you enter *OR*, it's the same as if you selected **One condition must be true (OR)**. If you enter any other logic, make sure that you include a number for each condition. For example, for *1 AND NOT(2 OR 3)*, the flow evaluates whether the first condition is true and neither the second nor third condition is true.

SEE ALSO:

What Are Waiting Conditions?

Flow Wait Element

Flow Decision Element

Redirect Flow Users with a Local Action

By default, when a flow finishes, a new interview starts and the user sees the first screen of the flow. To instead redirect the user to another page, build or install a Lightning component that does so. Then add the component to your flow with a Local Action element. For example, a Lightning component can use Lightning events to open a record, list view, or URL or to show a toast message. Or it can use the Lightning Console JavaScript API to close a console tab.

EDITIONS

Available in: Lightning Experience

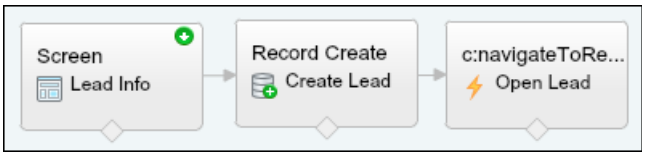
Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

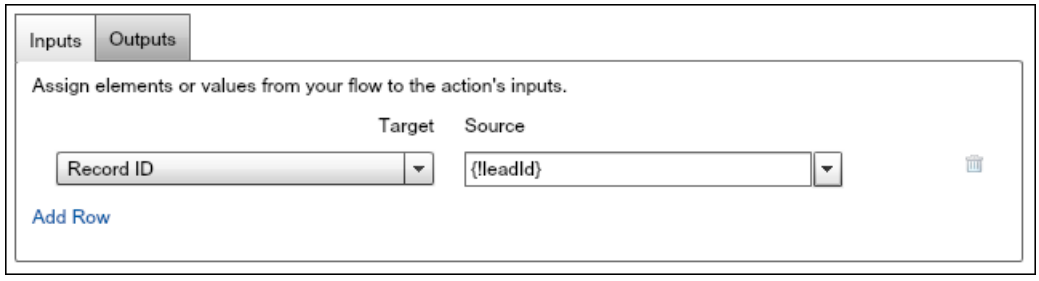
Note: Local actions that fire `force` or `lightning` events might not work properly when you run the flow from:

- The Run, Run Latest, and Debug buttons in the Cloud Flow Designer
- The Run links on the flow detail or flow list pages
- Web tabs
- Custom buttons and links

Instead, test and distribute the flow with a Lightning page, Lightning community page, flow action, or utility bar. Your developer can also add the appropriate event handlers directly to the component.

Example: This flow creates a lead using information entered in the Lead Info screen. Then it executes the Open Lead local action, which passes the lead ID into a Lightning component by using the Record ID attribute. The component uses a Lightning event to open the created lead.





Let's look at the Lightning component that the Local Action element calls: `c:navigateToRecord`.

Component Markup

```
<aura:component implements="lightning:availableForFlowActions">
        <aura:attribute name="recordId" type="String" />
        </aura:component>
```

Design Resource

The `recordId` attribute is declared in the design resource so that it's configurable in the Local Action element.

```
<design:component>
        <design:attribute name="recordId" label="Record ID" />
        </design:component>
```

Client-Side Controller

When the Local Action element is executed, the flow calls the `invoke` method, which uses the `force:navigateToSObject` event to navigate to the created record.

```
({    invoke : function(component, event, helper) {
        // Get the record ID attribute
        var record = component.get("v.recordId");

        // Get the Lightning event that opens a record in a new tab
        var redirect = $A.get("e.force:navigateToSObject");

        // Pass the record ID to the event
        redirect.setParams({
        "recordId": record
        });

        // Open the record
        redirect.fire();
        }
        })
```

SEE ALSO:

What Happens When a Flow Finishes?

Lightning Aura Components Developer Guide : Runtime Considerations for Flows That Include Aura Components

Send Email from a Flow

To send email from your flow, either call an email alert workflow action or create the email in the flow.

Email Alert element
Sends an email by using a workflow email alert to specify the email template and recipients. The flow provides only the record ID.

Send Email element
Sends an email by manually specifying the subject, body, and recipients in the flow.

SEE ALSO:

Flow Elements

Extend Your Flow with Lightning Components

Sometimes your flow needs to do more than what the Cloud Flow Designer provides out of the box. To build a richer flow screen or perform an action without going through the server, add Lightning components to your flow.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Build Rich Screens with Screen Components
Use screen components to unlock the look, feel, and functionality of your flow screens.

Perform Flow Actions Locally
When you use Lightning components as flow actions, you can perform actions in the browser rather than going through the Salesforce server.

Build Rich Screens with Screen Components

Use screen components to unlock the look, feel, and functionality of your flow screens.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Either install a screen component from an external library, such as Unofficial Flow, or have a developer build one for you. For example, with a screen component you can:

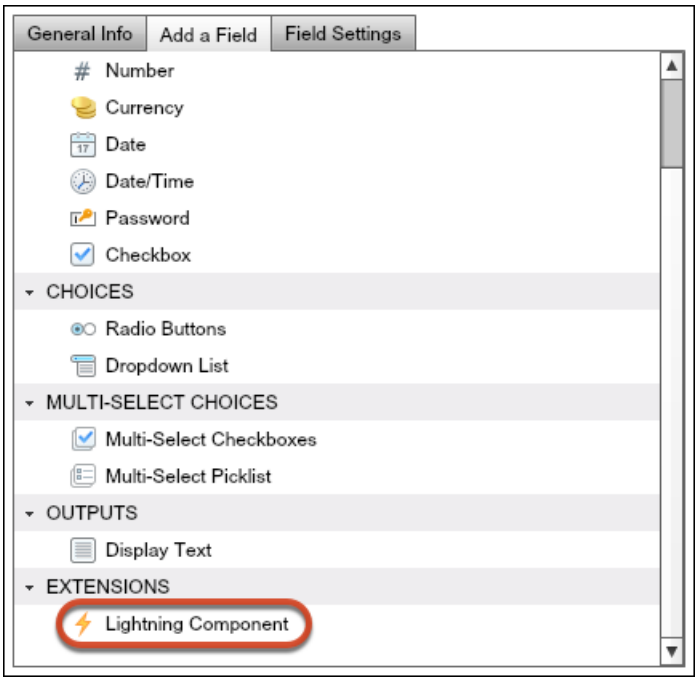
- Customize the navigation in your flow
- Display data in a table
- Let flow users choose an image or use a slider
- Use a branded header instead of the default flow header

Note: Before you add Lightning components to a flow screen, make sure that:

- The flow's type is Screen Flow.
- Users can run the flow only in Lightning runtime. For example, don't distribute the flow using a Visualforce component.
- Your org has My Domain enabled and deployed.

Once you have the appropriate screen component in your org, add it to your flow screen.

1. In the Cloud Flow Designer, open an existing screen or add a new Screen element to the canvas.
2. Click the **Add a Field** tab.
3. Double-click **Lightning Component**.



4. In the preview pane, click **[Lightning Component]** to open the field's settings.
5. For Lightning Component, select the appropriate screen component.
6. To pass data between the flow and the Lightning component, use the Inputs and Outputs tabs.

IN THIS SECTION:

Retain Previously Entered Values in Flow Lightning Component Screen Fields

By default, screen components have no memory. If a user enters a value, navigates to another screen, and returns to the component's screen, the user-entered value is lost. To enable a flow to remember the value of an attribute, add the attribute to both the Inputs and Outputs tabs in the screen component. Your users can then navigate back and forth in your flows and not lose the information they entered.

SEE ALSO:

Available Screen Components

Lightning Aura Components Developer Guide : Customize Flow Screens Using Aura Components

Perform Flow Actions Locally

Retain Previously Entered Values in Flow Lightning Component Screen Fields

By default, screen components have no memory. If a user enters a value, navigates to another screen, and returns to the component's screen, the user-entered value is lost. To enable a flow to remember the value of an attribute, add the attribute to both the Inputs and Outputs tabs in the screen component. Your users can then navigate back and forth in your flows and not lose the information they entered.

1. In the Inputs tab for your screen component, set the attribute to any value.

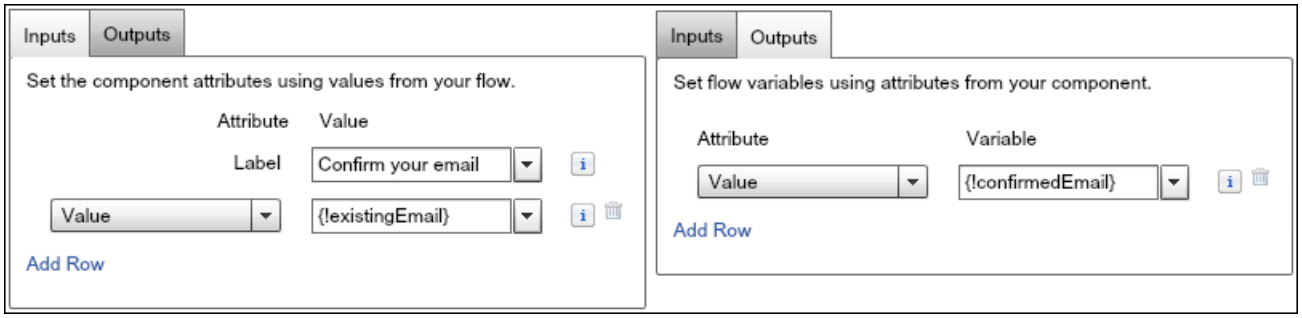
   You can enter a literal value, leave the value blank, or set the value to a variable that's compatible with the attribute's data type.

2. In the Outputs tab for your screen component, map the attribute to a variable that's compatible with the attribute's data type.

   For example, for the Toggle screen component, map its Value attribute to a Boolean variable. For the Email screen component, map its Value attribute to a Text variable.

When configured in both the Inputs and Outputs tabs, an attribute at runtime retains whatever value it has when the user navigates to another screen.

Example: Suppose that you use the Email screen component in an email address confirmation screen. In the Email component, the Value attribute represents the email address. Configure the Inputs tab to set the Value attribute to the value of the `{!existingEmail}` variable, which is set earlier in the flow to the user's email address. Configure the Outputs tab to map the Value attribute to the `{!confirmedEmail}` variable.



When Madison Rigsby runs the flow and sees the email confirmation screen, the Value attribute is already set to `mrigsby@salesforce.com` per the Inputs tab setting.

Madison changes that value to *`madison.rigsby@salesforce.com`* and clicks **Next**. When Madison clicks **Previous** to return to the email confirmation screen, she sees the email address value as `madison.rigsby@salesforce.com`.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Perform Flow Actions Locally

When you use Lightning components as flow actions, you can perform actions in the browser rather than going through the Salesforce server.

Either install a local action from an external library, such as Unofficial Flow, or have a developer build one for you. For example, with local actions, a flow can:

- Open a related article in another window or tab.
- When the flow creates a record, open the record in another browser tab.
- When the flow finishes, close the browser or console tab.
- Get data from a database behind your firewall.

Note: To add local actions to a flow, make sure that:

- The flow's type is Screen Flow.
- Users can run the flow only in Lightning runtime. For example, don't distribute the flow using a Visualforce component.
- Your org has My Domain enabled and deployed.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

To add a local action to a flow:

1. From the palette in Cloud Flow Designer, drag the corresponding Local Action element onto the canvas.
2. To pass data between the flow and the Lightning component, use the Inputs and Outputs tabs.

SEE ALSO:

Flow Local Action Element

Integrate with External Systems from a Flow

Lightning Aura Components Developer Guide : Create Flow Local Actions Using Aura Components

Build Rich Screens with Screen Components

Extend Your Flow with Apex

The Cloud Flow Designer comes with a lot of functionality, but sometimes your flow needs to do more than the default elements allow. In that case, call an Apex class from your flow by using one of two flow elements: Apex Plug-in or Call Apex.

Developers have two options when they're trying to make an Apex class available for a flow.

Tip: We recommend using the `@InvocableMethod` annotation instead of the `Process.Plugin` interface.

While the `Process.Plugin` interface supports customizing how the class appears in the palette, the `@InvocableMethod` annotation provides more functionality. The following table describes the features supported by each option.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

	`Process.Plugin` **Interface**	`@InvocableMethod` **Annotation**
Apex data type support	Doesn't support: • Blob • Collection	Doesn't support: • Generic Object • Generic sObject

	`Process.Plugin` **Interface**	`@InvocableMethod` **Annotation**
	• sObject • Time	• Sets • Maps • Enums The Cloud Flow Designer doesn't support mapping an Apex method's input or output parameters to an sObject collection variable.
Bulk operations	Not supported	Supported
Element name in the Cloud Flow Designer	Class name or the value of the `name` property.	Class name
Reusability	Classes with this interface implemented are available in flows	Classes with this annotation implemented are available in: • Flows • Processes • Rest API
Section in the Cloud Flow Designer	Apex Plug-in or the value of the `tag` property.	Apex
More Details in the *Lightning Platform Apex Code Developer's Guide*	Passing Data to a Flow Using the `Process.Plugin` Interface	`InvocableMethod` Annotation and `InvocableVariable` Annotation

Example: To illustrate the difference between these two implementation methods, here are two classes that do the same thing: get an account name from a flow and return that account's ID.

This class implements the `@InvocableMethod` annotation.

```
global class lookUpAccountAnnotation {
   @InvocableMethod
   public static List<String> getAccountIds(List<String> names) {
      List<Id> accountIds = new List<Id>();
      List<Account> accounts = [SELECT Id FROM Account WHERE Name in :names];
      for (Account account : accounts) {
         accountIds.add(account.Id);
      }
      return accountIds;
   }
}
```

This class implements the `Process.Plugin` interface.

```
global class lookUpAccountPlugin implements Process.Plugin {

   global Process.PluginResult invoke(Process.PluginRequest request) {
```

```
        String name = (String) request.inputParameters.get('name');
        Account account = [SELECT Id FROM Account WHERE Name = :name LIMIT 1][0];

        Map<String,Object> result = new Map<String,Object>();
        result.put('accountId', account.Id);
        return new Process.PluginResult(result);
    }

    global Process.PluginDescribeResult describe() {
        Process.PluginDescribeResult result = new Process.PluginDescribeResult();
        result.Name = 'Look Up Account ID By Name';
        result.Tag = 'Account Classes';
        result.inputParameters = new
            List<Process.PluginDescribeResult.InputParameter>{
                new Process.PluginDescribeResult.InputParameter('name',
                Process.PluginDescribeResult.ParameterType.STRING, true)
            };
        result.outputParameters = new
            List<Process.PluginDescribeResult.OutputParameter>{
                new Process.PluginDescribeResult.OutputParameter('accountId',
                Process.PluginDescribeResult.ParameterType.STRING)
                    };
        return result;
    }
}
```

Notice that `lookupAccountAnnotation` is less than half the length (11 lines) of `lookupAccountPlugin` (28 lines). In addition, because the annotation supports bulk operations, `lookupAccountAnnotation` performs one query per batch of interviews. `lookupAccountPlugin` performs one query per interview.

SEE ALSO:

Flow Elements

View Inputs and Outputs of Other Referenced Flow Versions

While configuring a subflow element, view the variables of a specified version of the referenced flow. Doing so lets you configure draft master and referenced flows at the same time.

From a subflow element, you can assign values to only the referenced flow's variables that allow input access. Similarly, you can assign values from only the referenced flow's variables that allow output access. The `Input/Output Type` of the variable determines this access. To change the variable's `Input/Output Type`, open the referenced flow to edit the variable.

By default, this dropdown list contains the variables of the currently active version of the referenced flow. If the referenced flow has no active version, the dropdown list contains the variables of the *latest* version of the referenced flow.

To populate the drop-down lists with the variables of another version of the referenced flow, complete the following steps. Do the same to view the descriptions of the referenced flow's variables.

1. On the subflow overlay, expand the `Input/Output Variable Assignments` section.
2. Click **View input/output of other versions**.
3. Use one or more of the following options.

Option	Description
Select a `Version` number in the left pane.	The Inputs and Outputs tabs display the variables in the selected version of the referenced flow.
Select the **Inputs** tab or the **Outputs** tab.	The tab displays: • The variables available for input or output assignment in the selected `Version` of the referenced flow. • The data type of each variable. • The description, if any, of each variable.
Click **OK**.	The subflow overlay's drop-down lists for selecting the referenced flow's variables are populated with the variables of the selected `Version` of the referenced flow.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:
- Manage Flow

When you configure subflow input and output assignments, you can specify variables from any version of the referenced flow. This way, you can develop both the master flow and referenced flow in parallel, while keeping another version of the referenced flow active for its users. When you *save* the master flow, however, the Cloud Flow Designer validates against the currently active version of the referenced flow. If that flow doesn't have an active version, the latest version is validated. If you see validation messages about variables that couldn't be found or that were configured differently in the referenced flow, you can still save the flow. Nevertheless, resolve all validation errors before you *activate* the master flow.

SEE ALSO:

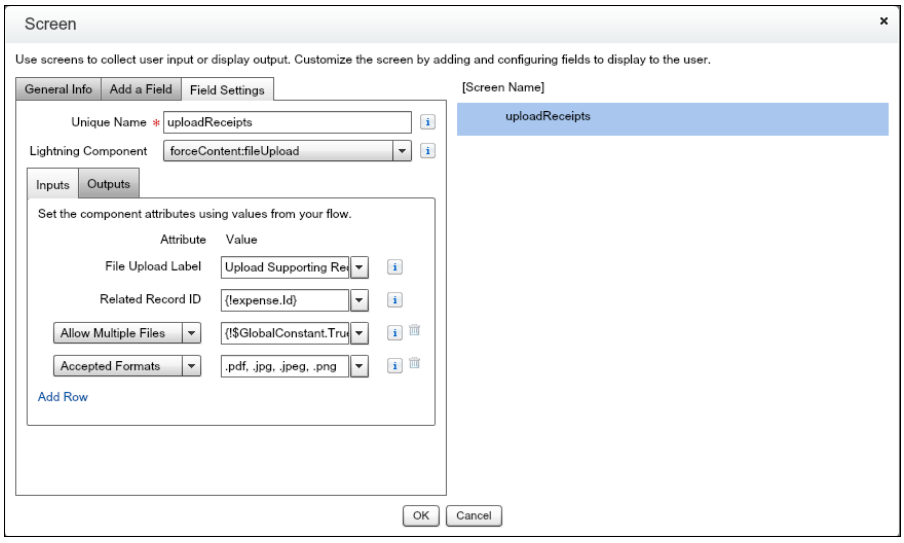
Flow Subflow Element

Upload Files Directly from a Flow

Let users upload files from a flow by adding the forceContent:fileUpload Lightning component to a flow screen.

Note: Lightning component fields are supported only in Lightning runtime.

1. From a Screen element, click the **Add a Field** tab, and double-click **Lightning Component**.
2. In the preview pane, select **[Lightning Component]**.
3. For the Lightning Component dropdown on the **Field Settings** tab, select **forceContent:fileUpload**.
4. Pass values between the flow and the component by using the Inputs and Outputs tabs. For details about each attribute, hover over .



Now users can attach files during a flow on any device.

Mobile device:

EDITIONS

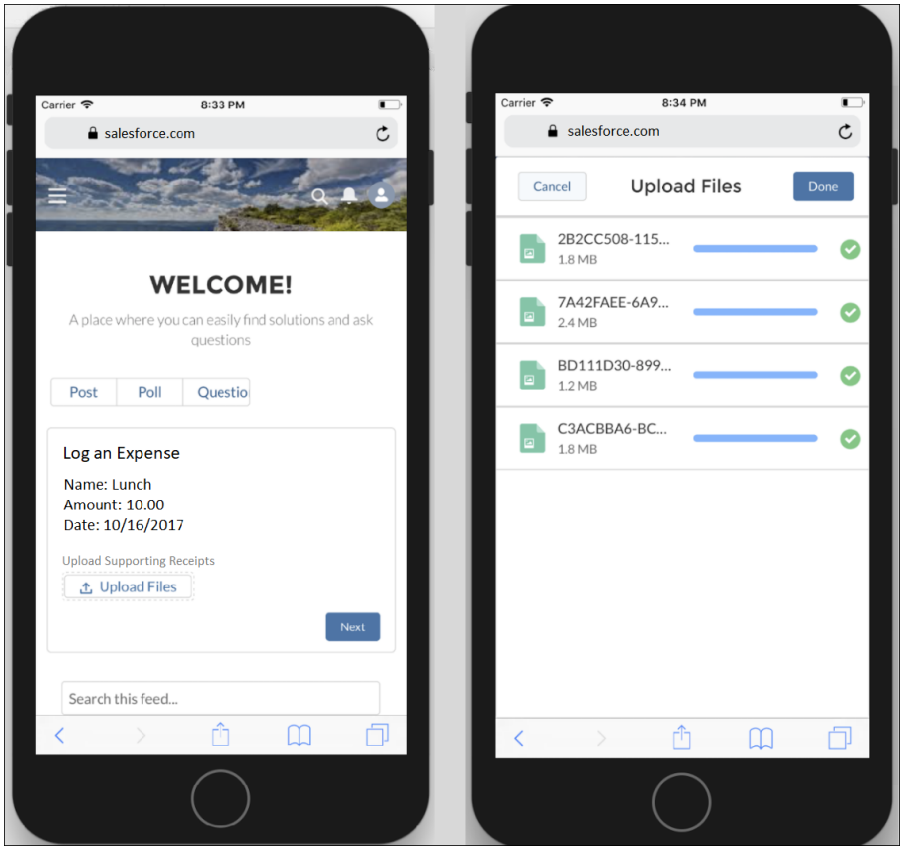
Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

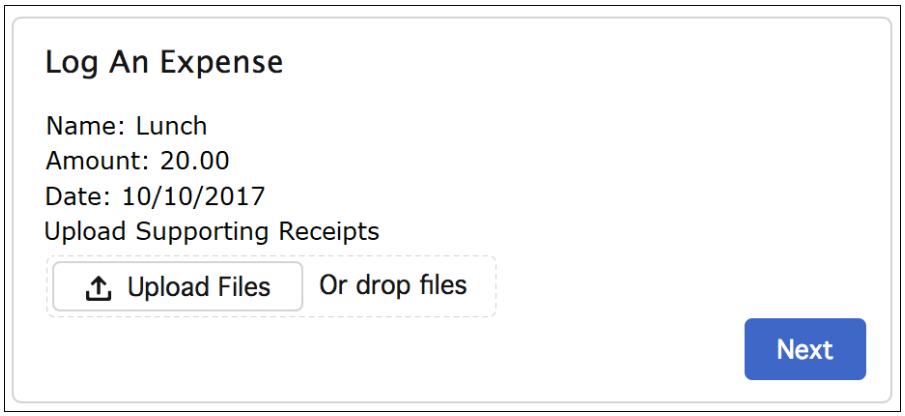
USER PERMISSIONS

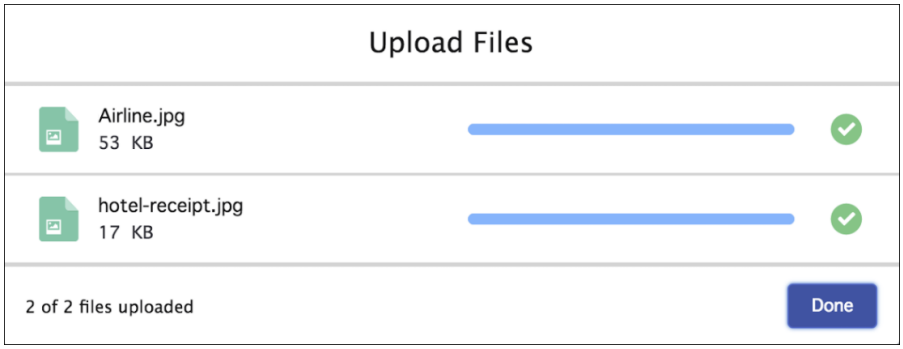
To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow


Carrier
8:33 PM
salesforce.com
WELCOME!
A place where you can easily find solutions and ask questions
Post
Poll
Questio
Log an Expense
Name: Lunch
Amount: 10.00
Date: 10/16/2017
Upload Supporting Receipts
Upload Files
Next
Search this feed...
Carrier
8:34 PM
salesforce.com
Cancel
Upload Files
Done
2B2CC508-115...
1.8 MB
7A42FAEE-6A9...
2.4 MB
BD111D30-899...
1.2 MB
C3ACBBA6-BC...
1.8 MB

Desktop:


Log An Expense
Name: Lunch
Amount: 20.00
Date: 10/10/2017
Upload Supporting Receipts
Upload Files
Or drop files
Next



SEE ALSO:

Flow Screen Component: File Upload

Flow Screen Component: File Upload

Add Values to a Collection Variable

After you create a collection variable, populate it with values to reference throughout your flow. You can't use a Record Lookup or Fast Lookup element to populate a collection variable, but there are some workarounds.

To use values from outside the flow, set the collection variable's `Input/Output Type` to "Input" and then use URL parameters, Visualforce controllers, or subflow inputs. When the values are coming from outside the flow, the values can be set only at the start of the flow interview.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

To add values that are stored in...	Do this...	For more information
A screen field	Add the field's entered or stored value to a collection variable by using an Assignment element	• Choice fields • Input fields • Output fields • Assignments
A variable	Add the variable's stored value to a collection variable by using an Assignment element	• Variables • Assignments
An sObject variable	Add one of the sObject variable's stored field values to a collection variable by using an Assignment element	• sObject variables • Assignments
An sObject collection variable	Loop through the sObject collection variable. Within the loop, add one of the loop	• sObject collection variables • Loops

To add values that are stored in...	Do this...	For more information
	variable's stored field values to a collection variable by using an Assignment element	• Assignments

SEE ALSO:

Flow Collection Variable Resource

Sample Flow That Populates a Collection Variable

Define the Path That a Flow Takes

Identify which elements the flow executes and in what order by connecting the elements on your canvas together.

1. On the canvas, find the node at the bottom of the source element.
2. Drag the node onto the target element.
3. If prompted, select which outcome to assign to the path.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Remove Connectors from a Flow

You can't modify a connector's target or source elements, so to change a path, delete the connector and then add a new one.

If you delete a connector for a specific outcome, the outcome isn't deleted from the source element. However, if you delete an outcome from a decision element, the outcome's connector is also deleted.

1. In your flow, select the connector to delete.

   When you select a connector, its color changes from gray to green. If you're having trouble selecting a connector, click and drag an area on the canvas that includes the connector.

2. Press DELETE.

SEE ALSO:

Flow Connectors

Customize What Happens When a Flow Fails

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Customize What Happens When a Flow Fails

If your flow contains an element that interacts with the Salesforce database—such as a Record Update or Submit for Approval element, it can fail. Modify the default behavior by adding fault paths to all elements that can fail.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

What Happens When a Flow Fails?

When you're deciding whether to customize the error handling in your flow, consider how a failed flow behaves by default.

Control Who Receives Flow and Process Error Emails

When a process or flow interview fails, a detailed error email is sent to the admin who last modified the process or flow. But perhaps that admin isn't the best person to read and act on the details of what was executed and what went wrong. Instead, you can choose to send error emails to the Apex exception email recipients, which you specify and control in Setup.

Configure Every Fault Path to Send You an Email (Best Practice)

As a best practice, we recommend configuring the fault connectors in your flow so that you always receive an email when a flow fails. In the email, include the current values of all your flow's resources. The resource values can give you insight into why the flow failed.

Customize the Error Message for Running Flow Users (Best Practice)

As a best practice, we recommend displaying a better message to your user than "An unhandled fault has occurred in this flow". Do this only if the distribution method you're using supports flows that contain screens. In other words, don't do it if your flow is distributed through a process.

Other Examples of Error Handling in Flows

Examples of using fault connectors to handle flow errors include requesting corrections from the user and bypassing the error.

SEE ALSO:

Flow Connectors

Flow Elements

Define the Path That a Flow Takes

What Happens When a Flow Fails?

When you're deciding whether to customize the error handling in your flow, consider how a failed flow behaves by default.

Here's what happens by default.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

- This error message displays to the running user—the user who was running the flow.

```
An unhandled fault has occurred in this flow
An unhandled fault has occurred while processing
the flow. Please contact your system administrator
for more information.
```

- The running user can't proceed with the flow or return to a previous part of the flow.
- The admin who created the flow receives a fault email. The email details the element that failed, the error message from that element, and which elements were executed during the failed interview. Here's an example error message that can appear in a fault email.

```
An error occurred at element Fast_Delete_1.
DELETE --- There is nothing in Salesforce matching your
delete criteria.
```

SEE ALSO:

Customize What Happens When a Flow Fails

Control Who Receives Flow and Process Error Emails

When a process or flow interview fails, a detailed error email is sent to the admin who last modified the process or flow. But perhaps that admin isn't the best person to read and act on the details of what was executed and what went wrong. Instead, you can choose to send error emails to the Apex exception email recipients, which you specify and control in Setup.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

User Permissions Needed

To edit process automation settings:	Customize Application

Note: Process and flow error emails include the data that's involved in the process or flow, including user-entered data.

1. From Setup, enter *Automation* in the Quick Find box, then select **Process Automation Settings**.
2. For **Send Process or Flow Error Email to**, select who gets the error emails.
   - User Who Last Modified the Process or Flow (default)
   - Apex Exception Email Recipients—Sends emails to the addresses set on the Apex Exception Email page in Setup. Choose this option to control who receives process or flow error emails in your org.
3. Save your changes.

SEE ALSO:

Emails About Flow Errors

What Happens When an Apex Exception Occurs?

What Happens When a Process Fails?

Customize What Happens When a Flow Fails

Configure Every Fault Path to Send You an Email (Best Practice)

As a best practice, we recommend configuring the fault connectors in your flow so that you always receive an email when a flow fails. In the email, include the current values of all your flow's resources. The resource values can give you insight into why the flow failed.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

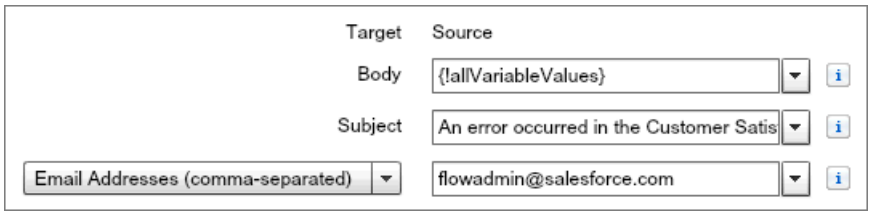
1. Create a text template that includes the values of all the flow resources.

   Doing so lets you see the exact values of flow variables when the interview failed. Also, if the flow contains screens, you see exactly what the user entered and selected.

   Here's an example text template for the Survey Customers flow from the Create a Satisfaction Survey project on *Trailhead*.

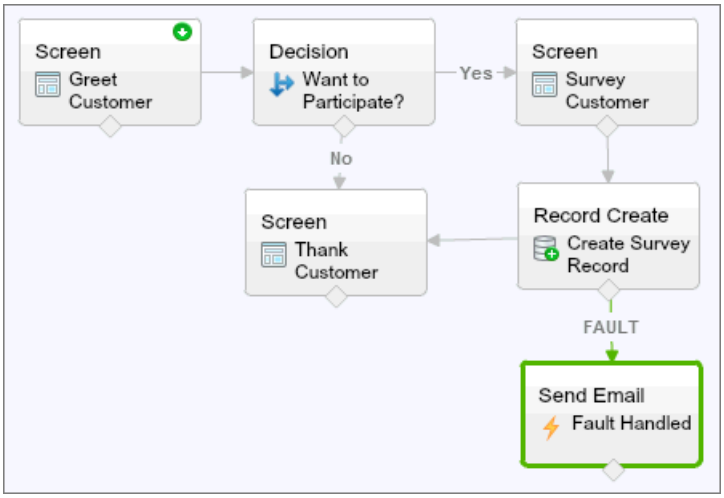
```
Error: {!$Flow.FaultMessage}

RESOURCE VALUES
Customer Response: {!Customer_Response}
Value of Decision's Yes outcome: {!Yes}
Company: {!Company_Name}
Satisfaction Choice Field: {!Satisfaction}
Service Choice Field: {!Service}
Other Comments:
{!OtherComments}
```

2. Configure a Send Email element. Use the text template as the body and your email address as the recipient. In this example, `Body` is set to the text template we created: `{!allVariableValues}`.



3. From each element that can fail, draw a fault connecter to the Send Email element.

   In this example, Record Create is the only element that supports fault connectors.



SEE ALSO:

- Flow Text Template Resource
- Flow Send Email Element
- Customize What Happens When a Flow Fails

Customize the Error Message for Running Flow Users (Best Practice)

As a best practice, we recommend displaying a better message to your user than "An unhandled fault has occurred in this flow". Do this only if the distribution method you're using supports flows that contain screens. In other words, don't do it if your flow is distributed through a process.

1. Create a text template that contains a friendlier error message.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

```
<FONT FACE="Arial" STYLE="font-size:14px">
<B>Something went wrong with this flow.</B>
</FONT>
<P>Your admin has received an email about this error.</P>
```

2. Add a Screen element. In a Display Text field, reference the text template.

3. For every element that can fail, draw a fault connector to the Screen element.
   In this example, Record Create is the only element that supports fault connectors. After the flow displays the better error message to the user, it sends an email to the admin with debugging information.

SEE ALSO:

Display Text Screen Fields

Flow Text Template Resource

Customize What Happens When a Flow Fails

Other Examples of Error Handling in Flows

Examples of using fault connectors to handle flow errors include requesting corrections from the user and bypassing the error.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Request Corrections from Users

Draw a fault connector to a Screen element, where users can verify the values that they entered, make corrections, and proceed.

Display the Error Message

If the flow is used only internally, such as at a call center, use the fault path to display the error message to the running user. In the same Screen element, ask the user to report the error to the IT department. To do so, draw the fault connector to a Screen element with this Display Text field.

```
Sorry, but you can't read or update records at this time.
Please open a case with IT and include this error message:
{!$Flow.FaultMessage}
```

Create a Case

When an error occurs, automatically create a case that includes the error message and assign it to your IT department. Assign the created case's ID to a Text variable (`{!caseId}`, for example). Then, in a Screen, display this message to the running user.

```
Sorry, but you can't read or update records at this time.
We filed a case for you.
```

Ignore Errors

To bypass errors for a given element in your flow, draw the fault connector to the same element as the normal connector.

SEE ALSO:

Customize What Happens When a Flow Fails

Sample Flows

Sometimes showing is better than telling. Check out these sample flows to get a feel for how to work with advanced things like Wait elements and collection variables.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Sample Flow That Populates a Collection Variable

Populate a collection variable by populating an sObject collection variable. Then individually assign the sObject collection variable's values to the collection variable.

Sample Flows That Wait for Events

Configure a flow to wait for events in one of four ways.

Sample Flow That Loops Through a Collection

Transfer ownership of accounts from one user to another by using sObject variable collections and loops. The flow already has the required user IDs.

Sample Flows That Display Stages

These Online Purchase flows display stages as sections on a progress indicator. Each sample flow displays stages differently based on how the flow is configured.

Sample Flow That Populates a Collection Variable

Populate a collection variable by populating an sObject collection variable. Then individually assign the sObject collection variable's values to the collection variable.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Scenario

In this scenario, you're designing a flow to send an email to every employee who lives in San Francisco.

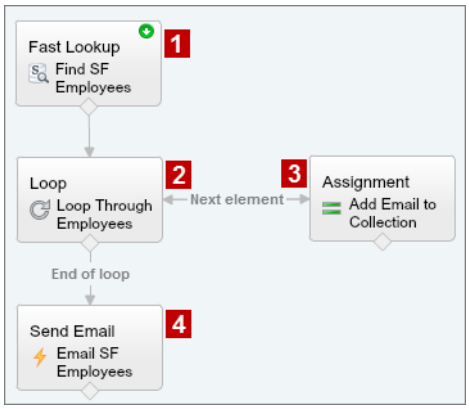
The Send Email element allows you to easily send emails from a flow. However, the Recipients parameter only accepts text variables and text collection variables. Since multiple users live in San Francisco, use a collection variable (rather than entering the email address for each individual user).

You can't use a Fast Lookup or Record Lookup to populate collection variables. First populate a User-based sObject collection variable with field values, including `Email`, from the employees who live in San Francisco. Then add those emails to the collection variable.

Once the collection variable is populated, you simply use the collection variable as the value for the Send Email element's `Email Addresses (collection)` parameter.

Example: This flow already contains these resources.

- A User-based sObject collection variable called `employeesInSF`
- A User-based sObject variable called `loopVariable`
- A Text-based collection variable called `emails_employeesInSF`



The example flow:

1. Finds all user records whose `City` is "San Francisco" and populates `employeesInSF` with those records' `Email`.

   Because `employeesInSF` is an sObject collection variable, use a Fast Lookup element to populate the variable.

2. Loops through the sObject collection variable so that it can look at each individual user record. The loop copies the values of each item in `employeesInSF` to `loopVariable`.
3. For each iteration, assigns the user's `Email` to a collection variable that has a Data Type of Text.
4. When the loop ends, the flow sends an email to the users whose emails are now stored in `emails_employeesInSF`.

SEE ALSO:

Flow Collection Variable Resource

Add Values to a Collection Variable

Sample Flows That Wait for Events

Configure a flow to wait for events in one of four ways.

IN THIS SECTION:

Sample Flow That Waits for Many Events

This flow waits for many events to occur, rather than just the first event. The base times for these events are field values, so this example uses relative time alarms.

Sample Flow That Waits for Only the First Event

This flow waits for the first of multiple events to occur before proceeding. The base times for these events are field values, so this example uses relative time alarms.

Sample Flow That Waits for a Single Event

This flow waits for a single event. The base time for the event in this example, which is an absolute alarm, is the `{!$Flow.CurrentDateTime}` system variable.

Sample Flow That Waits for a Platform Event

You're designing a flow that places a supply order and waits for shipment confirmation from the vendor. Then it assigns an installation task the day after the supplies are expected to be delivered.

SEE ALSO:

Flow Wait Element

Sample Flow That Waits for Many Events

This flow waits for many events to occur, rather than just the first event. The base times for these events are field values, so this example uses relative time alarms.

You're designing a flow that reminds contract owners to follow up with their customers before the contract ends. Rather than sending just one reminder, however, the flow sends them regularly. This example shows how to use one Wait element to send a reminder two weeks before and then again one week before the contract ends. You could easily extend this flow to send reminders at more intervals, such as three days and one day before the contract ends.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

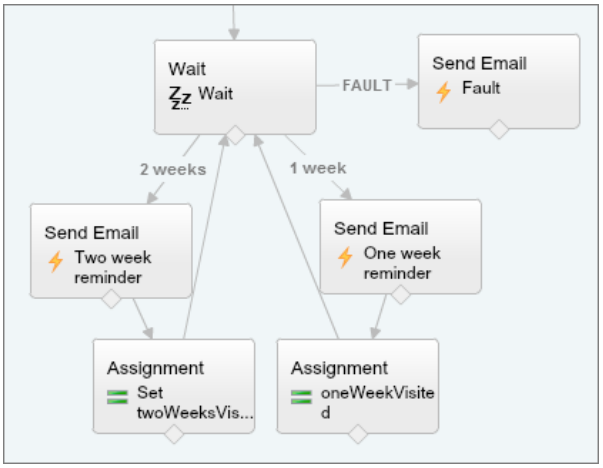
Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example

This flow already contains these populated variables.

- `{!contract}` is an sObject variable that contains the contract's `Id` and `OwnerId`
- `{!oneWeekVisited}` is a Boolean variable whose default value is *`{!$GlobalConstant.False}`*
- `{!twoWeeksVisited}` is a Boolean variable whose default value is *`{!$GlobalConstant.False}`*

Before the flow executes the Wait element, it looks up and stores the contract's `Id` and `OwnerId`.

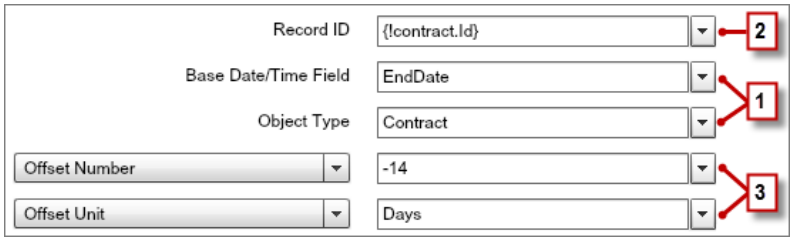


Because the flow sends the reminder emails both two weeks and a week before the contract's end date, the Wait element defines two relative alarm events.

Tip: Every alarm event consists of a base time and an offset. With relative time alarms, the flow needs three pieces of information to determine the base time: the object, the date/time field, and the specific record. The offset for relative time alarms works the same as it does for absolute time alarms. The flow needs to know the unit (either *`Days`* or *`Hours`*) and the number of those units. To wait for a number of days or hours before the base time, set `Offset Number` to a negative integer.

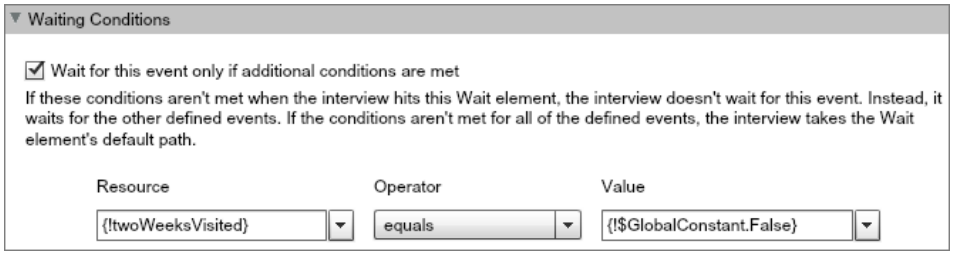
For both of these events, the offset is declared in `Days`, because weeks isn't an acceptable offset unit.

The base time for the first event ("2 Weeks") is the value of `Contract.EndDate` **(1)** on the record whose ID is stored in `{!contract.Id}` **(2)**. The offset is -14 days **(3)** to represent two weeks.



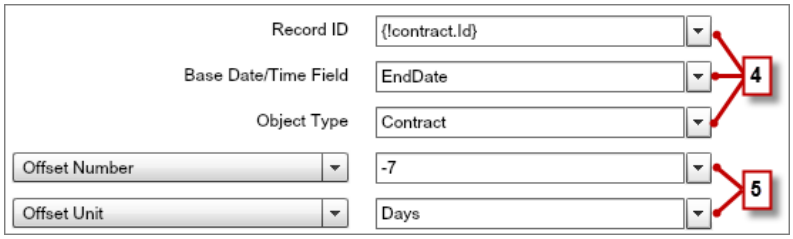
You want to use the same Wait element for every reminder, so after a flow interview sends one email reminder, it returns to the Wait element. But first, to ensure that the interview doesn't send the same email again and again, use *waiting conditions*. When an interview executes a Wait element, it first checks the waiting conditions for each event to determine whether to wait for those events. If an event has waiting conditions set and those conditions aren't met, the interview doesn't wait for that event.

For the first event, the interview checks whether the Boolean variable `{!twoWeekVisited}` is set to false. The variable's default value is set to `{!$GlobalConstant.False}`, so the flow waits for the event until the variable's value is changed.

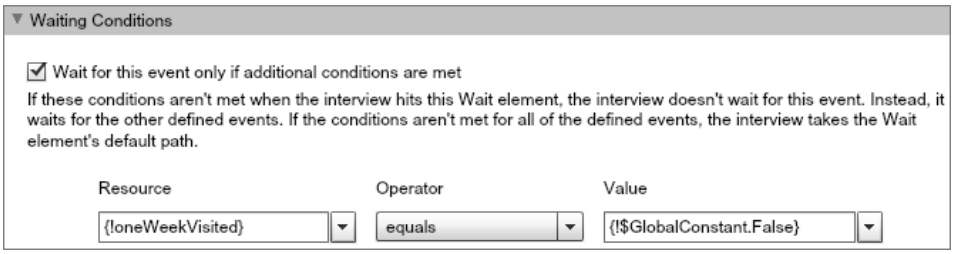


Indicate what the flow does when the "2 Weeks" event occurs by connecting the Wait element to other elements. Then, before you return the flow path to the Wait element, change the value of `{!twoWeeksVisited}` to `{!$GlobalConstant.True}`. You can do so with an Assignment element. If the value for `{!twoWeeksVisited}` isn't false when the Wait element is executed, the flow doesn't wait for the "2 Weeks" event to occur. Essentially, the interview checks whether the first event has occurred yet, since the variable is changed to true only in that event's path. If that event has occurred (and the variable isn't set to false), the interview knows not to wait for that event.

The second event ("1 Week") has the same base time as the first event **(4)**; the offset is -7 days **(5)** to represent a week.



For the second event, the flow checks whether the Boolean variable `{!oneWeekVisited}` is set to false. If it isn't, the flow doesn't wait for this event.



Like with the first event, use an Assignment element to change the value of `{!oneWeekVisited}` to `{!$GlobalConstant.True}` before the flow path returns to the Wait element. As long as `{!oneWeekVisited}` isn't false, the flow doesn't wait for the "1 Weeks" event to occur.

Tip: When a flow executes a Wait element and all the events have waiting conditions that aren't met, the flow executes the *default event path*. Because this flow is finished after it sends the final reminder, don't connect the default path to another element.

Just in case something goes wrong, set a fault path. In this example, the fault path sends an email that contains the fault message to the user who created the flow.

Sample Flow That Waits for Only the First Event

This flow waits for the first of multiple events to occur before proceeding. The base times for these events are field values, so this example uses relative time alarms.

You're designing a flow that reminds account owners to follow up with their customers a week before either the account renews or the contract ends. The flow sends a reminder email for whichever date occurs first.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

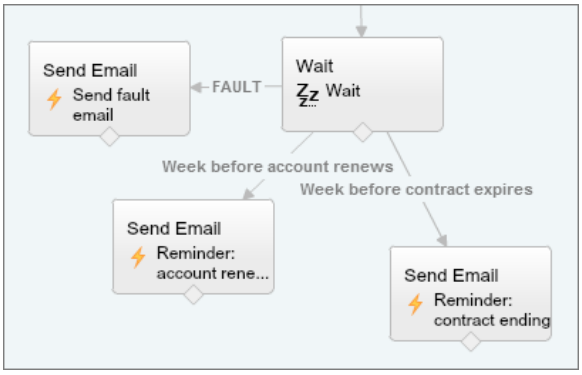
Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example

This flow already contains these populated variables.

- `{!accountId}` contains the ID for the account
- `{!contractId}` contains the ID for the contract
- `{!accountOwner}` contains the ID for the account's owner
- `{!ownerEmail}` contains the account owner's email address

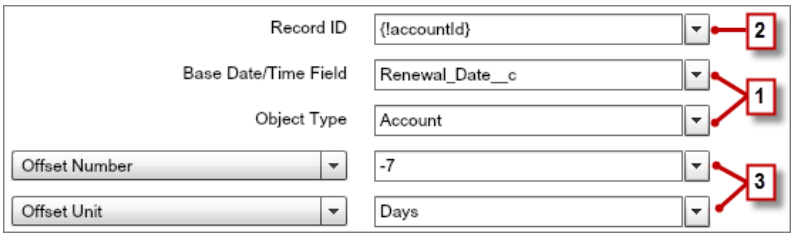
Before the flow executes the Wait element, it looks up and stores the contract's `ID`, its parent account's `ID` and `OwnerId`, and the account owner's `Email`.



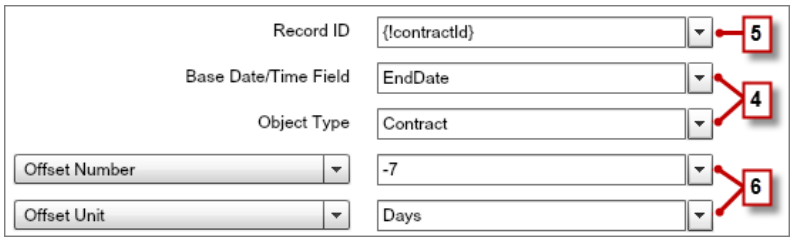
The Wait element defines two relative alarm events.

Tip: Every alarm event consists of a base time and an offset. With relative time alarms, the flow needs three pieces of information to determine the base time: the object, the date/time field, and the specific record. The offset for relative time alarms works the same as it does for absolute time alarms. The flow needs to know the unit (either `Days` or `Hours`) and the number of those units. For both of these events, the base time is offset by -7 days, because weeks isn't an acceptable offset unit.

The base time for the first event ("Week before account renews") is the value of `Account.Renewal_Date__c` **(1)** on the record whose ID is stored in `{!accountId}` **(2)**. The offset is -7 days **(3)**.



The base time for the second event ("Week before contract expires") is the value of `Contract.EndDate` **(4)** on the record whose ID is stored in `{!contractId}` **(5)**. The offset is -7 days **(6)**.



You only want to send one follow-up reminder and the flow always waits for both events, so neither of these events need waiting conditions. However, just in case something goes wrong, set a fault path. In this example, the fault path sends an email that contains the fault message to the user who created the flow.

SEE ALSO:

- Flow Wait Element
- Flow Wait Event Type: Relative Time Alarms
- Flow Wait Element
- Flow Wait Event Type: Relative Time Alarms
- What Are Waiting Conditions?

Sample Flow That Waits for a Single Event

This flow waits for a single event. The base time for the event in this example, which is an absolute alarm, is the `{!$Flow.CurrentDateTime}` system variable.

You're designing a flow that requests feedback from customers after a contract is activated, but you want to delay the email by a day.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

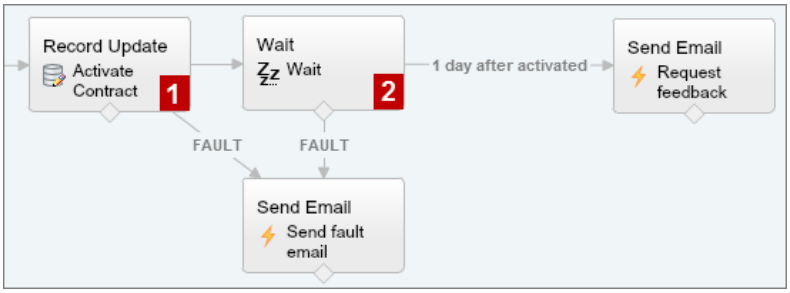
Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example

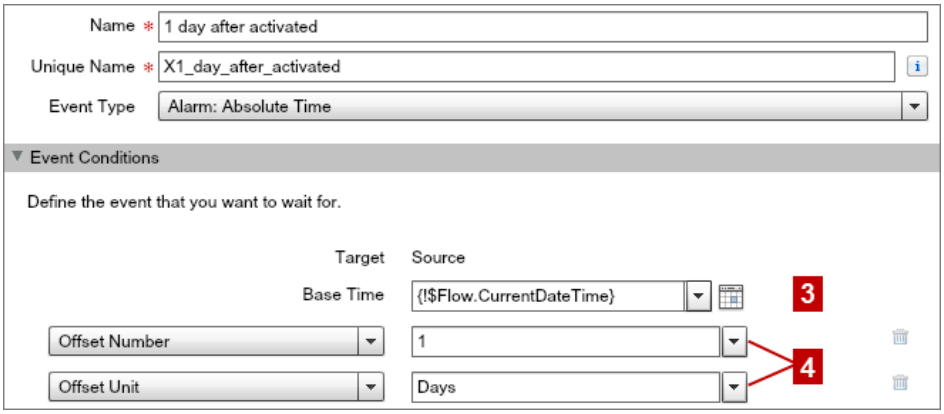
This flow already contains the following populated variables.

- `{!customerEmail}` contains the email address for the customer
- `{!creatorEmail}` contains the email address for the flow's creator

The flow activates a contract **(1)** and then waits **(2)**.



Within the Wait element, a single event is defined (1 day after activated). The flow sends the feedback request one day after the contract is activated, so use an absolute time alarm. The base time is the `{!$Flow.CurrentDateTime}` system variable **(3)**, and the offset is one day **(4)**.



Because there's only one event and you only want the feedback request to be sent once, don't set any waiting conditions for this event. However, just in case something goes wrong, don't forget to set a fault path. In this example, the fault path sends an email that contains the fault message to the user who created the flow.

SEE ALSO:

- Flow Wait Element
- Flow Wait Event Type: Absolute Time Alarms

Sample Flow That Waits for a Platform Event

EDITIONS

Available in both Salesforce Classic and Lightning Experience

Available in: **Performance**, **Unlimited**, **Enterprise**, and **Developer** Editions

You're designing a flow that places a supply order and waits for shipment confirmation from the vendor. Then it assigns an installation task the day after the supplies are expected to be delivered.

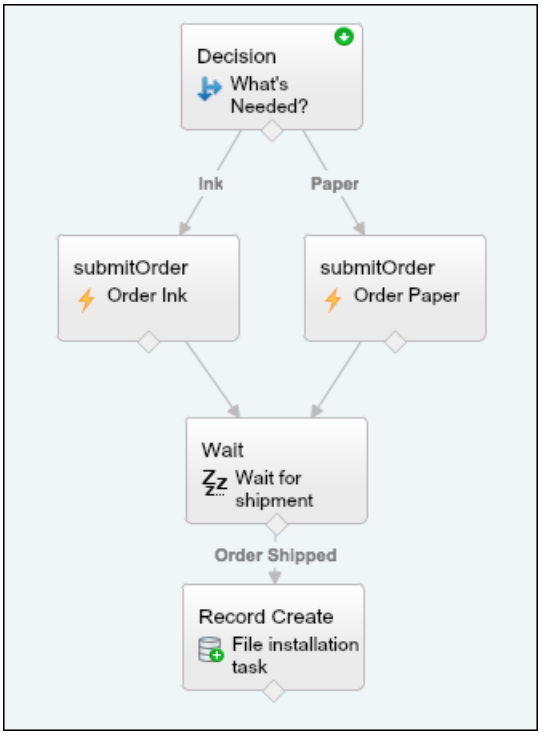
The vendor that you buy supplies from has set up a platform event for you to subscribe to. This event, called Vendor Response, includes the order number, order status, and expected delivery date.

Note: This flow is part of a larger example. It gets launched by a process that starts when a Printer Status platform event occurs. For details about the process, see Sample Process: Printer Management.

The Order Printer Supplies flow starts when the Printer Management process launches it. The process populates the following variables in the flow.

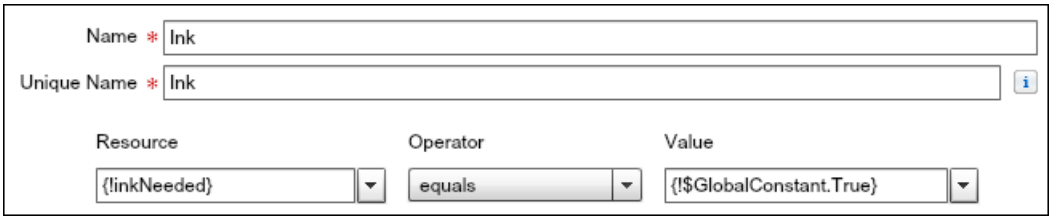
- `{!assetId}`—The asset's ID
- `{!assetOwner}`—The asset's owner
- `{!inkManufacturer}`—The manufacturer of the printer's ink
- `{!inkNeeded}`—Whether the printer needs more ink
- `{!inkType}`—Specific type of ink that the printer uses
- `{!paperNeeded}`—Whether the printer needs more paper
- `{!paperSize}`—Paper size that the printer uses
- `{!serialNumber}`—The asset's serial number

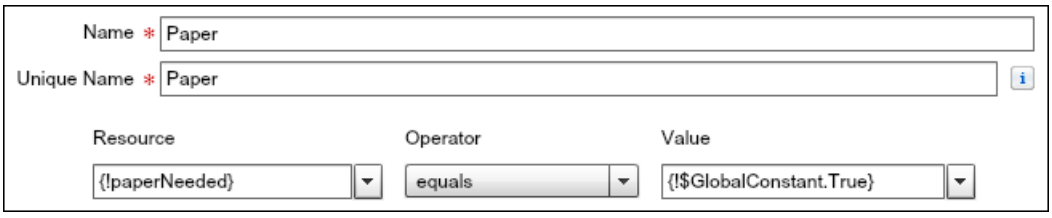
First, the flow determines whether to order ink or paper. Based on the decision, it invokes Apex code to order ink or paper from the vendor. Then it waits for the vendor to send a platform event of type Vendor Response that says the order has been shipped. When Salesforce receives the specified event, the flow resumes and creates a task for the asset's owner to install the new supplies.



Decision Element

The decision includes two outcomes: Ink and Paper. The Ink outcome is true if the variable `{!inkNeeded}` is true. The Paper outcome is true if the variable `{!paperNeeded}` is true.

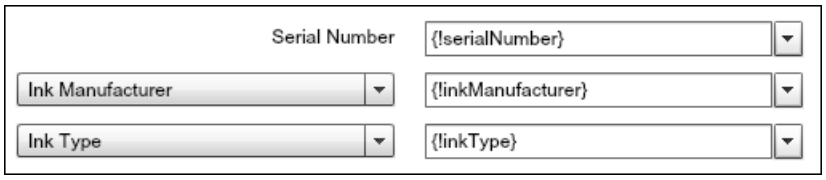




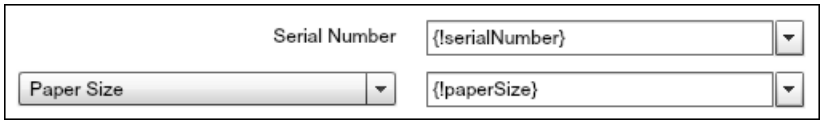
Apex Elements

The flow includes two Apex elements that submit a supply order with a vendor but provide different information to it based on whether the flow executed the Ink outcome or Paper outcome. All the variables used for input values (like `{!serialNumber}` and `{!paperSize}`) are set when a process launches the flow.

The first Apex element provides information about which ink to order.



The second Apex element provides information about which paper to order.



In both Apex elements, after the class submits the order, it returns an order number. The flow stores that value in the `{!orderNumber}` variable to use in the Wait element.

Wait Element

After the Apex class submits the supply order, the flow waits for confirmation that the order has been shipped. That confirmation is received through the Vendor Response platform event.

The flow waits for a specific Vendor Response. The order number must be the same as the order number that the Apex class provided. And the order status must be Shipped.

When the correct event occurs and the flow resumes, the flow stores the event's data in an sObject variable. That way, you can reference the expected delivery date to calculate when the supplies are scheduled to be installed.

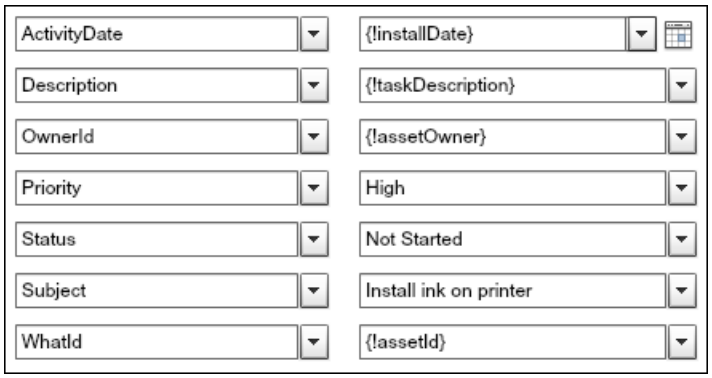
Record Create Element

When the flow resumes, it creates a task for the asset owner to install the new supplies.

For the task's field values, the flow uses these resources.

- `{!installDate}`—A formula that calculates the day after the event's expected delivery date.

- `{!taskDescription}`—A text template that gives more details about the installation.
- `{!assetOwner}`—Provided by the process that launches the flow
- `{!assetId}`—Provided by the process that launches the flow



Sample Flow That Loops Through a Collection

Transfer ownership of accounts from one user to another by using sObject variable collections and loops. The flow already has the required user IDs.

First, create an Account-based sObject collection variable called `collAcctJSmith` and populate it with all account records that John Smith owns.

Then create a loop that iterates through the collection. For each item in the collection, the loop does the following:

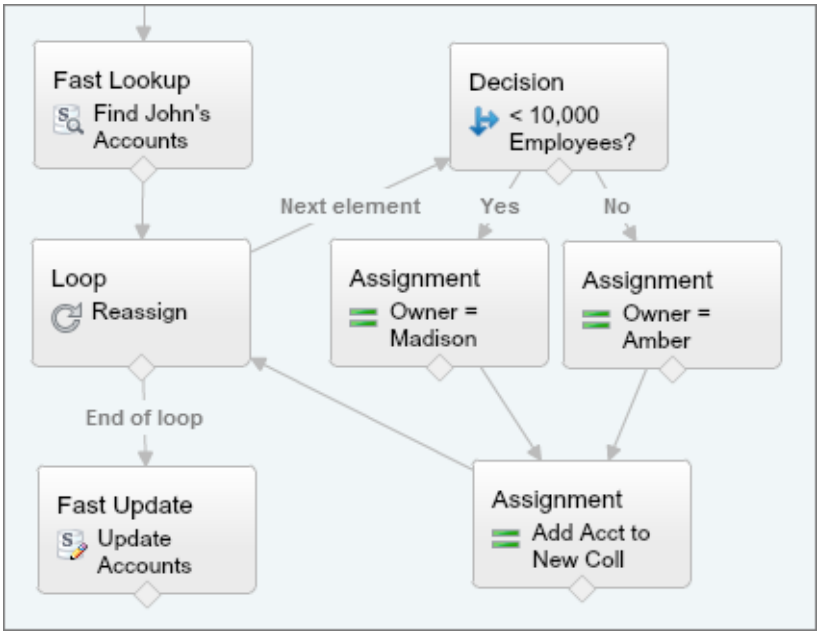
1. Assigns the collection item to the loop variable.
2. Evaluates whether the account has more than 10,000 employees.
3. If the account has more than 10,000 employees, assigns Madison's user ID to the `OwnerId` field in the loop variable.
4. If the account doesn't have more than 10,000 employees, assigns Amber's user ID to the `OwnerId` field in the loop variable.
5. Adds the loop variable's values as a new item in a second collection called `collReassignedAccts`.

Finally, create a Fast Update element to update the accounts in `collReassignedAccts` with the new `OwnerId` after the loop finishes iterating through the collection.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions



This section of the flow uses a single query to look up the list of accounts and a single DML statement to update those accounts. If you created a similar flow by using Record Update elements, you would use:

- One Record Update element to find all accounts that John owns and have more than 10,000 employees (1 query). Then update those records' `OwnerId` to Madison's Id (1 DML statement).
- One Record Update element to find all accounts that John owns and don't have more than 10,000 employees (1 query). Then update those records' `OwnerId` to Amber's Id (1 DML statement).

Sample Flows That Display Stages

These Online Purchase flows display stages as sections on a progress indicator. Each sample flow displays stages differently based on how the flow is configured.

IN THIS SECTION:

Sample Flow That Displays Stages as Breadcrumbs
This Online Purchase flow shows visitors what parts of the flow they have completed by displaying all stages up to the current stage. This flow displays only the stages that the user has visited.

Sample Flow That Displays All the Active Stages
This Online Purchase flow shows visitors all active stages and the current stage so that they know what to expect throughout this flow.

Sample Flow That Displays Stages as Breadcrumbs

This Online Purchase flow shows visitors what parts of the flow they have completed by displaying all stages up to the current stage. This flow displays only the stages that the user has visited.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

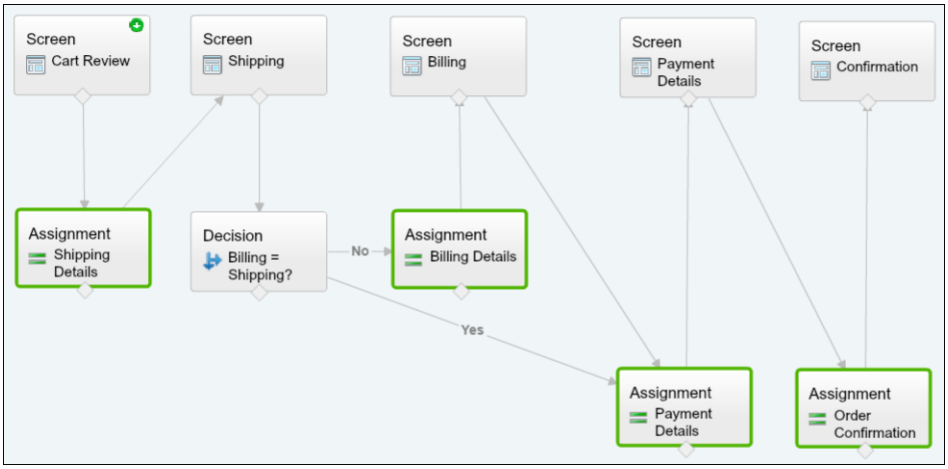
Example

This flow includes stages for users to review their cart, enter shipping details, enter billing details, enter payment details, and confirm their order. Since we're displaying the stages as breadcrumbs, only the first stage is active by default.

Stage Label	Unique Name	Order	Active by Default
Review Cart	Review_Cart	0	Yes
Shipping Details	Shipping_Details	1	No
Billing Details	Billing_Details	2	No
Payment Details	Payment_Details	3	No
Order Confirmation	Order_Confirmation	4	No

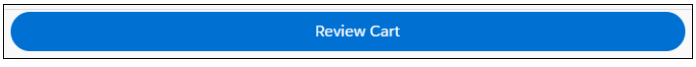
When the flow starts, Review Cart is automatically set to `$Flow.CurrentStage` and is the only stage in `$Flow.ActiveStages`.

Each time the flow moves to a different stage, an Assignment element resets the current stage and adds the new stage to the active stages.

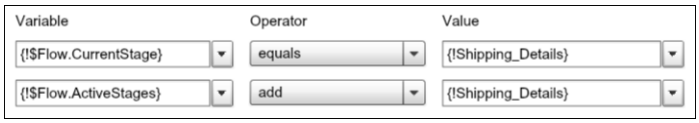


Note: This sample uses a Lightning component to display the flow's stages. For details, see Represent Your Flow's Stages Visually.

The first screen displays only one active stage, which is also the user's current stage: Review Cart.

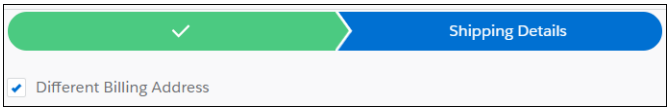


Next, the flow moves to a new stage: Shipping Details. To make sure that the active stages and current stage respect the change, the flow updates the system variables with an assignment.



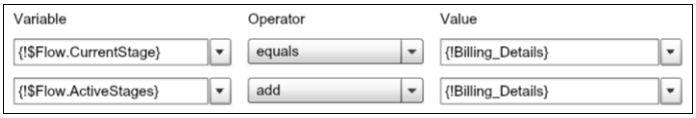
`$Flow.ActiveStages` now contains the Review Cart and Shipping Details stages, and `$Flow.CurrentStage` is set to the Shipping Details stage.

Often, a user's shipping details and billing details are the same. On the Shipping Details screen, the user can indicate that the billing address is different.



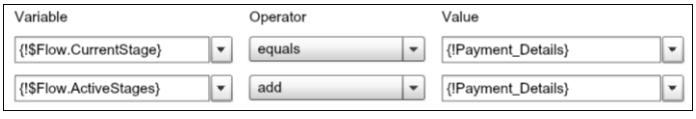
The flow uses the value of the Different Billing Address checkbox to determine where to go next. If the shipping and billing details are the same, the flow continues to the Payment Details assignment. If the billing and shipping details are different, the flow moves to the Billing Details assignment.

To make sure that the active stages and current stage respect the change, the flow updates the system variables with an assignment.



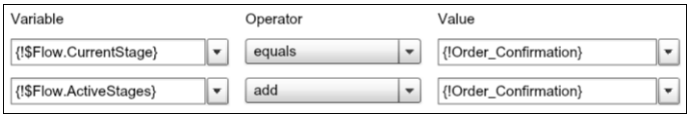
Now `$Flow.ActiveStages` contains the Review Cart, Shipping Details, and Billing Details stages, and `$Flow.CurrentStage` is set to the Billing Details stage.

After the shipping and billing details are complete, the flow moves to the Payment Details stage. To make sure that the active stages and current stage respect that change, the flow updates the system variables with an assignment.



`$Flow.ActiveStages` contains the Review Cart, Shipping Details, Billing Details (if the billing and shipping details are different), and Payment Details stages. The `$Flow.CurrentStage` system variable is set to the Payment Details stage.

Finally, the flow moves to the last stage: Order Confirmation. To make sure that the active stages and current stage respect the change, the flow updates the system variables with an assignment.



`$Flow.ActiveStages` now contains the Review Cart, Shipping Details, Billing Details (if the billing and shipping details are different), Payment Details, and Order Confirmation stages. The `$Flow.CurrentStage` system variable is set to the Order Confirmation stage.

Sample Flow That Displays All the Active Stages

This Online Purchase flow shows visitors all active stages and the current stage so that they know what to expect throughout this flow.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example

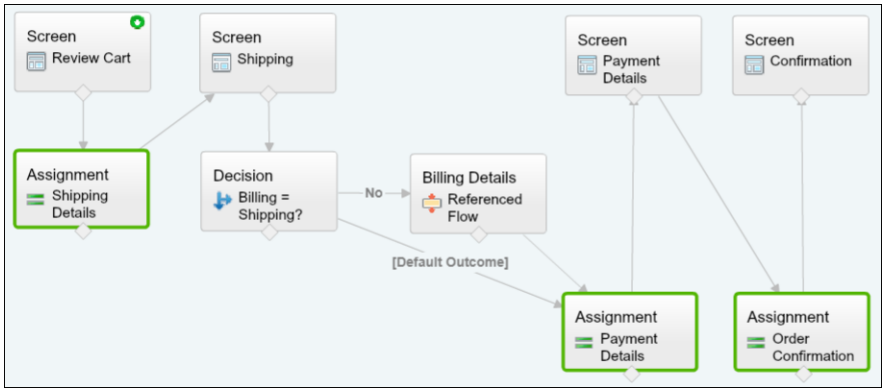
This flow includes stages for users to review their cart, enter shipping details, enter billing details, enter payment details, and confirm their order. To give users an idea of the steps they'll go through in the flow, we're displaying all the applicable stages when the flow starts. Every user goes through the Review Cart, Shipping Details, Payment Details, and Order Confirmation stages, so those are all active by default.

Not all users enter billing details, because a user's shipping and billing details might be the same. To insert an optional stage in the flow's active stages, we'll create another flow and reference it by using a Subflow element

Stage Label	Unique Name	Order	Active by Default
Review Cart	Review_Cart	0	Yes
Shipping Details	Shipping_Details	1	Yes
Payment Details	Payment_Details	2	Yes
Order Confirmation	Order_Confirmation	3	Yes

When the flow starts, Review Cart is automatically set to `$Flow.CurrentStage`, and `$Flow.ActiveStages` contains Review Cart, Shipping Details, Payment Details, and Order Confirmation.

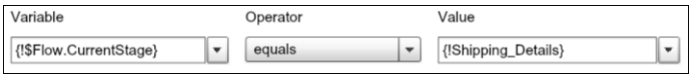
Each time the flow moves to a different stage, an Assignment element resets the current stage.



Note: This sample uses a Lightning component to display the flow's stages. For details, see Represent Your Flow's Stages Visually.

The first screen displays all active stages and the user's current stage: Review Cart.

Next, the flow moves to a new stage: Shipping Details. To make sure that the current stage respects the change, the flow updates the system variable with an assignment. `$Flow.CurrentStage` is set to the Shipping Details stage.



Often, a user's shipping details and billing details are the same. On the Shipping Details screen, the user can indicate that the billing address is different.

The flow uses the value of the Different Billing Address checkbox to determine where to go next. If the shipping and billing details are the same, the flow continues to the Payment Details assignment. If the billing and shipping details are different, the flow uses a Subflow element to reference the Billing Details flow.

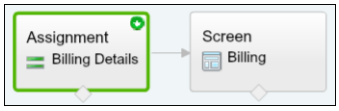
The Billing Details flow includes an optional stage for users to enter billing details between shipping and payment details.

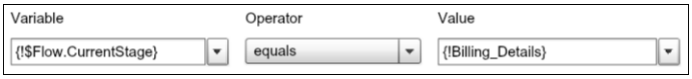
Stage Label	Unique Name	Order	Active by Default
Billing Details	Billing_Details	1	Yes

When a referenced flow starts, its default active stages are automatically inserted in `$Flow.ActiveStages` after the current stage.

When the Billing Details flow starts, `$Flow.CurrentStage` is Shipping Details. The Billing Details stage is inserted into `$Flow.ActiveStages` immediately after the current stage. Now `$Flow.ActiveStages` contains the Review Cart, Shipping Details, Billing Details, Payment Details, and Order Confirmation stages.

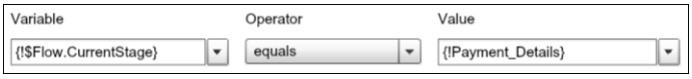
The flow uses an assignment to set the current stage to Billing Details.





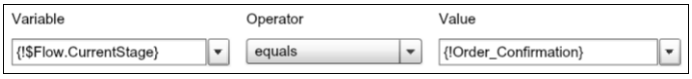
The `$Flow.CurrentStage` system variable is set to the Billing Details stage.

After the shipping and billing details are complete, the flow moves to the Payment Details stage. To make sure that the current stage respects that change, the flow updates the system variable with an assignment.



The `$Flow.CurrentStage` system variable is set to the Payment Details stage.

Finally, the flow moves to the last stage: Order Confirmation. To make sure that the current stage respects the change, the flow updates the system variable with an assignment.



`$Flow.ActiveStages` now contains the Review Cart, Shipping Details, Billing Details (if the billing and shipping details are different), Payment Details, and Order Confirmation stages. The `$Flow.CurrentStage` system variable is set to the Order Confirmation stage.

Flow Reference

Bookmark this page for quick access to information about flow elements, resources, events, and more.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Flow Elements

Each *element* represents an action that the flow can execute. Examples of such actions include reading or writing Salesforce data, displaying information and collecting data from flow users, executing business logic, or manipulating data.

Flow Resources

Each *resource* represents a value that you can reference throughout the flow.

Cross-Object Field References in Flows

When building a flow, you can reference fields for records that are related to the values that are stored in an sObject variable. To do so, manually enter the references.

Flow Connectors

Connectors determine the available paths that a flow can take at run time. In the Cloud Flow Designer canvas, a connector looks like an arrow that points from one element to another.

Flow Operators

Operators behave differently, depending on what you're configuring. In Assignment elements, operators let you change resource values. In flow conditions and record filters, operators let you evaluate information and narrow the scope of a flow operation.

Flow Event Types

`Event Type` drives the fields that you use to define an event in a flow Wait element. You can use a platform event, which you can fully customize. You can also use an alarm consisting of a date/time value—the base time—and an optional offset from that time.

Flow Types

A flow or flow version's type determines which elements and resources are supported, as well as the ways that the flow can be distributed.

Flow Properties

A flow's properties consist of its name, description, interview label, and type. These properties drive the field values that appear on a flow or flow version's detail page. The properties of a flow and its flow versions are separate.

Flow Elements

Each *element* represents an action that the flow can execute. Examples of such actions include reading or writing Salesforce data, displaying information and collecting data from flow users, executing business logic, or manipulating data.

In the Cloud Flow Designer, the canvas and Explorer tab display the elements that exist in the flow. The Palette tab displays the available element types that you can add to the flow by dragging them onto the canvas.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

General Settings for Flow Elements
Every flow element has three settings in common: name, unique name, and description.

Flow Activate Session-Based Permission Set Element
Activates a session-based permission set for the running user by manually specifying its name.

Flow Deactivate Session-Based Permission Set Element
Deactivates a session-based permission set for the running user by manually specifying its name.

Flow Call Apex Element
Calls an Apex class's invocable method.

Flow Apex Plug-In Element
Calls an Apex class that implements the `Process.Plugin` interface. If you used the Tag property in the `PluginDescribeResult` class, the Apex class appears under a customized section. Otherwise, it appears under the Apex Plug-ins section.

Flow Assignment Element
Sets or changes values in variables, collection variables, sObject variables, and sObject collection variables.

Flow Decision Element
Evaluates a set of conditions and routes users through the flow based on the outcomes of those conditions. This element performs the equivalent of an if-then statement.

Flow Email Alert Element
Sends an email by using a workflow email alert to specify the email template and recipients. The flow provides only the record ID.

Flow Fast Create Element
Creates Salesforce records using the field values from an sObject collection variable. Or creates one Salesforce record using the field values from an sObject variable.

Flow Fast Delete Element
Deletes Salesforce records using the ID values that are stored in an sObject collection variable. Or deletes one Salesforce record using the ID value that's stored in an sObject variable.

Flow Fast Lookup Element
Finds Salesforce records to assign their field values to an sObject collection variable. Or finds one Salesforce record to assign its field values to an sObject variable.

Flow Fast Update Element
Updates Salesforce records using the field values from an sObject collection variable. Or updates one Salesforce record using the field values from an sObject variable. If a record's ID is included in the variable, its field values are updated to match the other values that are stored in the variable.

Flow Local Action Element
Executes JavaScript by calling a Lightning component's client-side controller. For example, a local action can look up third-party data without going through Salesforce servers, automatically open another URL, or fire a toast message.

Flow Loop Element
Iterates through a collection one item at a time, and executes actions on each item's field values—using other elements within the loop.

Flow Record Create Element
Creates one Salesforce record by using individual field values that you specify.

Flow Record Delete Element

Deletes all Salesforce records that meet specified criteria.

Flow Record Lookup Element

Finds the first Salesforce record that meets specified criteria. Then assigns the record's field values to individual flow variables or individual fields on sObject variables.

Flow Record Update Element

Finds all Salesforce records that meet specified criteria and updates them with individual field values that you specify.

Flow Quick Action Element

Calls an object-specific or global quick action that's already been configured in your organization. Only "Create," "Update," and "Log a Call" actions are supported.

Flow Post to Chatter Element

Posts a message to a specified feed, such as to a Chatter group or a case record. The message can contain mentions and topics, but only text posts are supported.

Flow Screen Element

Displays a screen to the user who is running the flow, which lets you display information to the user or collect information from the user.

Provided Flow Screen Components

Salesforce provides several screen components that extend the types of input fields available in screens.

Flow Send Email Element

Sends an email by manually specifying the subject, body, and recipients in the flow.

Flow Step Element

Acts as a placeholder when you're not sure which element you need.

Flow Submit for Approval Element

Submits one Salesforce record for approval.

Flow Subflow Element

Calls another flow in your org. Use this element to reference modular flows and simplify the overall architecture of your flow.

Flow Wait Element

Waits for one or more defined events to occur, which lets you automate processes that require a waiting period.

SEE ALSO:

Flow Resources

Cloud Flow Designer

General Settings for Flow Elements

Every flow element has three settings in common: name, unique name, and description.

Field	Description
`Name`	Helps you identify the element on the canvas.
`Unique Name`	Automatically populated if empty when you fill out the `Name` field and press TAB. The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Appears after you click **Add Description**.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Flow Activate Session-Based Permission Set Element

Activates a session-based permission set for the running user by manually specifying its name.

Specify a session-based permission set for activation.

Important: You can run queries, however, do not make data or object updates in flows that also activate session-based permission sets.

Field	Description
`Permission Set Name`	The developer name of the permission set. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Permission Set Namespace`	Optional. The permission set's namespace. This parameter accepts **single-value resources of any type**. That value is treated as text.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example: A junior buyer in your org occasionally requires access to your Contracts object. Create a session-based permission set with access to the object. Then, create a flow that uses the Activate Session-Based Permission Set action. Configure the action to activate the permission set. The junior buyer runs the flow to access contracts during the current user session. The action activates the permission set for the junior buyer during the current session.

SEE ALSO:

Flow Deactivate Session-Based Permission Set Element

Create a Flow That Can Activate or Deactivate a Session-Based Permission Set

Flow Deactivate Session-Based Permission Set Element

Deactivates a session-based permission set for the running user by manually specifying its name.

Deactivate a running session-based permission set.

Field	Description
`Permission Set Name`	The developer name of the permission set. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Permission Set Namespace`	Optional. The permission set's namespace. This parameter accepts **single-value resources of any type**. That value is treated as text.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

SEE ALSO:

Flow Activate Session-Based Permission Set Element

Create a Flow That Can Activate or Deactivate a Session-Based Permission Set

Flow Call Apex Element

Calls an Apex class's invocable method.

Important: To use this element to call an Apex class from a flow, ask your developer to annotate one of the class's methods with `@InvocableMethod`. For details, see "`InvocableMethod` Annotation" in the *Lightning Platform Apex Code Developer's Guide*.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Inputs

Pass information from the flow to the invoked Apex method. The method determines the available input parameters and their data types.

Outputs

Pass information from the invoked Apex method to the flow. The method determines the available output parameters and their data types.

The flow assigns the values to the specified variables when the method is executed.

Usage

Note: If the invoked method creates, updates, or deletes a record, that action isn't performed until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Extend Your Flow with Apex
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Cross-Object Field References in Flows

Flow Apex Plug-In Element

Calls an Apex class that implements the `Process.Plugin` interface. If you used the Tag property in the `PluginDescribeResult` class, the Apex class appears under a customized section. Otherwise, it appears under the Apex Plug-ins section.

Tip:

- Apex classes appear in the palette as Apex plug-ins only if the `Process.Plugin` interface has been implemented.
- If you have many plug-ins in your organization, ask your developer to use the `tag` property. The class appears under a special section header in the palette. Otherwise, the class appears with all the other Apex plug-ins.
- If your developer hasn't already implemented the `Process.Plugin` interface on the desired class, we recommend using the `@InvocableMethod` annotation instead. Unlike the `Process.Plugin` interface, the `@InvocableMethod` annotation supports sObject, Collection, Blob, and Time data types and bulkification. It's also much easier to implement. To see a complete comparison between the interface and the annotation, see Extend Your Flow with Apex on page 63.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Inputs

Pass information from the flow to the invoked Apex method. The method determines the available input parameters and their data types.

Outputs

Pass information from the invoked Apex method to the flow. The method determines the available output parameters and their data types.

The flow assigns the values to the specified variables when the code is executed.

Usage

Note: If the Apex class creates, updates, or deletes a record, the action isn't performed until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Extend Your Flow with Apex
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Cross-Object Field References in Flows
- *Apex Developer Guide* : Process Namespace

Flow Assignment Element

Sets or changes values in variables, collection variables, sObject variables, and sObject collection variables.

In each row, specify the `Variable` whose value you want to change and the new `Value` for that variable. At run time, the variable assignments occur in the order you specify.

Column Header	Description
`Variable`	Variable whose value you want to change.
`Operator`	The available operators depend on the data type selected for the `Variable`.
`Value`	The `Variable` and `Value` in the same row must have compatible data types. Options: • Select an existing flow resource, such as a variable, constant, or user input. • Select CREATE NEW to create a flow resource. • Manually enter a literal value or merge field.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example: Change the value of a customer's credit score based on how the customer answered questions in the flow.

SEE ALSO:

- Flow Elements
- Operators in Flow Assignment Elements
- Define the Path That a Flow Takes
- Flow Resources
- Cross-Object Field References in Flows

Flow Decision Element

Evaluates a set of conditions and routes users through the flow based on the outcomes of those conditions. This element performs the equivalent of an if-then statement.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Outcomes

Create the outcomes for the decision. To rename the path that the flow takes when none of the other outcome conditions are met, click **[Default Outcome]**. Set up the conditions.

Field	Description
`Name`	Identifies the connector for this outcome on the canvas.
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
Conditions	Determines whether the flow takes this outcome's path.

Example: Using a Decision element, determine whether:

- To give customers a return shipping address (because an item is definitely faulty) or instructions on how to resolve the problem
- To offer a customer a loan or not (based on results of a credit scoring formula)

Tip: Configure your flow so that it does different things based on which option a user selected for a screen's drop-down list. To do so, add a decision after the screen to create the branches of the flow based on the choices available in that drop-down list. Then you can represent each choice in your decision and connect it to a branch of your flow.

SEE ALSO:

- Flow Elements
- Define Flow Conditions
- Operators in Flow Conditions
- Define the Path That a Flow Takes
- Cross-Object Field References in Flows

Flow Email Alert Element

Sends an email by using a workflow email alert to specify the email template and recipients. The flow provides only the record ID.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Before you begin:

- Make sure that the email alert you want to call from your flow exists. If not, create the email alert.
- Understand the daily limits for emails sent from email alerts.
- Store the ID for the record that you want to reference in this email, such as by using a Fast Lookup element. If the email alert has any merge fields, the referenced record is the starting point for those fields.

The unique name for each email alert is prefixed with its object. The object type of the referenced record must match the object type of the email alert. For example, if you have an email alert with unique name "Owner_Changed" for accounts, that email alert appears in the Palette as `Account.Owner_Changed`. Because the email alert is associated with the Account object, it can reference only an account record.

Field	Description
`Record ID`	Select a variable that contains the ID for the record that you want the email to reference. If the email alert uses any merge fields, this record is the starting point for those merge fields. This field accepts **single-value variables of any type**. The value is treated as text.

Usage

Note: At run time, the email isn't sent until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

Send Email from a Flow
Customize What Happens When a Flow Fails
Define the Path That a Flow Takes
Cross-Object Field References in Flows

Flow Fast Create Element

Creates Salesforce records using the field values from an sObject collection variable. Or creates one Salesforce record using the field values from an sObject variable.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

To create a single record with field values from regular variables and other flow resources, such as constants, formulas, and screen fields, use Record Create.

Field	Description
`Variable`	The sObject variable or collection that you want to use to create the record or multiple records. The object types must match, and each ID field must not have a value. This field accepts any **sObject variable or sObject collection variable**.

Example: Take a collection of new cases and use a Fast Create element to create records for each case in the collection. Make sure that your flow populates the sObject variable or collection with all required field values before executing the Fast Create element.

Usage

If you used an sObject variable to create a single record, the sObject variable's ID field is updated with the new record's ID value. If you used an sObject collection to create multiple records, the ID field of each collection item is updated with its matching new record ID value.

Note: At run time, records aren't created until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Create Salesforce Records from a Flow
- Clone Records with a Fast Create Element
- Flow Elements
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Flow sObject Variable Resource
- Flow sObject Collection Variable Resource

Flow Fast Delete Element

Deletes Salesforce records using the ID values that are stored in an sObject collection variable. Or deletes one Salesforce record using the ID value that's stored in an sObject variable.

Tip: Make sure that the sObject variable or collection is populated with ID values before using the Fast Delete element.

Field	Description
`Variable`	Identifies the sObject variable or collection that you want to use to delete records. The variable must include the IDs of the records that you want to delete. This field accepts any **sObject variable or sObject collection variable**.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Usage

Warning:

- Be careful when testing flows that contain delete elements. Even if the flow is inactive, it triggers the delete operation.
- To prevent deleting records by mistake, be as specific in your filter criteria as possible.
- Records are deleted from your organization the moment the flow executes the delete element.
- Deleted records are sent to the Recycle Bin and remain there for 15 days before they are permanently deleted.
- Flows can delete records that are pending approval.
- To deploy or retrieve a version, you can specify the version number. For example, `sampleFlow-3` specifies version 3 of the flow whose unique name is sampleFlow. If you don't specify a version number, the flow is the latest version.
- In API version 43.0 and earlier, this field included the version number. In API version 44 and later, this field no longer includes the version number.
- In API version 44.0, we recommend upgrading your flows to flow metadata file names without version numbers and discontinue using the FlowDefinition object to activate or deactivate a flow. Then use the Flow object to activate or deactivate a flow.
- If you deploy with flow definitions, the active version numbers in the flow definitions override the `status` fields in the flows. For example, the active version number in the flow definition is version 3, and the latest version of the flow is version 4 with the `status` field as `Active`. After you deploy your flow, the active version is version 3.

To delete one or more records that meet filter criteria specified by regular variables and other flow resources, such as constants, formulas, and screen fields, use Record Delete.

Note: At run time, the records aren't deleted until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Delete Salesforce Records from a Flow
- Flow Elements
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Flow sObject Variable Resource
- Flow sObject Collection Variable Resource

Flow Fast Lookup Element

Finds Salesforce records to assign their field values to an sObject collection variable. Or finds one Salesforce record to assign its field values to an sObject variable.

Field	Description
`Look up`	Identifies the object whose records you want to look up.
Filter criteria	Narrows down the scope of records that the flow looks up. Specify the filter criteria for selecting the record from the database. Tip: Make sure that your filter criteria sufficiently narrows the search. If you use an sObject variable to store the results, the Fast Lookup element returns only the first record from the filtered results.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
	`Value` must be compatible with the selected field's data type.
`Sort results by:`	Sorts the filtered results before storing records in the variable. If selected, also select the field that you want to sort the results by and the sort order. Only sortable fields are available.
`Variable`	The variable to contain the returned field values. This field accepts any **sObject variable or sObject collection variable**. • To contain the field values for the first returned record, use an sObject variable. • To contain the field values for all returned records, use an sObject collection variable.
`Assign null to the variable if no records are found.`	Sets the variable to null if no records meet the filter criteria. By default, the variable's values are left unchanged.
`Specify which of the record's fields to save in the variable.`	Identifies which fields on the records that meet the filter criteria to store in the variable. Values for unselected fields are set to null in the variable.

Example:

- Look up a product's name and description by using the bar code on its product tag.
- Look up all customers who live in a particular city.
- Look up customer transactions on a particular day.

Considerations for Defining Filter Criteria

- When you define multiple filters, the filter logic usually defaults to AND. However, if multiple filters have the same field selected and use the equals operator, the filters are combined with OR.

  For example, your filters check whether a case's Type equals Problem (1), Type equals Feature Request (2), and Escalated equals true (3). At runtime, those filters are combined to `(1 OR 2) AND 3`.

- The available filter operators depend on the data type of the selected fields. For details, see Operators in Flow Record Filters.

Usage

To get a single record and store specified field values in regular variables and sObject variables, use Record Lookup.

SEE ALSO:

- Pull Values from Salesforce Records into a Flow
- Flow Elements
- Operators in Flow Record Filters
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Flow sObject Variable Resource
- Flow sObject Collection Variable Resource
- Cross-Object Field References in Flows

Flow Fast Update Element

Updates Salesforce records using the field values from an sObject collection variable. Or updates one Salesforce record using the field values from an sObject variable. If a record's ID is included in the variable, its field values are updated to match the other values that are stored in the variable.

Field	Description
`Variable`	Identifies the sObject variable or collection that you want to use to update records. This field accepts any **sObject variable or sObject collection variable**.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example: You're designing flows for a call center. To automatically update Salesforce with data collected from callers, such as new addresses or product preferences, use a Fast Update element. Have your flow populate the sObject variable or collection before using the Fast Update element. Then make sure that the sObject variable or sObject values within the collection contain the ID for the records that are being updated.

Usage

To update one or more records with field values from regular variables and other flow resources, such as constants, formulas, and screen fields, use Record Update.

Note: At run time, records aren't updated until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Update Salesforce Records from a Flow
- Flow Elements
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Flow sObject Variable Resource
- Flow sObject Collection Variable Resource

Flow Local Action Element

Executes JavaScript by calling a Lightning component's client-side controller. For example, a local action can look up third-party data without going through Salesforce servers, automatically open another URL, or fire a toast message.

Tip: To display a Lightning component to your flow users, add it as a Lightning component screen field instead.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
Lightning Component	Select the Lightning component to use as an action. The component must implement the `lightning:availableForFlowActions` interface.
Inputs	Set the component's attributes using values from the flow.
Outputs	Pass values from the component's attributes into flow variables. When the component's controller finishes executing, control returns to the flow, and these values are assigned to the specified variables.

Note: For attributes to appear in the Inputs and Outputs tab, they must be defined in the component's design resource. If an attribute is defined in the design resource, it's available as both an input and an output.

Usage

When a flow executes a Local Action element, it calls the `invoke` method in the selected component's client-side controller. When the method finishes execution, the next element in the flow is executed.

SEE ALSO:

- Extend Your Flow with Lightning Components
- Integrate with External Systems from a Flow
- Lightning Component Screen Fields
- *Lightning Aura Components Developer Guide* : Create Flow Local Actions Using Aura Components
- *Lightning Aura Components Developer Guide* : Use Aura Components with Flow
- Flow Elements

Flow Loop Element

Iterates through a collection one item at a time, and executes actions on each item's field values—using other elements within the loop.

A *collection* is a list of items that contain, for example, field values from Salesforce records. A loop uses an sObject variable, referred to as the *loop variable*, to contain the values for the current item in the collection. Once the loop finishes examining an item, it copies the field values for the next item into the loop variable. Then the loop examines those values. The loop variable must have the same object type as the collection. For example, if your collection contains field values from accounts, your loop variable must also be of type Account.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Loop through`	The collection that you want to loop through. This field accepts any **collection variable**.
Order	`Ascending` begins at the start of the collection and moves to the end, while `Descending` begins at the end and moves to the start.
`Loop Variable`	The variable that the flow uses to contain the current item's values during a loop iteration. • If `Loop through` is set to a non-sObject collection variable, this field accepts a single-value variable with the same data type. • If `Loop through` is set to an sObject collection variable, this field accepts an sObject variable with the same object type.

Usage

After you add a Loop element and the elements that you want the loop to include, from the Loop element:

- Determine which element to execute first when a new item's values are copied into the loop variable by adding a "Next element" connector.
- Determine which flow element to execute after the loop has processed all the items in the collection by adding an "End of loop" connector.

SEE ALSO:

Sample Flow That Loops Through a Collection

Define the Path That a Flow Takes

Flow Elements

Flow sObject Collection Variable Resource

Flow Record Create Element

Creates one Salesforce record by using individual field values that you specify.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Create`	The object for which you want to create a record
Field values	Identifies the field values for the new record. Each value must be compatible with the selected field's data type. Important: Ensure that all required fields are populated with values; otherwise the flow fails at run time. If you don't know which fields are required, check the object definition.
`Variable`	Assigns the ID of the new record to a variable so you can reference it later in the flow. This field accepts only **single-value variables of type Text**.

Example: A user enters a name and address into the flow. Verify that a matching user exists by using the Record Lookup element. If a matching contact doesn't exist, create a record for that user by using the Record Create element.

Usage

To create a single record with all field values from one sObject variable, or multiple records with all field values from an sObject collection, use Fast Create.

Note: At run time, the record isn't created until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Create Salesforce Records from a Flow
- Operators in Flow Record Filters
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Flow Elements

Flow Record Delete Element

Deletes all Salesforce records that meet specified criteria.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Delete`	Identifies the object whose records you want to delete.
Filter Criteria	Narrows down the scope of records that the flow deletes.

Considerations for Defining Filter Criteria

- When you define multiple filters, the filter logic usually defaults to AND. However, if multiple filters have the same field selected and use the equals operator, the filters are combined with OR.

  For example, your filters check whether a case's Type equals Problem (1), Type equals Feature Request (2), and Escalated equals true (3). At runtime, those filters are combined to `(1 OR 2) AND 3`.

- The available filter operators depend on the data type of the selected fields. For details, see Operators in Flow Record Filters.

Usage

Warning:

- Be careful when testing flows that contain delete elements. Even if the flow is inactive, it triggers the delete operation.
- To prevent deleting records by mistake, be as specific in your filter criteria as possible.
- Records are deleted from your organization the moment the flow executes the delete element.
- Deleted records are sent to the Recycle Bin and remain there for 15 days before they are permanently deleted.
- Flows can delete records that are pending approval.
- To deploy or retrieve a version, you can specify the version number. For example, `sampleFlow-3` specifies version 3 of the flow whose unique name is sampleFlow. If you don't specify a version number, the flow is the latest version.
- In API version 43.0 and earlier, this field included the version number. In API version 44 and later, this field no longer includes the version number.
- In API version 44.0, we recommend upgrading your flows to flow metadata file names without version numbers and discontinue using the FlowDefinition object to activate or deactivate a flow. Then use the Flow object to activate or deactivate a flow.
- If you deploy with flow definitions, the active version numbers in the flow definitions override the `status` fields in the flows. For example, the active version number in the flow definition is version 3, and the latest version of the flow is version 4 with the `status` field as `Active`. After you deploy your flow, the active version is version 3.

To delete a single record identified by the ID in one sObject variable, or delete multiple records identified by the IDs in an sObject collection, use Fast Delete.

Note: At run time, the record isn't deleted until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Delete Salesforce Records from a Flow
- Operators in Flow Record Filters
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Flow Elements

Flow Record Lookup Element

Finds the first Salesforce record that meets specified criteria. Then assigns the record's field values to individual flow variables or individual fields on sObject variables.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Look up`	Identifies the object whose records you want to look up.
Filter criteria	Narrows down the scope of records that the flow looks up. Specify the filter criteria for selecting the record from the database. `Value` must be compatible with the selected field's data type. Tip: Make sure that your filter criteria sufficiently narrows the search. The Record Lookup element returns only the first record from the filtered results.
`Sort results by:`	Sorts the filtered results before storing records in the variable. If selected, also select the field that you want to sort the results by and the sort order. Only sortable fields are available.
`Assign the record's fields to variables to reference them in your flow.`	Select fields from the returned record, and assign the values to variables in the flow. The values must be compatible with each selected field.
`Assign null to the variable(s) if no records are found.`	Sets the variables to null if no records meet the filter criteria. By default, the variable's values are left unchanged.

Example: Use a Record Lookup element to:

- Input (or read) a bar code from a product tag. Use the code to find out the product name or description from the database.
- Look up item details to check your stock for availability.
- Look up a customer record to verify a caller's identity.

Considerations for Defining Filter Criteria

- When you define multiple filters, the filter logic usually defaults to AND. However, if multiple filters have the same field selected and use the equals operator, the filters are combined with OR.

  For example, your filters check whether a case's Type equals Problem (1), Type equals Feature Request (2), and Escalated equals true (3). At runtime, those filters are combined to `(1 OR 2) AND 3`.

- The available filter operators depend on the data type of the selected fields. For details, see Operators in Flow Record Filters.

Usage

Use a Fast Lookup element to find:

- A single record and store specified field values in an sObject variable
- Multiple records and store specified field values in an sObject collection

SEE ALSO:

Pull Values from Salesforce Records into a Flow
Operators in Flow Record Filters
Flow Elements
Customize What Happens When a Flow Fails
Define the Path That a Flow Takes
Cross-Object Field References in Flows

Flow Record Update Element

Finds all Salesforce records that meet specified criteria and updates them with individual field values that you specify.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Update`	Identifies the object whose records you want to update.
Filter criteria	Narrows down the scope of records that the flow updates. Important: Configure at least one filter, or the flow updates **all** the records for the object. `Value` must be compatible with the selected field's data type.
Update record fields ...	Identifies which fields to update on the records that meet the filter criteria, as well as the new values. The values must be compatible with each selected field.

Example: Automatically update Salesforce with data collected from customers, such as new addresses or product preferences.

Considerations for Defining Filter Criteria

- When you define multiple filters, the filter logic usually defaults to AND. However, if multiple filters have the same field selected and use the equals operator, the filters are combined with OR.

  For example, your filters check whether a case's Type equals Problem (1), Type equals Feature Request (2), and Escalated equals true (3). At runtime, those filters are combined to `(1 OR 2) AND 3`.

- The available filter operators depend on the data type of the selected fields. For details, see Operators in Flow Record Filters.

Usage

Use Fast Update to:

- Update a single record with all field values from an sObject variable
- Update multiple records with all field values from an sObject collection

Note: At run time, the record isn't updated until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

Update Salesforce Records from a Flow
Operators in Flow Record Filters
Customize What Happens When a Flow Fails
Define the Path That a Flow Takes
Flow Elements

Flow Quick Action Element

Calls an object-specific or global quick action that's already been configured in your organization. Only "Create," "Update," and "Log a Call" actions are supported.

The unique name for each object-specific action is prefixed with the object it's associated with. The unique name for each global action has no prefix.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Related Record ID`	Only for object-specific actions. The ID of the record from which the action executes. For example, the action creates a case that's associated with a given account. Assign the ID for that account to `Related Record ID`. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Input Parameter`	Varies for each action. The action layout determines which parameters are required. Required parameters appear by default and can't be removed. If a required field has a

Field	Description
	default or predefined value, that field is optional in object-specific and global actions in the flow. If you later remove the field's default or predefined value and you didn't set a value in the flow, the interview fails at run time. The value must be compatible with the parameter.

Example: Your organization has an object-specific action that creates a case record on an account. The flow calls that action at run time and uses input assignments to transfer data from the flow to the action.

Note: At run time, the record isn't created or updated until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Create Salesforce Records from a Flow
- Update Salesforce Records from a Flow
- Flow Elements
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Cross-Object Field References in Flows

Flow Post to Chatter Element

Posts a message to a specified feed, such as to a Chatter group or a case record. The message can contain mentions and topics, but only text posts are supported.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Inputs

Input Parameter	Description
`CommunityID`	ID of a community to post to. Valid only if Salesforce Communities is enabled. Required if posting to a user or Chatter group that belongs to a Salesforce.com Community. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Message`	The text that you want to post. • To mention a user or group, enter `@[reference]`, where *reference* is the ID for the user or group that you want to mention. The reference can be a literal value, a merge field, or a flow resource. For example: `@[{!UserId}]`. • To add a topic, enter `#[string]`, where *string* is the topic that you want to add. For example: `#[Action Required]`.

Input Parameter	Description
	This parameter accepts **single-value resources of any type**. That value is treated as text and is limited to 10,000 characters.
`Target Name or ID`	Reference to the user, Chatter group, or record whose feed you want to post to. • To post to a user's feed, enter the user's `ID` or `Username`. For example: *`jsmith@salesforce.com`* • To post to a Chatter group, enter the group's `Name` or `ID`. For example: *`Entire Organization`* • To post to a record, enter the record's `ID`. For example: *`001D000000JWBDx`* This parameter accepts **single-value resources of any type**. That value is treated as text.
`Target Type`	Required only if `Target Name or ID` is set to a username or a Chatter group name. The type of feed that you want to post to. Valid values are: • *`User`*—If `Target Name or ID` is set to a user's `Username`, enter this value. • *`Group`*—If `Target Name or ID` is set to a Chatter group's `Name`, enter this value.
`Visibility`	Specifies whether this feed item is available to community users. To display this feed item only to internal users, set to *`internalUsers`*. Valid only if Salesforce Communities is enabled. Valid values are: • *`allUsers`* • *`internalUsers`*

Outputs

Output Parameter	Description
`Feed Item ID`	Assigns the created post's ID to a resource in the flow. This parameter accepts any **single-value variables of type Text, Picklist, or Picklist (Multi-Select)**.

Usage

Note: At run time, the Chatter post isn't created until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Flow Elements
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Cross-Object Field References in Flows

Flow Screen Element

Displays a screen to the user who is running the flow, which lets you display information to the user or collect information from the user.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

General Info
Identifies whether a header or footer for a screen is available to the flow user. Help text is available from the header, and navigation buttons appear in the footer.

User Input Screen Fields
Lets users manually enter information. A *flow user input field* is a text box, long text area, number field, currency field, date field, date/time field, password field, or checkbox in a Screen element.

Choice Screen Fields
Lets users select from a set of choices. A *flow choice field* is a radio button, drop-down list, multi-select checkbox, or multi-select picklist in a Screen element.

Display Text Screen Fields
Displays information to users while they're running the flow.

Lightning Component Screen Fields
Displays a Lightning component, such as to let the user upload a file. If your flow screen needs more than a simple input field or display text, build a custom Lightning component to fill the gap.

SEE ALSO:

Flow Elements
Define the Path That a Flow Takes

General Info

Identifies whether a header or footer for a screen is available to the flow user. Help text is available from the header, and navigation buttons appear in the footer.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Header and Footer

Field	Description
`Show Header`	Exposes the flow title and the help text for the screen. This option is supported for only Lightning runtime. If you hide the header but want to expose the help text, you can do so with a Lightning component.
`Show Footer`	Exposes the screen's navigation buttons. This option is supported for only Lightning runtime. If you hide the footer, use Lightning components to let the user navigate between screens.

Navigation Actions

The navigation actions appear as buttons if the footer is exposed. If you hide the footer but want to let the user navigate between screens, expose the actions with Lightning components.

Field	Description
`Allow Finish`	Exposes the Finish action if the screen is the last element in the flow. If `Show Footer` is enabled for the screen, this action appears as a button.
`Allow Previous`	Exposes the Previous action if there is a screen before this one. If `Show Footer` is enabled for the screen, this action appears as a button. Select this option if you need the user to go back to a previous screen to continue or complete the flow. For example, suppose the flow prompts the user to enter information to identify an existing contact. The flow then looks up the user-entered information in the database. If no matching contact is found, the flow displays a screen to tell the user to go back and try again.
`Allow Pause`	Exposes the Pause action if `Let users pause flows` is enabled in your org's Process Automation settings. If `Show Footer` is enabled for the screen, this action appears as a button.
`Paused Confirmation Message`	The message that's displayed to flow users when they pause a flow.

Help Text

Field	Description
Text box	Information for users to see when they access the screen's help text. This field accepts **single-value resources of any type**. That value is treated as text. If you hide the header but want to expose help text, use a Lightning component.

Usage

If you allow users to pause interviews of this flow:

- Customize the interview label.
- Enable `Let users pause flows` in your org's Process Automation Settings.
- Add the Paused Flow Interviews component to the Home page layout for relevant users.

SEE ALSO:

Design Home Page Layouts in Salesforce Classic

User Input Screen Fields

Lets users manually enter information. A *flow user input field* is a text box, long text area, number field, currency field, date field, date/time field, password field, or checkbox in a Screen element.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Label`	User-friendly text that displays to the left of the field. To format the label, click .
`Unique Name`	A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Input Type`	Automatically populated based on the type of input field you selected.
`Default Value`	Pre-populated value for the input field. If the associated screen isn't executed, the stored value of the input field is always null. The data type of the default value must be compatible with the field's data type. For example, a checkbox's default value must be of type boolean.
`Scale`	Controls the number of digits to the right of the decimal point. Can't exceed 17. If you leave this field blank or set to zero, only whole numbers display when your flow runs. Available for only Currency and Number input fields.
`Required`	Forces users to enter a value before they can move on to the next screen.
`Validate`	Enables input validation on this field.
`Formula Expression`	Boolean formula expression that evaluates whether the user entered an acceptable value.
`Error Message`	Displays underneath the field if the user didn't enter an acceptable value. This field accepts **single-value resources of any type**. That value is treated as text.
Help Text	Adds next to the input field. In the text box, enter helpful information about this field. This field accepts **single-value resources of any type**. That value is treated as text.

Choice Screen Fields

Lets users select from a set of choices. A *flow choice field* is a radio button, drop-down list, multi-select checkbox, or multi-select picklist in a Screen element.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Label`	Displays to the left of the field. To format the label, click .
`Unique Name`	A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Value Data Type`	Controls which choices are available in Choice Settings. For example, if you choose Number you can't use a choice that has a data type of Text. You can't change the value data type of multi-select choice fields; only text is supported.
`Scale`	Controls the number of digits to the right of the decimal point. Can't exceed 17. If you leave this field blank or set to zero, only whole numbers display when your flow runs. Available for only Currency and Number choice fields.
`Required`	Forces users to identify a choice before they progress to the next screen.
`Default Value`	The choice that's preselected for the user. If the associated screen isn't executed, the stored value of the choice field is always null.
`Choice`	The choice options that the user can choose from. Select configured choices, dynamic record choices, or picklist choices. Note: You can't rearrange choices. The choice's data type must match Value Data Type.
`Help Text` box	Information that users see when they click . This field accepts **single-value resources of any type**. That value is treated as text.

SEE ALSO:

- Limitations for Multi-Select Choice Fields
- Options for Choice Fields in Flow Screen Elements

Options for Choice Fields in Flow Screen Elements

A key part of configuring choice fields in a flow screen is selecting the choice options to display in that field. These options appear as the individual radio buttons or checkboxes or options in a drop-down list. Create choice options with at least one of these resources: choices, dynamic record choices, or picklist choices.

Dynamic record choices and picklist choices are easier to configure and don't require as much maintenance as choices. We recommend using a flow choice resource (otherwise known as stand-alone choices) only when you can't use the other two.

If you want the user to select...	Use this resource
From a set of filtered records	Dynamic Record Choice
From a set of values that correspond to an existing picklist or multi-select picklist field	Picklist Choice
Something that can't be generated from a record, picklist field, or multi-select picklist field	Choice

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

SEE ALSO:

- Flow Dynamic Record Choice Resource
- Flow Picklist Choice Resource
- Flow Choice Resource

Display Text Screen Fields

Displays information to users while they're running the flow.

Field	Description
`Unique Name`	A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
Text box	The text to display to the flow user. Click to switch between the plain text editor and the rich text editor.Using the rich text editor saves the content as HTML. This field accepts **single-value resources of any type**. That value is treated as text.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example: Welcome users to the flow or display terms and conditions.

Lightning Component Screen Fields

Displays a Lightning component, such as to let the user upload a file. If your flow screen needs more than a simple input field or display text, build a custom Lightning component to fill the gap.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Unique Name`	A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
Lightning Component	Select the Lightning component to render in your screen. The component must implement the lightning:availableForFlowScreens interface.
Inputs	Set the component's attributes using values from the flow.
Outputs	Pass values from the component's attributes into flow variables.

Note: For attributes to appear in the Inputs or Outputs tab, they must be defined in the component's design resource.

Example:

A custom Lightning component that displays a radio button field has two attributes: Label and Selected Option. To customize the radio button field's label, use the Inputs tab to set Label to `Do you want to participate?`. To determine which element to execute after this screen, use the Outputs tab to store the value for Selected Option in a flow variable. Then you use a Decision element to determine which screen to show next.

SEE ALSO:

Build Rich Screens with Screen Components

Provided Flow Screen Components

Provided Flow Screen Components

Salesforce provides several screen components that extend the types of input fields available in screens.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Tip: If you need more functionality, install a custom screen component from an external library, such as LightningFlow.net, or have a developer build one for you.

IN THIS SECTION:

Flow Screen Component: Dependent Picklists

Display picklists in a flow screen in which the options for one picklist depends on the selected value of another picklist by adding the flowruntime:dependentPicklists Lightning component. This component uses the field dependencies configured in your org to restrict the options for each picklist field.

Flow Screen Component: Email

Let users enter email address values by adding the flowruntime:email Lightning component to a flow screen.

Flow Screen Component: File Upload

Let users upload files from a flow screen by adding the forceContent:fileUpload Lightning component.

Flow Screen Component: Phone

Let users enter phone values from a flow screen by adding the flowruntime:phone Lightning component.

Flow Screen Component: Name

Let users enter multiple name values with one screen component by adding the flowruntime:name Lightning component to a flow screen. Without this component, you can use Text input fields to capture name information, but it takes a lot more configuration.

Flow Screen Component: Toggle

Let users flip a toggle in a flow screen by adding the flowruntime:toggle Lightning component.

Flow Screen Component: Slider

Let users visually specify number values in a flow screen by adding the flowruntime:slider Lightning component.

Flow Screen Component: URL

Let users enter URL values in a flow screen by adding the flowruntime:url Lightning component.

SEE ALSO:

Build Rich Screens with Screen Components

Flow Screen Component: Dependent Picklists

Display picklists in a flow screen in which the options for one picklist depends on the selected value of another picklist by adding the flowruntime:dependentPicklists Lightning component. This component uses the field dependencies configured in your org to restrict the options for each picklist field.

For information about adding screen components, see Build Rich Screens with Screen Components. For the Lightning Component field, select **flowruntime:dependentPicklists**.

Note: Lightning component fields are supported only in Lightning runtime on page 213.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Configure the Dependent Picklists Component

Use the Inputs tab to set the Dependent Picklists component's attributes. You can select resources from the flow, such as variables or global constants, or you can manually enter a value.

Attribute	Description
`Object API Name`	The API name of the object that the picklist fields belongs to. This attribute accepts **single-value resources**. The value is treated as text.
`Picklist 1 API Name`	The API name of the first picklist field. It must be the controlling field in a field dependency between Picklist 1 and Picklist 2. This attribute accepts **single-value resources**. The value is treated as text.
`Picklist 1 Label`	The label for the first picklist field. By default, the label is "Select:". This attribute accepts **single-value resources**. The value is treated as text.

Attribute	Description
`Picklist 1 Value`	The default selection for the first picklist field. Setting this attribute from the Inputs tab pre-selects an option for the field. This attribute accepts **single-value resources**. The value is treated as text.
`Picklist 2 API Name`	The API name of the second picklist field. It must be the dependent field in a field dependency between Picklist 1 and Picklist 2. If you display a third picklist field, Picklist 2 must be the controlling field in a field dependency between Picklist 2 and Picklist 3. This attribute accepts **single-value resources**. The value is treated as text.
`Picklist 2 Label`	The label for the second picklist field. By default, the label is “Select:”. This attribute accepts **single-value resources**. That value is treated as text.
`Picklist 2 Value`	The default selection for the second picklist field. Setting this attribute from the Inputs tab pre-selects an option for the field. This attribute accepts **single-value resources**. The value is treated as text.
`Picklist 3 API Name`	The API name of the third picklist field. It must be the dependent field in a field dependency between Picklist 2 and Picklist 3. This attribute accepts **single-value resources**. That value is treated as text.
`Picklist 3 Label`	The label for the third picklist field. By default, the label is “Select:”. This attribute accepts **single-value resources**. The value is treated as text.
`Picklist 3 Value`	The default selection for the third picklist field. Setting this attribute from the Inputs tab pre-selects an option for the field. This attribute accepts **single-value resources**. The value is treated as text.
`Read Only`	If set to `$GlobalConstant.True`, the user can’t modify the value, but the user can copy it. This attribute accepts **single-value Boolean resources**.
`Disabled`	If set to `$GlobalConstant.True`, the user can’t modify or copy the value. This attribute accepts **single-value Boolean resources**.

Store the Dependent Picklists Component’s Values in the Flow

Use the Outputs tab to store values from the component in flow variables. The values are assigned when the user navigates to the next screen.

Tip: By default, screen components have no memory. If a user enters a value, navigates to another screen, and returns to the component’s screen, the user-entered value is lost. To enable a flow to remember the value of an attribute, add the attribute to both the Inputs and Outputs tabs in the screen component. For details, see Retain Previously Entered Values in Flow Lightning Component Screen Fields.

Attribute	Description
`Picklist 1 Value`	What the user selected for the first picklist field. You can store this value in a **single-value Text variable** or a **Text field on an sObject variable**.
`Picklist 2 Value`	What the user selected for the second picklist field. You can store this value in a **single-value Text variable** or a **Text field on an sObject variable**.
`Picklist 2 Value`	What the user selected for the third picklist field. You can store this value in a **single-value Text variable** or a **Text field on an sObject variable**.

Example: In a Dinner Order flow, users select a specific dessert. Each dessert comes in different flavors, and the flavor options change based on the dessert that the user selects.

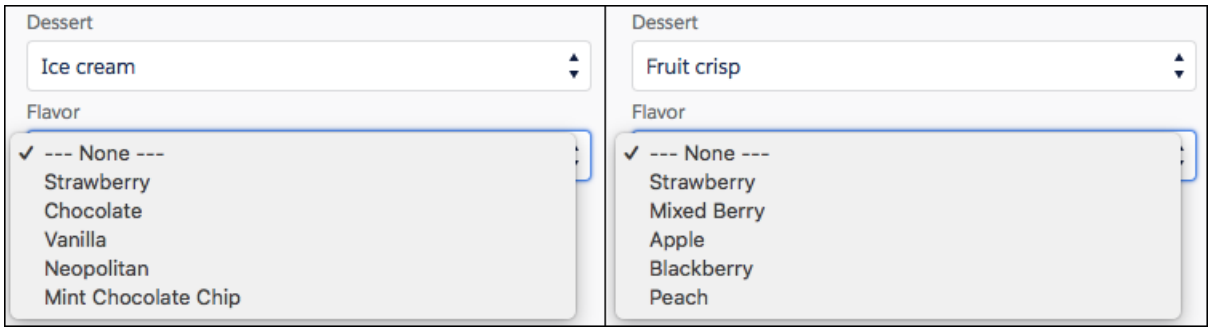
1. On the Order custom object, define two picklist fields: Dessert and Flavor.
2. Define a field dependency between Dessert and Flavor, where Dessert is the controlling picklist. Identify which Flavor options apply to each Dessert option.

Dessert:	Cake slice	Fruit crisp	Ice cream	Pie	Trifle
Flavor:	*Strawberry*	**Strawberry**	**Strawberry**	*Strawberry*	**Strawberry**
	Chocolate	*Chocolate*	**Chocolate**	*Chocolate*	**Chocolate**
	Vanilla	*Vanilla*	**Vanilla**	*Vanilla*	*Vanilla*
	Neopolitan	*Neopolitan*	**Neopolitan**	*Neopolitan*	*Neopolitan*
	Mint Chocolate Chip	*Mint Chocolate Chip*	**Mint Chocolate Chip**	*Mint Chocolate Chip*	*Mint Chocolate Chip*
	Carrot	*Carrot*	*Carrot*	*Carrot*	*Carrot*
	Mixed Berry	**Mixed Berry**	*Mixed Berry*	**Mixed Berry**	**Mixed Berry**
	Banana Cream	*Banana Cream*	*Banana Cream*	**Banana Cream**	*Banana Cream*
	Apple	**Apple**	*Apple*	**Apple**	*Apple*
	Blackberry	**Blackberry**	*Blackberry*	**Blackberry**	*Blackberry*
	Peach	**Peach**	*Peach*	**Peach**	*Peach*
	German Chocolate	*German Chocolate*	*German Chocolate*	*German Chocolate*	*German Chocolate*
	Stone Fruit	*Stone Fruit*	*Stone Fruit*	*Stone Fruit*	**Stone Fruit**
	Pumpkin	*Pumpkin*	*Pumpkin*	**Pumpkin**	*Pumpkin*
	Confetti	*Confetti*	*Confetti*	*Confetti*	*Confetti*

3. In your flow screen, add a Dependent Picklists screen component. Use the Inputs tab to configure the component.

Attribute	Value
`Object API Name`	Order__c
`Picklist 1 API Name`	Dessert__c
`Picklist 1 Label`	Dessert
`Picklist 2 Value`	Flavor__c
`Picklist 2 Label`	Flavor

When a user runs the flow, the options for Flavor change based on what's selected for Dessert.



SEE ALSO:

- Provided Flow Screen Components
- Other Input Fields
- Define Field Dependencies

Flow Screen Component: Email

Let users enter email address values by adding the flowruntime:email Lightning component to a flow screen.

For details about adding screen components to your flow screen, see Build Rich Screens with Screen Components. For the Lightning Component field, select **flowruntime:email**.

Note: Lightning component fields are supported only in Lightning runtime on page 213.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Configure the Email Component

Use the Inputs tab to set the Email component's attributes. You can select resources from the flow, such as variables or global constants, or you can manually enter a value.

Attribute	Description
`Label`	The label that appears above the email field. This attribute accepts **single-value resources**. The value is treated as text.
`Placeholder Text`	Text that appears in the field when it's empty. Use placeholder text to give users a hint about what to enter in the field. This attribute accepts **single-value resources**. The value is treated as text.

Attribute	Description
`Value`	The value of the email field. Setting this attribute on the Inputs tab prepopulates the field. To store the user-entered value in a flow variable, set this attribute from the Outputs tab. The Email component validates that the entered email address follows this pattern: *`local-part@domain`*, where *`domain`* includes at least one period (.). For example, *`user@example.com`* is valid, but *`user@example`* isn't valid. This attribute accepts **single-value resources**. The value is treated as text.
`Required`	If set to `$GlobalConstant.True`, the user must enter a value. This attribute accepts **single-value Boolean resources**.
`Read Only`	If set to `$GlobalConstant.True`, the user can't modify the value, but the user can copy it. This attribute accepts **single-value Boolean resources**.
`Disabled`	If set to `$GlobalConstant.True`, the user can't modify or copy the value. This attribute accepts **single-value Boolean resources**.

Store the Email Component's Values in the Flow

Use the Outputs tab to store values from the component in flow variables. All attributes are available in the Outputs tab, but Value is the most likely attribute you need to store. The value is assigned when the user navigates to the next screen.

To store the email address that the user entered, map the Value attribute to a flow variable.

Tip: By default, screen components have no memory. If a user enters a value, navigates to another screen, and returns to the component's screen, the user-entered value is lost. To enable a flow to remember the value of an attribute, add the attribute to both the Inputs and Outputs tabs in the screen component. For details, see Retain Previously Entered Values in Flow Lightning Component Screen Fields.

SEE ALSO:

Provided Flow Screen Components

Other Input Fields

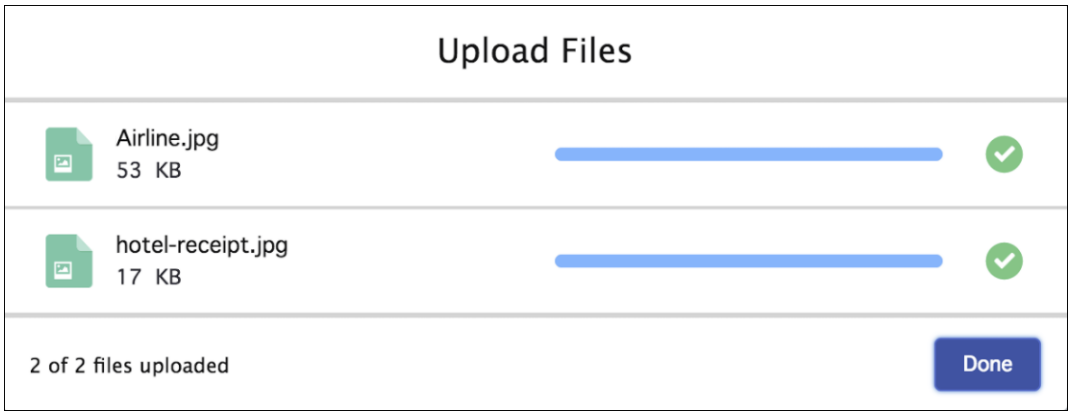
Flow Screen Component: File Upload

Let users upload files from a flow screen by adding the forceContent:fileUpload Lightning component.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions



For information about adding screen components to your flow screen, see Build Rich Screens with Screen Components. For the Lightning Component field, select **forceContent:fileUpload**.

Note: Lightning component fields are supported only in Lightning runtime.

Configure the File Upload Component

Use the Inputs tab to set the File Upload component's attributes. You can select resources from the flow, such as variables or global constants, or you can manually enter a value.

Attribute	Description
`File Upload Label`	Required. Label that appears above the upload button. This attribute accepts **single-value resources**. The value is treated as text.
`Related Record ID`	Required. ID of the record to associate the files with. If no value is passed, the component is disabled. This attribute accepts **single-value resources**. The value is treated as text.
`Accepted Formats`	Using the format *`.ext`*, enter a comma-separated list of the file extensions that the user can upload. This attribute accepts **single-value resources**. The value is treated as text.
`Allow Multiple Files`	If set to *`$GlobalConstant.True`*, the user can upload multiple files. This attribute accepts **single-value Boolean resources**.
`Disabled`	If set to *`$GlobalConstant.True`*, the component is disabled. This attribute accepts **single-value Boolean resources**.
`Hover Text`	Tooltip that appears when the user hovers over the component. This attribute accepts **single-value resources**. The value is treated as text.

Note: Custom fields added to ContentVersion object page are rendered in communities through the contentVersionEditWizard. The contentVersionEditWizard is currently supported on desktop, but not mobile. Since there is no screen in mobile to edit or add details to custom fields, file uploads fail when custom fields are marked as required.

Store the File Upload Component's Values in the Flow

Use the Outputs tab to store values from the component in flow variables. The value is assigned when the user navigates to the next screen.

Attribute	Description
`Content Document IDs`	The IDs of the uploaded files. You can store this value in a **Text collection variable**.
`Upload File Names`	The names of the uploaded files. You can store this value in a **Text collection variable**.

File Upload Limits

By default, you can upload up to 10 files simultaneously, unless Salesforce has changed that limit. The org limit for the number of files simultaneously uploaded is 25 files with a minimum of one file. The maximum file size you can upload is 2 GB. In Communities, the file size limits and types allowed follow the settings determined by community file moderation. By default, guest user files are blocked from being uploaded. Admins can change the settings to let guest users upload files. To enable, go to Setup > General Settings, and select **Allow site guest users to upload files**.

SEE ALSO:

- Provided Flow Screen Components
- Other Input Fields
- Upload Files Directly from a Flow

Flow Screen Component: Phone

Let users enter phone values from a flow screen by adding the flowruntime:phone Lightning component.

For information about adding screen components to your flow screen, see Build Rich Screens with Screen Components. For the Lightning Component field, select **flowruntime:phone**.

Note: Lightning component fields are supported only in Lightning runtime on page 213.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Configure the Phone Component

Use the Inputs tab to set the phone component's attributes. You can select resources from the flow, such as variables or global constants, or you can manually enter a value.

Attribute	Description
`Label`	The label that appears above the phone field. This attribute accepts **single-value resources**. The value is treated as text.
`Placeholder Text`	Text that appears in the field when it's empty. Use placeholder text to give users a hint about what to enter in the field. This attribute accepts **single-value resources**. The value is treated as text.
`Value`	The value of the phone field. Setting this attribute on the Inputs tab prepopulates the field. To store the user-entered value in a flow variable, set this attribute from the Outputs tab. This attribute accepts **single-value resources**. The value is treated as text.
`Required`	If set to `$GlobalConstant.True`, the user must enter a value. This attribute accepts **single-value Boolean resources**.
`Pattern`	Determines whether the value is valid. By default, there is no pattern. To require the user to enter a value in a specific format, use a regular expression. Make sure that your regular expression checks for a valid phone number. This example expression validates that the phone number is in the 555-555-5555 format. `[0-9]{3}-[0-9]{3}-[0-9]{4}` This attribute accepts **single-value resources**. The value is treated as text.
`Read Only`	If set to `$GlobalConstant.True`, the user can't modify the value, but the user can copy it. This attribute accepts **single-value Boolean resources**.

Store the Phone Component's Values in the Flow

Use the Outputs tab to store values from the component in flow variables. All attributes are available in the Outputs tab, but Value is the most likely attribute you need to store. The value is assigned when the user navigates to the next screen.

To store the phone number that the user entered, map the Value attribute to a flow variable.

Tip: By default, screen components have no memory. If a user enters a value, navigates to another screen, and returns to the component's screen, the user-entered value is lost. To enable a flow to remember the value of an attribute, add the attribute to both the Inputs and Outputs tabs in the screen component. For details, see Retain Previously Entered Values in Flow Lightning Component Screen Fields.

SEE ALSO:

Provided Flow Screen Components

Other Input Fields

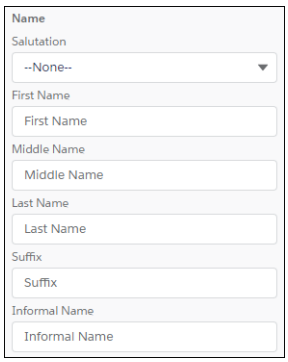
Flow Screen Component: Name

Let users enter multiple name values with one screen component by adding the flowruntime:name Lightning component to a flow screen. Without this component, you can use Text input fields to capture name information, but it takes a lot more configuration.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions



For information about adding screen components to your flow screen, see Build Rich Screens with Screen Components. For the Lightning Component field, select **flowruntime:name**.

Note: Lightning component fields are supported only in Lightning runtime on page 213.

Configure the Name Component

Use the Inputs tab to set the Name component's attributes. You can select resources from the flow, such as variables or global constants, or you can manually enter a value.

Attribute	Description
`Label`	The label that appears above the name fields. This attribute accepts **single-value resources**. The value is treated as text.
`Fields to Display`	By default, the component displays only the First Name and Last Name fields, but other fields are available. To customize which fields to display at runtime, set this attribute to a comma-separated list of the field names. • For First Name, use firstName • For Last Name, use lastName • For Middle Name, use middleName • For Informal Name, use informalName • For Salutation, use salutation • For Suffix, use suffix Note: This attribute doesn't control the order that the fields display in. For example, to display all the fields, set this attribute to *`firstName, lastName, middleName, informalName, salutation, suffix`*. This attribute accepts **single-value resources**. The value is treated as text.

Attribute	Description
`Salutation Options`	By default, the options for Salutation are Mr., Mrs., and Ms. To override these options, set this attribute to a comma-separated list of values. This attribute accepts **single-value resources**. The value is treated as text.
`First Name`	The value of the First Name field. Setting this attribute on the Inputs tab prepopulates the field. To store the user-entered value in a flow variable, set this attribute from the Outputs tab. This attribute accepts **single-value resources**. The value is treated as text.
`Middle Name`	The value of the Middle Name field. Setting this attribute on the Inputs tab prepopulates the field. To store the user-entered value in a flow variable, set this attribute from the Outputs tab. This attribute accepts **single-value resources**. The value is treated as text.
`Last Name`	The value of the Last Name field. Setting this attribute on the Inputs tab prepopulates the field. To store the user-entered value in a flow variable, set this attribute from the Outputs tab. This attribute accepts **single-value resources**. The value is treated as text.
`Informal Name`	The value of the Informal Name field. Setting this attribute on the Inputs tab prepopulates the field. To store the user-entered value in a flow variable, set this attribute from the Outputs tab. This attribute accepts **single-value resources**. The value is treated as text.
`Salutation`	The value of the Salutation field. Setting this attribute on the Inputs tab prepopulates the field. To store the user-entered value in a flow variable, set this attribute from the Outputs tab. This attribute accepts **single-value resources**. The value is treated as text.
`Suffix`	The value of the Suffix field. Setting this attribute on the Inputs tab prepopulates the field. To store the user-entered value in a flow variable, set this attribute from the Outputs tab. This attribute accepts **single-value resources**. The value is treated as text.
`Read Only`	If set to `$GlobalConstant.True`, the user can't modify the value, but the user can copy it. This attribute accepts **single-value Boolean resources**.
`Disabled`	If set to `$GlobalConstant.True`, the user can't modify or copy the value. This attribute accepts **single-value Boolean resources**.

Store the Name Component's Values in the Flow

Use the Outputs tab to store values from the component in flow variables. The values are assigned when the user navigates to the next screen.

Tip: By default, screen components have no memory. If a user enters a value, navigates to another screen, and returns to the component's screen, the user-entered value is lost. To enable a flow to remember the value of an attribute, add the attribute to both the Inputs and Outputs tabs in the screen component. For details, see Retain Previously Entered Values in Flow Lightning Component Screen Fields.

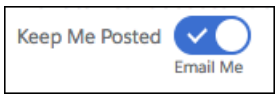
Attribute	Description
`First Name`	What the user entered in the First Name field. This value can be stored in a **single-value Text variable** or a **Text field on an sObject variable**.
`Last Name`	What the user entered in the Last Name field. This value can be stored in a **single-value Text variable** or a **Text field on an sObject variable**.
`Informal Name`	What the user entered in the Informal Name field. This value can be stored in a **single-value Text variable** or a **Text field on an sObject variable**.
`Middle Name`	What the user entered in the Middle Name field. This value can be stored in a **single-value Text variable** or a **Text field on an sObject variable**.
`Salutation`	What the user entered in the Salutation field. This value can be stored in a **single-value Text variable** or a **Text field on an sObject variable**.
`Suffix`	What the user entered in the Suffix field. This value can be stored in a **single-value Text variable** or a **Text field on an sObject variable**.

SEE ALSO:

- Provided Flow Screen Components
- Other Input Fields

Flow Screen Component: Toggle

Let users flip a toggle in a flow screen by adding the flowruntime:toggle Lightning component.



For information about adding screen components to your flow screen, see Build Rich Screens with Screen Components. For the Lightning Component field, select **flowruntime:toggle**.

Note: Lightning component fields are supported only in Lightning runtime on page 213.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Configure the Toggle Component

Use the Inputs tab to set the Toggle component's attributes. You can select resources from the flow, such as variables or global constants, or you can manually enter a value.

Attribute	Description
`Label`	This label appears next to the toggle and describes what the user is enabling. This attribute accepts **single-value resources**. The value is treated as text.

Attribute	Description
`Active Label`	When the toggle is active, this label appears underneath the toggle. Use it to clarify what active means. The default label is "Active." This attribute accepts **single-value resources**. The value is treated as text.
`Inactive Label`	When the toggle is inactive, this label appears underneath the toggle. Use it to clarify what inactive means. The default label is "Inactive." This attribute accepts **single-value resources**. The value is treated as text.
`Value`	Whether the toggle is active (*`$GlobalConstant.True`*) or inactive (*`$GlobalConstant.False`*). Setting this attribute from the Inputs tab controls the default state of the toggle. To store the user's selection in a flow variable, set this attribute from the Outputs tab. This parameter accepts **single-value Boolean resources**.
`Disabled`	If set to `$GlobalConstant.True`, the user can't modify or copy the value. This attribute accepts **single-value Boolean resources**.

Store the Toggle Component's Values in the Flow

Use the Outputs tab to store values from the component in flow variables. All attributes are available in the Outputs tab, but Value is the most likely attribute you need to store. The value is assigned when the user navigates to the next screen.

To store the user's selection, map the Value attribute to a Boolean flow variable or a checkbox field on an sObject variable.

Tip: By default, screen components have no memory. If a user enters a value, navigates to another screen, and returns to the component's screen, the user-entered value is lost. To enable a flow to remember the value of an attribute, add the attribute to both the Inputs and Outputs tabs in the screen component. For details, see Retain Previously Entered Values in Flow Lightning Component Screen Fields.

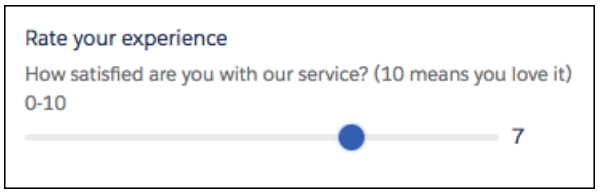
SEE ALSO:

Provided Flow Screen Components

Other Input Fields

Flow Screen Component: Slider

Let users visually specify number values in a flow screen by adding the flowruntime:slider Lightning component.



EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

For information about adding screen components to your flow screen, see Build Rich Screens with Screen Components. For the Lightning Component field, select **flowruntime:slider**.

Note: Lightning component fields are supported only in Lightning runtime on page 213.

Configure the Slider Component

Use the Inputs tab to set the Slider component's attributes. You can select resources from the flow, such as variables or global constants, or you can manually enter a value.

Attribute	Description
`Label`	This label appears above the slider. This attribute accepts **single-value resources**. The value is treated as text.
`Range Minimum`	The minimum value of the slider range. The default is 0. This parameter accepts **Number resources**.
`Range Maximum`	The maximum value of the slider range. The default is 100. This parameter accepts **single-value Number resources**.
`Step Size`	Divides the slider into a set of steps. The default is 1. For example, for a range of 0–100, set the Step Size to 10 to let the user select every 10th value. Other example step sizes are 0.1 and 5. This parameter accepts **single-value Number resources**.
`Slider Size`	Controls the size of the slider. The accepted values are x-small, small, medium, or large. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Value`	The default value represented by the slider position. Setting this attribute from the Inputs tab pre-sets the value. This parameter accepts **single-value Number resources**.

Store the Slider Component's Values in the Flow

Use the Outputs tab to store values from the component in flow variables. All attributes are available in the Outputs tab, but Value is the most likely attribute you need to store. The value is assigned when the user navigates to the next screen.

To store the value that the user selected, map the Value attribute to a Number flow variable.

Tip: By default, screen components have no memory. If a user enters a value, navigates to another screen, and returns to the component's screen, the user-entered value is lost. To enable a flow to remember the value of an attribute, add the attribute to

both the Inputs and Outputs tabs in the screen component. For details, see Retain Previously Entered Values in Flow Lightning Component Screen Fields.

SEE ALSO:

Provided Flow Screen Components

Other Input Fields

Flow Screen Component: URL

Let users enter URL values in a flow screen by adding the flowruntime:url Lightning component.

For information about adding screen components to your flow screen, see Build Rich Screens with Screen Components. For the Lightning Component field, select **flowruntime:url**.

Note: Lightning component fields are supported only in Lightning runtime on page 213.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Configure the URL Component

Use the Inputs tab to set the URL component's attributes. You can select resources from the flow, such as variables or global constants, or you can manually enter a value.

Attribute	Description
`Label`	The label that appears above the URL field. This attribute accepts **single-value resources**. The value is treated as text.
`Value`	The value of the URL field. Setting this attribute on the Inputs tab prepopulates the field. To store the user-entered value in a flow variable, set this attribute from the Outputs tab. This attribute accepts **single-value resources**. The value is treated as text.
`Required`	If set to `$GlobalConstant.True`, the user must enter a value. This attribute accepts **single-value Boolean resources**.
`Pattern`	Determines whether the value is valid. The default pattern verifies that the first character is a letter and that the value includes a colon (:). To force the user to enter a value in a specific format, use a regular expression. Make sure that your regular expression checks for a valid protocol in the URL, such as https:// or file:///. This example expression checks for a secure HTTP protocol (https://) and a specific domain (acmewireless.com). `^https?://(?:www\.)?acmewireless\.com/?.*` This attribute accepts **single-value resources**. The value is treated as text.

Attribute	Description
`Read Only`	If set to `$GlobalConstant.True`, the user can't modify the value, but the user can copy it. This attribute accepts **single-value Boolean resources**.
`Disabled`	If set to `$GlobalConstant.True`, the user can't modify or copy the value. This attribute accepts **single-value Boolean resources**.

Store the URL Component's Values in the Flow

Use the Outputs tab to store values from the component in flow variables. All attributes are available in the Outputs tab, but Value is the most likely attribute you need to store. The value is assigned when the user navigates to the next screen.

To store the URL that the user entered, map the Value attribute to a flow variable.

Tip: By default, screen components have no memory. If a user enters a value, navigates to another screen, and returns to the component's screen, the user-entered value is lost. To enable a flow to remember the value of an attribute, add the attribute to both the Inputs and Outputs tabs in the screen component. For details, see Retain Previously Entered Values in Flow Lightning Component Screen Fields.

SEE ALSO:

- Provided Flow Screen Components
- Other Input Fields
- *StackOverflow*: Sample Regular Expressions for Valid URLs
- *MDN*: What is a URL?

Flow Send Email Element

Sends an email by manually specifying the subject, body, and recipients in the flow.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Tip:

- Store the text for the email body in a text template.
- To use an email template that exists in your organization, call an email alert instead.

Specify at least one recipient for the email. You can use both email address parameters, so long as the combined number of addresses is five or fewer.

Field	Description
`Body`	Text for the body of the email. The email is treated as plain text; HTML formatting isn't respected. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Subject`	Text for the subject of the email. This parameter accepts **single-value resources of any type**. That value is treated as text.

Field	Description
`Email Addresses (comma-separated)`	Optional. Recipients of the email. For the email to send successfully, enter a value for `Email Addresses (comma-separated)` or `Email Addresses (collection)`. You can use both parameters, so long as the combined number of email addresses is five or fewer. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Email Addresses (collection)`	Optional. Recipients of the email. For the email to send successfully, enter a value for `Email Addresses (comma-separated)` or `Email Addresses (collection)`. You can use both parameters, so long as the combined number of email addresses is five or fewer. This parameter accepts **collection variables of type Text**.
`Sender Address`	The organization-wide email address that's used to send the email. Required only if `Sender Type` is set to *`OrgWideEmailAddress`*. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Sender Type`	Optional. Email address used as the email's From and Reply-To addresses. Valid values are: • *`CurrentUser`*—Email address of the user running the flow. (Default) • *`DefaultWorkflowUser`*—Email address of the default workflow user. • *`OrgWideEmailAddress`*—The organization-wide email address that is specified in `Sender Address`.

Usage

Note: At run time, the email isn't sent until the interview's transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Send Email from a Flow
- Flow Text Template Resource
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Cross-Object Field References in Flows

Flow Step Element

Acts as a placeholder when you're not sure which element you need.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Usage

Steps aren't valid elements for active flows. As a flow admin, you can run a draft flow with Step elements in it. Before you activate the flow, replace the Step elements with other elements or delete them entirely.

Convert a Step element into a Screen element at any time by hovering your mouse over the step and clicking .

Note:

- If you convert a step that has multiple connectors into a Screen, all its connectors are deleted.
- Once a Step element has been converted, you can't use its original unique name.

SEE ALSO:

Flow Screen Element

Flow Elements

Define the Path That a Flow Takes

Flow Submit for Approval Element

Submits one Salesforce record for approval.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Tip: Before you begin, store the ID for the record that you want to submit for approval.

Inputs

Transfer data from the flow to the approval submission.

Input Parameter	Description
`Record ID`	The ID of the record that you want to submit for approval. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Next Approver IDs`	The ID of the user to be assigned the approval request when the approval process doesn't automatically assign the approver. This parameter accepts **collection variables of type Text** that include exactly one item.

Input Parameter	Description
`Approval Process Name or ID`	The unique name or ID of the specific approval process to which you want the record to be submitted. The process must have the same object type as the record you specified in `Record ID`. Required if `Skip Entry Criteria` is set to *`$GlobalConstant.True`*. If this parameter and `Submitter ID` aren't set, the flow succeeds only when: • The approver on submit is determined automatically, and • The user who launched the flow is an allowed initial submitter Make sure that: • The approver on submit is determined automatically, and • The initial submitters (for the approval processes related to this object) include all users who could launch this flow This parameter accepts **single-value resources of any type**. That value is treated as text.
`Skip Entry Criteria`	If set to *`$GlobalConstant.True`*, the record isn't evaluated against the entry criteria set on the process that is defined in `Approval Process Name or ID`. This parameter accepts any **single-value resource of type Boolean**.
`Submission Comments`	Text that you want to accompany the submission. Don't reference merge fields or formula expressions. Submission comments appear in the approval history for the specified record. This text also appears in the initial approval request email if the template uses the `{!ApprovalRequest.Comments}` merge field. This parameter accepts **single-value resources of any type**. That value is treated as text.
`Submitter ID`	The ID for the user who submitted the record for approval. The user receives notifications about responses to the approval request. The user must be one of the allowed submitters for the process. If you don't set this field, the user who launched the flow is the submitter. If a workflow rule triggers a flow that includes this element, the submitter is the user who triggered the workflow rule. Workflow rules can be triggered when a user creates or edits a record. When the record is approved or rejected, the user who launched the flow or triggered the workflow rule is notified. This parameter accepts **single-value resources of any type**. That value is treated as text.

Outputs

Transfer data from the approval request to the flow. Assignments occur when the approval request is created.

Optional Output Parameter	Description
`Instance ID`	The ID of the approval request that was submitted. This parameter accepts **single-value variables of type Text, Picklist, or Picklist (Multi-Select)**.

Optional Output Parameter	Description
`Instance Status`	The status of the current approval request. Valid values are “Approved,” “Rejected,” “Removed,” or “Pending”. This parameter accepts **single-value variables of type Text, Picklist, or Picklist (Multi-Select)**.
`New Work Item IDs`	The IDs of the new items submitted to the approval request. There can be 0 or 1 approval processes. This parameter accepts **collection variables of type Text**.
`Next Approver IDs`	The IDs of the users who are assigned as the next approvers. This parameter accepts **collection variables of type Text**.
`Record ID`	The ID of the record that the flow submitted for approval. This parameter accepts **single-value variables of type Text, Picklist, or Picklist (Multi-Select)**.

Usage

Note: At run time, the approval request isn’t created until the interview’s transaction completes. Transactions complete either when the interview finishes, executes a Screen element, or executes a Wait element.

SEE ALSO:

- Flow Elements
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Cross-Object Field References in Flows

Flow Subflow Element

Calls another flow in your org. Use this element to reference modular flows and simplify the overall architecture of your flow.

A subflow element references another flow and calls that flow at run time. When a flow contains a subflow element, we call it the *master flow* to distinguish it from the *referenced flow*.

Tip: Create smaller flows that perform common tasks. For example, build utility flows to capture address and credit card information, and authorize a credit card purchase amount. Then call those flows as needed from multiple product-ordering flows.

Assign values to variables in the referenced flow. Variable assignments occur when the master flow calls the referenced flow at run time. However, for a text, picklist, or multi-select picklist variable that isn’t a collection, a value of null is converted to an empty string in the referenced flow.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Column Header	Description
`Target`	Referenced flow's variable whose value you want to set. By default, this dropdown list contains the variables of the currently active version of the referenced flow. If the referenced flow has no active version, the dropdown list contains the variables of the *latest* version of the referenced flow.
`Source`	Master flow's resource or value to assign to the target. Options: • Select an existing flow resource, such as a variable, constant, or user input. • Select CREATE NEW to create a flow resource. • Manually enter a literal value or merge field. `Source`'s data type must be compatible with `Target`.

Assign values from the referenced flow's variables to the master flow's variables. Variable assignments occur when the referenced flow finishes running.

Column Header	Description
`Source`	Referenced flow's variable whose value you want to assign to the target. By default, this dropdown list contains the variables of the currently active version of the referenced flow. If the referenced flow has no active version, the dropdown list contains the variables of the *latest* version of the referenced flow.
`Target`	Master flow's variable whose value you want to set. `Target`'s data type must be compatible with `Source`.

Usage

At run time, the master flow calls the *active* version of each referenced flow by default. If a referenced flow has no active version, then the master flow calls the *latest* version of the referenced flow. To run only the latest version of each referenced flow:

- Open the master flow, and click **Run with Latest** in the button bar, or
- Append the URL for the master flow with `?latestSub=true`

Note: Only flow admins can run inactive flows. For other users, the flow fails at run time if a subflow element tries to call a flow with no active version.

SEE ALSO:

- Flow Elements
- View Inputs and Outputs of Other Referenced Flow Versions
- Customize What Happens When a Flow Fails
- Define the Path That a Flow Takes
- Cross-Object Field References in Flows

Flow Wait Element

Waits for one or more defined events to occur, which lets you automate processes that require a waiting period.

Define the events that the flow waits for before it proceeds.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Name`	The name appears on the connector that's associated with this event.
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Event Type`	Determines whether the flow is waiting for: • An absolute time (such as 3 days from now), or • A time relative to a date/time field on a Salesforce record (such as 3 days after an opportunity closes)
Event Conditions	Determines the exact event that the flow is waiting for. Parameters vary, based on the selected event type.
`Wait for this event only if additional conditions are met`	If selected, the flow waits for this event only when certain conditions are met.
Waiting Conditions	Determines which conditions must be true for the flow to wait for this event. Available only if `Wait for this event only if additional conditions are met` is selected. The flow waits for the event only if the waiting conditions evaluate to `true`. For details, see Define Flow Conditions on page 56.

Field	Description
Variable Assignments	Assigns the event's outputs to flow variables. Parameters vary, based on the selected event type.
`[Default Path]`	Determines what the flow does when all the events have unmet waiting conditions. If at least one event doesn't have waiting conditions, the default path is never executed. The name displays on the Wait element's default connector. Provide a custom name for this path by replacing the predefined value.

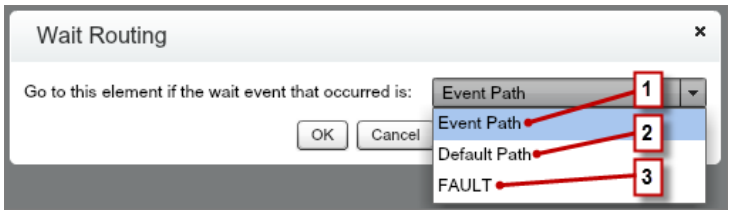
Usage

Note:

- Flows that contain Wait elements must be autolaunched. If a flow includes Wait elements and screens, choice, or dynamic choices, you can't activate or run it.
- Before you add a Wait element to your flow, understand the special behavior and limitations. See Limitations for Waiting Flows on page 24 for details.

After you define your events, connect the Wait element to other elements on the canvas to indicate what the flow does when:

- Each event is the first to occur. One connector **(1)** is available for each event that's defined in the Wait element.
- There are no more events to wait for, because the waiting conditions for every event are unmet. One connector **(2)** is available for the Wait element's default path.
- An error occurs related to the Wait element. One connector **(3)** is available for the Wait element's fault path, and it's always labeled FAULT.



If the flow waits for multiple events, consider returning the flow path to the Wait element again so that the flow waits for the other events. If you return the flow path to the Wait element, consider using waiting conditions to control when the flow waits for each event. For an example, see Sample Flow That Waits for Many Events on page 78.

IN THIS SECTION:

What Are Waiting Conditions?
Each event that you define in a flow Wait element has optional *waiting conditions*. These conditions must be met for the flow interview to wait for that event at run time.

SEE ALSO:

Customize What Happens When a Flow Fails
Define the Path That a Flow Takes
Cross-Object Field References in Flows
Flow Elements

What Are Waiting Conditions?

Each event that you define in a flow Wait element has optional *waiting conditions*. These conditions must be met for the flow interview to wait for that event at run time.

When an interview encounters a Wait element, it checks the waiting conditions for each event to determine which events to wait for. If the waiting conditions aren't met for an event, the interview doesn't wait for that event. If all events have unmet waiting conditions, the interview executes the default path.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Tip: Add a default path if:

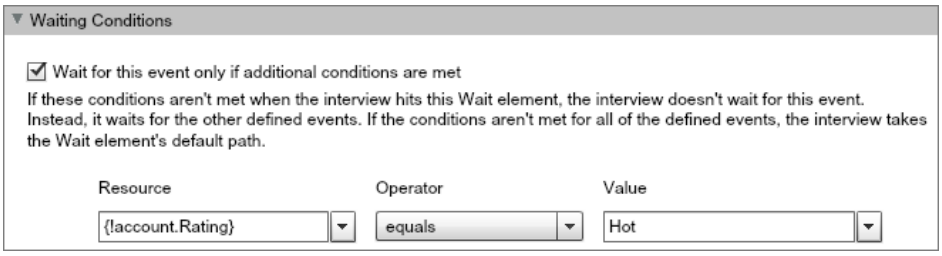
- All the events have waiting conditions set, and
- You want the flow to proceed when the waiting conditions for all events are met

Example: Here are two scenarios in which you would use waiting conditions.

- The flow waits for different events based on a field value on a given record.

  For example, send an email reminder to a contract's owner before the contract's end date. The date on which you send the email depends, however, on the rating of the contract's account. If the account is hot, send the email a month before the end date. If the account isn't hot, send the email two weeks before the end date.

  In this example, you would create two events. The event for hot accounts occurs 30 days before the contract's end date. Its waiting conditions would check if the `Rating` for the contract's account is equal to "Hot."



  The second event occurs 15 days before the contract's end date. Its waiting conditions would check if the `Rating` for the contract's account is not equal to "Hot."

  When a flow interview executes the Wait element during run time, the interview checks the waiting conditions for each event. It only waits for the events whose waiting conditions are met. If the account is hot, the interview doesn't wait for the second event.

- The flow waits for multiple events to occur, such as to send periodic email reminders. For an example of this scenario, see Sample Flow That Waits for Many Events on page 78.

SEE ALSO:

Operators in Flow Record Filters

Flow Wait Element

Flow Event Types

Flow Resources

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Each *resource* represents a value that you can reference throughout the flow.

In the Cloud Flow Designer, the Explorer tab displays the resources that are available in the flow.

You can create some types of resources from the Resources tab by double-clicking them. Some resources, such as global constants and system variables, are automatically provided by the system. Other resources are provided by the system when you add an element to the flow. For example, when you add a Decision element to your flow, the system creates a resource for each outcome.

Which resources are available depend on the specific field you're setting. Oftentimes you can create resources from within that field by expanding the CREATE NEW section of its dropdown list.

Flow Resource	Description	Creatable from the Resources Tab
Choice	Represents an individual value that can be used in choice screen fields.	✔
Collection Variable	Stores multiple updatable values that have the same data type, such as a group of email addresses.	✔
Constant	Stores a fixed value.	✔
Dynamic Record Choice	Represents a set of choices that's generated from an object's records.	✔
Element	Any element that you add to the flow is available as a `Resource` with the `was visited` operator in outcome criteria. An element is considered visited if the element has already been executed in the flow interview. Any element that you add to the flow that supports a fault connector is available as a Boolean resource. If the element has already been successfully executed in the flow interview, the resource's value is `True`. If the element wasn't executed or was executed and resulted in an error, the resource's value is `False`.	
Formula	Calculates a value by using other resources in your flow and Salesforce functions	✔

Flow Resource	Description	Creatable from the Resources Tab
Global Constant	Fixed, system-provided values, such as `EmptyString`, `True`, and `False`, that can be assigned as the values of flow resources.	
Global Variables	System-provided variables that reference information about the organization or running user, such as the user's ID or the API session ID. In Cloud Flow Designer, global variables are available in only flow formulas.	
Outcome	If you add a Decision element to the flow, its outcomes are available as Boolean resources. If an outcome path has already been executed in the flow interview, the resource's value is `True`.	
Picklist Choice	Represents a set of choices that's generated from the values of a picklist or multi-select picklist field.	✔
Picklist Values	System-provided values for picklist fields in sObject variables and sObject collection variables. Available for only Assignment and Decision elements.	
Screen Field	Any screen field that you add to the flow is available as a resource. The resource value depends on the type of screen field. The value for a screen input field is what the user enters. The value for a screen choice field is the stored value of the choice that the user selects. The value for a screen output field is the text that's displayed to the user.	
SObject Collection Variable	Stores updatable field values for one or more Salesforce records.	✔
SObject Variable	Stores updatable field values for a Salesforce record.	✔
Stage	Represents the user's progress through the flow.	✔
System Variable	Provides information about the running interview. Some variables contain system-provided values. You can update the other variables throughout the flow by using Assignments.	
Text Template	Stores formatted text.	✔
Variable	Stores a value that can be updated as the flow executes.	✔
Wait Event	If you add a Wait element to the flow, its events are available as Boolean resources. If an event's waiting conditions are met, the resource's value is `True`. If the event has no waiting conditions set, the resource's value is always `True`.	

IN THIS SECTION:

Flow Choice Resource

Represents an individual value to use in choice screen fields.

Flow Collection Variable Resource

Stores multiple updatable values that have the same data type, such as a group of email addresses.

Flow Constant Resource

A flow constant represents a fixed value. Unlike variables, this value can't change throughout a flow.

Flow Dynamic Record Choice Resource

Represents a set of choices that's generated from an object's records.

Flow Formula Resource

Calculates a value by using other resources in your flow and Salesforce functions.

Flow Global Constant Resource

Fixed, system-provided values, such as `EmptyString`, `True`, and `False`.

Global Variables in Flows

System-provided variables that reference information about the organization or running user, such as the user's ID or the API session ID. In Cloud Flow Designer, global variables are available only in flow formulas.

Flow Picklist Choice Resource

Represents a set of choices that's generated from the values of a picklist or multi-select picklist field.

Flow sObject Collection Variable Resource

Stores updatable field values for one or more Salesforce records.

Flow sObject Variable Resource

Stores updatable field values for a Salesforce record.

Flow Stage Resource

Represents the user's progress through the flow. You can reference stages in flow logic or in the UI, such as with a progress indicator. For example, in a payment flow, the stages are payment details, shipping details, billing details, and order confirmation.

System Variables in Flows

System variables provide information about the running interview. Some variables contain system-provided values. You can update the other variables throughout the flow by using Assignments.

Flow Text Template Resource

Stores HTML-formatted text.

Flow Variable Resource

Stores a value that can be updated as the flow executes.

SEE ALSO:

Cloud Flow Designer

Flow Choice Resource

Represents an individual value to use in choice screen fields.

Field	Description
`Label`	A user-friendly label for the choice option.
`Unique Name`	A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this choice option from other resources.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Value Data Type`	Controls which choice fields this choice can be used in. For example, you can't use a Text choice in a Currency radio button field.
`Scale`	Controls the number of digits to the right of the decimal point. Can't exceed 17. If you leave this field blank or set to zero, only whole numbers display when your flow runs. Available for only Currency and Number choices.
`Stored Value`	If the user selects this choice, the choice field has this value. If a user leaves a choice blank or unselected, its stored value is set to `null`.
`Show Input on Selection`	Displays a text box below the choice option. This option isn't available if the choice's data type is `Boolean`.

These fields appear only if you select `Show Input on Selection`.

Field	Description
`Label`	A user-friendly label for the text box.
`Required`	Forces users to enter a value in the text box before they can progress or finish the flow.
`Validate`	Evaluates whether the user entered an acceptable value.

These fields appear only if you select `Validate`.

Field	Description
`Formula`	Boolean formula expression that evaluates whether the user entered an acceptable value.
`Error Message`	Displays if the user didn't enter an acceptable value.

Example: If your flow asks users to choose a particular service level, create choices for Gold, Silver, and Bronze. In a screen, display the choices with a description of the features included. Then, in the same screen, let the user pick from a dropdown list.

Rich Text in Choice Labels

You can configure every choice's label using the rich text editor, but keep in mind where you want to use the choice.

Dropdown List and Multi-Select Picklist Fields

Rich text isn't supported. If you include a choice with rich text in a dropdown list, at runtime the choice renders the HTML characters in their escaped form.

For example, the choice label `<b>My Label</b>` renders as `<b>My Label</b>` at runtime.

Radio Button and Multi-Select Checkbox Fields

- Rich text is supported.

- Don't use angle brackets (< and >) except when applying HTML markup to your label. Instead, use square brackets (`[` and `]`). If a choice is used in a field that supports rich text, it treats anything in angle brackets as HTML. If the contents isn't valid HTML, the content is stripped from the label.

  For example, you include the "<My Label>" choice in a radio button or multi-select checkbox field. <My Label> is considered invalid HTML, so at runtime the value is stripped from the label. Rather than display nothing—because the label doesn't include any other value—the flow displays the choice's unique name: `My_Label`.

SEE ALSO:

Flow Resources
Choice Screen Fields
Options for Choice Fields in Flow Screen Elements
Cross-Object Field References in Flows

Flow Collection Variable Resource

Stores multiple updatable values that have the same data type, such as a group of email addresses.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this collection variable from other resources.
`Data Type`	Determines the type of values that can be assigned to the collection variable.
`Input/Output Type`	Determines whether the collection variable can be accessed outside the flow. • Private—Can be assigned and used only within the flow • Input—Can be set at the start of the flow using Visualforce controllers, or subflow inputs • Output—Can be accessed from Visualforce controllers and other flows This field doesn't affect how variables are assigned or used within the same flow, for example, through these types of elements: Assignment, Record or Fast Create, Record or Fast Lookup, and Apex Plug-in. The default value of the field is `Private`. Warning: Disabling input or output access for an existing variable can break the functionality of applications and pages that call the flow and access the variable. For example, you can access variables

Field	Description
	from URL parameters, Visualforce controllers, subflows, and processes.

SEE ALSO:

- Flow Resources
- Flow sObject Collection Variable Resource
- Flow Loop Element
- Cross-Object Field References in Flows

Flow Constant Resource

A flow constant represents a fixed value. Unlike variables, this value can't change throughout a flow.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this constant from other resources.
`Data Type`	Determines the types of values that the constant can store.
`Value`	The constant's value. This value doesn't change throughout the flow.

SEE ALSO:

- Flow Resources

Flow Dynamic Record Choice Resource

Represents a set of choices that's generated from an object's records.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this resource from other resources.

Field	Description
`Value Data Type`	Data type of the choice's stored value.
`Create a choice for each`	Determines the object whose records you want to use to generate the choices
Filter Criteria	Determines which records are included in the generated list of choices. If you don't apply any filters, a choice is generated for *every* record of the selected object. For example, to generate a list of all accounts in San Francisco, use filters to include only accounts whose Billing City is San Francisco.
`Choice Label`	Determines which field is used as the label for each generated choice. Select a field that enables users to differentiate between the generated choices. Tip: Make sure to choose a field that contains data. If the selected field has no value for a given record, the corresponding choice's label is blank at run time.
`Choice Stored Value`	Determines which field's value is stored when the user selects this choice at run time. `Value Data Type` determines the available options. By default, the stored value is null. The stored value is determined by the most recent user selection of a choice within the generated set.
`Sort results by`	Controls the order that the choices appear in. When `Sort results by` is selected, also select the field that you want to order the choices by. Then select which order the choices should appear in.
`Limit number of choices to`	Controls the number of options that appear in the screen field that uses this dynamic record choice. When `Limit number of choices to` is selected, also enter the maximum number (up to 200) of choices to include.
`Assign the record fields to variables...`	Takes field values from the record that the user chose and stores them in flow variables that you can reference later. Note: When a multi-select choice field uses a dynamic record choice, only values from the last record that the user selects are stored in the flow variables. If multiple multi-select choice fields on one screen use the same dynamic record choice, the variable assignments obey the first of those fields.

Example: In a support flow for a computer hardware manufacturer, users identify a product to find its latest updates. You create a dynamic record choice that displays all products whose product ID starts with a specific string of characters. However, the flow users are more likely to know the product's name than its ID, so for `Choice Label` select the field that contains the product

name. Elsewhere in the flow, you want to display the associated product ID and description. To do so, you assign the ID and Description field values from the user-selected record to flow variables.

SEE ALSO:

- Operators in Flow Record Filters
- Choice Screen Fields
- Options for Choice Fields in Flow Screen Elements
- Flow Resources

Flow Formula Resource

Calculates a value by using other resources in your flow and Salesforce functions.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this formula from other resources.
`Value Data Type`	The data type for the value calculated by the formula.
`Scale`	Controls the number of digits to the right of the decimal point. Can't exceed 17. If you leave this field blank or set to zero, only whole numbers display when your flow runs. Appears when `Value Data Type` is Number or Currency.
Formula	The formula expression that the flow evaluates at run time. The returned value must be compatible with `Value Data Type`. Note: Some formula operators are not supported in the Cloud Flow Designer.

SEE ALSO:

- Formula Operators and Functions
- Which Functions Aren't Supported in Flow Formulas?
- Flow Resources
- Cross-Object Field References in Flows

Flow Global Constant Resource

Fixed, system-provided values, such as `EmptyString`, `True`, and `False`.

Global Constant	Supported Data Types
`{!$GlobalConstant.True}`	`Boolean`
`{!$GlobalConstant.False}`	`Boolean`
`{!$GlobalConstant.EmptyString}`	`Text`

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example: When you create a Boolean variable, `$GlobalConstant.True` and `$GlobalConstant.False` are supported. But when you create a Currency variable, no global constants are supported.

Null vs. Empty String

At run time, `{!$GlobalConstant.EmptyString}` and `null` are treated as separate, distinct values. For example:

- If you leave a text field or resource value blank, that value is `null` at run time. If you instead want the value to be treated as an empty string, set it to `{!$GlobalConstant.EmptyString}`.
- For flow conditions, use the `is null` operator to check whether a value is `null`. If the condition compares two text variables, make sure that their default values are correctly either set to `{!$GlobalConstant.EmptyString}` or left blank (`null`).

SEE ALSO:

Flow Resources

Global Variables in Flows

System-provided variables that reference information about the organization or running user, such as the user's ID or the API session ID. In Cloud Flow Designer, global variables are available only in flow formulas.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example: Use `{$!User.Id}` to easily access the ID of the user who's running the flow interview.

The following global variables are supported in flow formulas. If a value in the database has no value, the corresponding merge field returns a blank value. For example, if nobody has set a value for your organization's Country field, `{!$Organization.Country}` returns no value.

Global Variable	Description
`$Api`	References API URLs or the session ID. The following merge fields are available. • `Enterprise_Server_URL_`***`xxx`***—The Enterprise WSDL SOAP endpoint where *`xxx`* represents the version of the API. • `Partner_Server_URL_`***`xxx`***—The Partner WSDL SOAP endpoint where *`xxx`* represents the version of the API. • `Session_ID`

Global Variable	Description
`$Label`	References custom labels. This global variable appears only if custom labels have been created in your org. The returned value depends on the language setting of the contextual user. The value returned is one of the following, in order of precedence: **1.** The local translation's text **2.** The packaged translation's text **3.** The master label's text
`$Organization`	References information about your company.
`$Permission`	References information about the current user's custom permission access.
`$Profile`	References information from the current user's profile, such as license type or name. Tip: • Use profile names to reference standard profiles in `$Profile` merge fields. • Users don't need access to their profile information to run a flow that references these merge fields.
`$Setup`	References custom settings of type "hierarchy". This global variable appears only if hierarchy custom settings have been created in your org. You can access custom settings of type "list" only in Apex. Hierarchical custom settings allow values at any of three different levels: • Organization—the default value for everyone • Profile—overrides the Organization value • User—overrides both Organization and Profile values Salesforce automatically determines the correct value for this custom setting field based on the running user's current context.
`$System`	`$System.OriginDateTime` represents the literal value of `1900-01-01 00:00:00`. Use this merge field to perform date/time offset calculations.
`$User`	References information about the user who's running the flow interview. For example, reference the user's ID or title. Tip: • The current user is the person who caused the flow to start. • When a flow is started because a Web-to-Case or Web-to-Lead process changed a record, the current user is the `Default Lead Owner` or `Default Case Owner`. `$User.UITheme` and `$User.UIThemeDisplayed` identify the look and feel the running user sees on a given Salesforce page. The difference between the two variables is that `$User.UITheme` returns the look and feel the user is *supposed* to see, while `$User.UIThemeDisplayed` returns the look and feel the user *actually* sees. For example, a user may have the preference and permissions to see the Lightning Experience look and feel, but if they are using a browser that doesn't support that look and feel, for example, older versions of Internet Explorer, `$User.UIThemeDisplayed` returns a different value. These merge fields return one of the following values.

Global Variable	Description
	• `Theme1`—Obsolete Salesforce theme • `Theme2`—Salesforce Classic 2005 user interface theme • `Theme3`—Salesforce Classic 2010 user interface theme • `Theme4d`—Modern "Lightning Experience" Salesforce theme • `Theme4t`—Salesforce mobile app theme • `Theme4u`—Lightning Console theme • `PortalDefault`—Salesforce Customer Portal theme • `Webstore`—Salesforce AppExchange theme
`$UserRole`	References information about the current user's role, such as the role name or ID. Tip: • The current user is the person who caused the flow to start. • When a flow is started because a Web-to-Case or Web-to-Lead process changed a record, the current user is the `Default Lead Owner` or `Default Case Owner`.

Flow Picklist Choice Resource

Represents a set of choices that's generated from the values of a picklist or multi-select picklist field.

EDITIONS

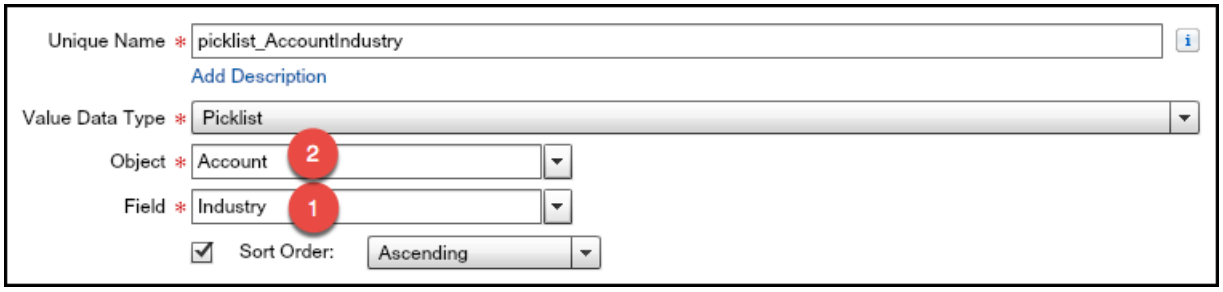
Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this resource from other resources.
`Value Data Type`	Data type of the choice's stored value.
`Object`	The object whose fields you want to select from.
`Field`	The picklist or multi-select picklist field to use to generate the list of choices.
`Sort Order`	Controls the order that the choices appear in. The choices sort based on the translated picklist value for the running user's language.

Example: In a flow that simplifies the process of creating an account, users identify the company's industry.

Rather than creating one choice for each industry, you add a picklist choice to the flow and populate a drop-down list with it. When users run this flow, the picklist choice finds all the values in the database for the Industry picklist field **(1)** on the Account object **(2)**.



On top of being easier to configure than the stand-alone choice resource, picklist choices reduce maintenance. When someone adds new options to the Account Industry picklist, the flow automatically reflects those changes; you don't have to update the flow.

Limitations

Unlike with dynamic record choices, you can't:

Filter out any values that come back from the database.
The flow always displays every picklist value for that field—even if you're using record types to narrow down the picklist choices in page layouts.

Customize the label for each option.
The flow always displays the label for each picklist value.

Customize the stored value for each option.
The flow always stores the API value for each picklist value.

Picklists for Knowledge Articles aren't supported.

Labels and Values for Translated Fields

When a picklist field has been translated:

- Each choice's label uses the version of that picklist value in the running user's language
- Each choice's stored value uses the version of that picklist value in the org's default language

SEE ALSO:

Choice Screen Fields

Options for Choice Fields in Flow Screen Elements

Flow Resources

Flow sObject Collection Variable Resource

Stores updatable field values for one or more Salesforce records.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this sObject collection variable from other resources.
`Input/Output Type`	Determines whether the sObject collection variable can be accessed outside the flow. • Private—Can be assigned and used only within the flow • Input—Can be set at the start of the flow using Visualforce controllers, or subflow inputs • Output—Can be accessed from Visualforce controllers and other flows The default value is `Private`. Warning: Disabling input or output access for an existing variable can break the functionality of applications and pages that call the flow and access the variable. For example, you can access variables from URL parameters, Visualforce controllers, subflows, and processes.
`Object Type`	Type of Salesforce records that the sObject collection represents in the flow.

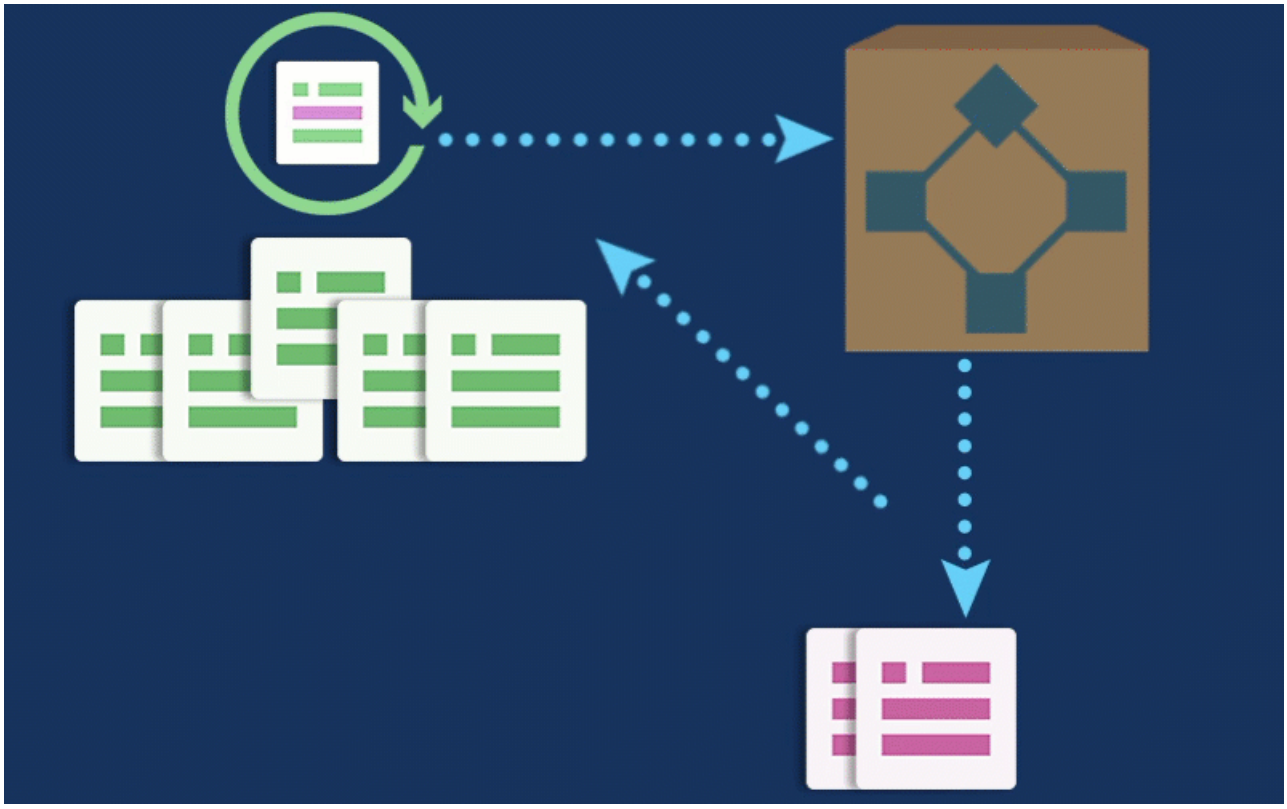
Usage

After you populate the sObject collection, reference it to create, update, or delete records in the Salesforce database.

To add or remove items in a collection, use an Assignment element.

To replace all items in a collection, use a Fast Lookup element.

You can't update existing collection items, but you can work around this by using a Loop element to iterate through the collection. One by one, the loop copies each collection item into an sObject variable that you specify as the *loop variable*. Within the loop, configure elements to update the loop variable and then add the updated content to a second collection. After the loop, update the Salesforce records with the values from the second collection.



SEE ALSO:

- Sample Flow That Loops Through a Collection
- Flow Loop Element
- Operators in Flow Assignment Elements
- Flow Resources

Flow sObject Variable Resource

Stores updatable field values for a Salesforce record.

Field	Description
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this sObject variable from other resources.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Input/Output Type`	Determines whether the sObject variable can be accessed outside the flow. • Private—Can be assigned and used only within the flow • Input—Can be set at the start of the flow using Visualforce controllers, or subflow inputs • Output—Can be accessed from Visualforce controllers and other flows This field doesn't affect how variables are assigned or used within the same flow, for example, through these types of elements: Assignment, Record or Fast Create, Record or Fast Lookup, and Apex Plug-in. The default value of the field is `Private`. Warning: Disabling input or output access for an existing variable can break the functionality of applications and pages that call the flow and access the variable. For example, you can access variables from URL parameters, Visualforce controllers, subflows, and processes.
`Object Type`	Type of Salesforce record that the sObject variable represents in the flow.

Usage

When an sObject variable is created, its default value is `null`. Before you reference an sObject variable's values, make sure that the sObject variable has a value by using the `is null` operator in a Decision element.

SEE ALSO:

Flow Resources

Flow Stage Resource

Represents the user's progress through the flow. You can reference stages in flow logic or in the UI, such as with a progress indicator. For example, in a payment flow, the stages are payment details, shipping details, billing details, and order confirmation.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
`Label`	A user-friendly label for the stage. Merge fields aren't supported.
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this stage from other resources.
`Order`	Required. Determines how to sort this stage among the other stages in this flow. The order must be unique among all other stages in the flow.
`Active by Default`	Adds this stage to `{!$Flow.ActiveStages}` when an interview starts.

Usage

When ordering your stages, leave gaps between the numbers in case you later want to add a stage between two other stages. For example, if you use 10, 20, and 30 as the order, you can insert a stage at order 15 without having to update the original three stages.

Most of the time, stages resolve to the fully qualified name: `namespace.flowName:stageName` or `flowName:stageName`. Stages resolve to the label in:

- Display contexts, such as choice labels and Display Text fields
- Attributes in Lightning component screen fields

SEE ALSO:

- Plan the Stages in Your Flow
- Identify the Relevant Stages in Your Flow
- Considerations for Flow Stages
- Flow Resources

System Variables in Flows

System variables provide information about the running interview. Some variables contain system-provided values. You can update the other variables throughout the flow by using Assignments.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

System Variable	Supported Resource Types	Description	Value Set By
{!$Flow.ActiveStages}	`Stage`	A collection of stages that are relevant to the current path of the flow. For example, each item in a progress indicator corresponds to a stage in `$Flow.ActiveStages`.	Assignment
{!$Flow.CurrentDate}	`Text`, `Date`, and `DateTime`	Date when the flow interview executes the element that references the system variable.	System
{!$Flow.CurrentRecord}	`Text`	ID of a related record. The value must be a single ID for a valid object. All custom objects and most standard objects are valid. When a user pauses the flow interview or the interview executes a Wait element, the interview is associated with this record by creating a FlowRecordRelation record. If the ID isn't valid, the interview doesn't pause.	Assignment

System Variable	Supported Resource Types	Description	Value Set By
`{!$Flow.CurrentStage}`	`Stage`	The stage that's currently selected. For example, the selected item in a progress indicator corresponds to `$Flow.CurrentStage`.	Assignment
{!$Flow.CurrentDateTime	`Text`, `Date`, and `DateTime`	Date and time when the flow interview executes the element that references the system variable.	System
{!$Flow.FaultMessage}	`Text`	System fault message that can help flow administrators troubleshoot runtime issues.	System
`{!$Flow.InterviewGuid}`	`Text`	Unique identifier for the interview.	System

Example: A flow is used internally by call center personnel. For each flow element that interacts with the Salesforce database, a fault connector leads to a screen. A Display Text field on the screen displays the system fault message and instructs the flow user to provide that message to the IT department.

```
Sorry, but you can't read or update records at this time.
Please open a case with IT, and include the following error message:
{!$Flow.FaultMessage}
```

Example: If a customer asks to be forgotten, make sure to delete all references to information that could personally identify the customer, including data in paused flow interviews. When an interview executes a Wait element or is paused by a user, all the interview data is serialized and saved to the database as a Paused Flow Interview record. When the interview is resumed, the Paused Flow Interview record is deleted.

To identify which paused interviews include personal data for a contact, lead, or user, build a custom object to track the interview's GUID and the affected contact, lead, or user. When an interview references personal data, such as a lead's email or credit card number, create a record of the custom object using the lead's ID and `{!$Flow.InterviewGuid}`. Before the final screen, delete all records of the custom object referencing the interview's GUID. That way, the custom object tracks only interviews that are saved to the database.

When a customer asks to be forgotten, create a report that lists all the custom object records where LeadId matches the customer's record. Then for each custom object record, delete the flow interview that corresponds to the provided GUID.

SEE ALSO:

Customize What Happens When a Flow Fails
Flow Resources

Flow Text Template Resource

Stores HTML-formatted text.

Field	Description
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this text template from other resources.
Text Template	The text for the template. Use HTML to format the text and merge fields to reference information from other resources.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Example: You're designing a flow that registers people for an event. You create a text template that includes a registrant's name, address, and other information. Then you use the template in an email confirmation that the flow sends when it finishes.

SEE ALSO:

Flow Resources

Cross-Object Field References in Flows

Flow Variable Resource

Stores a value that can be updated as the flow executes.

Field	Description
`Unique Name`	The requirement for uniqueness applies only to elements within the current flow. Two elements can have the same unique name, provided they are used in different flows. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.
`Description`	Helps you differentiate this variable from other resources.
`Data Type`	Determines the types of values that can be assigned to the variable.
`Scale`	Controls the number of digits to the right of the decimal point. Can't exceed 17. If you leave this field blank or set to zero, only whole numbers display when your flow runs. Appears only when the `Data Type` is set to `Number` or `Currency`.
Input/Output Type	Determines whether the variable can be accessed outside the flow. • Private—Can be assigned and used only within the flow

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Field	Description
	• Input—Can be set at the start of the flow using Visualforce controllers, or subflow inputs • Output—Can be accessed from Visualforce controllers and other flows This field doesn't affect how variables are assigned or used within the same flow, for example, through these types of elements: Assignment, Record or Fast Create, Record or Fast Lookup, and Apex Plug-in. The default value of the field depends on the release or API version in which the variable is created: • `Private` for a variable created in Summer '12 and later or in API version 25.0 and later. • `Input and Output` for a variable created in Spring '12 and earlier or in API version 24.0. Warning: Disabling input or output access for an existing variable can break the functionality of applications and pages that call the flow and access the variable. For example, you can access variables from URL parameters, Visualforce controllers, subflows, and processes.
`Default Value`	Determines the variable value when the flow starts. If you leave this field blank, the value is `null`. Default values aren't available for Picklist and Picklist (Multi-Select) variables.

Usage

You can delete a variable at any time. Any variable assignments that use the deleted variable are set to `null`.

SEE ALSO:

- Flow Resources
- Flow Assignment Element
- Flow sObject Variable Resource
- Cross-Object Field References in Flows

Cross-Object Field References in Flows

When building a flow, you can reference fields for records that are related to the values that are stored in an sObject variable. To do so, manually enter the references.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Tips for Cross-Object Field References in Flows

Cross-object field values are valid wherever you can reference a flow resource or manually enter a value. Keep these implementation tips in mind when you use a cross-object field reference.

Cross-Object Field References in Flows: Simple Relationships

Most relationships are straightforward. For example, `Case.AccountId` links directly to the case's parent account. If you know that a field relationship ties your object to exactly one other object, use this syntax.

Cross-Object Field References in Flows: Polymorphic Relationships

Some fields have relationships to more than one object. We call these relationships *polymorphic*. For example, if you have queues enabled for cases, a case owner can be either a user or queue. If you're traversing from a case to its owner ID, add special syntax to identify which object you mean when you say "Owner".

Example Cross-Object Field References in Flows
This example demonstrates how to update a contract's owner to be the contract's account's owner.

Tips for Cross-Object Field References in Flows

Cross-object field values are valid wherever you can reference a flow resource or manually enter a value. Keep these implementation tips in mind when you use a cross-object field reference.

When you create an sObject variable to reference fields on related records from, store the ID for the first related record in the variable. For example, to reference an opportunity's contract, store `ContractId` in the sObject variable or add a value for `ContractId` by using an Assignment element.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Unsupported Relationships

The following relationships aren't supported in cross-object field references.

- `Lead.ConvertedAccount`
- `Lead.ConvertedContact`
- `Lead.ConvertedOpportunity`

Avoiding Null Values

If a flow interview encounters a null value at any point in the cross-object expression, the element containing the reference fails. The reference runs successfully if the last field value in the expression is `null`. For example, store a contact in `{!sObjContact}` and try to reference *`{!sObjContact.Account.Name}`*. The flow fails if `AccountId` on the stored contact is `null` (because there isn't an account to look at), but it succeeds if `Name` on the related account is `null`.

If an element contains a cross-object reference that fails and the element doesn't have a fault path defined, the entire interview fails. To avoid this situation, you can:

- Make the fields that you want to reference in the expression required in Salesforce. For example, for the expression *`{!sObjContact.Account.Name}`*, you could require `AccountId` on contact page layouts. Then, using another flow, find any records with null values for that field and update them.
- Determine whether each field that's referenced in the expression has a value by using the `wasSet` operator in a Decision element.

Cross-Object Field References and Org Limits

Cross-object field references in flows don't count against your org's limits for:

- Cross-object relationships per object
- DML operations per transaction

Cross-Object Field References in Flows: Simple Relationships

Most relationships are straightforward. For example, `Case.AccountId` links directly to the case's parent account. If you know that a field relationship ties your object to exactly one other object, use this syntax.

To reference a field on a related record, use this syntax.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

```
{!sObjectVariable.objectName1.objectName2.fieldName}
```

where:

- *sObjectVariable* is the unique name for the sObject variable that you want to start from.
- *objectName1* is the API name for an object that's related to sObjectVariable's object type. The API names for all custom objects end in `__r`.
- (Optional) *objectName2* is the API name for an object that's related to *objectName1*.

  Your expression must include at least one object name, but you can add more objects as needed.
- *fieldName* is the name for the field that you want to reference on the last object in the expression. The API names for all custom fields end in `__c`.

For example, *{!sOv_Contact.Account.Id}* references Id of the account that's related to the contact record represented by an sObject variable in the flow.

Cross-Object Field References in Flows: Polymorphic Relationships

Some fields have relationships to more than one object. We call these relationships *polymorphic*. For example, if you have queues enabled for cases, a case owner can be either a user or queue. If you're traversing from a case to its owner ID, add special syntax to identify which object you mean when you say "Owner".

To reference a field on a related record, use this syntax.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

```
{!sObjectVariable.polymorphicObjectName1:specificObjectName2.fieldName}
```

where:

- *sObjectVariable* is the unique name for the sObject variable that you want to start from.
- *polymorphicObject* is the API name for a polymorphic relationship for *sObjectVariable*'s object type.
- *specificObjectName* is the API name for the object that you want to select from the polymorphic relationship.

- *fieldName* is the name for the field that you want to reference on the last object in the expression. All custom field API names end in __c.

For example: {!sObj_Case.Owner:User.Id} references the ID of the user who owns the case, while {!sObj_Case.Owner:Queue.Id} references the ID of the queue who owns the case. You can always add the polymorphic reference after several traversals ({!sObj_Case.Account.Owner:User.Id}) or in the middle of a reference ({!sObj_Case.Owner:User.Manager.Id}).

Supported Polymorphic Relationships

Not every relationship is polymorphic, so we recommend using the polymorphic syntax only when you know that the field can link to multiple objects. The following relationships are supported.

- Case.Source
- FeedItem.CreatedBy
- *Object*.Owner

  Where *Object* lets you set Owner to either a user or a queue. Group.Owner and Queue.Owner aren't supported.

When you create an sObject variable to reference fields on related records from, store the ID for the first related record in the variable. For example, to reference an opportunity's contract, store ContractId in the sObject variable or add a value for ContractId by using an Assignment element.

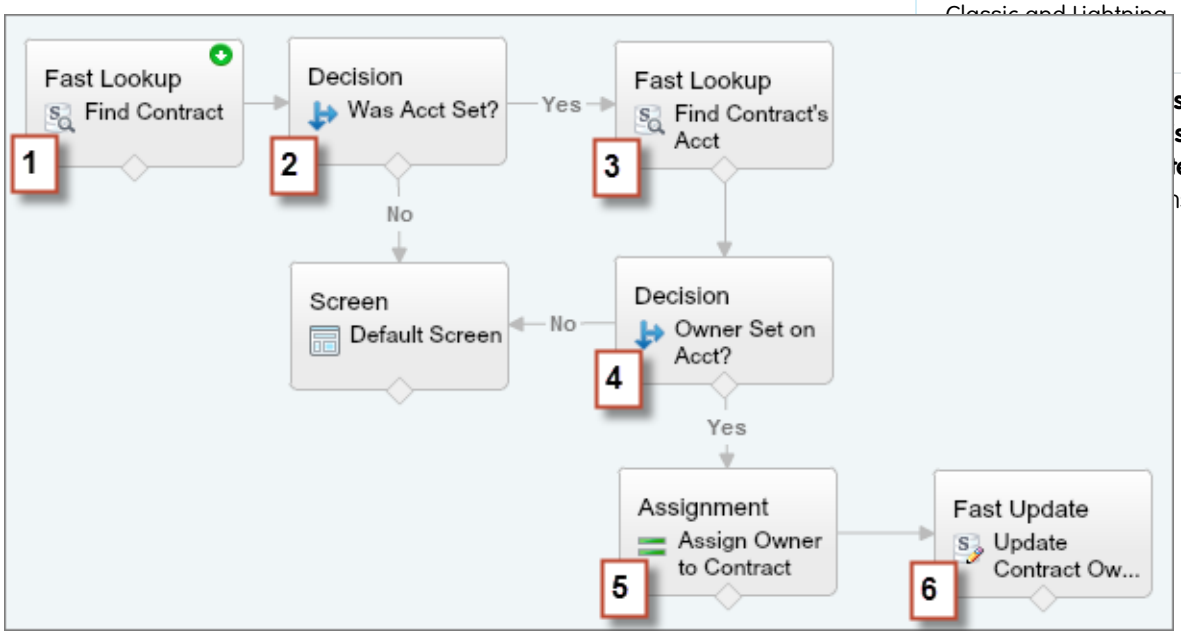
Example Cross-Object Field References in Flows

This example demonstrates how to update a contract's owner to be the contract's account's owner.

EDITIONS

Available in: both Salesforce Classic and Lightning

Example:

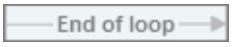


1. Use a Fast Lookup element to store the contract's fields, including AccountId, in an sObject variable called varContract.

2. Use a Decision element to verify that the value of `AccountId` was set in `varContract`.
3. Use a Fast Lookup to store the fields for the contract's account, including `OwnerId`, in another sObject variable called `varAccount`.
4. Use a Decision element to confirm that the value of `OwnerId` was set in `varAccount`.
5. Use an Assignment element to specify *`{!varContract.Account.OwnerId}`* as the value for `{!varContract.OwnerId}`.
6. Use a Fast Update element to write the values in `varContract`, including the updated `OwnerId` value, to the contract in Salesforce.

Flow Connectors

Connectors determine the available paths that a flow can take at run time. In the Cloud Flow Designer canvas, a connector looks like an arrow that points from one element to another.

Label	Example	Description
Unlabeled		Identifies which element to execute next.
`Decision outcome name`		Identifies which element to execute when the criteria of a Decision outcome are met.
`Wait event name`		Identifies which element to execute when an event that's defined in a Wait element occurs.
FAULT		Identifies which element to execute when the previous element results in an error.
Next element		Identifies the first element to execute for each iteration of a Loop element.
End of loop		Identifies which element to execute after a Loop element finishes iterating through a collection.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

SEE ALSO:

Flow Elements

Flow Operators

Operators behave differently, depending on what you're configuring. In Assignment elements, operators let you change resource values. In flow conditions and record filters, operators let you evaluate information and narrow the scope of a flow operation.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

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IN THIS SECTION:

Operators in Flow Assignment Elements
Use Assignment element operators to change the value of a selected resource.

Operators in Flow Conditions
Use condition operators to verify the value of a selected resource. Conditions are used in Decision elements and Wait elements.

Operators in Flow Record Filters
A flow record filter narrows the scope of records that the flow operates on. For example, use a record filter to update only the contacts that are associated with the Acme Wireless account. When you add a Record Update element, use the record filters to narrow the scope to just the contacts whose parent account is Acme Wireless.

Operators in Flow Assignment Elements

Use Assignment element operators to change the value of a selected resource.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Use this reference, organized by the data type that you select for Resource, to understand the supported operators.

- Boolean
- Collection
- Currency
- Date
- Date/Time
- Multi-Select Picklist
- Number
- Picklist
- Stage
- sObject
- Text

Boolean

Replace a Boolean resource with a new value.

Operator	Description	Supported Data Types	Example
equals	What you enter or select for Value replaces the value of Variable.	Boolean	Before Assignment: `{!varBoolean}` is `false` Assignment: `{!varBoolean}` **equals** `{!$GlobalConstant.True}`

Operator	Description	Supported Data Types	Example
			After Assignment: `{!varBoolean}` is `true`

Collection

Update or replace the value of a collection variable or sObject collection variable.

Operator	Description	Supported Data Types	Example
equals	Value replaces the value of Variable.	Collection of the same data type or object type Text, Picklist, and Multi-Select Picklist data types are compatible with each other.	Before the Assignment: • `{!collText}` is `Yellow, Green, Blue` • `{!collPicklist}` is `Blue, Red, Orange` Assignment: `{!collText}` **equals** `{!collPicklist}` After the Assignment: `{!collText}` is `Blue, Red, Orange`
add	Value is added as a new item at the end of the collection in Variable.	Variable of the same data type or sObject variable of the same object type Text, Picklist, and Multi-Select Picklist data types are compatible with each other. Stages (including $Flow.CurrentStage) can be added to text collections. Via Metadata API only, you can add collections to collections of the same data type or object type. From Cloud Flow Designer, you can't save an Assignment element that contains a collection variable in the Value column for the "add" operator.	Before the Assignment: • `{!collText}` is `Yellow, Green, Blue` • `{!varPicklist}` is `Red` Assignment: `{!collText}` **add** `{!varPicklist}` After the Assignment: `{!collText}` is `Yellow, Green, Blue, Red`
remove after first	The first instance of Value is found within the collection in Variable. All items after the first instance are removed from the collection in Variable.	Variable of the same data type or sObject variable of the same object type For text collections only: • Multi-Select Picklist • Picklist	Before the Assignment: • `{!collText}` is `Red, Orange, Yellow, Green, Blue` • `{!varText}` is `Yellow` Assignment: `{!collText}` **remove after first** `{!varText}`

Operator	Description	Supported Data Types	Example
		• `$Flow.CurrentRecord`	After the Assignment: `{!collText}` is `Red, Orange, Yellow`
add at start	Value is added as a new item at the beginning of the collection in Variable.	Collection of the same data type or object type Variable of the same data type or sObject variable of the same object type For text collections only: • Multi-Select Picklist • Picklist • `$Flow.CurrentRecord`	Before the Assignment: • `{!collText}` is `Yellow, Green, Blue` • `{!varPicklist}` is `Red` Assignment: `{!collText}` **add at start** `{!varPicklist}` After the Assignment: `{!collText}` is `Red, Yellow, Green, Blue`
remove all	All instances of Value are removed from the collection in Variable.	Collection of the same data type or object type Variable of the same data type or sObject variable of the same object type For text collections only: • Multi-Select Picklist • Picklist • `$Flow.CurrentRecord`	Before the Assignment: • `{!collText}` is `Red, Orange, Red, Yellow` • `{!varText}` is `Red` Assignment: `{!collText}` **remove all** `{!varText}` After the Assignment: `{!collText}` is `Orange, Yellow`
remove first	The first instance of Value is removed from the collection in Variable.	Collection of the same data type or object type For text collections only: • Multi-Select Picklist • Picklist • `$Flow.CurrentRecord`	Before the Assignment: • `{!collText}` is `Red, Orange, Red, Yellow` • `{!varText}` is `Red` Assignment: `{!collText}` **remove first** `{!varText}` After the Assignment: `{!collText}` is `Orange, Red, Yellow`
remove before first	The first instance of Value is found within the collection in Variable. All items before the first instance are removed from the collection in Variable.	Variable of the same data type or sObject variable of the same object type For text collections only: • Multi-Select Picklist • Picklist • `$Flow.CurrentRecord`	Before the Assignment: • `{!collText}` is `Red, Orange, Yellow, Green, Blue` • `{!varText}` is `Yellow` Assignment: `{!collText}` **remove before first** `{!varText}` After the Assignment: `{!collText}` is `Yellow, Green, Blue`
remove position	Value specifies a position in the collection. The item at the position is removed	Number	Before the Assignment: • `{!collText}` is `Red, Orange, Yellow`

Operator	Description	Supported Data Types	Example
	from the collection in Variable. Make sure that Value at run time is a positive integer that is within the range of the number of items in the collection in Variable.		• `{!varNum}` is `2` Assignment: `{!collText}` **remove position** `{!varNum}` After the Assignment: `{!collText}` is `Red, Yellow`
remove uncommon	The items in the Value collection are found within the Variable collection. The found items are kept, and all other items are removed from the collection in Variable.	Collection of the same data type or object type	Before the Assignment: • `{!collText1}` is `Red, Orange, Yellow, Green` • `{!collText2}` is `Orange, Green, Blue` Assignment: `{!collText1}` **remove uncommon** `{!collText2}` After the Assignment: `{!collText1}` is `Orange, Green`

Currency and Number

Replace (equals), add to (add), or subtract from (subtract) the value of a currency or number resource. Count (equals count) the number of active stages or the number of items in a collection.

Operator	Description	Supported Data Types	Example
equals	The number that you enter or select for Value replaces the value of Variable.	• Currency • Number	Before the Assignment: `{!varCurrency}` is `10` Assignment: `{!varCurrency}` **equals** `7` After the Assignment: `{!varCurrency}` is `7`
add	The number that you enter or select for Value is added to the value of Variable.	• Currency • Number	Before the Assignment: `{!varCurrency}` is `10` Assignment: `{!varCurrency}` **add** `7` After the Assignment: `{!varCurrency}` is `17`
subtract	The number that you enter or select for Value is subtracted from the value of Variable.	• Currency • Number	Before the Assignment: `{!varCurrency}` is `10` Assignment: `{!varCurrency}` **subtract** `7` After the Assignment: `{!varCurrency}` is `3`
equals count	The number of stages or collection items in what you enter for Value replaces the value of Variable.	• Collection • $Flow.ActiveStages	Before the Assignment: • `{!varNumber}` is `0` • `{!collText}` is `Yellow, Green, Blue` Assignment: `{!varNumber}` **equals count** `{!collText}`

Operator	Description	Supported Data Types	Example
			After the Assignment: `{!collText}` is `3`

Date

Replace (equals), add to (add), or subtract from (subtract) the value of a date/time resource.

Operator	Description	Supported Data Types	Example
equals	The date that you enter or select for Value replaces the value of Variable.	• Date • Date/Time	Before the Assignment: `{!varDate}` is `1/16/2016` Assignment: `{!varDate}` **equals** `1/15/2016` After the Assignment: `{!varDate}` is `1/15/2016`
add	Value is added, in days, to the selected Variable's value.	• Currency • Number	Before the Assignment: `{!varDate}` is `1/16/2016` Assignment: `{!varDate}` **add** `7` After the Assignment: `{!varDate}` is `1/23/2016`
subtract	Value is subtracted, in days, from the selected Variable's value.	• Currency • Number	Before the Assignment: `{!varDate}` is `1/16/2016` Assignment: `{!varDate}` **subtract** `7` After the Assignment: `{!varDate}` is `1/9/2016`

Date/Time

Replace a date/time resource with a new value (equals).

Operator	Description	Supported Data Types	Example
equals	The date that you enter or select for Value replaces the value of Variable.	• Date • Date/Time	Before the Assignment: `{!varDateTime}` is `1/16/2016 01:00` Assignment: `{!varDateTime}` **equals** `1/16/2016 08:00` After the Assignment: `{!varDateTime}` is `1/16/2016 08:00`

Picklist

Replace a picklist resource with a new value (equals) or concatenate a value onto the original value (add).

Note: Before values are assigned or added to a picklist resource, they're converted into string values.

Operator	Description	Supported Data Types	Example
equals	What you enter or select for Value replaces the value of the selected picklist.	• Boolean • Currency • Date • Date/Time • Multi-Select Picklist • Number • Picklist • Text	Before the Assignment: `{!varPicklist}` is `Blue` Assignment: `{!varPicklist}` **equals** `Yellow` After the Assignment: `{!varPicklist}` is `Yellow`
add	What you enter or select for Value is added to the end of the selected picklist.	• Boolean • Currency • Date • Date/Time • Multi-Select Picklist • Number • Picklist • Text	Before the Assignment: `{!varPicklist}` is `Blue` Assignment: `{!varPicklist}` **add** `-green` After the Assignment: `{!varPicklist}` is `Blue-green`

Multi-Select Picklist

Replace a multi-select picklist resource with a new value (equals), concatenate a value onto the original value (add), or add a selection to the resource (add item).

Note: Before values are assigned or added to a multi-select picklist resource, they're converted into string values.

Operator	Description	Supported Data Types	Example
equal	What you enter or select for Value replaces the value of the selected multi-select picklist.	• Boolean • Collection • Currency • Date • Date/Time • Multi-Select Picklist • Number • Picklist • Text	Before the Assignment: `{!varMSP}` is `Blue` Assignment: `{!varMSP}` **equals** `Yellow` After the Assignment: `{!varMSP}` is `Yellow`

Operator	Description	Supported Data Types	Example
add	What you enter or select for Value is added to the last item selected in the multi-select picklist. It doesn't create a selection. Easily add items to a multi-select picklist resource by using the "add item" operator. To add semi-colon-delimited items to a multi-select picklist variable with the "add" operator, always add a single space after the semi-colon and don't include a space before the semi-colon. This way, you can compare the variable's values to the values of a multi-select picklist field from the Salesforce database. For example: `; Yellow`	• Boolean • Currency • Date • Date/Time • Multi-Select Picklist • Number • Picklist • Text	Before the Assignment: `{!varMSP}` is `Blue; Green`. This value includes two separate selections Assignment: `{!varMSP}` **add** `Yellow` After the Assignment: `{!varMSP}` is `Blue; GreenYellow`. This value includes two separate selections
add item	What you enter or select for Value is added as a new selection to the end of the multi-select picklist. The Assignment automatically adds ";" before the new item. That way, Salesforce reads it as a separate item selected by the multi-select picklist.	• Boolean • Currency • Date • Date/Time • Multi-Select Picklist • Number • Picklist • Text	Before the Assignment: `{!varMSP}` is `Blue; Green` Assignment: `{!varMSP}` **add** item `Yellow` After the Assignment: `{!varMSP}` is `Blue; Green; Yellow`. This value includes three separate selections

Stage

You can't update the value of a stage, but you can update the values of the stage system variables: `$Flow.CurrentStage` and `$Flow.ActiveStages`.

Note: Assignments use the stage's fully qualified name: *namespace*`.`*flowName*`:`*stageName* or *flowName*`:`*stageName*.

`$Flow.CurrentStage`

Replace the stage selected in `$Flow.CurrentStage`.

Operator	Description	Supported Data Types	Example
equals	The stage that you select for Value replaces the value of `$Flow.CurrentStage`.	Stage	Before the Assignment: `$Flow.CurrentStage` is `stage1` Assignment: `{!$Flow.CurrentStage}` **equals** `{!stage2}` After the Assignment: `$Flow.CurrentStage` is `stage2`

`$Flow.ActiveStages`

Add or remove active stages in the `$Flow.ActiveStages` system variable.

Operator	Description	Supported Data Types	Example
add	Value is added to the end of `$Flow.ActiveStages`.	• Stage • `$Flow.ActiveStages` • `$Flow.CurrentStage`	Before the Assignment: `$Flow.ActiveStages` is `stage1, stage2` Assignment: `{!$Flow.ActiveStages}` **add** `{!stage3}` After the Assignment: `$Flow.ActiveStages` is `stage1, stage2, stage3`
remove after first	The first instance of the stage in Value is found within `$Flow.ActiveStages`. All stages after the first instance are removed from `$Flow.ActiveStages`.	• Stage • Text • `$Flow.CurrentStage`	Before the Assignment: `$Flow.ActiveStages` is `stage1, stage2, stage3, stage4` Assignment: `{!$Flow.ActiveStages}` **remove after first** `{!stage2}` After the Assignment: `$Flow.ActiveStages` is `stage1, stage2`
add at start	Value is added to the beginning of `$Flow.ActiveStages`.	• Stage • `$Flow.ActiveStages` • `$Flow.CurrentStage`	Before the Assignment: `$Flow.ActiveStages` is `stage1, stage2` Assignment: `{!$Flow.ActiveStages}` **add at start** `{!stage0}` After the Assignment: `$Flow.ActiveStages` is `stage0, stage1, stage2`
remove all	All instances of Value are removed from `$Flow.ActiveStages`.	• Stage • `$Flow.ActiveStages` • `$Flow.CurrentStage`	Before the Assignment: `$Flow.ActiveStages` is `stage1, stage2, stage3` Assignment: `{!$Flow.ActiveStages}` **remove all** `{!$Flow.ActiveStages}` After the Assignment: `$Flow.ActiveStages` is `empty`

Operator	Description	Supported Data Types	Example
remove first	The first instance of the stage in Value is removed from `$Flow.ActiveStages`.	• Stage • `$Flow.CurrentStage`	Before the Assignment: `$Flow.ActiveStages` is `stage1, stage2, stage3, stage1` Assignment: `{!$Flow.ActiveStages}` **remove first** `stage1` After the Assignment: `$Flow.ActiveStages` is `stage2, stage3, stage1`
remove before first	The first instance of the stage in Value is found within `$Flow.ActiveStages`. All stages before that first instance are removed from `$Flow.ActiveStages`.	• Stage • `$Flow.CurrentStage`	Before the Assignment: `$Flow.ActiveStages` is `stage1, stage2, stage3, stage4` Assignment: `{!$Flow.ActiveStages}` **remove before first** `{!stage3}` After the Assignment: `$Flow.ActiveStages` is `stage3, stage4`
remove position	Value specifies a position in `$Flow.ActiveStages`. The stage at that position is removed from `$Flow.ActiveStages`. Make sure that Value at run time is a positive integer that is within the range of the number of stages in `$Flow.ActiveStages`.	Number	Before the Assignment: • `$Flow.ActiveStages` is `stage1, stage2, stage3` • `{!varNum}` is 2 Assignment: `{!$Flow.ActiveStages}` **remove position** `{!varNum}` After the Assignment: `$Flow.ActiveStages` is `stage1, stage3`

sObject

Replace an sObject variable with a new value (equals).

Operator	Description	Supported Data Types	Example
equals	The sObject that you select for Value replaces the value of Variable.	sObject with the same object type	Before the Assignment: • `{!account1}` contains field values for the Acme Wireless account • `{!account2}` contains field values for the Global Media account Assignment: `{!account1}` **equals** `{!account2}` After the Assignment: both `{!account1}` and `{!account2}` contain the field values for the Global Media account

Text

Replace a text resource with a new value (equals) or concatenate a value onto the end of the original value (add).

Note: Before values are assigned or added to a text resource, they're converted into string values.

Operator	Description	Supported Data Types	Example
equals	The text that you enter or select for Value replaces the value of Variable.	• Boolean • Currency • Date • Date/Time • Number • Multi-select picklist • Picklist • Stage, including $Flow.CurrentStage and $Flow.ActiveStages • Text	Before the Assignment: `{!varText}` is `Blue` Assignment: `{!varText}` **equals** `Yellow` After the Assignment: `{!varText}` is `Yellow`
add	The text that you enter or select for Value is added to the end of Variable.	• Boolean • Currency • Date • Date/Time • Number • Multi-select picklist • Picklist • Stage, including $Flow.CurrentStage and $Flow.ActiveStages • Text	Before the Assignment: `{!varText}` is `Blue` Assignment: `{!varText}` **add** `Yellow` After the Assignment: `{!varText}` is `BlueYellow`

Operators in Flow Conditions

Use condition operators to verify the value of a selected resource. Conditions are used in Decision elements and Wait elements.

Use this reference, divided up by the data type that you select for Resource, to understand the supported operators.

- Boolean
- Choice
- Collection
- Currency
- Date
- Date/Time
- Multi-Select Picklist
- Number
- Picklist
- sObject
- Stage
- Text

EDITIONS

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Boolean

Check whether a Boolean resource's value matches another value or resource.

Operator	True if...	Supported Data Types
does not equal	The value of the selected Resource doesn't match what you enter or select for Value.	Boolean
equals	The value of the selected Resource matches what you enter or select for Value. An outcome resolves to true if the flow interview took that outcome. A wait event resolves to true if all of the waiting conditions for that event are met.	Boolean
was set	The value for Resource is a field in an sObject variable, and that field has been populated with a value in the flow at least once.	Boolean
was visited	The selected Resource is an element in the flow, and it has been visited during the flow interview.	Boolean

Choice

Every choice resource has a data type and obeys the operator rules for that data type. However, choice resources support one extra operator that other resources don't, no matter what their data type is.

Operator	True if...	Supported Data Types
was selected	A user selected that choice or dynamic record choice in a screen choice input field. If your flow references the same choice option in multiple screens, was selected always evaluates to the most recent screen that the flow visited. If your flow references the same choice option with a user input in more than one place on the same screen, this operator always evaluates the first usage in the screen.	Boolean

Collection

Check whether a Collection resource's value contains or matches another value or resource.

Operator	True if...	Supported Data Types
contains	An item in the collection that's selected for Resource contains the exact same value as Value	Resource of the same data type. For sObject collection variables, only sObject resources with the same object type are supported.
does not equal	The collection that's selected for Resource doesn't match the collection that's selected for Value Two sObject collection variables are unequal if they include different fields or if the fields have different values.	Collection of the same data type. For sObject collection variables, only sObject collection variables with the same object type are supported.
equals	The collection that's selected for Resource matches the collection that's selected for Value Two sObject collection variables are equal if they include the same fields and those fields have the same values.	Collection of the same data type. For sObject collection variables, only sObject collection variables with the same object type are supported.
is null	The collection that's selected for resource isn't populated with any values	Boolean

Currency and Number

Check whether a Currency or Number resource's value matches, is larger than, or is smaller than another value or resource.

Operator	True if...	Supported Data Types
does not equal	The value for Resource doesn't match what's entered or selected for Value	• Currency • Number
equals	The value for Resource matches what's entered or selected for Value	• Currency • Number
greater than	The value of the Resource is larger than what's entered or selected for Value	• Currency

Operator	True if...	Supported Data Types
		• Number
greater than or equal	The value of the Resource is larger than what's entered or selected for Value or is the same	• Currency • Number
less than	The value of the Resource is smaller than what's entered or selected for Value	• Currency • Number
less than or equal	The value of the Resource is smaller than what's entered or selected for Value or is the same	• Currency • Number
is null	Resource isn't populated with a value	Boolean
was set	The value for Resource is a field in an sObject variable, and that field has been populated with a value in the flow at least once	Boolean

Date and Date/Time

Check whether a Date or Date/Time resource's value matches, is before, or is after another value or resource.

Operator	True if...	Supported Data Types
does not equal	The value for Resource doesn't match what's entered or selected for Value	• Date • Date/Time
equals	The value for Resource matches what's entered or selected for Value	• Date • Date/Time
greater than	The value of the Resource is a later date or time than what's entered or selected for Value	• Date • Date/Time
greater than or equal	The value of the Resource is a later date or time than what's entered or selected for Value or is the same date or time	• Date • Date/Time
less than	The value of the Resource is an earlier date or time than what's entered or selected for Value	• Date • Date/Time
less than or equal	The value of the Resource is an earlier date or time than what's entered or selected for Value or is the same date or time	• Date • Date/Time
is null	Resource isn't populated with a value	Boolean

Operator	True if...	Supported Data Types
was set	The value for Resource is a field in an sObject variable, and that field has been populated with a value in the flow at least once	Boolean

Picklist

Check whether a Picklist resource's value matches or contains another value or resource.

Note: These operators treat the resource's value as a text value.

Operator	True if...	Supported Data Types
contains	The value for Resource contains what's entered or selected for Value For example, if the value of `{!varPicklist}` is `yellow-green`, the condition `{!varPicklist}` **contains** `green` evaluates to true.	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Text
does not equal	The value for Resource doesn't match what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Text
equals	The value for Resource matches what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist

Operator	True if...	Supported Data Types
		• Text
was set	The value for Resource is a field in an sObject variable, and that field has been populated with a value in the flow at least once	Boolean

Multi-Select Picklist

Check whether a multi-select picklist resource's value matches or contains another value or resource.

Note: These operators treat the resource's value as a text value. If the resource's value includes multiple items, the operators treat the value as one string that happens to include semi-colons. It doesn't treat each selection as a different value. For example, the operators treat `red; blue; green` as a single value rather than three separate values.

Operator	True if...	Supported Data Types
contains	The value for Resource contains what's entered or selected for Value Tip: When you use this operator for a multi-select picklist resource, be aware of the values that a user can enter. If you want to check that a specific value is included and that value is also included as part of another value, create a flow formula resource that uses the INCLUDES function. For example, your organization has a Color multi-select picklist value. Among the possible values are "green" and "yellow-green". If both "green" and "yellow-green" are acceptable values, use the contains operator in a flow condition. If only "green" is an acceptable value, create a formula that uses the INCLUDES() function.	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Text
does not equal	The value for Resource doesn't match what's entered or selected for Value Note: Order matters. If you aren't sure which order the values that you're checking for will appear in, use the INCLUDES() function in a flow formula. For example, if you compare "red; blue; green" to "blue; green; red" using the does not equal operator, that condition resolves to true.	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Text
equals	The value for Resource exactly matches what's entered or selected for Value Note: Order matters. If you aren't sure which order the values that you're checking for will appear in, use the INCLUDES() function in a flow formula. For example, if you compare "red; blue; green" to "blue; green; red" using the equals operator, that condition will resolve to false.	• Boolean • Currency • Date • Date/Time • Multi-select Picklist

Operator	True if...	Supported Data Types
		• Number • Picklist • Text
was set	The value for Resource is a field in an sObject variable, and that field has been populated with a value in the flow at least once	Boolean

Stage

Note: Stages resolve to the fully qualified stage name: `namespace.flowName:stageName` or `flowName:stageName`.

Check whether a Stage resource or the `$Flow.CurrentStage` system variable matches, ends with, or starts with another value or resource.

Operator	True if...	Supported Data Types
does not equal	The value for Resource doesn't match what's entered or selected for Value	• Stage • Text
equals	The value for Resource matches what's entered or selected for Value	• Stage • Text
ends with	The end of the value for Resource matches what's entered or selected for Value	• Stage • Text
is null	Resource isn't populated with a value	Boolean
starts with	The beginning of the value for Resource matches what's entered or selected for Value	• Stage • Text

Check whether `$Flow.ActiveStages` contains a particular stage, matches the value of a Text collection, or is null.

Operator	True if...	Supported Data Types
contains	`$Flow.ActiveStages` contains an item that matches the resource that's selected for Value.	• Stage • Text
does not equal	The collection that's selected for Resource doesn't match `$Flow.ActiveStages`.	Text collection
equals	The collection that's selected for Resource doesn't match `$Flow.ActiveStages`.	Text collection

Operator	True if...	Supported Data Types
is null	`$Flow.ActiveStages` isn't populated with any stages.	Boolean

sObject

Check whether an sObject resource's value matches another value or resource.

Operator	True if...	Supported Data Types
does not equal	The value for Resource doesn't match what's entered or selected for Value	sObject with the same object type
equals	The value for Resource matches what's entered or selected for Value	sObject with the same object type
is null	Resource isn't populated with a value	Boolean

Text

Check whether a Text resource's value matches, contains, ends with, or starts with another value or resource.

Note:

- Before values are compared to a text resource, they're converted into string values.
- Stages resolve to the fully qualified stage name: `namespace.flowName:stageName` or `flowName:stageName`.

Operator	True if...	Supported Data Types
contains	The value for Resource contains what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text
does not equal	The value for Resource doesn't match what's entered or selected for Value	• Boolean • Currency • Date • Date/Time

Operator	True if...	Supported Data Types
		• Multi-select Picklist • Number • Picklist • Stage • Text
equals	The value for Resource matches what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text
ends with	The end of the value for Resource matches what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text
is null	Resource isn't populated with a value	Boolean
starts with	The beginning of the value for Resource matches what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage

Operator	True if...	Supported Data Types
		• Text
was set	The value for Resource is a field in an sObject variable, and that field has been populated with a value in the flow at least once	Boolean

Operators in Flow Record Filters

A flow record filter narrows the scope of records that the flow operates on. For example, use a record filter to update only the contacts that are associated with the Acme Wireless account. When you add a Record Update element, use the record filters to narrow the scope to just the contacts whose parent account is Acme Wireless.

Use this reference, organized by the data type of the field that you select, to understand the supported operators.

- Address Fields
- Autonumber Fields
- Checkbox Fields
- Currency Fields
- Date Fields
- Date/Time Fields
- Email Fields
- Encrypted Text Fields
- External Lookup Relationship Fields
- Fax Fields
- Lookup Relationship Fields
- Multi-Select Picklist Fields
- Number Fields
- Parent Fields
- Percent Fields
- Phone Fields
- Picklist Fields
- Text Fields
- Text Area (Long) Fields
- Text Area (Rich) Fields
- URL Fields

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Checkbox Fields

When you select a checkbox field under Field, these operators are available.

Operator	Filters to records where the selected field's value ...	Supported Data Types
does not equal	Doesn't match what you enter or select for Value	Boolean
equals	Matches what you enter or select for Value	Boolean
is null	Hasn't been populated with a value yet (if you select True for Value)	Boolean

Tip: Flow treats `null` as a different value than `false`. If you filter for records whose checkbox field is null, no records are returned.

Currency, Number, and Percent Fields

When you select a currency, number, or percent field under Field, these operators are available.

Operator	Filters to records where the selected field's value ...	Supported Data Types
does not equal	Doesn't match what's entered or selected for Value	• Currency • Number
equals	Matches what's entered or selected for Value	• Currency • Number
greater than	Is larger than what's entered or selected for Value	• Currency • Number
greater than or equal	Is larger than what's entered or selected for Value or is the same	• Currency • Number
is null	Hasn't been populated with a value yet (if you select True for Value)	Boolean
less than	Is smaller than what's entered or selected for Value	• Currency • Number
less than or equal	Is smaller than what's entered or selected for Value or is the same.	• Currency • Number

Date and Date/Time

When you select a date or date/time field under Field, these operators are available.

Operator	Filters to records where the selected field's value ...	Supported Data Types
does not equal	The value for Resource doesn't match what's entered or selected for Value	• Date • Date/Time
equals	The value for Resource matches what's entered or selected for Value	• Date • Date/Time
greater than	The value of the Resource is a later date or time than what's entered or selected for Value	• Date • Date/Time
greater than or equal	The value of the Resource is a later date or time than what's entered or selected for Value or is the same date or time	• Date • Date/Time
is null	Hasn't been populated with a value yet (if you select True for Value)	Boolean
less than	The value of the Resource is an earlier date or time than what's entered or selected for Value	• Date • Date/Time
less than or equal	The value of the Resource is an earlier date or time than what's entered or selected for Value or is the same date or time	• Date • Date/Time

Picklist and Text Fields

When you select a picklist or text field under Field, these operators are available.

Operator	Filters to records where the selected field's value ...	Supported Data Types
contains	Contains what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text
does not equal	Doesn't match what's entered or selected for Value	• Boolean • Currency

Operator	Filters to records where the selected field's value ...	Supported Data Types
		• Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text
equals	Matches what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text
ends with	Ends with what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text
is null	Hasn't been populated with a value yet (if you select True for Value)	Boolean
starts with	Begins with what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage

Operator	Filters to records where the selected field's value ...	Supported Data Types
		• Text

Multi-Select Picklist Fields

When you select a multi-select picklist field under Field, these operators are available.

Tip: Be careful when using these operators to filter records based on a multi-select picklist field. Even if two resources have the same items in a multi-select picklist, they can be mismatched if these cases differ.

- The spacing before or after the semi-colon. For example, one resource's value is "red; green; blue" and the other's value is "red;green;blue"
- The order of the items. For example, one resource's value is "red; green; blue" and the other's value is "red; blue; green"

For best results, use the INCLUDES function in a flow formula.

Operator	Filters to records where the selected field's value ...	Supported Data Types
does not equal	Doesn't match what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text
equals	Matches what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text
ends with	Ends with what's entered or selected for Value	• Boolean • Currency • Date • Date/Time

Operator	Filters to records where the selected field's value ...	Supported Data Types
		• Multi-select Picklist • Number • Picklist • Stage • Text
is null	Hasn't been populated with a value yet (if you select True for Value)	Boolean
starts with	Begins with what's entered or selected for Value	• Boolean • Currency • Date • Date/Time • Multi-select Picklist • Number • Picklist • Stage • Text

Flow Event Types

`Event Type` drives the fields that you use to define an event in a flow Wait element. You can use a platform event, which you can fully customize. You can also use an alarm consisting of a date/time value—the base time—and an optional offset from that time.

The following applies to both types of alarms.

The *base time*, which is required, is the date/time value from which the alarm is based. If there's no offset for the alarm, the alarm is set to the exact value of the base time. The base time can be composed of one or multiple fields, based on the event type that you choose.

The *offset*, which is optional, is the amount of time before or after the base time at which the alarm occurs. An offset is always composed of two fields: `Offset Number` and `Offset Unit`. For example, if you want your alarm to occur three days after the base time, the number is `3` and the unit is `Days`.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Alarm events are available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Platform events are available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Flow Wait Event Type: Platform Events
If you've defined platform events in your org, you can choose that event as the `Event Type` in your wait event.

Flow Wait Event Type: Absolute Time Alarms
An *absolute time alarm* waits for a defined time that's based off an absolute date/time value. For example, you can use this event type in a Wait element to do something a day after the flow interview starts to wait.

Flow Wait Event Type: Relative Time Alarms

A *relative time alarm* waits for a defined time that's based off a date/time field on a record. For example, you can use this event type to do something three days before a contract ends.

SEE ALSO:

Flow Wait Element

Flow Wait Event Type: Platform Events

EDITIONS

Available in both Salesforce Classic and Lightning Experience

Available in: **Performance**, **Unlimited**, **Enterprise**, and **Developer** Editions

If you've defined platform events in your org, you can choose that event as the `Event Type` in your wait event.

When you configure a Wait element in a flow:

- Define what the flow is waiting for
- Assign information from the event after it occurs to flow variables

Event Conditions

The parameters for a platform event are the fields available on that event's definition.

For an example of a flow that waits for a platform event, see Sample Flow That Waits for a Platform Event.

Event Outputs

Platform events return one output value: one sObject value for the entire published event.

Parameter	Description	Example
`Event`	To reference data from the platform event in your flow, pass the event into an sObject variable. When you create the sObject variable, for Object select the event definition's API name.	`{!vendorResponse}`

For example, to reference Expected Delivery Date from a Vendor Response event, pass the Vendor Response data to the {!vendorResponse} sObject variable. Then reference {!vendorResponse.Expected_Delivery_Date__c} to get the specific field value.

Flow Wait Event Type: Absolute Time Alarms

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

An *absolute time alarm* waits for a defined time that's based off an absolute date/time value. For example, you can use this event type in a Wait element to do something a day after the flow interview starts to wait.

When you configure a Wait element in a flow:

- Define what the flow is waiting for
- Assign information from the event after it occurs to flow variables

Event Conditions

The following parameters are available to define events with an `Event Type` of Alarm: Absolute Time.

Parameter	Description	Example
`Base Time`	A date/time value. If you enter values for `Offset Number` and `Offset Unit`, this field value is the base for the offset. You can manually enter a date/time value or reference a merge field or flow resource.	*{!$Flow.CurrentDate}*
`Offset Number`	Optional. The number of days or hours to offset `Base Time`. Required if you set a value for `Offset Unit`.The value must be a manually entered integer. You can't use a merge field or flow resource for this value. To set the alarm to occur before `Base Time`, use a negative number. To set the alarm to occur after `Base Time`>, use a positive number.	*-3*
`Offset Unit`	Optional. The unit to offset `Base Time`. Required if you set a value for `Offset Number`. Manually enter *`Days`* or *`Hours`*. You can't use a merge field or flow resource for this value.	*Days*

For an example of a flow that waits for an absolute time alarm, see Sample Flow That Waits for a Single Event.

Event Outputs

Reference information from the event in your flow by assigning its outputs to flow variables.

Parameter	Description	Example
`Base Time`	The actual time at which the event occurred and the flow interview resumed.	`11/26/2014 10:12 AM`
`Event Delivery Status`	The status of the event when the flow interview resumed. After an event occurs, Salesforce delivers the event to the flow that's waiting for it, so that the flow knows to resume. Valid values are: • Delivered: The event was successfully delivered. • Invalid: An error occurred during delivery, but the flow successfully resumed.	`Delivered`

SEE ALSO:

Flow Event Types

Flow Wait Event Type: Relative Time Alarms

A *relative time alarm* waits for a defined time that's based off a date/time field on a record. For example, you can use this event type to do something three days before a contract ends.

When you configure a Wait element in a flow:

- Define what the flow is waiting for
- Assign information from the event after it occurs to flow variables

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Event Conditions

The following parameters are available to define events with an `Event Type` of Alarm: Relative Time.

Parameter	Description	Example
`Object Type`	The API name of the object whose field you want to base the alarm on. See Supported Objects. on page 194 You must manually enter a string. You can't use a merge field or flow resource for this value.	*`Contract`*
`Base Date/Time Field`	The API name for a date or date/time field on the specified object. If you enter values for `Offset Number` and `Offset Unit`, this field value is the base for the offset. Manually enter a string.	*`EndDate`*
`Record ID`	ID of the record that the alarm is based on. The record's object type must match `Object Type`. You can enter a string, merge field, or flow resource.	*`{!ContractId}`*
`Offset Number`	Optional. The number of days or hours to offset `Base Date/Time Field`. Required if you set a value for `Offset Unit`. The value must be a manually entered integer. You can't use a merge field or flow resource for this value. To set the alarm to occur before `Base Date/Time Field`, use a negative number. To set the alarm to occur after `Base Date/Time Field`, use a positive number.	*`-3`*
`Offset Unit`	Optional. The unit to offset `Base Date/Time Field`. Required if you set a value for `Offset Number`. Manually enter *`Days`* or *`Hours`*. You can't use a merge field or flow resource for this value.	*`Days`*

For examples of flows that wait for relative time alarms, see Sample Flow That Waits for Only the First Event or Sample Flow That Waits for Many Events.

Event Outputs

Reference information from the event in your flow by assigning its outputs to flow variables.

Parameter	Description	Example
`Base Time`	The actual time at which the event occurred and the flow interview resumed.	`11/26/2014 10:12 AM`
`Event Delivery Status`	The status of the event when the flow interview resumed. After an event occurs, Salesforce delivers the event to the flow that's waiting for it, so that the flow knows to resume. Valid values are: • Delivered: The event was successfully delivered. • Invalid: An error occurred during delivery, but the flow successfully resumed.	`Delivered`

Supported Objects

You can create a relative time alarm for any custom object or any of the following standard objects.

- `Account`
- `Asset`
- `Campaign`
- `CampaignMember`
- `Case`
- `CaseComment`
- `Certification`
- `CertificationDef`
- `CertificationSectionDef`
- `CertificationStep`
- `CertificationStepDef`
- `Contact`
- `Contract`
- `ContractLineItem`
- `DandBCompany`
- `DuplicateRecordItem`
- `DuplicateRecordSet`
- `EmailMessage`
- `Entitlement`
- `EntitlementContact`
- `EnvironmentHubMember`
- `EnvironmentHubMemberRel`
- `Event`
- `ExternalEventMapping`

- FeedItem
- Goal
- GoalLink
- Idea
- IdentityProvEventLog
- Lead
- LiveAgentSession
- LiveChatTranscript
- LiveChatTranscriptEvent
- LiveChatTranscriptSkill
- Macro
- MacroAction
- MacroInstruction
- Metric
- MobileDeviceCommand
- Opportunity
- OpportunityLineItem
- OpportunitySplit
- OpportunityTeamMember
- Order
- OrderItem
- Organization
- PersonAccount
- Product2
- ProfileSkill
- ProfileSkillEndorsement
- ProfileSkillUser
- Question
- QuickText
- Quote
- QuoteLineItem
- Reply
- SOSSession
- SOSSessionActivity
- ServiceContract
- SignupRequest
- Site
- SocialPersona
- SocialPost
- Solution

- SsoUserMapping
- StreamingChannel
- Task
- UsageEntitlementPeriod
- User
- UserLicense
- UserProvisioningRequest
- WorkBadge
- WorkBadgeDefinition
- WorkCoaching
- WorkFeedback
- WorkFeedbackQuestion
- WorkFeedbackQuestionSet
- WorkFeedbackRequest
- WorkFeedbackTemplate
- WorkGoal
- WorkPerformanceCycle
- WorkReward
- WorkRewardFund
- WorkRewardFundType
- WorkThanks
- WorkUpgradeAction
- WorkUpgradeCustomer
- WorkUpgradeUser
- *articleType*_kav

SEE ALSO:

Flow Event Types

Flow Types

A flow or flow version's type determines which elements and resources are supported, as well as the ways that the flow can be distributed.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Standard Flow Types

The following flow types are supported in the Cloud Flow Designer.

Type	Description	Available Distribution Methods	Supported in Translation Workbench
Screen Flow	Requires user interaction, because it includes screens, local actions, steps, choices, or dynamic choices. Screen flows don't support Wait elements.	• Flow actions • Lightning pages • Lightning community pages • Custom Lightning components • Custom buttons or custom links • Web tabs • Direct flow URLs • Visualforce pages • Lightning Out	✔
Autolaunched Flow	Doesn't require user interaction. This flow type doesn't support screens, local actions, steps, choices, or dynamic choices.	• Processes • Custom Apex classes • REST API • Web tabs • Custom buttons or custom links • Visualforce pages • Einstein Bots	✔
User Provisioning Flow	Provisions users for third-party services. For example, use this flow type to customize the user provisioning configuration for a connected app to link Salesforce users with their Google Apps accounts.	A user provisioning flow can only be implemented by associating it with a connected app when running the User Provisioning Wizard.	
Field Service Mobile Flow	Requires user interaction because it has one or more screens.	Field Service Lightning mobile app	✔
Field Service Embedded Flow	Requires user interaction because it has one or more screens.	Embedded Appointment Booking	✔
Contact Request Flow	Requires user interaction because it has one or more screens.	Lightning community pages Use one of the following Community Builder components to add this flow. • Contact Request Button & Flow—launch the flow in a popup window	✔

Type	Description	Available Distribution Methods	Supported in Translation Workbench
		• Flow—embed the flow directly on the page	

Other Flow Types

Not all flow types are supported in the Cloud Flow Designer. Some flow types are used in other parts of Salesforce. You can't create or edit these flows in the Cloud Flow Designer, so you don't see them in the list of flows. However, the Paused and Waiting Interviews list on the flow management page can display interviews with one of these types.

For example, a record change process runs and schedules some actions for next week. You can monitor the scheduled actions in the Paused and Waiting Interviews list by looking for the type "Record Change Process".

Type	Description
Invocable Process	A process, created in Process Builder, that starts when it's called from another process.
Platform Event Process	A process, created in Process Builder, that starts when a particular plaform event occurs.
Record Change Process	A process, created in Process Builder, that starts when a record is created or edited for a particular object.
Transaction Security Flow	A flow used in the Transaction Security App.

SEE ALSO:

- Flow Properties
- Flow and Flow Version Fields
- User Provisioning for Connected Apps

Flow Properties

A flow's properties consist of its name, description, interview label, and type. These properties drive the field values that appear on a flow or flow version's detail page. The properties of a flow and its flow versions are separate.

Tip: The properties for a given flow's versions automatically match the active version's properties by default. In other words, if you have three versions and you activate version 2, Salesforce updates the properties for versions 1 and 3 to match version 2. However, if you edit the properties for an inactive version, that version's properties are no longer automatically updated to match the active version.

From the Cloud Flow Designer, click to update the properties for a flow or a flow version.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Property	Description
`Name`	The name for the flow or flow version. The name appears in the flow management page and flow detail page. It also appears in the run time user interface. You can edit the name for inactive flows and flow versions.
`Unique Name`	The unique name for the flow. The unique name is used to refer to this flow from other parts of Salesforce, such as in a URL or Visualforce page. A unique name is limited to underscores and alphanumeric characters. It must begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores. The unique name appears on the flow detail page. You can't edit the unique name after the flow has been saved.
`Description`	The description for the flow or flow version. The description appears in the flow management page and flow detail page. You can edit the description for inactive flows and flow versions.
`Type`	The type for the flow or flow version. The type appears in the flow management page and flow detail page. It determines which elements and resources are supported in the flow or flow version, as well as the ways that the flow can be implemented. For details, see Flow Types on page 196. If the type is Login Flow, you can't update the type after the flow has been saved.
`Interview Label`	The label for the flow's interviews. An *interview* is a running instance of a flow. This label appears in: • The Paused and Waiting Interviews list on the flow management page • The Paused Interviews component on the Home tab • The Paused Interviews item in the Salesforce app You can edit the interview label for inactive flows and flow versions. By default, the interview label contains the flow name and the `{!$Flow.CurrentDateTime}` system variable. Use a text template to reference multiple resources in the label. For example, ***`Flow Name`*** `- {!Account.Name} - {!$Flow.CurrentDateTime}.`

SEE ALSO:

Save a Flow

Flow and Flow Version Fields

Manage Your Flows

Use the flow detail page to do anything with your flow outside of designing it—such as activating a flow, testing it, or viewing its properties.

To visit a flow's detail page, from Setup, enter *Flows* in the Quick Find box, select **Flows**, and then click a flow name.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Flow and Flow Version Fields

View information about a flow and its versions on the flow detail page, like its name and URL.

Open and Modify a Flow

To modify a flow, open it in the Cloud Flow Designer.

Test a Flow

Before you activate a flow, thoroughly test it to make sure that it works as expected.

Activate or Deactivate a Flow Version

You can have several different versions of a single flow in Salesforce, but only one version of each flow can be active at a time. To activate or deactivate a version of a flow, go to that flow's detail page in Setup.

Delete a Paused or Waiting Flow Interview

If you no longer need to wait for a long-running flow interview to finish or for a user to resume a paused interview, delete the interview. For example, when you're updating or deleting the associated flow version.

Delete a Flow Version

To delete an active flow version, first deactivate it. If a flow has any paused or waiting interviews, it can't be deleted until those interviews are finished or deleted. Flows that have never been activated can be deleted immediately.

Prepare Your Org for Paused Flow Interviews

A *flow interview* is a running instance of a flow. Not every flow interview can be completed in one go. Add the Pause button to your flows, so that users can pause flow interviews for later. Update the sharing model for flow interviews, so that other users can resume a paused interviews. And make it easy for users to resume interviews by adding a component to their Home page.

SEE ALSO:

Cloud Flow Designer

Flow Limits

Considerations for Managing Flows

Flow and Flow Version Fields

View information about a flow and its versions on the flow detail page, like its name and URL.

Property	Description
`Active Version`	Identifies which version is active.
`Description`	The description for the flow or flow version
`Flow Name`	The name for the flow. It appears in the run time user interface.
`Name`	The name for the flow version. It becomes the `Flow Name` when this version is active.
`Namespace Prefix`	The flow's namespace prefix, if it was installed from a managed package. The Cloud Flow Designer can't open flows that are installed from managed packages.
`Type`	Determines which elements and resources are supported in the flow or flow version, as well as the ways that the flow can be distributed. For details, see Flow Types on page 196.
`Status`	Identifies whether the flow version is active or not.
`Unique Name`	Lets you refer to the flow from other parts of Salesforce, such as in Visualforce page.
`URL`	The relative URL that you can use to run the flow, such as from a custom button or Web tab.
`Version`	The number of the flow version.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

SEE ALSO:

- Manage Your Flows
- Flow Properties

Open and Modify a Flow

To modify a flow, open it in the Cloud Flow Designer.

You can't save changes to an active flow version. You can, however, open an active version of a flow, modify it, and then save as a new version or a new flow.

1. From Setup, enter *Flows* in the Quick Find box, then select **Flows**.
2. Click the name of the flow.
3. Open the flow.
   - To open a specific version, click the **Open** link next to that version number.
   - To open the active version of the flow, click the **Open** button. If there isn't an active version, the latest version opens.

SEE ALSO:

Considerations for Designing Flows

Manage Your Flows

Activate or Deactivate a Flow Version

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Test a Flow

Before you activate a flow, thoroughly test it to make sure that it works as expected.

We recommend that you test all possible paths through the flow, so that you can find errors before they affect your users. For example, if users or inputs don't provide all the data that your flow requires, the flow can fail. Add fault connectors to provide paths for users or the flow logic to correct the data so that the flow can successfully finish.

Warning: Debugging or testing a flow actually runs the flow and performs its actions, including any DML operations and Apex code execution. Remember, closing or restarting a running flow doesn't roll back its previously executed actions, callouts, and changes committed to the database.

1. From Setup, enter *Flows* in the Quick Find box, then select **Flows**.
2. Click the name of the flow, and open the relevant version.
3. Save any changes that you make to the flow.

   Unsaved changes aren't executed when you test the flow.
4. Choose one of these options.
   - (Recommended) To set input variables or see debug details as the flow runs, click **Debug**.

     If you opt to view debug details, the flow is rendered in Lightning runtime even if Lightning runtime isn't enabled for the org.
   - To use the runtime experience determined by your process automation settings, click one of these buttons. However, you can't set input variables or see debug details.
     - **Run**—This option runs the active version of each flow called by Subflow elements. If a referenced flow has no active version, this option runs the latest version of the referenced flow.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To run or debug a flow in Cloud Flow Designer:

To run a flow from the flow detail page:

- Manage Flow

- **Run with Latest**—This option runs the latest version of each flow called by Subflow elements. This button appears only when the flow contains a Subflow element.

Once you're confident that your flow is working as expected, activate the version that you tested and distribute the flow.

SEE ALSO:

- Debug a Flow in Cloud Flow Designer
- Flow Runtime Experiences
- Activate or Deactivate a Flow Version
- Customize What Happens When a Flow Fails
- Considerations for Running Flows
- Manage Your Flows
- Flows in Transactions

Activate or Deactivate a Flow Version

You can have several different versions of a single flow in Salesforce, but only one version of each flow can be active at a time. To activate or deactivate a version of a flow, go to that flow's detail page in Setup.

When you activate a new version of a flow, the previously activated version (if one exists) is automatically deactivated. Any running flow interview continues to run using the version with which it was initiated.

1. From Setup, enter *Flows* in the Quick Find box, then select **Flows**.
2. Click the name of the flow.
3. Click **Activate** or **Deactivate** next to the relevant version of the flow.

SEE ALSO:

- Considerations for Managing Flows
- Manage Your Flows

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To activate or deactivate a flow:

- Manage Flow

Delete a Paused or Waiting Flow Interview

If you no longer need to wait for a long-running flow interview to finish or for a user to resume a paused interview, delete the interview. For example, when you're updating or deleting the associated flow version.

1. From Setup, enter *Flows* in the Quick Find box, then select **Flows**.

   If there are waiting interviews for any of your flows, the Paused and Waiting Interviews related list appears underneath the list of flows.

2. For each interview that you want to delete, click **Del**.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow

Delete a Flow Version

To delete an active flow version, first deactivate it. If a flow has any paused or waiting interviews, it can't be deleted until those interviews are finished or deleted. Flows that have never been activated can be deleted immediately.

1. From Setup, enter *Flows* in the Quick Find box, then select **Flows**.
2. Click the name of the flow.
3. To delete the flow completely, including all versions, click the **Delete** button.
4. To delete an individual version, click the **Del** link for that version.

SEE ALSO:

Considerations for Managing Flows

Manage Your Flows

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To delete a flow:

- Manage Flow

Prepare Your Org for Paused Flow Interviews

A *flow interview* is a running instance of a flow. Not every flow interview can be completed in one go. Add the Pause button to your flows, so that users can pause flow interviews for later. Update the sharing model for flow interviews, so that other users can resume a paused interviews. And make it easy for users to resume interviews by adding a component to their Home page.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

1. Let Users Pause Flow Interviews
   When users can't finish a flow interview, give them the option to pause it for later by customizing your org's process automation settings. For example, a customer service representative can pause an interview when the customer doesn't have all the necessary information.
2. Add Record Context to Your Flows
   All it takes to associate your org's paused interviews with a record is setting the $Flow.CurrentRecord system variable in your flow. That way, you can find all the paused flow interviews related to that record. For example, in the Change Address flow, set `$Flow.CurrentRecord` to `{!recordId}` so that all Change Address interviews are associated with the relevant contact.
3. Make It Easy for Users to Find Their Paused Flow Interviews
   Give your users an instant view of their paused flow interviews by customizing the Home page or Salesforce app navigation menu.
4. Make It Easy for Users to Find Paused Flow Interviews for a Record
   From a record page, display a list of all paused flow interviews that are associated with that record with this custom Lightning component.
5. Customize Who Has Access to Paused Flow Interviews
   By default, users can resume paused flow interviews as long as they have edit access. To control who has edit access, build a sharing model for the Flow Interview object. Configure the org-wide default access level, and build sharing rules to override that default for specific users or groups.
6. Restrict Who Can Resume Shared Flow Interviews
   Users can resume all paused flow interviews that they have edit access to. To restrict who can resume interviews in your org, disable `Let users resume shared flow interviews`.

Let Users Pause Flow Interviews

When users can't finish a flow interview, give them the option to pause it for later by customizing your org's process automation settings. For example, a customer service representative can pause an interview when the customer doesn't have all the necessary information.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

User Permissions Needed

To edit process automation settings:	Customize Application

1. From Setup, enter *Automation* in the `Quick Find` box, then select **Process Automation Settings**.
2. Select **Let users pause flows**.
3. Click **Save**.

Screens don't automatically display the Pause button once **Let Users Pause Flows** is enabled. If you want your users to be able to pause at a given screen, select **Allow Pause** when you configure that screen.

SEE ALSO:

General Info

Add Record Context to Your Flows

All it takes to associate your org's paused interviews with a record is setting the $Flow.CurrentRecord system variable in your flow. That way, you can find all the paused flow interviews related to that record. For example, in the Change Address flow, set `$Flow.CurrentRecord` to `{!recordId}` so that all Change Address interviews are associated with the relevant contact.

When a user pauses an interview or an interview executes a Wait element, the interview is associated with the record through the FlowRecordRelation object.

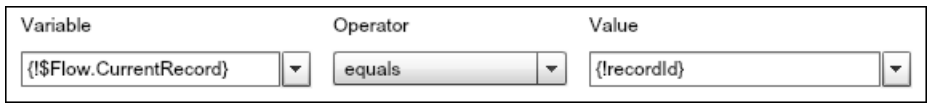
1. At the beginning of your flow, add an Assignment element.
2. For Variable, select **$Flow.CurrentRecord**.
3. For Operator, leave **equals** selected.
4. For Value, select a variable that contains the appropriate ID.

   Make sure that the variable contains only one ID.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions



Make It Easy for Users to Find Their Paused Flow Interviews

Give your users an instant view of their paused flow interviews by customizing the Home page or Salesforce app navigation menu.

Lightning Experience

Add the Paused Flow Interviews component to the appropriate Home pages. This component is available only for Home pages in the Lightning App Builder. It displays paused interviews that the user has read access to.

Lightning Communities

Add the Paused Flows component to a Community page. This component is available for most pages in Community Builder, except ones like login pages and error pages. The component displays paused interviews that the user has read access to.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Salesforce mobile web

Add the Paused Flow Interviews item to the Salesforce mobile navigation, using the Salesforce Navigation item in Setup. This navigation item displays paused interviews that the user has read access to.

Salesforce mobile app

Add the Paused Flows item to the navigation items of any Lightning app.

Salesforce Classic

Add the Paused Flow Interviews related list to the appropriate home page layouts. This component displays only interviews that the user paused.

Note: Don't see what we're describing? This content reflects the features and behavior in orgs that have opted in for the new Salesforce mobile app. If what you see here doesn't match what you see in your org, either on the desktop in Lightning Experience or in the Salesforce mobile app, we encourage you to visit the New Salesforce Mobile App QuickStart in Setup and get started with the next generation of the Salesforce mobile experience.

SEE ALSO:

Set Up the Lightning Experience Home Page

Customize Salesforce Classic Home Tab Page Layouts

Make It Easy for Users to Find Paused Flow Interviews for a Record

From a record page, display a list of all paused flow interviews that are associated with that record with this custom Lightning component.

Example: This example uses the Apex controller to get a list of interviews that are associated with the record. The component then displays the interviews in a table. For each interview, the component displays an action menu from which the user can resume or delete the interview.

When the user clicks **Resume**, the helper fires the navigateFlow action to resume the interview. When the user clicks **Delete**, the Apex controller deletes the interview.

`c:interviewsByRecord` Component

```
<aura:component controller="interviewsByRecordController"
implements="flexipage:availableForRecordHome,force:hasRecordId" access="global" >
    <aura:attribute name="columns" type="List" default=""/>
    <aura:attribute name="Interviews" type="Object" />
    <aura:attribute name="recordId" type="Id" />
    <aura:attribute name="ContextRecord" type="Object" />
    <aura:attribute name="overlay" type="Aura.Component"/>
    <aura:handler name="init" value="{!this}" action="{!c.init}" />
    <aura:handler event="force:refreshView" action="{!c.init}" />

    <force:recordData aura:id="contextRecord" recordId="{!v.recordId}"
       targetFields="{!v.ContextRecord}" layoutType="FULL"/>

    <lightning:overlayLibrary aura:id="overlayLib" />
    <lightning:card iconName="standard:flow" class="slds-card_boundary">
        <aura:set attribute="title">
            <span class="slds-card__header-link">Paused Flow Interviews</span>
        </aura:set>
        <aura:set attribute="actions">
            <lightning:buttonIcon iconName="utility:refresh" onclick="{!c.init}"
                                  alternativeText="Refresh the list of interviews" />

        </aura:set>
     <table class="slds-table slds-table--bordered slds-table--cell-buffer
       slds-table_fixed-layout">
      <thead>
        <tr class="slds-text-heading--label">
```

```
        <th scope="col"><div class="slds-truncate">Interview Label</div></th>
        <th scope="col"><div class="slds-truncate">Pause Reason</div></th>
        <th scope="col"><div class="slds-truncate">Paused Date</div></th>
        <th scope="col"><div class="slds-truncate">Current Element</div></th>
        <th scope="col"><div class="slds-truncate">Owner</div></th>
        <th scope="col" style="width: 3.25rem;"><div class="slds-truncate"/>
            <div class="slds-th__action">
               <span class="slds-assistive-text">Actions</span>
            </div>
         </th>
    </tr>
</thead>
<tbody>
    <!-- Use the Apex controller to fetch interviews associated
      with this record -->
    <aura:iteration items="{!v.Interviews}" var="interview">
       <tr>
            <th scope="row">
               <div class="slds-truncate" title="{!interview.InterviewLabel}">
                   {!interview.InterviewLabel}
                </div>
            </th>
            <td role="gridcell">
                <div class="slds-truncate" title="{!interview.PauseLabel}">
                    {!interview.PauseLabel}
                </div>
            </td>
            <td role="gridcell">
                <div class="slds-truncate" title="{!interview.PausedDate}">
                    <ui:outputDateTime value="{!interview.PausedDate}"
                       format="M/d/y h:m a"/>
                </div>
            </td>
            <td role="gridcell">
                <div class="slds-truncate" title="{!interview.CurrentElement}">
                    {!interview.CurrentElement}
                </div>
            </td>
            <td role="gridcell">
                <div class="slds-truncate" title="{!interview.PausedBy}">
                    {!interview.PausedBy}
                </div>
            </td>
            <td role="gridcell">
                <!-- Display Resume and Delete actions in a menu at the
                   end of each row -->
                <div class="slds-shrink-none">
                    <lightning:buttonMenu iconSize="x-small"
                       class="paused-interview-card-row-menu"
                        alternativeText="Actions for this interview"
                        onselect="{! c.handleMenuSelect }">
                        <lightning:menuItem aura:id="{!interview.Id + 'resume'}"

                           label="Resume" value="{!interview.Id + '.resume'}" />
```

```
                            <lightning:menuItem aura:id="{!interview.Id + 'delete'}"
                                label="Delete" value="{!interview.Id + '.delete'}"/>
                        </lightning:buttonMenu>
                    </div>
                </td>
            </tr>
        </aura:iteration>
    </tbody>
</table>
</lightning:card>
</aura:component>
```

Apex Controller

```
public class interviewsByRecordController {

    @AuraEnabled
    public static List<FlowRecordRelation> getInterviews(Id recordId) {
        return [ SELECT
                    ParentId, Parent.InterviewLabel, Parent.PauseLabel,
                    Parent.CurrentElement, Parent.CreatedDate, Parent.Owner.Name
                FROM FlowRecordRelation
                WHERE RelatedRecordId = :recordId ];
    }

    @AuraEnabled
    public static FlowInterview deleteInterview(Id interviewId) {
       FlowInterview interview = [Select Id from FlowInterview Where Id = :interviewId];

        delete interview;
        return interview;
    }
}
```

`c:interviewsByRecord` JavaScript Controller

```
({
   init : function(component, event, helper) {
      helper.populateTable(component, event, helper);
   },

   handleMenuSelect: function(component, event, helper) {
      // Figure out which action was selected
      var interviewAction = event.getParam("value").split(".");
      if(interviewAction.includes("resume")) {
         helper.handleShowModal(component, interviewAction[0]);
      } else if(interviewAction.includes("delete")) {
         helper.handleDelete(component, event, helper, interviewAction[0]);
      }
   },

   statusChange: function(component, event) {
      // When the interview finishes, close the overlay
```

```
      if(event.getParam("status").includes("FINISHED")) {
         component.get("v.overlay").close();
      }
   }
})
```

`c:interviewsByRecord` Helper

```
({
    populateTable : function(component, event, helper) {
        var action = component.get("c.getInterviews");
        action.setParams({
            recordId: component.get("v.recordId")
        });
        action.setCallback(this, $A.getCallback(function (response) {
            var state = response.getState();
            if (state === "SUCCESS") {
                // Push interviews fetched by the Apex controller to the component
                var recordRelations = response.getReturnValue();
                var interviews = [];
                for (var i = 0; i < recordRelations.length; i++) {
                    interviews.push(
                        {
                            Id: recordRelations[i].ParentId,
                            InterviewLabel: recordRelations[i].Parent.InterviewLabel,

                            PauseLabel: recordRelations[i].Parent.PauseLabel,
                            CurrentElement: recordRelations[i].Parent.CurrentElement,

                            PausedDate: recordRelations[i].Parent.CreatedDate,
                            PausedBy: recordRelations[i].Parent.Owner.Name
                        });
                }
                component.set('v.Interviews', interviews);
            } else if (state === "ERROR") {
                var errors = response.getError();
                console.error(errors);
            }
        }));
        $A.enqueueAction(action);
    },

    handleShowModal: function (component, id) {
        // On resume, render the interview in a modal
        $A.createComponent("lightning:flow", {"onstatuschange":
component.get("c.statusChange")},
            function (content, status) {
                if (status === "SUCCESS") {
                    component.find('overlayLib').showCustomModal({
                        body: content,
                        showCloseButton: true,
                        closeCallback: function () {
                            $A.get('e.force:refreshView').fire();
                        }
                    }).then(function(overlay) {
```

```
                        // Use to close the modal later
                        component.set("v.overlay", overlay);
                    });
                    content.resumeFlow(id);
                }
            });
    },

    handleDelete: function (component, event, helper, id) {
        // On delete, pass the interview ID to the Apex controller
        var action = component.get("c.deleteInterview");
        action.setParams({
            interviewId: id
        });
        action.setCallback(this, $A.getCallback(function (response) {
            var state = response.getState();
            if (state === "SUCCESS") {
                // Automatically refresh the table
                helper.populateTable(component, event, helper);
            } else if (state === "ERROR") {
                var errors = response.getError();
                console.error(errors);
            }
        }));
        $A.enqueueAction(action);
    }
})
```

Customize Who Has Access to Paused Flow Interviews

By default, users can resume paused flow interviews as long as they have edit access. To control who has edit access, build a sharing model for the Flow Interview object. Configure the org-wide default access level, and build sharing rules to override that default for specific users or groups.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

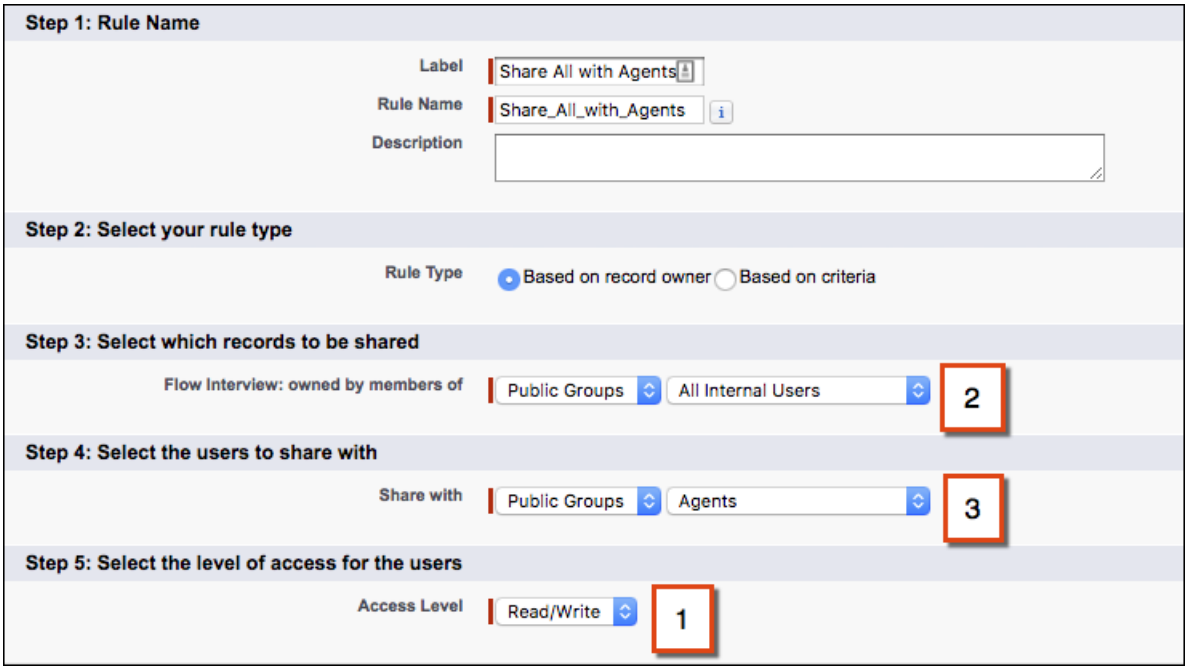
Available in: **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Note:

- The default sharing model for interviews is Private, which means that users inherit edit access from users lower in the role hierarchy. If your org uses a role hierarchy, users can resume all interviews that users lower in the hierarchy own or have edit access to.
- Users with the CEO role have read/write access to all flow interviews in the org, even if the interview owner isn't part of the hierarchy.

Example: To let all agents in your org resume any interview:

1. Add all agents to the Agents public group.
2. For Flow Interview, leave the organization-wide default set to Private.
3. In a flow interview sharing rule, give read/write access (1) for interviews owned by internal users (2) to the Agents public group (3).



SEE ALSO:

Restrict Who Can Resume Shared Flow Interviews

Sharing Considerations

Restrict Who Can Resume Shared Flow Interviews

Users can resume all paused flow interviews that they have edit access to. To restrict who can resume interviews in your org, disable `Let users resume shared flow interviews`.

User Permissions Needed	
To edit process automation settings:	Customize Application

When this setting is disabled, a paused interview can be resumed only by the interview owner or by a flow admin who has view access to the interview.

1. From Setup, enter *`Automation`* in the `Quick Find` box, then select **Process Automation Settings**.
2. Deselect `Let users resume shared flow interviews`.
3. Click **Save**.

SEE ALSO:

Customize Who Has Access to Paused Flow Interviews

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Distribute Your Flow

Once you've designed and tested your flow, it's time to put it to work! Flows can be executed in several ways, depending on who the flow is designed for. Internal users, external users, or systems can run a flow, or a flow can be deployed for another organization.

IN THIS SECTION:

Flow Runtime Experiences

Depending on how a flow is distributed, users see either the Classic runtime or Lightning runtime UI when they run the flow. Like its name suggests, Lightning runtime looks and feels like Lightning Experience.

Distribute a Flow to Internal Users

Enable your internal users to run your flow through a custom action, the flow URL, a Lightning page, a Visualforce page, or a custom Aura component.

Distribute a Flow to External Users

Let external users run your flow by adding the flow to a Lightning community or external app or page. For finer control over how your flow behaves in external contexts, use a custom Aura component or Visualforce page. Flows in custom Aura components use Lightning runtime, and flows in Visualforce pages use Classic runtime.

Launch a Flow Automatically

Some flows don't require any user interaction to start. To enable a system to automatically launch a flow, use the `start` Apex method, a process, or a workflow action.

Deploy a Flow to Other Organizations

Flows created in the Cloud Flow Designer can be included in Lightning Bolt Solutions, change sets, and packages. The recipient organization of the solution, change set, or package must have flows enabled.

Flow Runtime Experiences

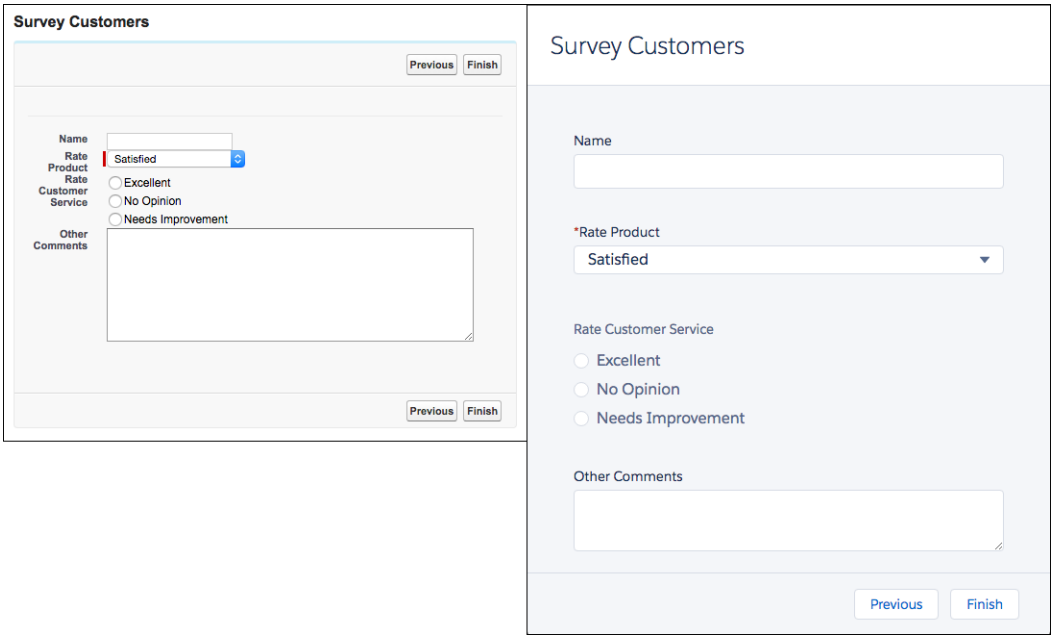
Depending on how a flow is distributed, users see either the Classic runtime or Lightning runtime UI when they run the flow. Like its name suggests, Lightning runtime looks and feels like Lightning Experience.

Here's the same flow rendered in Classic runtime (left) and Lightning runtime (right).

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions



Which Runtime Experience Do My Users See?

Flows that run from a Visualforce component always use Classic runtime. Flows that run from a Lightning page, flow action, or custom Lightning component always use Lightning runtime. All other methods depend on whether Lightning runtime has been enabled in your org's Process Automation settings.

This table summarizes which runtime experience your users see based on how you distribute the flow.

Flow Distribution Method	When Lightning Runtime for Flows is	
	Not selected	Selected
Visualforce component	Classic runtime	Classic runtime
Custom button	Classic runtime	Lightning runtime
Custom link	Classic runtime	Lightning runtime
Web tab	Classic runtime	Lightning runtime
Direct link	Classic runtime	Lightning runtime
Flow action	Lightning runtime	Lightning runtime
Lightning page	Lightning runtime	Lightning runtime
Custom Lightning component	Lightning runtime	Lightning runtime

SEE ALSO:

- Choose Your Org's Runtime Experience for URL-Based Flows
- Considerations for Running Flows

Distribute a Flow to Internal Users

Enable your internal users to run your flow through a custom action, the flow URL, a Lightning page, a Visualforce page, or a custom Aura component.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Embed a Flow in a Lightning Page

To easily distribute a flow to Lightning Experience or Salesforce app users, embed it in a Lightning page.

Add a Flow to the Actions & Recommendations Component

Want to use your flow to guide users through complex business processes in Lightning console or standard navigation apps? Associate the flow with records by using a process to create a RecordAction record. Then add the Actions & Recommendations component to your Lightning pages using the Lightning App Builder.

Create a Flow Action

To easily distribute a flow to Lightning Experience or Salesforce app users, create a flow action and add it to the appropriate page layout. Flows aren't supported for global actions.

Add a Flow to the Utility Bar

Want your flow to be accessible from any page in your app? Add it to the utility bar in your Lightning app. The utility bar gives your users quick access to commonly used tools.

Distribute a Flow URL

Users in your organization who don't need a customized look and feel can run the flow via its URL. Distribute a flow URL directly or through a custom button, link, or Web tab.

Embed a Flow for Internal Users

To customize your flow's look and feel for internal users, add the flow to a Visualforce page. Then distribute that page through a Visualforce tab, custom button, or custom link.

Embed a Flow in a Custom Aura Component

To customize how your flow gets and receives data, add it to a custom Aura component. Then distribute that component through a custom action, Lightning tab, or Lightning page.

Embed a Flow in a Lightning Page

To easily distribute a flow to Lightning Experience or Salesforce app users, embed it in a Lightning page.

Available in: Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To create and save Lightning pages in the Lightning App Builder:

- Customize Application

To view Lightning pages in the Lightning App Builder:

- View Setup and Configuration

If you're not yet familiar with the types of Lightning pages you can customize, check out the Lightning App Builder module in Trailhead. If your org uses the Outlook or Gmail integrations, you can also create custom email application panes.

1. Open a Lightning page in the Lightning App Builder.

2. From the Lightning Components pane on the left, drag the Flow component onto the Lightning page canvas.
3. Configure the component.

   Flow
   Only active screen flows are available. Flows that were built in the Desktop Flow Designer aren't supported.

   Layout
   By default, flows display in one column.

   Input variables
   If you see other properties, they are the flow's input variables. Variables appear only if they allow input access.

   Pass record ID into this variable
   This option is available only for Text input variables in Record pages. For simplicity, we recommend passing the ID to only one variable.

   For example, when this component is embedded in an Opportunity Record page, at runtime the component passes the opportunity's ID into the selected input variable.
4. Save the page.
5. Hang on, you're not done yet! To make your page available to your users, activate it. You can activate the page from the Save dialog when you save it for the first time, or later using the **Activation** button.
6. Test that the flow is working correctly, and then roll the Lightning page out to your users.

Considerations and Limitations for Flows in Lightning Pages

Here are some things to keep in mind when you add a flow component to a Lightning page.

Lightning pages always use Lightning runtime, so also review Lightning Flow Runtime Limitations.

Running Flows from a Lightning Page

When a user opens a Lightning page that has a flow component, the flow runs when the page loads. Make sure that the flow doesn't perform any actions – such as create or delete records – before the first screen.

Input Variable Limitations

- These variables aren't supported.
  - Collection variables
  - Record variables
  - Record collection variables
- The component supports only manually entered values for input variables.
- Text input variables accept a maximum length of 4,000 characters.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Deployment Considerations

Change sets and the Metadata API deploy all flows as inactive, which users can't run. If you deploy a Lightning page (known as FlexiPage in the API) that contains a flow component, make sure to activate the flow.

SEE ALSO:

- Flow Limits and Considerations
- Lightning Pages
- Lightning App Builder Considerations
- Considerations for Two-Column Flows

Add a Flow to the Actions & Recommendations Component

Want to use your flow to guide users through complex business processes in Lightning console or standard navigation apps? Associate the flow with records by using a process to create a RecordAction record. Then add the Actions & Recommendations component to your Lightning pages using the Lightning App Builder.

When users open a record that's associated with flows, the flows are added to the Actions & Recommendations component. The first flow launches as a subtab in your console app, or in a popup window in a standard navigation app. The Actions & Recommendations component is great for call scripts or chat interactions.

SEE ALSO:

Lightning Flow for Service Developer Guide (English only)

Create a Flow Action

To easily distribute a flow to Lightning Experience or Salesforce app users, create a flow action and add it to the appropriate page layout. Flows aren't supported for global actions.

Available in: Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To create actions:
- Customize Application

1. From the management settings for the object for which you want to create an action, go to Buttons, Links, and Actions.
2. Click **New Action**.
3. For Action Type, select **Flow**.
4. Select the flow to use in your action.

   The flow must be active and of type "Screen Flow" or "Field Service Mobile Flow".

   Note: This release contains a beta version of Field Service Mobile flow actions that is production quality but has known limitations. To access this feature, contact Salesforce. To provide feedback and suggestions, go to IdeaExchange.

5. Enter a label for the action.

   Users see this label, rather than the flow name, as the name of the action. We recommend entering the name of the flow as the action label.

6. If necessary, change the name of the action.
   This name is used in the API and managed packages. It must begin with a letter and use only alphanumeric characters and underscores, and it can't end with an underscore or have two consecutive underscores. Unless you're familiar with working with the API, we suggest not editing this field.
7. Type a description for the action.
   The description appears on the detail page for the action and in the list on the Buttons, Links, and Actions page. The description isn't visible to your users. If you're creating several actions on the same object, we recommend using a detailed description.
8. Optionally, change the action icon to a static resource in your org.
   Custom images used for action icons must be less than 1 MB in size.
9. Save the action.
10. Hang on, you're not done yet! To make your action available to your users, add it to a page layout.

Want the action to send the record's ID to your flow? Make sure that the flow has a variable with these settings.

Variable Setting	Value
Unique Name	`recordId` (case sensitive)
Data Type	Text
Input/Output Type	• Input Only • Input and Output

Note: If you delete an action, the action is removed from all layouts that it's assigned to. If you deactivate a flow referenced in an action, the action doesn't appear at runtime.

IN THIS SECTION:

Flow Action Considerations
Keep these considerations in mind before using flow actions.

Flow Action Considerations

Keep these considerations in mind before using flow actions.

EDITIONS

Available in: both the Salesforce app and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Flow Type
Flow actions support only flows that include screens.

Flow Status
The flow must be active. If you later deactivate the flow, the action doesn't appear at runtime.

Action Types
Flow actions are available only as object-specific actions.

Action Title
The title that appears on the modal is the action's label instead of the flow name. We recommend entering the flow name as the action label.

Input Variables
Flow actions let you pass the value of the record's ID field into the flow, but that's it. If your flow has a Text input variable called recordId, the action passes the record's ID into that variable at runtime. If not, it doesn't and the flow tries to run anyway.

Help Text
A flow action's screen-level help text isn't available for feed-based page layouts.

Add a Flow to the Utility Bar

Want your flow to be accessible from any page in your app? Add it to the utility bar in your Lightning app. The utility bar gives your users quick access to commonly used tools.

Available in: Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

1. From Setup, enter *App* in the Quick Find box, then select **App Manager**.
2. Edit an existing Lightning App or click **New Lightning App**. You can also upgrade a custom Classic App to a Lightning app.
3. Under App Settings, click **Utility Items**.
4. Click **Add Utility Item**, and select **Flow**.
5. Configure the utility item properties and the component properties.

   Flow
   Only active screen flows are available. Flows that were built in the Desktop Flow Designer aren't supported.

   Layout
   By default, flows display in one column.

6. Save your changes.

To verify your changes, click the App Launcher and select the app that you added the flow to.

Distribute a Flow URL

Users in your organization who don't need a customized look and feel can run the flow via its URL. Distribute a flow URL directly or through a custom button, link, or Web tab.

1. From Setup, enter *Flows* in the Quick Find box, then select **Flows**.
2. Click the name of the flow.
3. Verify that there's an active version.
   Only users with the Manage Flow permission can run inactive flows. If the flow contains subflow elements, the referenced flows must also have an active version.
4. Copy the flow URL, and append it to your instance.
   For example:

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To view flow detail pages:
- Manage Flow

```
https://yourDomain.my.salesforce.com/flow/MyFlowName
```

If the flow was installed from a managed package, include the namespace prefix in the flow URL. For example:

```
https://yourDomain.my.salesforce.com/flow/namespace/MyFlowName
```

5. To set the initial values of your flow's variables, append `?variable1=value1&variable2=value2` to the URL.
6. Distribute the flow URL.
   Here are some examples:
   - Create a custom button or link, and add it to a page layout.
   - Create a Web tab, and add it to the appropriate profiles.

IN THIS SECTION:

Choose Your Org's Runtime Experience for URL-Based Flows

Are you distributing a flow via a URL? That includes things like direct URLs and custom buttons, as well as links in Setup. You can flip one switch to upgrade all those flows to Lightning runtime.

Render Two-Column Screens from a Flow URL

When you distribute a flow using a URL, you can control whether to display the screens with one column or two columns. Two-column screens are supported only for orgs that have enabled Lightning runtime.

Set Flow Variables from a Flow URL

When you distribute a flow using a URL, you can set the initial values of flow variables and collection variables by using parameters in the URL.

Set Flow Finish Behavior with a Flow URL

By default, when a flow interview that uses screens finishes, a new interview for that flow begins, and the user is redirected to the first screen. If you want to redirect users to another page within Salesforce when they click **Finish**, use the `retURL` parameter in the flow URL.

Choose Your Org's Runtime Experience for URL-Based Flows

Are you distributing a flow via a URL? That includes things like direct URLs and custom buttons, as well as links in Setup. You can flip one switch to upgrade all those flows to Lightning runtime.

User Permissions Needed	
To edit process automation settings:	Customize Application

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

We have two flavors of runtime experience for your flow users. *Classic runtime* looks more like a standard Visualforce page. *Lightning runtime* fits right in with Lightning Experience. To see a comparison of the two runtime experiences, check out Flow Runtime Experiences.

To render all URL-based flows in Lightning runtime:

1. From Setup, enter *Process Automation Settings* in the `Quick Find` box, then select **Process Automation Settings**.
2. Select **Enable Lightning runtime for flows**.
3. Save your changes.

This setting also lets you control whether a flow displays in one or two columns if you distribute the flow via a URL or via a Lightning page.

When enabled, flows use Lightning runtime when they're run from:

- A direct link
- A custom button or link
- The Run button in the Cloud Flow Designer
- A Run link on the flow list page
- The Run button on a flow detail page

SEE ALSO:

Flow Runtime Experiences

Render Two-Column Screens from a Flow URL

Render Two-Column Screens from a Flow URL

When you distribute a flow using a URL, you can control whether to display the screens with one column or two columns. Two-column screens are supported only for orgs that have enabled Lightning runtime.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Prerequisites

Enable Lightning runtime so that your flows respect the specified layout.

1. From Setup, go to Process Automation Settings.
2. Select `Enable Lightning runtime for flows`.

Format

To display a flow's screens in two columns:

```
/flow/flowName?flowLayout=twoColumn
```

Examples

This example displays a "Case Management" flow in two columns.

```
/flow/Case_Management?flowLayout=twoColumn
```

This example displays a "User Info" flow in two columns and sets the varUserFirst and varUserLast variables (both of type Text) to the running user's FirstNameand LastName field values.

```
/flow/User_Info?varUserFirst={!$User.FirstName}&varUserLast={!$User.LastName}&flowLayout=twoColumn
```

SEE ALSO:

Choose Your Org's Runtime Experience for URL-Based Flows

Considerations for Two-Column Flows

Set Flow Variables from a Flow URL

When you distribute a flow using a URL, you can set the initial values of flow variables and collection variables by using parameters in the URL.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Implementation Tips

- You can't set the values for sObject variables and sObject collection variables using URL parameters.
- The variable must have its `Input/Output Type` set to allow input access.
- Variable names are case-sensitive. For example, you can't set the variable `varNumber` by entering *`VarNumber`* as a URL parameter.
- When you distribute a flow, don't pass a currency field value from a Salesforce record into a flow Currency variable with a URL parameter. When a currency field is referenced through a merge field (such as `{!Account.AnnualRevenue}`), the value includes the unit of currency's symbol (for example, $). Flow variables of type Currency can accept only numeric values, so the flow fails at run time. Instead, pass the record's ID to a flow Text variable with a URL parameter. Then in the flow, use the ID to look up that record's value for the currency field.

Format

To set the initial value of a flow variable:

```
/flow/flowName?variableName=value
```

To set the initial value of a flow variable when launching a specific version of a flow:

```
/flow/flowName/flowVersionNumber?variableName=value
```

Note: Only users with the Manage Flow permission can run inactive flows.

To set the initial values of multiple flow variables:

```
/flow/flowName?variable1Name=value1&variable2Name=value2
```

To set the initial values for items in a collection variable:

```
/flow/flowName?collection=value1&collection=value2
```

Valid Values

Variable Type	Acceptable Values
Boolean	• Merge field of type Checkbox • True values: `true` or `1` • False values: `false` or `0`
Currency	Merge field of type Number or a numeric value
Date	Merge field of type Date or `YYYY-MM-DD`
DateTime	Merge field of type Date/Time or `YYYY-MM-DDThh:mm:ssZ`

Variable Type	Acceptable Values
Multi-Select Picklist	Merge field of any type or a string in this format: `value1; value2`
Number	Merge field of type Number or a numeric value
Picklist	Merge field of any type or a string
Text	Merge field of any type or a string

Examples

The following example is a flow URL that is used in a custom button on a case page layout. When a user clicks that button, the flow launches with the varID variable (of type Text) set to the case record's `CaseNumber` field value.

```
/flow/Case_Management?varID={!Case.CaseNumber}
```

The following example sets the varUserFirst and varUserLast variables (both of type Text) to the running user's `FirstName` and `LastName` field values.

```
/flow/User_Info?varUserFirst={!$User.FirstName}&varUserLast={!$User.LastName}
```

The following example is a flow URL that is used in a custom button on a contact page layout. When a user clicks that button, the flow launches and adds text values from the contact as items in the {!collNames} text collection variable.

```
/flow/Contact_Info?collNames={!Contact.FirstName}&collNames={!Contact.LastName}
```

Set Flow Finish Behavior with a Flow URL

By default, when a flow interview that uses screens finishes, a new interview for that flow begins, and the user is redirected to the first screen. If you want to redirect users to another page within Salesforce when they click **Finish**, use the `retURL` parameter in the flow URL.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Format

To redirect users to a specific page in Salesforce after they click **Finish**:

```
/flow/flowName?retURL=url
```

where *url* is a relative URL (the part of the URL that comes after `https://yourInstance.salesforce.com/` or https://*yourInstance*.lightning.force.com/).

URL Options

You can't redirect flow users to a URL that's external to your Salesforce org.

Tip: Use Salesforce Classic URLs. Lightning Experience URLs always redirect to the home page in Lightning Experience.

- For Salesforce Classic URLs, Salesforce redirects your users to the right page in whichever Salesforce experience they've enabled — Lightning Experience or Salesforce Classic. If the page doesn't exist in Lightning Experience, Salesforce redirects the user to the page in Salesforce Classic.
- For Lightning Experience URLs, Salesforce always redirects your users to the home page in Lightning Experience (`lightning/page/home`), even if the user has Salesforce Classic enabled. Users who don't have permission to access Lightning Experience see an error message.
- If your URL redirects users to a web tab, Salesforce renders the web tab in Salesforce Classic.
- Web tabs in Lightning Experience can redirect only to Visualforce pages.

Redirect Destination	Relative URL	Example
Chatter	_ui/core/chatter/ui/ChatterPage	_ui/core/chatter/ui/ChatterPage
Home page	home/home.jsp	home/home.jsp
List view	*objectCode*?fcf=*listViewId*	006?fcf=00BD0000005lwec
Object home page, such as Accounts home	*objectCode*/o	001/o
Specific record, such as a contact, report, dashboard, user, profile, or Chatter post	*recordId*	0D5B000000SKZ7V
Visualforce page	apex/*pageName*	apex/myVisualforcePage
Web tab	servlet/servlet.Integration?lid=*webTabId*	servlet/servlet.Integration?lid=01rD0000000A88h

Limitations

- You can't use a flow variable as the value for the `retURL` parameter. If you want to use a flow variable to redirect a user, such as to a specific record, distribute the flow by using Visualforce.
- `retURL` can cause nested top and side navigation bars to render on the destination page.
- `retURL` is case-sensitive. If you use `retUrl`, the URL doesn't redirect the user.

Examples

This flow URL redirects users to Accounts home, which exists in both Lightning Experience and Salesforce Classic.

```
/flow/myFlow?retURL=001/o
```

When Lightning Experience users finish the flow interview, Salesforce redirects them to `http://yourInstance.lightning.force.com/lightning/o/Account/home`. When Salesforce Classic users finish the flow interview, Salesforce redirects them to `http://yourInstance.salesforce.com/001/o`. Either way, Salesforce redirects users to Accounts home in their respective experience.

This flow URL redirects users to a Visualforce page that exists only in Salesforce Classic.

```
/flow/myFlow?retURL=apex/myPage
```

When users finish the flow interview, Salesforce redirects them to `http://yourInstance.salesforce.com/apex/myPage` in Salesforce Classic. When they navigate away from the Visualforce page, Salesforce reverts to their original experience.

For instance, after viewing the Visualforce page, users navigate to the home page. For Lightning Experience users, Salesforce renders the Lightning Experience home page (http://*yourInstance*.lightning.force.com/**lightning**). For Salesforce Classic users, Salesforce renders the Salesforce Classic home page (`http://yourInstance.salesforce.com/home/home.jsp`).

This flow URL sets the *varUserFirst* and *varUserLast* variables (both of type Text) to the running user's `FirstName` and `LastName` field values. When the flow interview finishes, the user is redirected to the home page for whichever Salesforce experience is enabled.

```
/flow/User_Info?varUserFirst={!$User.FirstName}
   &varUserLast={!$User.LastName}&retURL=home/home.jsp
```

SEE ALSO:

- Distribute Your Flow
- Troubleshoot Flow URLs
- Set Flow Variables with the Flow URL

Embed a Flow for Internal Users

To customize your flow's look and feel for internal users, add the flow to a Visualforce page. Then distribute that page through a Visualforce tab, custom button, or custom link.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To create, edit, and set version settings for Visualforce pages:

- Customize Application

1. Find the flow's unique name.
   a. From Setup, enter *Flows* in the Quick Find box, then select **Flows**.
   b. Click the name of the flow.
   c. Copy the unique name of the flow.
2. From Setup, enter *Visualforce Pages* in the `Quick Find` box, then select **Visualforce Pages**.
3. Define a new Visualforce page, or open an existing one.
4. Add the `<flow:interview>` component somewhere between the `<apex:page>` tags.
5. Set the `name` attribute to the unique name of the flow.

   For example:

   ```
   <apex:page>
   <flow:interview name="flowuniquename"/>
   </apex:page>
   ```

   If the flow is from a managed package, the `name` attribute must be in this format: `namespace.flowuniquename`.
6. Click **Save**.
7. Restrict which users can access the Visualforce page.
   a. Click **Visualforce Pages**.
   b. Click **Security** next to your Visualforce page.
   c. Move all the appropriate profiles from Available Profiles to Enabled Profiles by using the add and remove buttons.
   d. Click **Save**.
8. Add the Visualforce page to your Lightning Platform app by using a custom button, link, or Visualforce tab.

IN THIS SECTION:

Set Flow Variable Values from a Visualforce Page
After you embed your flow in a Visualforce page, set the initial values of variables, record variables, collection variables, and record collection variables through the `<apex:param>` component.

Get Flow Variable Values to a Visualforce Page
Flow variable values can be displayed in a Visualforce page. Once you've embedded your flow in a Visualforce page, you can use Visualforce markup to get values for variables or record variables. To display values for a collection variable or a record collection variable, you can use Visualforce markup to get the individual values contained in the collection.

Configure the Flow's Finish Behavior
By default, users who click **Finish** start a new interview and see the first screen of the flow. After you embed a flow in a Visualforce page, configure the `finishLocation` attribute to route users to another page in Salesforce.

Set Flow Variable Values from a Visualforce Page

After you embed your flow in a Visualforce page, set the initial values of variables, record variables, collection variables, and record collection variables through the `<apex:param>` component.

Note: You can set variables only at the beginning of an interview. The `<apex:param>` tags are evaluated only once, when the flow is launched.

You can set only variables that allow input access. If you reference a variable that doesn't allow input access, attempts to set the variable are ignored. Compilation can fail for the Visualforce page, its `<apex:page>` component, or the Apex class.

The following table lists the ways you can set a flow's variable, record variable, and record collection variable values using Visualforce.

Method	Variables	Record Variables	Collection Variables	Record Collection Variables
Without a controller	✅			
With a standard controller	✅			
With a standard List controller				✅
With a custom Apex controller	✅	✅	✅	✅
With an Interview Map	✅	✅	✅	✅

Setting Variable Values without a Controller

This example sets `myVariable` to the value *`01010101`* when the interview starts.

```
<apex:page>
    <flow:interview name="flowname">
        <apex:param name="myVariable" value="01010101"/>
    </flow:interview>
</apex:page>
```

Setting Variable Values with a Standard Controller

You can use standard Visualforce controllers to set variables by passing in data from a record. This example sets the initial value of `myVariable` to the Visualforce expression `{!account}` when the interview starts.

```
<apex:page standardController="Account" tabStyle="Account">
    <flow:interview name="flowname">
        <apex:param name="myVariable" value="{!account}"/>
    </flow:interview>
</apex:page>
```

Setting a Record Collection Variable Value with a Standard List Controller

Because record collection variables represent an array of values, you must use a standard list controller or a custom Apex controller. This example sets `myCollection` to the value of `{!accounts}` when the interview starts.

```
<apex:page standardController="Account" tabStyle="Account" recordSetVar="accounts">
    <flow:interview name="flowname">
        <apex:param name="myCollection" value="{!accounts}"/>
    </flow:interview>
</apex:page>
```

Setting Variable Values with a Custom Apex Controller

For finer control over your Visualforce page than a standard controller allows, write a custom Apex controller that sets the variable value, and then reference that controller in your Visualforce page. This example uses Apex to set `myVariable` to a specific account's Id when the interview starts.

```
public class MyCustomController {
    public Account apexVar {get; set;}

     public MyCustomController() {
        apexVar = [
            SELECT Id, Name FROM Account
            WHERE Name = 'Acme' LIMIT 1];
    }
}
```

```
<apex:page controller="MyCustomController">
    <flow:interview name="flowname">
        <apex:param name="myVariable" value="{!apexVar}"/>
    </flow:interview>
</apex:page>
```

This example uses Apex to set a record collection variable `myAccount` to the `Id` and `Name` field values for every record with a `Name` of *Acme*.

```
public class MyCustomController {
    public Account[] myAccount {
        get {
            return [
                SELECT Id, Name FROM account
                WHERE Name = 'Acme'
                ORDER BY Id
            ] ;
```

```
        }
        set {
            myAccount = value;
        }
    }
    public MyCustomController () {
    }
}
```

```
<apex:page id="p" controller="MyCustomController">
    <flow:interview id="i" name="flowname">
        <apex:param name="accountColl" value="{!myAccount}"/>
    </flow:interview>
</apex:page>
```

Setting Variable Values with an Interview Map

This example uses an Interview map to set the value for `accVar` to a specific account's Id when the interview starts.

```
public class MyCustomController {
    public Flow.Interview.TestFlow myflow { get; set; }

     public MyCustomController() {
        Map<String, Object> myMap = new Map<String, Object>();
        myMap.put('accVar', [SELECT Id FROM Account
                             WHERE Name = 'Acme' LIMIT 1]);
        myflow = new Flow.Interview.ModemTroubleShooting(myMap);
    }
}
```

```
<apex:page controller="MyCustomController">
    <flow:interview name="flowname" interview="{!myflow}"/>
</apex:page>
```

Here's a similar example that sets the value for `accVar` to a new account when the interview starts.

```
public class MyCustomController {
    public Flow.Interview.TestFlow myflow { get; set; }

     public MyCustomController() {
        Map<String, List<Object>> myMap = new Map<String, List<Object>>();
        myMap.put('accVar', new Account(name = 'Acme'));
        myflow = new Flow.Interview.ModemTroubleShooting(myMap);
    }
}
```

```
<apex:page controller="MyCustomController">
    <flow:interview name="flowname" interview="{!myflow}"/>
</apex:page>
```

This example uses a map to add two values to a string collection variable (`stringCollVar`) and two values to a number collection variable (`numberCollVar`).

```
public class MyCustomController {
    public Flow.Interview.flowname MyInterview { get; set; }
```

```
    public MyCustomController() {
        String[] value1 = new String[]{'First', 'Second'};
        Double[] value2 = new Double[]{999.123456789, 666.123456789};
        Map<String, Object> myMap = new Map<String, Object>();
        myMap.put('stringCollVar', value1);
        myMap.put('numberCollVar', value2);
        MyInterview = new Flow.Interview.flowname(myMap);
    }
}
```

```
<apex:page controller="MyCustomController">
    <flow:interview name="flowname" interview="{!MyInterview}" />
</apex:page>
```

Get Flow Variable Values to a Visualforce Page

Flow variable values can be displayed in a Visualforce page. Once you've embedded your flow in a Visualforce page, you can use Visualforce markup to get values for variables or record variables. To display values for a collection variable or a record collection variable, you can use Visualforce markup to get the individual values contained in the collection.

Note: You can get only variables that allow output access. If you reference a variable that doesn't allow output access, attempts to get the variable are ignored. Compilation can fail for the Visualforce page, its `<apex:page>` component, or the Apex class.

The following example uses an Apex class to get a record variable value from a flow and then displays it in a Visualforce page.

```
public class FlowController {
    public Flow.Interview.flowname myflow { get; set; }
    public Case apexCaseVar;
    public Case getApexCaseVar() {
        return myflow.caseVar;
    }
}
```

```
<apex:page controller="FlowController" tabStyle="Case">
    <flow:interview name="flowname" interview="{!myflow}"/>
    <apex:outputText value="Default Case Priority: {!apexCaseVar.Priority}"/>
</apex:page>
```

This example uses an Apex class to get the values that are stored in a string collection variable (`emailsCollVar`) in the flow. Then it uses a Visualforce page to run the flow interview. The Visualforce page iterates over the flow's collection variable and displays the values for each item in the collection.

```
public class FlowController {
    public Flow.Interview.flowname myflow { get; set; }

    public List<String> getVarValue() {
        if (myflow == null) {
            return null;
        }
        else {
            return (List<String>)myflow.emailsCollVar;
        }
```

```
    }
}
```

```
<apex:page controller="FlowController">
    <flow:interview name="flowname" interview="{!myflow}" />
        <apex:repeat value="{!varValue}" var="item">
        <apex:outputText value="{!item}"/><br/>
        </apex:repeat>
</apex:page>
```

The following example uses an Apex class to set the flow to `{!myflow}` and then uses a Visualforce page to run the flow interview. The Visualforce page uses a data table to iterate over the flow's record collection variable and display the values for each item in the collection.

```
public class MyCustomController {
   public Flow.Interview.flowname myflow { get; set; }
}
```

```
<apex:page controller="MyCustomController" tabStyle="Account">
   <flow:interview name="flowname" interview="{!myflow}" reRender="nameSection" />
    <!-- The data table iterates over the variable set in the "value" attribute and
         sets that variable to the value for the "var" attribute, so that instead of
         referencing {!myflow.collectionVariable} in each column, you can simply refer
         to "account".-->
    <apex:dataTable value="{!myflow.collectionVariable}" var="account"
        rowClasses="odd,even" border="1" cellpadding="4" id="nameSection">
        <!-- Add a column for each value that you want to display.-->
        <apex:column >
            <apex:facet name="header">Name</apex:facet>
            <apex:outputlink value="/{!account['Id']}">
                {!account['Name']}
            </apex:outputlink>
        </apex:column>
        <apex:column >
            <apex:facet name="header">Rating</apex:facet>
            <apex:outputText value="{!account['Rating']}"/>
        </apex:column>
        <apex:column >
            <apex:facet name="header">Billing City</apex:facet>
            <apex:outputText value="{!account['BillingCity']}"/>
        </apex:column>
        <apex:column >
            <apex:facet name="header">Employees</apex:facet>
            <apex:outputText value="{!account['NumberOfEmployees']}"/>
        </apex:column>
    </apex:dataTable>
</apex:page>
```

Depending on the contents of the record collection variable in your flow, here's what that data table looks like.

Name	Rating	Billing City	Employees
Global Media	Hot	Toronto	14668
ABC Labs	Warm	San Jose	120
Canson	Hot	Ohta-ku, Tokyo	125
Acme Inc.	Hot	Atlanta	680
Ecotech - Switzerland	Cold	Geneva	3500
Informatica Global	Warm	Buenos Aires	300
Lutron Technologies	Hot	Murray Hill	200
Sapient-UK	Cold	London	80
Targas	Warm	Anaheim	1200

Configure the Flow's Finish Behavior

By default, users who click **Finish** start a new interview and see the first screen of the flow. After you embed a flow in a Visualforce page, configure the `finishLocation` attribute to route users to another page in Salesforce.

Set `finishLocation` with the `URLFOR` Function

Note: You can't redirect flow users to a URL that's external to your Salesforce org.

To route users to a relative URL or a specific record or detail page, using its ID, use the `URLFOR` function.

This example routes users to the Salesforce home page.

```
<apex:page>
    <flow:interview name="MyUniqueFlow" finishLocation="{!URLFOR('/home/home.jsp')}"/>
</apex:page>
```

This example routes users to a detail page with an ID of 001D000000IpE9X.

```
<apex:page>
    <flow:interview name="MyUniqueFlow" finishLocation="{!URLFOR('/001D000000IpE9X')}"/>
</apex:page>
```

For details about `URLFOR`, see Functions in the *Visualforce Developer's Guide*.

Set `finishLocation` with the `$Page` Variable

To route users to another Visualforce page without using `URLFOR`, set `finishLocation` to the name of the destination page with the format `{!$Page.pageName}`.

```
<apex:page>
    <flow:interview name="MyUniqueFlow" finishLocation="{!$Page.MyUniquePage}"/>
</apex:page>
```

For details about `$Page`, see Global Variables in the *Visualforce Developer's Guide*.

Set `finishLocation` with a Controller

You can set `finishLocation` in a few ways with a custom controller.

This sample controller configures a flow's finish behavior in three different ways.

- `getPageA` instantiates a new page reference by passing a string to define the location.
- `getPageB` returns a string that is treated like a PageReference.
- `getPageC` returns a string that gets translated into a PageReference.

```
public class myFlowController {

    public PageReference getPageA() {
        return new PageReference('/300');
    }

    public String getPageB() {
        return '/300';
    }

    public String getPageC() {
        return '/apex/my_finish_page';
    }
}
```

Here's a sample Visualforce page references that controller and sets the flow finish behavior to the first option.

```
<apex:page controller="myFlowController">
    <h1>Congratulations!</h1> This is your new page.
    <flow:interview name="flowname" finishLocation="{!pageA}"/>
</apex:page>
```

If you use a standard controller to display a record on the same page as the flow, users who click **Finish** start a new flow interview. They see the first screen of the flow, without the record, because the `id` query string parameter isn't preserved in the page URL. If needed, configure the `finishLocation` to route users back to the record.

Embed a Flow in a Custom Aura Component

To customize how your flow gets and receives data, add it to a custom Aura component. Then distribute that component through a custom action, Lightning tab, or Lightning page.

To embed a flow in your Aura component, add the `lightning:flow` component to it. In the JavaScript controller, identify which flow to start.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

```
<aura:component>
    <aura:handler name="init" value="{!this}" action="{!c.init}" />
```

```
    <lightning:flow aura:id="flowData" />
</aura:component>
```

```
({
    init : function (component) {
        // Find the component whose aura:id is "flowData"
        var flow = component.find("flowData");
        // In that component, start your flow. Reference the flow's API Name.
        flow.startFlow("myFlow");
    },
})
```

Note: As of Spring '19 (API version 45.0), you can build Lightning components using two programming models: the Lightning Web Components model, and the original Aura Components model. Lightning web components are custom HTML elements built using HTML and modern JavaScript. Lightning web components and Aura components can coexist and interoperate on a page. This developer guide covers Aura components only.

IN THIS SECTION:

Reference Flow Output Variable Values in a Wrapper Aura Component
When you embed a flow in an Aura component, you can display or reference the flow's variable values. Use the `onstatuschange` action to get values from the flow's output variables. Output variables are returned as an array.

Set Flow Input Variable Values from a Wrapper Aura Component
When you embed a flow in a custom Aura component, give the flow more context by initializing its variables. In the component's controller, create a list of maps, then pass that list to the startFlow method.

Control a Flow's Finish Behavior by Wrapping the Flow in a Custom Aura Component
By default, when a flow user clicks **Finish**, a new interview starts and the user sees the first screen of the flow again. By embedding a flow in a custom Aura component, you can shape what happens when the flow finishes by using the `onstatuschange` action. To redirect to another page, use one of the `force:navigateTo*` events such as `force:navigateToObjectHome` or `force:navigateToUrl`.

Reference Flow Output Variable Values in a Wrapper Aura Component

When you embed a flow in an Aura component, you can display or reference the flow's variable values. Use the `onstatuschange` action to get values from the flow's output variables. Output variables are returned as an array.

Note: The variable must allow output access. If you reference a variable that doesn't allow output access, attempts to get the variable are ignored.

Example: This example uses the JavaScript controller to pass the flow's accountName and numberOfEmployees variables into attributes on the component. Then, the component displays those values in output components.

```
<aura:component>
   <aura:attribute name="accountName" type="String" />
   <aura:attribute name="numberOfEmployees" type="Decimal" />

   <p><lightning:formattedText value="{!v.accountName}" /></p>
   <p><lightning:formattedNumber style="decimal" value="{!v.numberOfEmployees}" /></p>


   <aura:handler name="init" value="{!this}" action="{!c.init}"/>
```

```
    <lightning:flow aura:id="flowData" onstatuschange="{!c.handleStatusChange}" />
</aura:component>
```

```
({
    init : function (component) {
        // Find the component whose aura:id is "flowData"
        var flow = component.find("flowData");
        // In that component, start your flow. Reference the flow's API Name.
        flow.startFlow("myFlow");
    },

    handleStatusChange : function (component, event) {
        if(event.getParam("status") === "FINISHED") {
            // Get the output variables and iterate over them
            var outputVariables = event.getParam("outputVariables");
            var outputVar;
            for(var i = 0; i < outputVariables.length; i++) {
                outputVar = outputVariables[i];
                // Pass the values to the component's attributes
                if(outputVar.name === "accountName") {
                    component.set("v.accountName", outputVar.value);
                } else {
                    component.set("v.numberOfEmployees", outputVar.value);
                }
            }
        }
    },
})
```

Set Flow Input Variable Values from a Wrapper Aura Component

When you embed a flow in a custom Aura component, give the flow more context by initializing its variables. In the component's controller, create a list of maps, then pass that list to the startFlow method.

Note: You can set variables only at the beginning of an interview, and the variables you set must allow input access. If you reference a variable that doesn't allow input access, attempts to set the variable are ignored.

For each variable you set, provide the variable's `name`, `type`, and `value`. For type, use the API name for the flow data type. For example, for a record variable use SObject, and for a text variable use String.

```
{
     name : "varName",
     type : "flowDataType",
     value : valueToSet
},
{
     name : "varName",
     type : "flowDataType",
     value : [ value1, value2]
}, ...
```

Example: This JavaScript controller sets values for a number variable, a date collection variable, and a couple of record variables. The Record data type in Flow Builder corresponds to SObject here.

```
({
   init : function (component) {
      // Find the component whose aura:id is "flowData"
      var flow = component.find("flowData");
      var inputVariables = [
         { name : "numVar", type : "Number", value: 30 },
         { name : "dateColl", type : "String", value: [ "2016-10-27", "2017-08-01" ]
},
         // Sets values for fields in the account record (sObject) variable. Id uses
the
         // value of the component's accountId attribute. Rating uses a string.
         { name : "account", type : "SObject", value: {
             "Id" : component.get("v.accountId"),
             "Rating" : "Warm"
             }
          },
          // Set the contact record (sObject) variable to the value of the component's
 contact
          // attribute. We're assuming the attribute contains the entire sObject for
          // a contact record.
          { name : "contact", type : "SObject", value: component.get("v.contact") }
          },
       ];
       flow.startFlow("myFlow", inputVariables);
   }
})
```

Example: Here's an example of a component that gets an account via an Apex controller. The Apex controller passes the data to the flow's record variable through the JavaScript controller.

```
<aura:component controller="AccountController" >
   <aura:attribute name="account" type="Account" />
   <aura:handler name="init" value="{!this}" action="{!c.init}"/>
   <lightning:flow aura:id="flowData"/>
</aura:component>
```

```
public with sharing class AccountController {
   @AuraEnabled
   public static Account getAccount() {
      return [SELECT Id, Name, LastModifiedDate FROM Account LIMIT 1];
   }
}
```

```
({
   init : function (component) {
      // Create action to find an account
      var action = component.get("c.getAccount");

      // Add callback behavior for when response is received
      action.setCallback(this, function(response) {
         if (state === "SUCCESS") {
```

```
            // Pass the account data into the component's account attribute
            component.set("v.account", response.getReturnValue());
            // Find the component whose aura:id is "flowData"
            var flow = component.find("flowData");
          // Set the account record (sObject) variable to the value of the component's

            // account attribute.
            var inputVariables = [
               {
                  name : "account",
                  type : "SObject",
                  value: component.get("v.account")
               }
            ];

            // In the component whose aura:id is "flowData, start your flow
            // and initialize the account record (sObject) variable. Reference the
flow's
            // API name.
            flow.startFlow("myFlow", inputVariables);
         }
         else {
            console.log("Failed to get account date.");
         }
      });

      // Send action to be executed
      $A.enqueueAction(action);
   }
})
```

Control a Flow's Finish Behavior by Wrapping the Flow in a Custom Aura Component

By default, when a flow user clicks **Finish**, a new interview starts and the user sees the first screen of the flow again. By embedding a flow in a custom Aura component, you can shape what happens when the flow finishes by using the `onstatuschange` action. To redirect to another page, use one of the `force:navigateTo*` events such as `force:navigateToObjectHome` or `force:navigateToUrl`.

Tip: To control a flow's finish behavior at design time, make your custom Aura component available as a flow action by using the `lightning:availableForFlowActions` interface. To control what happens when an autolaunched flow finishes, check for the `FINISHED_SCREEN` status.

```
<aura:component access="global">
    <aura:handler name="init" value="{!this}" action="{!c.init}" />
    <lightning:flow aura:id="flowData" onstatuschange="{!c.handleStatusChange}" />
</aura:component>
```

```
// init function here
handleStatusChange : function (component, event) {
   if(event.getParam("status") === "FINISHED") {
        // Redirect to another page in Salesforce, or
        // Redirect to a page outside of Salesforce, or
        // Show a toast, or...
```

```
    }
}
```

Example: This function redirects the user to a case created in the flow by using the `force:navigateToSObject` event.

```
handleStatusChange : function (component, event) {
   if(event.getParam("status") === "FINISHED") {
      var outputVariables = event.getParam("outputVariables");
      var outputVar;
      for(var i = 0; i < outputVariables.length; i++) {
         outputVar = outputVariables[i];
         if(outputVar.name === "redirect") {
            var urlEvent = $A.get("e.force:navigateToSObject");
            urlEvent.setParams({
               "recordId": outputVar.value,
               "isredirect": "true"
            });
            urlEvent.fire();
         }
      }
   }
}
```

Distribute a Flow to External Users

Let external users run your flow by adding the flow to a Lightning community or external app or page. For finer control over how your flow behaves in external contexts, use a custom Aura component or Visualforce page. Flows in custom Aura components use Lightning runtime, and flows in Visualforce pages use Classic runtime.

For example, set up a self-service tool for your community to help visitors generate custom sales quotes.

IN THIS SECTION:

Embed a Flow in a Community

The easiest way to distribute a flow externally is with the Flow component in Community Builder. Add the Flow component to a page in your Lightning community.

Create a Custom Flow Aura Component for External Users

To control how a flow behaves in external contexts and use Lightning runtime, create a custom Aura component. Then distribute the component externally, such as through a Lightning community or a Lightning Out-enabled app.

Embed a Flow in a Visualforce Page for External Users

Let external users run your flow by adding the flow to a Visualforce page and distributing that page externally. For example, through a community.

Embed a Flow in a Community

The easiest way to distribute a flow externally is with the Flow component in Community Builder. Add the Flow component to a page in your Lightning community.

EDITIONS

Available in: Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To create, customize, or publish a community:
- Create and Set Up Communities AND View Setup and Configuration

Note:
- Flows in Lightning communities are supported only through the Lightning Flow component.
- Flow creators can overwrite error messages with their own content.

1. Open a community in the Community Builder, then navigate to the page that you want to add the flow to.
2. From the Components panel, drag the Flow component onto the page.
3. In the property editor, configure the component.

   Flow
   Only active screen flows are available. Flows that were built in the Desktop Flow Designer aren't supported.

   Layout
   By default, flows display in one column.

   Input variables
   If you see other properties, they are the flow's input variables. Variables appear only if they allow input access.

   Pass record ID into this variable
   This option is available only for Text input variables in Record pages. For simplicity, we recommend passing the ID to only one variable.

   For example, when this component is embedded in an Opportunity Record page, at runtime the component passes the opportunity's ID into the selected input variable.

4. Save your page.

Create a Custom Flow Aura Component for External Users

To control how a flow behaves in external contexts and use Lightning runtime, create a custom Aura component. Then distribute the component externally, such as through a Lightning community or a Lightning Out-enabled app.

EDITIONS

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Note: As of Spring '19 (API version 45.0), you can build Lightning components using two programming models: the Lightning Web Components model, and the original Aura Components model. Lightning web components are custom HTML elements built using HTML and modern JavaScript. Lightning web components and Aura components can coexist and interoperate on a page. This developer guide covers Aura components only.

Create a custom Aura component that uses `lightning:flow`. In the JavaScript controller, identify which flow to start. Mark the component with `access="global"` to make it usable outside of your org.

```
<aura:component access="GLOBAL">
    <aura:handler name="init" value="{!this}" action="{!c.init}" />
```

```
    <lightning:flow aura:id="flowData" />
</aura:component>
```

```
({
    init : function (component) {
        // Find the component whose aura:id is "flowData"
        var flow = component.find("flowData");
        // In that component, start your flow. Reference the flow's API Name.
        flow.startFlow("myFlow");
    },
})
```

Lightning Communities

To expose your custom Aura component in a community, make sure it implements the `forceCommunity:availableForAllPageTypes` interface. Then, in the Community Builder, drag the component onto your community page.

External App or Page

To expose your custom Aura component in an app outside of Salesforce servers, use Lightning Out. Create a Lightning dependency app to describe the component dependencies.

```
<aura:application access="GLOBAL" extends="ltng:outApp">
    <aura:dependency resource="lightning:flow"/>
</aura:application>
```

In the app or page hosting your flow, add a script to load the Lightning Out JavaScript library. Add another script to create a `lightning:flow` component.

```
...
<script src="https://myDomain.my.salesforce.com/lightning/lightning.out.js"></script>
<script>$Lightning.use("c:lightningOutApp", function() {
   $Lightning.createComponent("lightning:flow", {},
      "flowContainer",
      function (component) {
         component.startFlow("Survey_customers", inputVariables);
      })
   ;}
);
</script>
```

SEE ALSO:

Lightning Aura Components Developer Guide : Configure Components for Communities

Lightning Aura Components Developer Guide : Add Aura Components to Any App with Lightning Out (Beta)

Embed a Flow in a Visualforce Page for External Users

Let external users run your flow by adding the flow to a Visualforce page and distributing that page externally. For example, through a community.

For example, you can set up a self-service tool for your public Salesforce site to help visitors generate custom sales quotes. Because the flow is embedded in a Visualforce page, you can customize the appearance of the flow so that it uses your company's branding and style.

Note: When you make a flow available to site or portal users, point them to the Visualforce page that contains the embedded flow, not the flow itself. Site and portal users aren't allowed to run flows directly.

USER PERMISSIONS

To create, edit, and set version settings for Visualforce pages:
- Customize Application

To add a flow to a Visualforce page, embed it by using the `<flow:interview>` component.

1. Find the flow's unique name.
   a. From Setup, enter *Flows* in the Quick Find box, then select **Flows**.
   b. Click the name of the flow.
   c. Copy the unique name of the flow.
2. From Setup, enter *Visualforce Pages* in the Quick Find box, then select **Visualforce Pages**.
3. Define a new Visualforce page, or open an existing one.
4. Add the `<flow:interview>` component somewhere between the `<apex:page>` tags.
5. Set the `name` attribute to the unique name of the flow.

   For example:

   ```
   <apex:page>
   <flow:interview name="flowuniquename"/>
   </apex:page>
   ```

   If the flow is from a managed package, the `name` attribute must be in this format: `namespace.flowuniquename`.
6. Click **Save**.
7. Restrict which users can access the Visualforce page.

   Any external users with access to the Visualforce page can run the embedded flow.
   a. Click **Visualforce Pages**.
   b. Click **Security** next to your Visualforce page.
   c. Move all the appropriate profiles from Available Profiles to Enabled Profiles by using the add and remove buttons.
   d. Click **Save**.
8. Distribute your Visualforce page by taking one of these actions.
   - Add the Visualforce page to your Salesforce site.
   - Define a custom Visualforce tab by using the Visualforce page, and then add that tab to your portal or community.

Launch a Flow Automatically

Some flows don't require any user interaction to start. To enable a system to automatically launch a flow, use the `start` Apex method, a process, or a workflow action.

Most of these methods can be used only with an autolaunched flow. A *flow* can be launched without user interaction, such as from a process or the Apex `interview.start` method. Autolaunched flows run in bulk and without user interaction. They can't contain steps, screens, choices, or dynamic choices in the active or latest flow version.When a flow user invokes an autolaunched flow, the active flow version is run. If there's no active version, the latest version is run. When a flow admin invokes a flow, the latest version is always run.

IN THIS SECTION:

Start a Flow with a Process

Just like workflow rules, processes start when a certain object's records are created or edited. Add a flow action to give a process even more functionality. For example, create a process that checks if a new feed item is a question. If it is, wait a day and then use a flow to check whether a Best Comment has been selected or not. If it hasn't, use that question to create a case.

Start a Flow with a Workflow Action—Pilot

Create a flow trigger workflow action to launch a flow from workflow rules. With flow triggers, you can automate complex business processes—create flows to perform logic, and have events trigger the flows via workflow rules—without writing code. For example, your flow looks up and assigns the relevant entitlement for a case. Create a flow trigger to launch the flow whenever a case is created, so that all new cases are automatically set with a default entitlement.

Invoke a Flow from the Lightning Platform REST API

Use the Custom Invocable Actions endpoint to invoke an autolaunched flow from the Lightning Platform REST API.

Invoke a Flow with Apex

Use the `start` method in the `Flow.Interview` class to launch an autolaunched flow or user provisioning flow from Apex.

Start a Flow with a Process

Just like workflow rules, processes start when a certain object's records are created or edited. Add a flow action to give a process even more functionality. For example, create a process that checks if a new feed item is a question. If it is, wait a day and then use a flow to check whether a Best Comment has been selected or not. If it hasn't, use that question to create a case.

1. Create and activate the autolaunched flow for the process to launch.
2. Create the process that you plan to launch this flow from.

   For details, see "Create a Process" in the Salesforce Help.
3. Add a "Flows" action to the process.
   a. For `Flow`, search for and select the flow that you created.
   b. Optionally, click **Add Row** to set values for the flow's variables.
4. Activate the process.

USER PERMISSIONS

To create, edit, or view processes:

- Manage Flow

  AND

  View All Data

Start a Flow with a Workflow Action—Pilot

Create a flow trigger workflow action to launch a flow from workflow rules. With flow triggers, you can automate complex business processes—create flows to perform logic, and have events trigger the flows via workflow rules—without writing code. For example, your flow looks up and assigns the relevant entitlement for a case. Create a flow trigger to launch the flow whenever a case is created, so that all new cases are automatically set with a default entitlement.

Note: The pilot program for flow trigger workflow actions is closed. If you've already enabled the pilot in your org, you can continue to create and edit flow trigger workflow actions. If you didn't enable the pilot in your org, use the Flows action in Process Builder instead.

Before you begin, review the special behavior and limitations of flow triggers. See Flow Trigger Considerations (Pilot).

To set up a workflow rule to launch a flow:

1. Create and activate the autolaunched flow to launch from this workflow action.
2. Create the workflow rule that you plan to add this workflow action to.
3. Define the flow trigger.
4. Associate the flow trigger to the workflow rule.

EDITIONS

Available in: Salesforce Classic

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To view workflow rules and actions:
- View Setup and Configuration

To create or change workflow rules and actions:
- Customize Application

Flow Trigger Considerations (Pilot)

Flow trigger workflow actions have special behaviors and limitations.

Note: The pilot program for flow trigger workflow actions is closed. If you've already enabled the pilot in your org, you can continue to create and edit flow trigger workflow actions. If you didn't enable the pilot in your org, use the Flows action in Process Builder instead.

Understand these considerations before you create flow triggers or add them to workflow rules.

- Flow triggers are available only for workflow rules. You can't use them as actions elsewhere, for example, in approval processes.
- Flow triggers are available on most—but not all—objects that are supported by workflow rules. You can see the list of supported objects when you create a new flow trigger. From Setup, enter *Flow Triggers* in the Quick Find box, then click **Flow Triggers**.
- Only active, autolaunched flows can be launched by flow triggers. However, if a flow trigger is in test mode, admins run the latest flow version while other users run the active flow version.
- Flows that are launched from workflow rules are run in system context, which means that user permissions, field-level security, and sharing rules aren't taken into account during flow execution.
- If a flow trigger fails at run time, the user who created or edited the record to meet the workflow rule criteria won't be able to save the record. To troubleshoot run time issues, see the flow action events in the Workflow category of debug logs, which show the flow version and the values passed into flow variables.
- A flow trigger can set the values of up to 25 variables in the flow, with the following limitations.
  - Flow triggers can't use multi-select picklist fields to set flow variables.
  - When a flow trigger uses a currency field to set a flow variable, only the amount is passed into the flow. Any currency ISO code or locale information is ignored. If your organization uses multiple currencies, the flow trigger uses the amount in the currency of the record that contains the specified currency field.
  - Flow triggers can't pass values into record collection variables in flows.

EDITIONS

Available in: Salesforce Classic

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

- Always keep one version of the flow active if it's referenced by an active workflow rule's flow trigger.
- Once you activate a workflow rule using the flow trigger, don't modify or add a version of the flow to include screens or other elements that would violate the run restrictions for an autolaunched flow. If you modify a flow to no longer be autolaunched, it can't be launched by flow triggers. To work around this situation, you can save the non-autolaunched flow as a new flow and change the new flow to become autolaunched. Then update the flow triggers to launch the new flow.
- Flow triggers aren't available as time-dependent workflow actions. You can add flow triggers to workflow rules only as immediate workflow actions.
- When the system executes a workflow rule with multiple flow triggers, those flows aren't run in any particular order.
- In a transaction, flow triggers are executed after all workflow field updates, including any Apex triggers and standard validations that are executed as a result of those workflow field updates. After executing flow triggers, the system executes escalation rules.
- Flows that are launched from workflow rules are governed by the per-transaction limits already enforced by Apex.
- When flows are launched from workflow rules that are triggered by bulk loads or imports, the flows' data manipulation language (DML) operations are executed in bulk to reduce the number of calls required and to optimize system performance. The execution of any of the following flow elements qualifies as a DML operation: Create Records, Update Records, or Delete Records.

  For example, suppose that you use Data Loader or the Bulk API to update 50 records, and those updates meet the criteria of a workflow rule with a flow trigger action. In response, the system executes 50 instances of the flow within the same transaction. Each instance of a running flow is called an interview. The system attempts to execute each DML operation across all the interviews in the transaction at the same time. Suppose that five of those interviews are executing the same branch of the flow, which has an Update Records element called "SetEntitlement." The system waits for all five interviews to reach that element, and then executes all five record updates in bulk.
- Flow triggers aren't available in change sets.
- Flow triggers aren't packageable.

Define a Flow Trigger—Pilot

After you create an autolaunched flow, create a flow trigger to launch that flow as part of a workflow rule.

Note: The pilot program for flow trigger workflow actions is closed. If you've already enabled the pilot in your org, you can continue to create and edit flow trigger workflow actions. If you didn't enable the pilot in your org, use the Flows action in Process Builder instead.

1. From Setup, enter *Flow Triggers* in the Quick Find box, then select **Flow Triggers**.
2. Click **New Flow Trigger**.
3. Select the same object as the workflow rule, and then click **Next**.
4. Configure the flow trigger.

Field	Description
Name	Name of the flow trigger.
Unique Name	Enter a unique name to refer to this component in the API. The **Unique Name** field can contain only underscores and alphanumeric characters. It must be unique within the selected object type, begin with a letter, not include spaces, not end with an underscore, and not contain two consecutive underscores.

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USER PERMISSIONS

To view workflow rules and actions:
- View Setup and Configuration

To create or change workflow rules and actions:
- Customize Application

Field	Description
`Protected Component`	Reserved for future use.
`Flow`	Unique name of the autolaunched flow that this workflow action launches.
`Set Flow Variables`	Whether to pass values into the flow's variables.

5. If you select `Set Flow Variables`, specify their names and values.

   Click **Set Another Value** to set up to 25 variables.

6. To put the flow trigger in test mode, select `Administrators run the latest flow version`.

   When selected and an admin triggers the workflow rule, the flow trigger launches the latest version of the flow. For all other users, the flow trigger always launches the active version of the flow.

   The same values are passed into the flow variables whether the flow trigger launches the active or latest flow version.

7. Click **Save**.

Don't forget to associate the flow trigger to a workflow rule.

Associate the Flow Trigger with a Workflow Rule

Add the flow trigger as an immediate action on your workflow rule.

Note: The pilot program for flow trigger workflow actions is closed. If you've already enabled the pilot in your org, you can continue to create and edit flow trigger workflow actions. If you didn't enable the pilot in your org, use the Flows action in Process Builder instead.

Before you begin, create:

- An autolaunched flow
- A workflow rule
- A flow trigger that launches the autolaunched flow

1. From Setup, enter *`Workflow Rules`* in the `Quick Find` box, then select **Workflow Rules**.
2. Select the workflow rule.
3. Click **Edit** in the Workflow Actions section.
4. In the Immediate Workflow Actions section, click **Add Workflow Action** > **Select Existing Action**.

   Flow triggers aren't available as time-dependent workflow actions. You can add flow triggers to workflow rules only as immediate workflow actions.

5. In the Search drop-down list, select Flow Trigger.

   The Available Actions box lists all existing flow triggers.

6. Select the flow trigger to associate with this workflow rule. Move the flow trigger to Selected Actions by using the right arrow.
7. Click **Save**.

EDITIONS

Available in: Salesforce Classic

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USER PERMISSIONS

To select existing actions:
- Customize Application

Invoke a Flow from the Lightning Platform REST API

Use the Custom Invocable Actions endpoint to invoke an autolaunched flow from the Lightning Platform REST API.

Example: This example invokes the active version of the flow "Escalate_to_Case".

```
POST /v33.0/actions/custom/flow/Escalate_to_Case
```

The request sets values for two of the flow's input variables: `CommentCount` and `FeedItemId`. Once invoked, the flow checks whether:

- A given feed item has more than five comments and
- A best comment hasn't been selected yet

```
{
"inputs" : [ {
   "CommentCount" : 6,
   "FeedItemId" : "0D5D0000000cfMY"
   } ]
}
```

Invoke a Flow with Apex

Use the `start` method in the `Flow.Interview` class to launch an autolaunched flow or user provisioning flow from Apex.

Example: The following includes a sample controller that starts a flow and the corresponding Visualforce page. The Visualforce page contains an input box and a start button. When the user enters a number in the input box and clicks **Start**, the controller's `start` method is called. The button saves the user-entered value to the flow's `input` variable and launches the flow using the `start` method. The flow doubles the value of `input` and assigns it to the `output` variable, and the output label displays the value for `output` by using the `getVariableValue` method.

```
public class FlowController {

   //Instance of the Flow
   public Flow.Interview.doubler myFlow {get; set;}
   public Double value {get; set;}

   public Double getOutput() {
      if (myFlow == null) return null;
      return (Double)(myFlow.getVariableValue('v1'));
   }

   public void start() {
      Map<String, Object> myMap = new Map<String, Object>();
      myMap.put('v1', input);
      myFlow = new Flow.Interview.doubler(myMap);
      myFlow.start();
   }
}
```

The following is the Visualforce page that uses the sample flow controller.

```
<apex:page controller="FlowController">
   <apex:outputLabel id="text">v1 = {!output}</apex:outputLabel>
```

```
   <apex:form >
      value : <apex:inputText value="{!output}"/>
      <apex:commandButton action="{!start}" value="Start" reRender="text"/>
   </apex:form>
</apex:page>
```

IN THIS SECTION:

start()

Starts an instance (interview) for an autolaunched or user provisioning flow.

getVariableValue(variableName)

Returns the value of the specified flow variable. The flow variable can be in the flow embedded in the Visualforce page, or in a separate flow that is called by a subflow element.

`start()`

Starts an instance (interview) for an autolaunched or user provisioning flow.

Signature

```
public Void start()
```

Return Value

Type: Void

Usage

This method can be used only with flows that have one of these types.

- Autolaunched Flow
- User Provisioning Flow

For details, see "Flow Types" in Salesforce Help.

When a flow user invokes an autolaunched flow, the active flow version runs. If there's no active version, the latest version runs. When a flow admin invokes a flow, the latest version always runs.

`getVariableValue(variableName)`

Returns the value of the specified flow variable. The flow variable can be in the flow embedded in the Visualforce page, or in a separate flow that is called by a subflow element.

Signature

```
public Object getVariableValue(String variableName)
```

Parameters

`variableName`
Type: String

Specifies the unique name of the flow variable.

Return Value

Type: Object

Usage

The returned variable value comes from whichever flow the interview is running. If the specified variable can't be found in that flow, the method returns `null`.

This method checks for the existence of the variable at run time only, not at compile time.

Deploy a Flow to Other Organizations

Flows created in the Cloud Flow Designer can be included in Lightning Bolt Solutions, change sets, and packages. The recipient organization of the solution, change set, or package must have flows enabled.

EDITIONS

Available in: Lightning Experience and Salesforce Classic

Lightning Bolt Solutions are available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Change sets are available in: **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Packages are available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Deploy Flows in a Lightning Bolt Solution

To distribute automated business processes or bootstrap a community with a complete solution or new look, create a Lightning Bolt Solution. A Lightning Bolt Solution can include flows, custom Lightning apps, or Lightning Community templates or pages. Before you create a solution, group flows that you want to include in a flow category.

Considerations for Deploying Flows with Change Sets

Before you use change sets to deploy a flow, understand the limits and unexpected behaviors that are related to component dependencies, deployment, and flow triggers.

Deploy Processes and Flows as Active

By default in production orgs, active processes and flows are deployed as inactive. After deployment, you manually reactivate the new versions. If your production org uses a continuous integration and continuous delivery model to deploy metadata changes, enable the option to deploy processes and flows as active. This option applies to processes and autolaunched flows that are deployed in production orgs via change sets and Metadata API.

Considerations for Deploying Flows with Packages

Flows can be included in both managed and unmanaged packages. Before you deploy one, understand the limitations and behaviors of packages that contain flows.

Deploy Flows in a Lightning Bolt Solution

To distribute automated business processes or bootstrap a community with a complete solution or new look, create a Lightning Bolt Solution. A Lightning Bolt Solution can include flows, custom Lightning apps, or Lightning Community templates or pages. Before you create a solution, group flows that you want to include in a flow category.

1. Add your flows to a flow category. You can only add active flows.
2. Create your Lightning Bolt Solution. Add one or more flow categories, custom Lightning apps, and Lightning Community templates or pages.
3. Package the solution to distribute it to your own orgs, or share or sell it on AppExchange.

SEE ALSO:

Salesforce Help: Add Flows to a Lightning Bolt Solution

Salesforce Help: Lightning Bolt for Salesforce: Build Once, Then Distribute and Reuse

EDITIONS

Available in: Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To create a flow category:
- Customize Application

To create a Lightning Bolt Solution without a community template:
- Customize Application AND Customize Application AND View Setup and Configuration

To create a Lightning Bolt Solution with a community template:
- Customize Application AND Create and Set Up Communities AND View Setup and Configuration

Considerations for Deploying Flows with Change Sets

Before you use change sets to deploy a flow, understand the limits and unexpected behaviors that are related to component dependencies, deployment, and flow triggers.

Component Dependencies

- If you plan to deploy a flow with change sets, consider limitations in migration support. Make sure your flows reference only fields and components that are available in change sets.
- When you view the dependent components for the change set, the Component Dependencies page lists the dependencies for *all* versions of the flow. Add all interdependent components for the relevant flow version to the outbound change set.
- If a component is referenced by the following flow elements, the Component Dependencies page doesn't display that component. To deploy the flow successfully, manually add those referenced components to the change set.
  - Post to Chatter
  - Send Email

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in **Enterprise**, **Performance**, **Professional**, **Unlimited**, and **Database.com** Editions

  - Submit for Approval

  For example, if you deploy a flow that includes a Submit for Approval element, manually add the referenced approval process.
- If a flow references a Lightning component that depends on a CSP Trusted Site, the trusted site isn't included in the package or change set automatically.

Deployment

- You can include only one version of a flow in a change set.
- An active flow in a change set is deployed to its destination as inactive. Activate the flow manually after deployment.
- If the flow has no active version when you upload the outbound change set, the latest inactive version is used.
- Deploying or redeploying a flow with change sets creates a version of the flow in the destination organization.

Flow Triggers

Flow triggers aren't available in change sets.

The pilot program for flow trigger workflow actions is closed. If you've already enabled the pilot in your org, you can continue to create and edit flow trigger workflow actions. If you didn't enable the pilot in your org, use the Flows action in Process Builder instead.

SEE ALSO:

Change Sets

Deploy Processes and Flows as Active

By default in production orgs, active processes and flows are deployed as inactive. After deployment, you manually reactivate the new versions. If your production org uses a continuous integration and continuous delivery model to deploy metadata changes, enable the option to deploy processes and flows as active. This option applies to processes and autolaunched flows that are deployed in production orgs via change sets and Metadata API.

EDITIONS

Available in: both Salesforce Classic (not available in all orgs) and Lightning Experience

Available in: **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

User Permissions Needed

To edit process automation settings:	Customize Application

1. From Setup, enter `Automation` in the Quick Find box, then select **Process Automation Settings**.
2. Select **Deploy processes and flows as active**.

   Note: This setting is available only in production orgs. Scratch, sandbox, and developer orgs don't have the setting because you can always deploy a new active version.
3. Save your changes.

Before you can successfully deploy a process or autolaunched flow as active, your production org must meet flow test coverage requirements. 75% of the active processes and autolaunched flows in your org must be covered by at least one Apex test. The required percentage is the same as the code coverage requirement for Apex code. Flow test coverage requirements don't apply to flows that have screens.

To calculate your org's flow test coverage, determine the number of active autolaunched flows and processes in your org. Here's a sample query.

```
SELECT count_distinct(DefinitionId)
FROM Flow
WHERE Status = 'Active'
   AND (ProcessType = 'AutolaunchedFlow'
      OR ProcessType = 'Workflow'
      OR ProcessType = 'CustomEvent'
      OR ProcessType = 'InvocableProcess')
```

Then run all tests, and use the FlowTestCoverage object in the Tooling API to determine the number of active autolaunched flows and processes that have test coverage. Here's a sample query.

```
SELECT count_distinct(FlowVersionId)
FROM FlowTestCoverage
```

Divide the second number (number of covered active autolaunched flows and processes) by the first number (number of active autolaunched flows and processes). For example, if you have 10 active autolaunched flows and processes, and 8 of them have test coverage, your org's flow test coverage is 80%.

```
SELECT FlowVersion.Definition.DeveloperName
FROM FlowTestCoverage
GROUP BY FlowVersion.Definition.DeveloperName
```

Tip: To get the names of all active autolaunched flows and processes that don't have test coverage, use this query.

```
SELECT Definition.DeveloperName
FROM Flow
WHERE Status = 'Active'
   AND (ProcessType = 'AutolaunchedFlow'
      OR ProcessType = 'Workflow'
      OR ProcessType = 'CustomEvent'
      OR ProcessType = 'InvocableProcess')
   AND Id NOT IN (SELECT FlowVersionId FROM FlowTestCoverage)
```

SEE ALSO:

Tooling API: FlowTestCoverage

Considerations for Deploying Flows with Packages

Flows can be included in both managed and unmanaged packages. Before you deploy one, understand the limitations and behaviors of packages that contain flows.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Component Dependencies

- If you plan to deploy a flow with packages, consider limitations in migration support. Make sure your flows reference only packageable components and fields.
- Referential integrity works the same for flows as it does for other packaged elements.
- If any of the following elements are used in a flow, packageable components that they reference aren't included in the package automatically. To deploy the package successfully, manually add those referenced components to the package.
  - Post to Chatter

  - Send Email
  - Submit for Approval

  For example, if you deploy a flow that posts to a particular Chatter group, manually add the referenced Chatter group to the package.
- If a flow references a Lightning component that depends on a CSP Trusted Site, the trusted site isn't included in the package or change set automatically.

Flow Status

You can package only active flows. The active version of the flow is determined when you upload a package version. If none of the flow's versions are active, the upload fails.

Updating Packages

- To update a managed package with a different flow version, activate that version and upload the package again. You don't need to add the newly activated version to the package. However, if you activate a flow version by mistake and upload the package, you'll distribute that flow version to everyone. Be sure to verify which version you really want to upload.
- You can't include flows in package patches.

Other Limitations

- If you register your namespace after you referenced a flow in a Visualforce page or Apex code, don't forget to add the namespace to the flow name. Otherwise, the package will fail to install.
- If someone installs a flow from a managed package, error emails for that flow's interviews don't include any details about the individual flow elements. The email is sent to either the user who installed the flow or the Apex exception email recipients.
- Flow triggers aren't packageable.

  The pilot program for flow trigger workflow actions is closed. If you've already enabled the pilot in your org, you can continue to create and edit flow trigger workflow actions. If you didn't enable the pilot in your org, use the Flows action in Process Builder instead.

- In a development organization, you can't delete a flow or flow version after you upload it to a released or beta managed package.

SEE ALSO:

Considerations for Installed Flows

Create a Package

Control Who Receives Flow and Process Error Emails

Why Did My Flow Interview Fail?

To troubleshoot a failed flow interview, use the flow fault email. To test the flow and observe what happens as it runs, use the debug option in Cloud Flow Designer. Or add temporary Screen or Send Email elements to the flow.

IN THIS SECTION:

Emails About Flow Errors

Every time a flow interview fails, Salesforce sends an error email in the default language of the user who ran the flow. The email is sent to either the admin who last modified the associated flow or the Apex exception email recipients. The email includes the error message from the failure and details about each flow element that the interview executed.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Debug a Flow in Cloud Flow Designer

Whether you're testing a new flow or troubleshooting a flow that fails, the debug option in Cloud Flow Designer can be your best friend. See real-time details of what your flow does, easily set input variables, and restart the flow anytime to debug a different branch.

Add Temporary Elements to a Flow

Add Screen or Send Email elements to the flow so you can check what the resources' values are at any given time. Once you've solved the problem, delete temporary Screen elements.

Troubleshoot Flow URLs

If you're distributing a flow and the custom button, custom link, or a direct flow URL isn't working as expected, verify the referenced flow. In addition, verify its variables if you're passing values into a flow from the URL.

Emails About Flow Errors

Every time a flow interview fails, Salesforce sends an error email in the default language of the user who ran the flow. The email is sent to either the admin who last modified the associated flow or the Apex exception email recipients. The email includes the error message from the failure and details about each flow element that the interview executed.

If the interview failed at multiple elements, the recipients receive multiple emails, and the final email includes an error message for each failure. If a flow uses fault connectors, its interviews can fail at multiple elements.

Note: Process and flow error emails include the data that's involved in the process or flow, including user-entered data.

Example:

```
An error occurred at element Apex_Plug_in_1.
List index out of bounds: 0.

An error occurred at element Fast_Delete_1.
DELETE --- There is nothing in Salesforce matching your delete
 criteria.

An error occurred at element Email_Alert_1.
Missing required input parameter: SObjectRowId.
```

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

IN THIS SECTION:

Limitations of Emails About Flow Errors

The email about errors in flow interviews has some limitations for Screen, Lookup, Create, and Subflow elements—as well as some general limitations.

SEE ALSO:

Limitations of Emails About Flow Errors

Customize What Happens When a Flow Fails

Why Did My Flow Interview Fail?

What Happens When an Apex Exception Occurs?

Control Who Receives Flow and Process Error Emails

Limitations of Emails About Flow Errors

The email about errors in flow interviews has some limitations for Screen, Lookup, Create, and Subflow elements—as well as some general limitations.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

General

- If the user who started the flow doesn't have a first name, `null` replaces the user's first name in the "How the Interview Started" section.
- Variable assignments display in this pattern: `{!variable} (prior value) = field/variable (new value)`. If the variable had no prior value, the parentheses display as empty. For example: `{!varStatus} () = Status (Delivered)`
- If you install a flow from a managed package, error emails for that flow's interviews don't include any details about the individual flow elements. The email is sent to either the user who installed the flow or the Apex exception email recipients.

Screen elements

Password fields display in plain text, just like if you reference a password field in a Display Text field.

Lookup elements

The email displays lookup elements as "query" elements. Record Lookup displays as Record Query, and Fast Lookup displays as Fast Query.

Subflow elements

- The merge field annotation (`{!variable}` as opposed to just `variable`) is missing for variables in a referenced flow. For example, when an interview enters a subflow and gives details about the inputs, the subflow's variable is `subVariable` instead of `{!subVariable}`.
- If the error occurs in a referenced flow, the email gets sent to the author of the master flow, but the subject references the name of the referenced flow.
- If you see multiple "Entered flow *`ReferencedFlowName`* version *`ReferencedFlowVersion`*" messages with no "Exited *`ReferencedFlowName`* version *`ReferencedFlowVersion`*" messages in between them, the flow user navigated backwards. To prevent this scenario, adjust the navigation options in the first screen of the referenced flow so that the user can't click **Previous**.

SEE ALSO:

Emails About Flow Errors

Why Did My Flow Interview Fail?

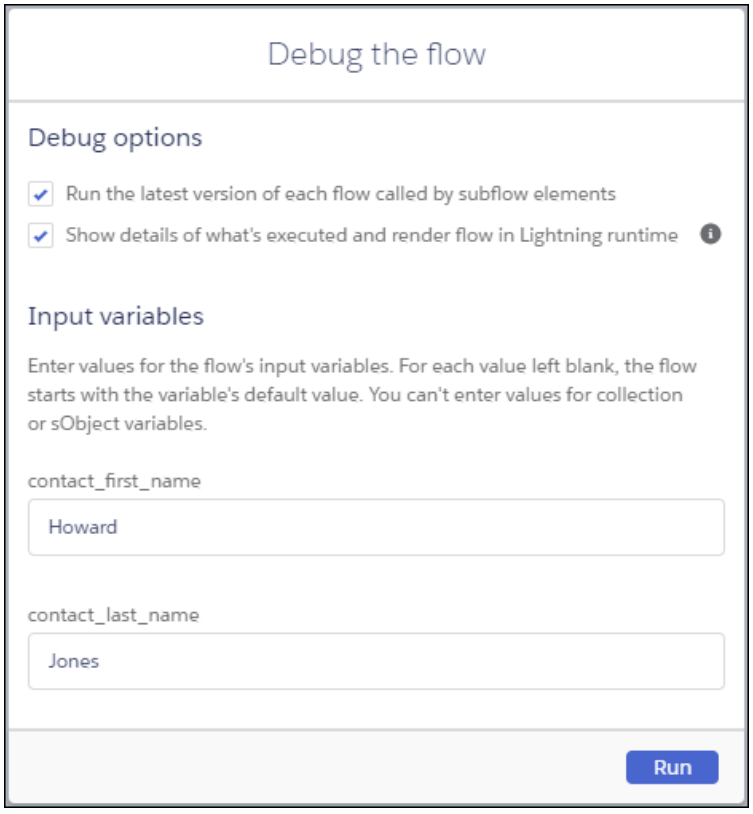
Control Who Receives Flow and Process Error Emails

Debug a Flow in Cloud Flow Designer

Whether you're testing a new flow or troubleshooting a flow that fails, the debug option in Cloud Flow Designer can be your best friend. See real-time details of what your flow does, easily set input variables, and restart the flow anytime to debug a different branch.

Warning: Debugging or testing a flow actually runs the flow and performs its actions, including any DML operations and Apex code execution. Remember, closing or restarting a running flow doesn't roll back its previously executed actions, callouts, and changes committed to the database.

1. Open the flow in Cloud Flow Designer.
2. Click **Debug**.
3. Set the debug options and input variables.



4. Click **Run**.
   If you opt to show details, they appear in a panel on the right.

EDITIONS

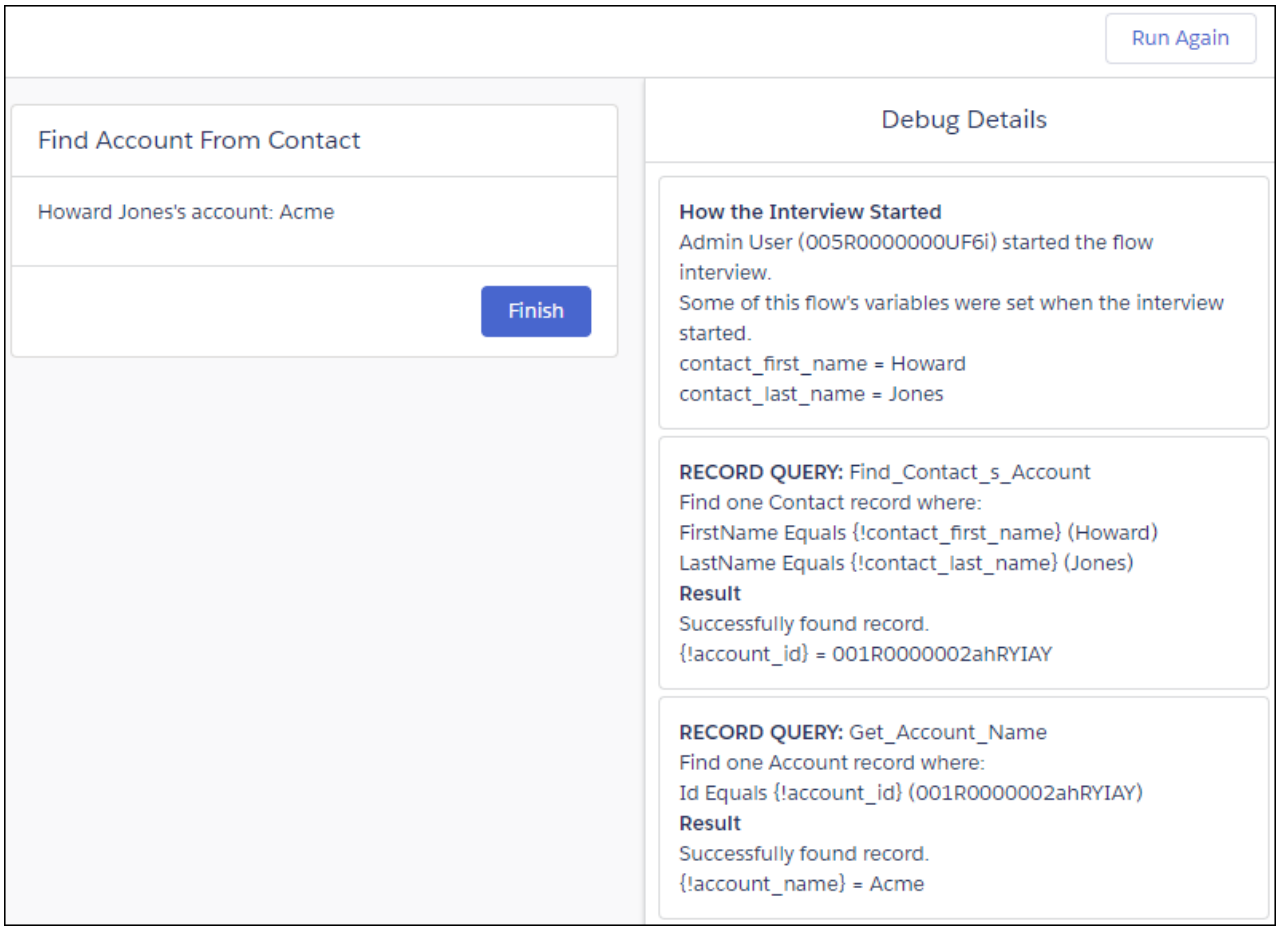
Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To debug a flow in Cloud Flow Designer:

- Manage Flow



5. (Optional) To restart the flow using the same values for input variables that you entered earlier, click **Run Again**.
6. (Optional) To restart the flow with different values for input variables, finish the flow and click **Change Inputs**.

Considerations for Debugging Flows in Cloud Flow Designer

Before you use the debug option in Cloud Flow Designer, understand its limitations and special behaviors.

- Debugging or testing a flow actually runs the flow and performs its actions, including any DML operations and Apex code execution. Remember, closing or restarting a running flow doesn't roll back its previously executed actions, callouts, and changes committed to the database.
- You can't pass values into input variables of type collection, sObject, and sObject collection.
- Clicking **Pause** or executing a Wait element closes the flow and ends debugging.
- When you click **Finish** in a flow, the debug details incorrectly state "Selected Navigation Button: NEXT."

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

SEE ALSO:

Flow Limits and Considerations

Flows in Transactions

Add Temporary Elements to a Flow

Add Screen or Send Email elements to the flow so you can check what the resources' values are at any given time. Once you've solved the problem, delete temporary Screen elements.

1. Create a single text template that contains the values of all resources and the fault message.
2. For each fault path, use the text template to configure one of the following elements.
   - A Screen element that uses the text template in a Display Text Field. (Only if the flow's type supports Screen elements.)
   - A Send Email element that uses the text template as the body and your email as the recipient.
   - A Post to Chatter element that uses the text template as the message. Consider creating a Chatter group specifically for flow errors.
3. Test the flow.

Example: Here's a text template for the Calculate Discounts flow from the Build a Discount Calculator project on *Trailhead*.

```
RESOURCE VALUES for "Calculate Discounts on Opportunities"
opptyID: {!opptyID}
AccountID: {!AccountID}
AccountRevenue: {!AccountRevenue}
Full_Discount outcome: {!Full_Discount}
Partial_Discount outcome: {!Partial_Discount}
Discount: {!Discount}

ERROR
{!$Flow.FaultMessage}
```

After each element in the flow, add a temporary Post to Chatter element. Each Post to Chatter element is configured to use:

- The text template as the post's message
- The "Flow Troubleshooting" Chatter group as the post's target

Configure the Record Lookup and Record Update elements' fault connecters so that they route to the Post to Chatter elements.

EDITIONS

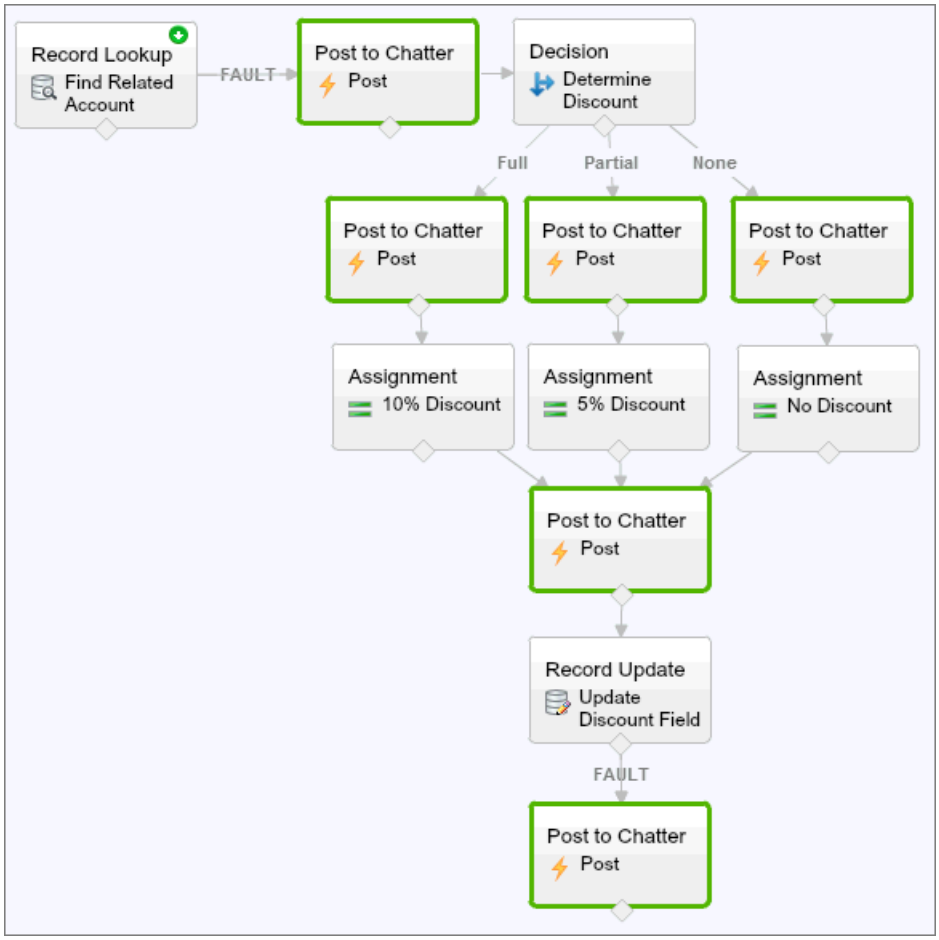
Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

USER PERMISSIONS

To open, edit, or create a flow in the Cloud Flow Designer:

- Manage Flow



This way, the flow posts to the Chatter group after the Record Lookup, Decision, Assignment, and Record Update elements are executed. Each post provides insight into the values of each resource throughout the flow. If the flow fails, the error is included in the Chatter posts.

After you identify and fix the problem with the flow, remove the temporary elements.

SEE ALSO:

Why Did My Flow Interview Fail?

Troubleshoot Flow URLs

If you're distributing a flow and the custom button, custom link, or a direct flow URL isn't working as expected, verify the referenced flow. In addition, verify its variables if you're passing values into a flow from the URL.

To make sure that the URL can find the right flow, verify that:

- The flow that the URL references hasn't been deleted or deactivated.
- The flow name is spelled and capitalized correctly. It must be an exact, case-sensitive match to the flow's `Unique Name`.

If your flow URL references a specific flow version, verify that the version hasn't been deleted or deactivated.

If you're using the URL to pass values into the flow and the URL can't access the variable, the parameter that references the variable is ignored.

To make sure that the URL can find the right flow variable, verify that each variable you're trying to pass values into:

- Is spelled and capitalized correctly. It must be an exact, case-sensitive match to the variable.
- Allows input access. The variable's `Input/Output Type` must be set to "Input Only" or "Input and Output."
- Hasn't been renamed in the flow.
- Hasn't been removed from the flow.
- Isn't an sObject variable or an sObject collection variable.

In addition, make sure the value that you're trying to pass into the variable is compatible with the variable's data type and is correctly formatted.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

SEE ALSO:

Set Flow Finish Behavior with a Flow URL

Set Flow Variables with the Flow URL

Why Did My Flow Interview Fail?

Flow Terminology

The following terminology applies to flow in Salesforce.

Connector

Connectors determine the available paths that a flow can take at run time.

Element

Each *element* represents an action that the flow can execute. Examples of such actions include reading or writing Salesforce data, displaying information and collecting data from flow users, executing business logic, or manipulating data.

Flow

A *flow* is an application that can execute logic, interact with the Salesforce database, call Apex classes, and collect data from users. You can build flows by using Flow Builder.

Flow Interview

A *flow interview* is a running instance of a flow.

EDITIONS

Available in: both Salesforce Classic and Lightning Experience

Available in: **Essentials**, **Professional**, **Enterprise**, **Performance**, **Unlimited**, and **Developer** Editions

Resource
Each *resource* represents a value that you can reference throughout the flow.

Subflow
A Subflow element references another flow, which it calls at run time.

SEE ALSO:

Cloud Flow Designer

Cloud Flow Designer

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