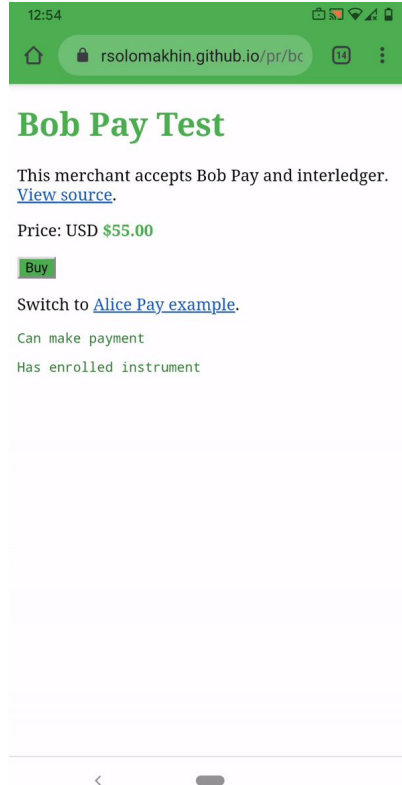# Chrome's Skip-the-Sheet and Just-In-Time Installation Explainers

30 March 2020
sahel@google.com

Skip the Sheet Behavior

Skip-the-Sheet Conditions (Chrome 79 and Earlier)

1. request.show() is triggered by a user gesture

2. Merchant only requests one payment method

3. The payment method is URL-based (i.e., it has a payment method manifest)

4. A single Payment Handler(PH) for this payment method is either installed or can be installed just-in-time

5. **None of requestShipping, requestPayerName, requestPayerEmail, requestPayerPhone are set in PaymentOptions (otherwise the payment sheet is needed to collect this information from user)**

Delegation Feature Launched in Chrome 80 Changed Skip the Sheet Conditions

- Payment Handlers(PH) with delegation support can provide shipping address and/or payer's contact information (name, email, phone number)

- Payment sheet is no longer needed for collecting this information since the browser delegates the collection to PHs

  - Not applicable to browser's built-in basic-card PH since the payment sheet is always needed for this PH

- See the feature [explainer](#)

New Skip the Sheet Conditions (Chrome 80+)

1. request.show() is triggered by a user gesture

2. There is only **a single PH available** (installed or JIT installable) **with full delegation support** (i.e. only a single available PH can provide all merchant requested information including shipping address and/or contact information whenever needed)

3. The available PH with full delegation should support a requested URL-based payment method

① Payment sheet is shown with shipping address section

② Payment app window is shown
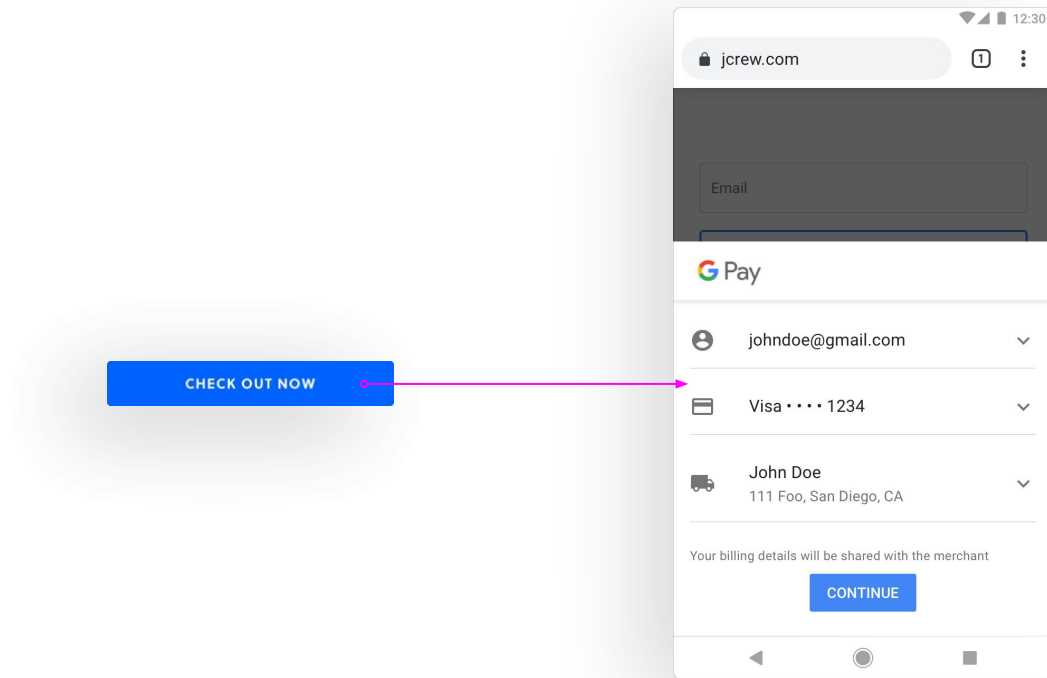
1

Skip to the payment handler window

Rationale behind Favoring PHs with Full Delegation Support

- Showing the sheet with multiple PHs each with different delegation support is confusing for our users

- Skipping the sheet more often is aligned with the long-term plan of moving away from a payment sheet to an "app selector" model

- Little/no backward compatibility risk since:

  - There are no known implementations of Payment Request that involve more than one URL-based payment handlers

  - Payment handlers have not expressed interest in partial/no delegation

Alternative Options and Discussions

- Today only Chrome implements skip-the-sheet. Should we seek to standardize this behavior?

- Skip-the-sheet based on user preference (e.g. preferred payment handlers)

- Skip-the-sheet to a PH that is already installed, even if the user could use another one to pay that can be just-in-time installed

- Do people expect a prolonged period where a diverse set of payment handlers with different delegation support co-exist in the ecosystem?

- See full descriptions of changes and proposals

Just-In-Time(JIT) Installation of Web-based Payment Handlers

Just-In-Time(JIT) Installation of Web-based PHs

- Chrome decides to install a JIT installable PH during a payment request if the request is impossible to complete otherwise

- Current two step implementation:

  1. Crawls to find JIT installable PHs for requested URL-based payment methods without installing them

  2. Upon request.show(), installs the service worker of the PH which the user selects to pay with, or when skip-the-sheet flow is triggered

Current Crawling Condition

Chrome today does crawling to find JIT installable PHs for a requested URL-based payment method "A" when:

- No PH for "A" or any other requested method is installed

- The merchant has not requested basic-card

The problem is that sometimes JIT installable PHs are not crawled for and hence not shown to the user even though they might be usable for the transaction.

What User Sees Today

Review your payment

Order Summary	Tots	USD	$1.00	▸
Payment	Visa ••••1881 Test Test		**VISA**	▸

You can manage cards and addresses in Settings.

Cancel | Pay

◉ chrome

Only basic-card option is shown since Chrome won't crawl for JIT installable PHs when basic-card is requested.

Review your payment

| Order Summary	Tots	USD	$1.00	▸
Payment			Add	

Cards and addresses are from Chrome. You can manage them in Settings.
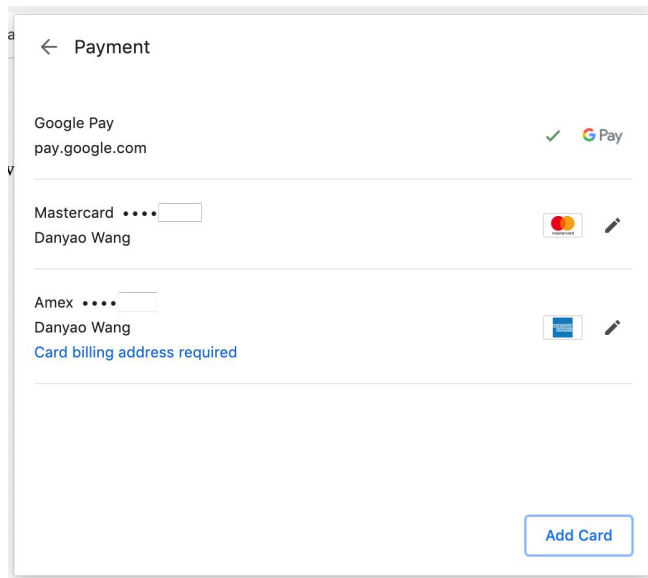
Cancel | Pay

◉ chrome

If user doesn't have a local card, they must add a card now (lengthy process), even if they have a card ready to pay in other PHs.

What User Will See with Always Crawling

Review your payment

Order Summary	Tots	USD	$1.00	▸
Payment	Google Pay pay.google.com		G Pay ▸	

You can manage cards and addresses in Settings.

chrome

Cancel   Pay
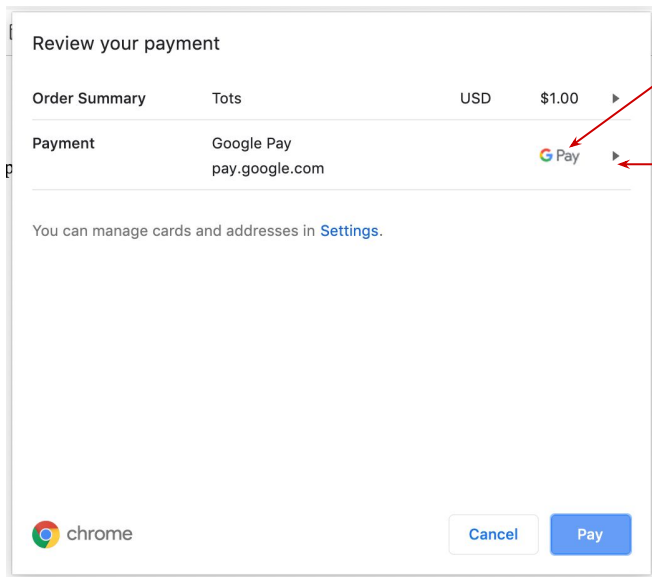
GPay is crawled just-in-time so it's offered as an option here (installation only happens when user clicks on "Pay").

User can still choose to use a local card if they have one, by clicking here to see the options.

← Payment

Google Pay
pay.google.com   ✓ G Pay

Mastercard ● ● ● ● ☐   [Mastercard] ✎
Danyao Wang

Amex ● ● ● ● ☐   [Amex] ✎
Danyao Wang
Card billing address required

Add Card

Alternative Crawling Proposal and Discussion

- For a requested URL based payment method "A" always crawl to find its JIT installable Web-based payment handlers:
  1. even if other payment handlers for "A" or any other requested methods have been installed, and

  2. even if the basic card method is requested.

- Should we disallow skip the sheet for JIT installable PHs, and always wait for user consent inside the payment sheet/app selector before installing payment handler service workers?

- See full description of [current behavior and the alternative proposal](#)