

Forms, Form API and AJAX

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Overview

Forms can act just like controllers. You can set up a route and call the form in a very similar fashion. See the example route below:

```
batch_examples.batch:
  path: '/batch-examples/batchform'
  defaults:
    _title: 'Batch'
    _form: 'Drupal\batch_examples\Form\BatchForm'
  requirements:
    _permission: 'access content'
```

Find a form id in the page source

When you need to make changes to a form, it can take a little time to find the form. You often need to find the form id as the first step. To find the form_id for a node comment form, start by editing an article node with the comment form displaying. Inspect code in chrome and look for something like this:

```
<form class="comment-comment-form comment-form" data-drupal-selector="comment-form" action="/comment/reply/node/1/comment" method="post" id="comment-form" accep
```

The formid is comment_comment_form. Note *dashes will need to become underscores in your code*.

Alternatively, you can add a hook_form_alter and print_r or dsm the \$form_id. If you prefer, you could also log it to the watchdog log:

```
function nisto_form_alter(&$form, \Drupal\Core\Form\FormStateInterface $form_state, $form_id){
  \Drupal::messenger()->addMessage('Form ID: ' . $form_id);
  // Or log it to watchdog log.
  \Drupal::logger('nisto_form_alter')->notice('Form ID: ' . $form_id);
}
```

Notice that a node add form looks like node_catastrophe_notice_form while a node edit form looks more like this: node_catastrophe_notice_edit_form

Add buttons to your custom forms

Many forms need extra buttons. Fortunately Drupal allows this to be done easily. In the code below there is a submit button which will execute the submitForm function. There are two additional buttons: update_nodes which (on click) calls the updateNodes function and cache_warmer which (one click) will execute the warmCaches function.

```

$form['sanity_fieldset']['actions'] = [
  '#type' => 'actions',
];

$form['sanity_fieldset']['actions']['submit'] = [
  '#type' => 'submit',
  '#value' => $this->t('Submit'),
];

$form['sanity_fieldset']['actions']['update_nodes'] = [
  '#type' => 'submit',
  '#value' => $this->t('Update'),
  '#submit' => [::updateNodes],
];

$form['sanity_fieldset']['actions']['cache_warmer'] = [
  '#type' => 'submit',
  '#value' => $this->t('Warm Caches'),
  '#submit' => [::warmCaches],
];

```

and here is the beginning of the submit function that goes along with the update_nodes submit button:

```

public function updateNodesFromCache(array &$form, FormStateInterface $form_state) {
  $program_nid = $form_state->get('program_nid');
  $vote_number = $form_state->get('vote_number');
  $program_node = $form_state->get('program');
  $program_title = $program_node->getTitle();
  $team_nid = $program_node->get('field_srp_team_ref')[$vote_number]->target_id;

  $chunk_size = 20;
  $operations = [];

  $cache_id = "expectations.program.$program_nid.vote.$vote_number.team.$team_nid";
  $cache_data = \Drupal::cache()->get($cache_id);
  if ($cache_data) {
    $expectations = $cache_data->data;
    $chunks = array_chunk($expectations, $chunk_size);
    for ($i = 0; $i < count($chunks); $i++) {
      $operations[] = [
        '\Drupal\tea_teks_voting\Batch\VotingCacheBatch::updateExpectations',
        [$chunks[$i]],
      ];
    }
  }

  $batch = [
    'title' => $this->t("Updating nodes from voting caches for $program_title"),
    'progress_message' => $this->t('Completed @current out of @total chunks.'),
    'finished' => '\Drupal\tea_teks_voting\Batch\VotingCacheBatch::batchFinished',
    'operations' => $operations,
  ];
  batch_set($batch);
}

```

Note. The example above shows a batch function. You can read more in the [Batch and Queue chapter](#)

Modify a button on a form with hook_form_alter

in a .module file like web/modules/custom/mymod/mymod.module we can change the caption on the “save” button to “Comment”

```
function mymod_form_alter(&$form, \Drupal\Core\Form\FormStateInterface $form_state, $form_id) {
  if ($form_id == 'comment_comment_form') {
    $form['actions']['submit']['#value'] = t('Comment');
  }
}
```

Here is a dropdown form element that I added an item to:

```
$form["topic"]["#options"][992] = "selwyn";
```

And in another .module file I nuke the contents of the dropdown topic and reload it with different content. These are children of term with tid 2806 sorted by the term name:

```
function nisto_form_alter(&$form, \Drupal\Core\Form\FormStateInterface $form_state, $form_id){
  // xdebug_break();

  if ($form_id == "views_exposed_form") {
    // Clear the current options.
    $form["topic"]["#options"] = [];

    $tid = 2806;
    $terms = \Drupal::entityTypeManager()->getStorage('taxonomy_term')->loadChildren($tid);
    foreach($terms as $term) {
      $childTerm = $term->get('tid')->value;
      $termName = ucfirst(strtolower($term->get("name")->value));
      $tid = $term->get("tid")->value;
      $form["topic"]["#options"][$tid] = $termName;
    }
    natcasesort($form["topic"]["#options"]);
  }
}
```

Hide a field with hook_form_alter

In a .module file, I used this code to remove access to these fields:

```
$form['field_highlight_section']['#access'] = 0;
$form['field_accordion_section']['#access'] = 0;
```

This grays out a field:

```
$form['field_text2']['#disabled'] = true;
```

Here is the whole function where I also check what these is currently in use:

```
function dan_form_alter(&$form, \Drupal\Core\Form\FormStateInterface $form_state, $form_id) {

  $activeThemeName = \Drupal::service('theme.manager')->getActiveTheme();

  if ($activeThemeName->getName() == 'seven') {

    $form['#attributes']['novalidate'] = 'novalidate';

  }

  if ($form_id == 'views-exposed-form-site-search-page-search') {

    $form['#theme'] = ['header_search_form'];

  }

  // User is editing or adding content of type overview.

  if ($form_id == 'node_overview_edit_form' || $form_id == 'node_overview_form') {

    \Drupal::messenger()->addMessage("blah");

    $form['field_text2']['#disabled'] = true;

    $form['field_highlight_section']['#access'] = 0;

    $form['field_accordion_section']['#access'] = 0;

  }

}
```

Hide revision info and moderation state

In a .module file you can turn off (or hide) revision information and moderation state like this.

```
$form['revision_information']['#access'] = FALSE;
$form['moderation_state']['#access'] = FALSE;
```

Multiple fields on the same controller/page

If you need to have the same form appear multiple times on a page, you need to add a little special logic. In one example, I had several items displayed on a page, and each one needed an option to add feedback by the user. This required the use of a static class variable to uniquely identify each instance of the form on the page.

```
/**
 * Class SrpAddFeedbackForm.
 */

class SrpAddFeedbackForm extends FormBase {

  /**
   * @var int $instanceId
   *
   * Used to make sure the getFormId is always unique.
   */

  private static int $instanceId;

  ...
}
```

In the `getFormId()` method where you would normally just use `return 'tea_teks_srp_feedback_add';`, you can use the following code instead:

```
/**
 * {@inheritdoc}
 */

public function getFormId() {
  if (empty(self::$instanceId)) {
    self::$instanceId = 1;
  }

  else {
    self::$instanceId++;
  }

  return 'tea_teks_srp_feedback_add' . self::$instanceId;
}
```

Conditional fields and field states API (#states)

There are some nice articles at <https://mushtaq.ch/blog/11/drupal-8-conditionally-hide-a-form-field> and <https://www.lullabot.com/articles/form-api-states> that go into more detail.

Note. There is a very workable conditional fields module https://www.drupal.org/project/conditional_fields which lets you do the same sort of thing without any code.

The magic sauce is to use the jQuery selector to identify the field that will control the states. You can see the left side of the => has the jQuery code to select a checkbox or radio button.

```
:input[name="copies_yes_no"] => [value' => '0]
```

Conditional fields in a form

When creating a form, follow these steps:

- 1 Create the field that will control the other field (radio buttons in this case)
- 2 Create the field that will be hidden (or manipulated in various ways)
- 3 Create the field with a [#states] index

Create the `copies_yes_no` field, then the `how_many_oversized` field and then finally the `#states` attribute which will make the `how_many_oversized` field appear if you click Yes to the `copies_yes_no` field.

Here is an Example form which will only show the `how_many_oversized` field when the `copies_yes_no` radio is set to yes:

```
$form['nonstandard']['copies_yes_no'] = [
  '#type' => 'radios',
  '#title' => $this->t('Did the requestor ask for copies of nonstandard documents (e.g., oversized paper, DVD, or VHS tape)?'),
  '#default_value' => 0,
  '#options' => [
    0 => $this->t('Yes'),
    1 => $this->t('No'),
  ],
];

$form['nonstandard']['how_many_oversized'] = [
  '#type' => 'number',
  '#title' => $this->t('Oversized paper copies (e.g., 11 inches by 17 inches, greenbar, bluebar), # of pages'),
  '#min' => 0,
  '#max' => 65535,
  '#size' => 6,
];

$form['nonstandard']['how_many_oversized']['#states'] = [
  // Only show when copies_yes_no is yes.
  'visible' => [
    ':input[name="copies_yes_no"] => [value' => '0]',
  ],
];
```

Conditional fields in node add or edit form

To customize how fields are handled in an existing form, use `hook_form_alter` and check to see if you are a node add or edit form for our type of node. Set the state to visible for `field_cn_original_notice` (so the user can see it) if the `field_cn_extension` has a value of checked=TRUE. This has the effect of dynamically displaying the field once the checkbox for `field_cn_extension` is clicked. The rest of the function has various other field tweaks

This is from a `.module` file

```
function org_mods_form_alter(array &$form, FormStateInterface $form_state, $form_id) {

  $accountProxy = \Drupal::currentUser();
  $account = $accountProxy->getAccount();

  if (($form_id == 'node_catastrophe_notice_form') || ($form_id == 'node_catastrophe_notice_edit_form')) {

    //Disable field.

    $form['field_cn_end_date']['widget'][0]['value']['#attributes']['disabled'] = 'disabled';

    //Or the simpler.

    $form['field_cn_end_date']['#disabled'] = TRUE;

    if (!$account->hasPermission('administer catastrophe notice')) {
      $form['field_cn_notes']['#access'] = FALSE;
      $form['field_cn_initial_start_date']['#access'] = FALSE;
      $form['field_cn_initial_end_date']['#access'] = FALSE;
      $form['revision_information']['#access'] = FALSE;
      $form['moderation_state']['#access'] = FALSE;
    }

    // Hides Title since it is automatically populated on presave.
    $form['title']['#access'] = FALSE;

    // When the value of field_cn_extension is checked, show this field.
    $form['field_cn_original_notice']['#states'] = [
      'visible' => [
        ':input[name="field_cn_extension[value]"] => [checked' => TRUE],
      ],
    ];
  }
}
```

Here is a variant on this theme for making a field visible or required. In this example, it isn't using the `[value]` as part of the name. When I tried that above, it didn't seem to work. Perhaps I didn't have the correct jquery selector.

```
$form['field_blah_blah']['#states']= [

  // Only show when scoring_unavailable is not checked.

  'visible' => [
    ':input[name="scoring_unavailable"]' => [unchecked' => TRUE],
  ],
  'required' => [
    ':input[name="scoring_unavailable"]' => [unchecked' => TRUE],
  ],
];
```

Get the key and value from a select drop-down

To get the key and the value that the user sees in the dropdown use the following. When the dropdown was created, we gave it array of strings so the key is a zero-based number and the value (`$educationLevel`) is the string. This shows how to get both.

```
$key = $form_state->getValue('education_level');
$educationLevel = $form['education_level']['#options'][$key];
```

Autocomplete

Add an autocomplete taxonomy field

This makes a field on your form that automagically starts populating with terms when you start typing. Here the `$vid` is a vocabulary machine name like `media_tags`. Not sure what `#tags` does – It doesn't seem to be required. Notice vocab id (`vid`) is the taxonomy machine name not a number.

```

$vid1 = 'media_tags';
$form['tags'] = [
  '#type' => 'entity_autocomplete',
  '#title' => $this->('Tags'),
  '#target_type' => 'taxonomy_term',
  '#selection_settings' => [
    'target_bundles' => [$vid1], //could be [$vid1, $vid2..].
  ],
  //   '#tags' => TRUE,
];

```

Add a views-driven entity autocomplete field

This allows you to create a field on your form with a user field. This will be an autocomplete field which uses the view: `users_view` and the display `users`. It allows you to start typing a username in the field and all matching users will be displayed in the dropdown below the field:

```

$form['user'] = [
  '#type' => 'entity_autocomplete',
  '#target_type' => 'user',
  '#selection_handler' => 'views',
  '#selection_settings' => [
    'view' => [
      'view_name' => 'users_view',
      'display_name' => 'users',
      'arguments' => []
    ],
  ],
  'match_operator' => 'CONTAINS'
],
];

```

from <https://drupal.stackexchange.com/questions/308870/entity-autocomplete-form-api-field-with-viewsselection-handler>

Disable autocomplete for user login and password fields

In a `.module` file use the following code.

```

/**
 * Implements hook_form_FORM_ID_alter().
 *
 * Turn off autocomplete on login.
 */
function dirt_form_user_login_form_alter(&$form, \Drupal\Core\Form\FormStateInterface $form_state, $form_id) {
  $form['pass']['#attributes']['autocomplete'] = 'off';
  $form['name']['#attributes']['autocomplete'] = 'off';
}

function dirt_form_user_pass_alter(&$form, \Drupal\Core\Form\FormStateInterface $form_state, $form_id) {
  $form['name']['#attributes']['autocomplete'] = 'off';
}

```

Validating input

Validate string length

Check a string length for the `company_name` field.


```

public function validateForm(array &$form, FormStateInterface $formState) {
    if (!$formState->isEmpty('company_name')) {
        if (strlen($formState->getValue('company_name')) <= 5) {
            //Set validation error.

            $formState->setErrorByName('company_name', t('Company name is less than 5 characters'));
        }
    }
}

```

Validate an email

From web/modules/custom/rsvp/src/Form/RSVPForm.php we call Drupal's `email.validator` service and if it fails, `setErrorByName()`

```

public function validateForm(array &$form, FormStateInterface $form_state) {
    $value = $form_state->getValue('email');
    if (!$Drupal::service('email.validator')->isValid($value)) {
        $form_state->setErrorByName('email', t('The email %mail is not valid.', ['%mail'=> $value]));
    }

    parent::validateForm($form, $form_state);
}

```

Validate date

You can also add a custom validation in a .module file. Here we use `setTime()` to remove the time part of a datetime so we can make comparisons of just the date.

From a .module file.

```

/**
 * Custom form validation for catastrophe notices.
 *
 * Checks if a user enters a date that is more than
 * 2 days earlier than the current date, but only if they didn't
 * check the extension checkbox.
 *
 * @param $form
 * @param \Drupal\Core\Form\FormStateInterface $form_state
 */
function cn_form_validate($form, FormStateInterface $form_state) {
    $extension = $form_state->getValue('field_cn_extension');
    if (is_array($extension)) {
        $extension = $extension['value'];
    }
    $start_date = $form_state->getValue('field_cn_start_date');
    if ($start_date) {
        $start_date = $start_date[0]['value'];
        $start_date->setTime(0, 0, 0);
        $now = new Drupal\Core\DateTime\DrupalDateTime();
        $now->modify("-2 days");
        $now->setTime(0, 0, 0);

        if ($start_date < $now && !$extension) {
            $form_state->setErrorByName('field_cn_start_date', t('The starting date is more than 2 days in the past. Please select a more recent date.));
        }
    }
}

```

Validate a node add or edit

In `org_mods.module` we implement a `hook_form_alter`, and add a `validate` callback function for anonymous users only.

```
/**
 * Implements hook_form_alter().
 */

function org_mods_form_alter(array &$form, FormStateInterface $form_state, $form_id) {
    $accountProxy = \Drupal::currentUser();
    $account = $accountProxy->getAccount();

    // Add special validation for anonymous users (node add) only.
    if (($accountProxy->isAnonymous() && ($form_id == 'node_catastrophe_notice_form')) {
        $form['#validate'][] = 'cn_form_validate';
    }
}
```

And here is the custom `validate` function which does some fun date arithmetic.

```
/**
 * Custom form validation for catastrophe notices.
 *
 * Checks if a user enters a date that is more than
 * 2 days earlier than the current date, but only if they didn't
 * check the extension checkbox.
 */
* @param $form
* @param \Drupal\Core\Form\FormStateInterface $form_state
*/

function cn_form_validate($form, FormStateInterface $form_state) {
    $extension = $form_state->getValue('field_cn_extension');
    if (is_array($extension)) {
        $extension = $extension['value'];
    }
    $start_date = $form_state->getValue('field_cn_start_date');
    if ($start_date) {
        $start_date = $start_date[0]['value'];
        $start_date->setTime(0, 0, 0);
        $now = new \Drupal\Core\Datetime\DrupalDateTime();
        $now->modify("-2 days");
        $now->setTime(0, 0, 0);

        if ($start_date < $now && !$extension) {
            $form_state->setErrorByName('field_cn_start_date', t('The starting date is more than 2 days in the past. Please select a later date'));
        }
    }
}
```

Displaying Forms

Embedding a form:

In this example, there is a form called `ExampleForm` at `web/modules/custom/test/src/Form/ExampleForm.php`.

To render a form programmatically, either inside a Controller or a block, use the `FormBuilder` service. The form builder can be injected using the `form_builder` service key or used statically to then build the form (which returns a render array)

```
$form = \Drupal::formBuilder()->getForm('Drupal\test\Form\ExampleForm');
$build['egform'] = $form;
return $build;
```

Show a form in a block

In dev1/web/modules/custom/rsvp/src/Plugin/Block/RSVPBlock.php you can see in the build() method, we invoke a form like this:

```
class RSVPBlock extends BlockBase {

    /**
     * @inheritdoc
     */

    public function build() {
        return \Drupal::formBuilder()->getForm('Drupal\rsvp\Form\RSVPForm');
    }
}
```

In docroot/modules/custom/quick_pivot/src/Plugin/Block/QuickPivotSubscribeBlock.php we use dependency injection to pass in the FormBuilderInterface and then get the form in a very similar way.

The constructor grabbed the formbuilder like this:

```
public function __construct(array $configuration, $plugin_id, $plugin_definition, ConfigFactoryInterface $config_factory, FormBuilderInterface $form_builder) {
    parent::__construct($configuration, $plugin_id, $plugin_definition);

    $this->configFactory = $config_factory;
    $this->formBuilder = $form_builder;
}

public function build() {
    return $this->formBuilder->getForm('Drupal\quick_pivot\Form\QuickPivotSubscribeForm');
}
```

Provide a block template for a form in a block

In /modules/custom/dan_pagination/src/Form/VideoPaginationForm.php I have a form which is displayed in a block. The usual block template file provided by the theme is block.html.twig and looks like this:

(Here is an image of this source code. Strangely, Jekyll/Github requires me to jump through some hoops for TWIG source. I'm still experimenting.)

```
<div{{ attributes }}>
  {{ title_prefix }}
  {% if label %}
    <h2{{ title_attributes }}>{{ label }}</h2>
  {% endif %}
  {{ title_suffix }}
  {% block content %}
    {{ content }}
  {% endblock %}
</div>
```

Here is the source:

```

<div
  {{ attributes }}>
  {{ title_prefix }}
  {% if label %}
    <h2{{ title_attributes }}>{{ label }}</h2>
  {% endif %}
  {{ title_suffix }}
  {% block content %}
    {{ content }}
  {% endblock %}
</div>

```

The template outputs the guts of the block as

```

{{ block_content }}

```

For my custom theme called dprime, I added a new template file at `themes/custom/dprime/templates/block/block--videopaginationblock.html.twig` and added lots of fun stuff to output the form in bits and pieces.

e.g. like here, to display the `previous_clip` item from the form's render array which looks like this:

```

$form['previous_clip'] = [
  '#type' => 'markup',
  '#markup' => "(Clip $previous_clip_num/$clip_count)",
];

```

And in the template, you can see `content.previous_clip` referencing this content.

```

<div class="cell medium-6 medium-order-2 text-center">

  {{ content.select }}

</div>
<div class="cell small-6 medium-order-1 medium-3">
  <a href="" class="linkPager linkPager--prev">
    <span class="linkPager-icon">
      <span class="icon--arrowLeft" data-grunticon-embed=""></span>
    </span>
    <span class="linkPager-text">
      <span class="linkPager-title">Prev</span>

      {{ content.previous_clip }}

    </span>
  </a>
</div>

```

Redirecting

Form submission with redirect

Here is a `submitForm()` function from `docroot/modules/custom/websphere_commerce/modules/checkout/src/Form/ReviewForm.php`

The call to `$form_state->getValues()` retrieves all the values in the form. The rest of the logic checks a value and redirects the user to a specific page.

```

public function submitForm(array &$form, FormStateInterface $form_state) {
    $values = $form_state->getValues();

    if ($values['op'] == 'Goback') {
        redirectUser('/checkout/' . $values['cart_id'] . '/billing');
    }
}

```

Here is the source for the `redirectUser()` call from above.

```

function redirectUser($path, $route = FALSE) {
    if (!$route) {
        $redirectUrl = Url::fromUserInput($path)->toString();
        $response = new RedirectResponse($redirectUrl);
        $response->send();
    }
    return;
}

```

Ajax redirect

If you want to redirect to the `/cart` url, you must add an AJAX command. See the [RedirectCommand in the API Reference](#)

```

$cartUrl = Url::fromUri('internal:/cart');
$ajax_response->addCommand(
    new RedirectCommand($cartUrl->toString())//Note this is a string!!
);
return $ajax_response;

```

In a non-ajax form, to redirect to the cart url, we would just use something like this:

```

$form_state->setRedirectUrl($cartUrl);

```

AJAX redirect from a select element (dropdown)

Here I set up a dropdown with the url's and when the user makes a change in the dropdown, the browser goes to that url. The url's are `/node/1` `/node/2` etc. For the correct url to be built, we have to prefix "internal:" to them and that happens in the callback function `mySelectChange()`.

```

/**
 * {@inheritdoc}
 */

public function buildForm(array $form, FormStateInterface $form_state, $nojs = NULL) {

    // Get the form values and raw input (unvalidated values).
    $values = $form_state->getValues();

    // Define a wrapper id to populate new content into.
    $ajax_wrapper = 'my-ajax-wrapper';

    // Select element.
    $form['my_select'] = [
        '#type' => 'select',
        '#empty_value' => "",
        '#empty_option' => '- Select a value -',
        '#default_value' => (isset($values['my_select']) ? $values['my_select'] : ''),
        '#options' => [
            '/node/1' => 'One',
            '/node/2' => 'Two',
            '/node/3' => 'Three'

```

```

    ],
    '#ajax' => [
        'callback' => [$this, 'mySelectChange'],
        'event' => 'change',
        'wrapper' => $ajax_wrapper,
    ],
];

// Build a wrapper for the ajax response.
$form['my_ajax_container'] = [
    '#type' => 'container',
    '#attributes' => [
        'id' => $ajax_wrapper,
    ]
];

return $form;
}

/**
 * The callback function for when the `my_select` element is changed.
 *
 */
public function mySelectChange(array $form, FormStateInterface $form_state) {

    $values = $form_state->getValues();

    $response = new AjaxResponse();
    // $url = Url::fromUri('internal:/node/2');
    $url = Url::fromUri('internal:' . $values['my_select']);

    $command = new RedirectCommand($url->toString());
    $response->addCommand($command);
    return $response;
}

//Don't forget an empty submitForm().
public function submitForm(array &$form, FormStateInterface $form_state) {
    // This function left blank intentionally.
}

```

Invoke the form from the controller with:

return

```
return \Drupal::formBuilder()->getForm('Drupal\org_opinions\Form\IndividualOpinionForm');
```

The form is at docroot/modules/custom/org_opinions/src/Form/IndividualOpinionForm.php.

And don't forget these:

```

use Drupal\Core\Form\FormBase;
use Drupal\Core\Form\FormStateInterface;
use Drupal\Core\Link;
use Drupal\Core\Url;
use Drupal\Core\Ajax\AjaxResponse;
use Drupal\Core\Ajax\RedirectCommand;

```

Let's say you have several select elements on the form like `my_select` and `my_select2` like this (Sorry - not too creative, I know.):

```

$ajax_wrapper = 'my-ajax-wrapper';

// Select.
$form['my_select'] = [
  '#type' => 'select',
  '#empty_value' => "",
  '#empty_option' => '- Select a value -',
  '#default_value' => (isset($values['my_select']) ? $values['my_select'] : ''),
  '#options' => [
    '/node/1' => 'One',
    '/node/2' => 'Two',
    '/node/3' => 'Three'
  ],
  '#ajax' => [
    'callback' => [$this, 'mySelectChange'],
    'event' => 'change',
    'wrapper' => $ajax_wrapper,
  ],
];

$form['my_select2'] = [
  '#type' => 'select',
  '#empty_value' => "",
  '#empty_option' => '- Select a value -',
  '#default_value' => (isset($values['my_select']) ? $values['my_select'] : ''),
  '#options' => [
    '/node/4' => 'Four',
    '/node/5' => 'Five',
    '/node/6' => 'Six'
  ],
  '#ajax' => [
    'callback' => [$this, 'mySelectChange'],
    'event' => 'change',
    'wrapper' => $ajax_wrapper,
  ],
];

```

Both use the same callback: mySelectChange. We can make the callback a little smarter by figuring out internally which element called it.

```

/**
 * Callback function for changes to the 'my_select' any select element.
 */
public function mySelectChange(array $form, FormStateInterface $form_state) {
  $values = $form_state->getValues();

  // $elem stores the element info
  $elem = $form_state->getTriggeringElement();
  // $value[$elem["#name"]] stores the path like /node/2

  $response = new AjaxResponse();

  // Internal URLs must look like this: 'internal:/node/2'.
  // $url = Url::fromUri('internal:' . $values['my_select']);
  $url = Url::fromUri('internal:' . $values[$elem["#name"]]);

  $command = new RedirectCommand($url->toString());
  $response->addCommand($command);
  return $response;
}

```

Add Javascript to a form

This code is in the [examples](#) module in the `DependentDropdown` example where one field depends on the value from another

From `web/modules/contrib/examples/ajax_example/src/Form/DependentDropdown.php` the form has some Javascript included via a library:

```
public function buildForm(array $form, FormStateInterface $form_state, $nojs = NULL) {  
  // Add our CSS and tiny JS to hide things when they should be hidden.  
  $form['#attached']['library'][] = 'ajax_example/ajax_example.library';  
}
```

The `ajax_example.libraries.yml` looks like this:

```
ajax_example.library:  
  version: 1.x  
  css:  
    base:  
      css/ajax-example-base.css: {}  
  js:  
    js/ajax-example.js: {}
```

Notice in the `buildform()` function that the code references the machine name for the library (not the library's filename which is `ajax_example.libraries.yml`.)

Here is the js for completeness:

```
(function ($) {  
  
  // Re-enable form elements that are disabled for non-ajax situations.  
  Drupal.behaviors.enableFormItemsForAjaxForms = {  
    attach: function () {  
      // If ajax is enabled, we want to hide items that are marked as hidden in  
      // our example.  
      if (Drupal.ajax) {  
        $(':ajax-example-hide').hide();  
      }  
    }  
  };  
})(jQuery);
```

AJAX Forms

When adding ajax to a form, you will need the code:

```
$form['#attached']['library'][] = 'core/drupal.dialog.ajax';
```

This line attaches the `core/drupal.dialog.ajax` library to the form and is necessary to render the modal dialogs. Alternatively, you can include this as a dependency in your module's `*.info.yml` file.

There are some really sweet [writeups about AJAX forms](#) and [AJAX Dialog boxes](#)

Popup an AJAX modal dialog

If you want to have a form pop up a modal dialog or do something via ajax you have to do some slightly special stuff.

First define what will appear on the dialog


```

$checkoutLink = '/checkout/' . $get_order_item_id . '/shipping';
$success_modal_popup = [
  '#theme' => 'add_cart_success_modal_popup',
  '#data' => [
    'product_title' => $productDetails->title->value . $popup_title,
    'checkout_link' => $checkoutLink,
    'cart_link' => '/cart',
    'continue_shopping_link' => '<span class="continue-shopping">Continue Shopping</p>',
    'product_id'=>$product_id,
    'product_price'=>number_format($productDetails_p->price[1]->value, 2),
    'product_category'=>'Singer',
    'product_quantity'=>$product_qty,
  ],
];
$content['#markup'] = render($success_modal_popup);
$content['#attached']['library'][] = 'core/drupal.dialog.ajax';
$content['#attached']['library'][] = 'websphere_commerce_cart/minicart';

```

Then add an ajax command to open the dialog:

```

$ajax_response->addCommand(
  new OpenModalDialogCommand(t($popup_title), $content, ['width' => '60%', 'dialogClass' => 'product-cart-popup'])
);
return $ajax_response;

```

Don't forget to **return** the \$ajax_response;

Here is a slightly example displaying a modal dialog:

```

$addToCartFailed = $websphere_config->get('cart.add_to_cart_failed');
$success_modal_popup = [
  '#theme' => 'add_cart_success_modal_popup',
  '#data' => [
    'addtocart_failed' => $addToCartFailed,
    'product_id'=>$product_id,
    'product_price'=>number_format($productDetails_p->price[1]->value, 2),
    'product_category'=>'Singer',
    'product_quantity'=>$product_qty,
  ],
];
$content['#markup'] = render($success_modal_popup);
$content['#attached']['library'][] = 'core/drupal.dialog.ajax';
$ajax_response->addCommand(
  new OpenModalDialogCommand(t($popup_title), $content, ['width' => '60%', 'dialogClass' => 'product-cart-popup'])
);
return $ajax_response;

```

AJAX modal dialog with redirect example

From docroot/modules/custom/websphere_commerce/modules/product/src/Form/AddToCartForm.php.

```

use Drupal\Core\Ajax\RedirectCommand;

class AddToCartForm extends FormBase {
  // Create constructor and create functions for dependency injection

  public function __construct(PrivateTempStoreFactory $temp_store_factory, SessionManagerInterface $session_manager, AccountInterface $current_user) {
    $this->tempStoreFactory = $temp_store_factory;
    $this->sessionManager = $session_manager;
    $this->currentUser = $current_user;
  }

  public static function create(ContainerInterface $container) {
    return new static(
      $container->get('user.private_tempstore'), $container->get('session_manager'), $container->get('current_user')
    );
  }

  // Use buildForm() function to create the elements on the form:
  public function buildForm(array $form, FormStateInterface $form_state, $nid = NULL, $productId = NULL) {

```

AJAX SUBMIT

Submit element is a little special. See all that '#ajax' stuff?

```

$form['submit'] = [
  '#type' => 'submit',
  '#attributes' => ['class' => ['mobile-hide']],
  '#id' => 'add_to_cart',
  '#value' => $this->t('Add to cart'),
  '#button_type' => 'primary',
  '#ajax' => [
    'callback' => '::add_to_cart_submit',
    'event' => 'click',
    'progress' => [
      'type' => 'throbber',
      'wrapper' => 'editor-settings-wrapper',
    ],
  ],
];
return $form;

```

In this implementation, there is an empty `submitForm()` function. For the ajax submit callback we use `add_to_cart_submit()`. Note how a new `AjaxResponse` is created.

```

public function add_to_cart_submit(array &$form, FormStateInterface $form_state) {
  global $user_status;

  $inputs = $form_state->getUserInput();
  $ajax_response = new AjaxResponse();
  $product_qty = $inputs['product_qty'];

```

Note. This should probably be a static function to avoid this symfony error:

```

TypeError: Argument 1 passed to Drupal\Core\Routing\RequestContext::fromRequest() must be an instance of Symfony\Component\HttpFoundation\Request, null given

```

AJAX REDIRECT

If you want to redirect to the `/cart` url, you must add an AJAX command. See the [RedirectCommand in the API Reference](#)

```

$cartUrl = Uri::fromUri('internal:/cart');
$ajax_response->addCommand(
    new RedirectCommand($cartUrl->toString())//Note this is a string!!
);
return $ajax_response;

```

In a non-ajax form, to redirect to the cart url, we would just use something like this:

```

$form_state->setRedirectUrl($cartUrl);

```

AJAX redirect from a select element (dropdown)

Here I set up a dropdown with the url's and when the user makes a change in the dropdown, the browser goes to that url. The url's are /node/1 /node/2 etc. For the correct url to be built, we have to prefix "internal:" to them and that happens in the callback function mySelectChange().

```

/**
 * {@inheritdoc}
 */

public function buildForm(array $form, FormStateInterface $form_state, $nojs = NULL) {

    // Get the form values and raw input (unvalidated values).
    $values = $form_state->getValues();

    // Define a wrapper id to populate new content into.
    $ajax_wrapper = 'my-ajax-wrapper';

    // Select element.
    $form['my_select'] = [
        '#type' => 'select',
        '#empty_value' => "",
        '#empty_option' => '- Select a value -',
        '#default_value' => (isset($values['my_select']) ? $values['my_select'] : ""),
        '#options' => [
            '/node/1' => 'One',
            '/node/2' => 'Two',
            '/node/3' => 'Three'
        ],
        '#ajax' => [
            'callback' => [$this, 'mySelectChange'],
            'event' => 'change',
            'wrapper' => $ajax_wrapper,
        ],
    ];

    // Build a wrapper for the ajax response.
    $form['my_ajax_container'] = [
        '#type' => 'container',
        '#attributes' => [
            'id' => $ajax_wrapper,
        ]
    ];

    return $form;
}

/**
 * The callback function for when the `my_select` element is changed.
 *
 */

```

```

public function mySelectChange(array $form, FormStateInterface $form_state) {

    $values = $form_state->getValues();

    $response = new AjaxResponse();
    // $url = Url::fromUri('internal:/node/2');
    $url = Url::fromUri('internal:' . $values['my_select']);

    $command = new RedirectCommand($url->toString());
    $response->addCommand($command);
    return $response;
}

//Don't forget an empty submitForm().
public function submitForm(array &$form, FormStateInterface $form_state) {
    // This function left blank intentionally.
}

```

Invoke the form from the controller with:

return

```

return \Drupal::formBuilder()->getForm('Drupal\org_opinions\Form\IndividualOpinionForm');

```

The form is at docroot/modules/custom/org_opinions/src/Form/IndividualOpinionForm.php.

And don't forget these:

```

use Drupal\Core\Form\FormBase;
use Drupal\Core\Form\FormStateInterface;
use Drupal\Core\Link;
use Drupal\Core\Url;
use Drupal\Core\Ajax\AjaxResponse;
use Drupal\Core\Ajax\RedirectCommand;

```

Let's say you have several select elements on the form like `my_select` and `my_select2` like this (Sorry - not too creative, I know.):

```

$ajax_wrapper = 'my-ajax-wrapper';

// Select.
$form['my_select'] = [
  '#type' => 'select',
  '#empty_value' => "",
  '#empty_option' => '- Select a value -',
  '#default_value' => (isset($values['my_select']) ? $values['my_select'] : ''),
  '#options' => [
    '/node/1' => 'One',
    '/node/2' => 'Two',
    '/node/3' => 'Three'
  ],
  '#ajax' => [
    'callback' => [$this, 'mySelectChange'],
    'event' => 'change',
    'wrapper' => $ajax_wrapper,
  ],
];

$form['my_select2'] = [
  '#type' => 'select',
  '#empty_value' => "",
  '#empty_option' => '- Select a value -',
  '#default_value' => (isset($values['my_select']) ? $values['my_select'] : ''),
  '#options' => [
    '/node/4' => 'Four',
    '/node/5' => 'Five',
    '/node/6' => 'Six'
  ],
  '#ajax' => [
    'callback' => [$this, 'mySelectChange'],
    'event' => 'change',
    'wrapper' => $ajax_wrapper,
  ],
];

```

Both use the same callback: mySelectChange. We can make the callback a little smarter by figuring out internally which element called it.

```

/**
 * Callback function for changes to the 'my_select' any select element.
 */
public function mySelectChange(array $form, FormStateInterface $form_state) {
  $values = $form_state->getValues();

  // $elem stores the element info
  $elem = $form_state->getTriggeringElement();
  // $value[$elem["#name"]] stores the path like /node/2

  $response = new AjaxResponse();

  // Internal URLs must look like this: 'internal:/node/2'.
  // $url = Url::fromUri('internal:' . $values['my_select']);
  $url = Url::fromUri('internal:' . $values[$elem["#name"]]);

  $command = new RedirectCommand($url->toString());
  $response->addCommand($command);
  return $response;
}

```

Update a value in another field(I am I want) using AJAX

This was used for a web page that had 2 dropdown fields. It showed I am a ____ and I want ____.

The code makes the assumption that there is only 1 matching I want for each I am which is way too limiting but it does illuminate the techniques somewhat. Therefor, if you select an I am, you only get 1 choice for an I want.

There is nothing too interesting in the IamiwantBlock.php but in the IamiwantForm.php it gets a little more juicy. The form presents two dropdown fields, I am and I want and a go button. The value in the I am dropdown controls the value in the I want.

From: txg/web/modules/custom/Iamiwant/src/Form/IamiwantForm.php.

The code loads \$nids from the database, loops thru them, putting them into an array \$iam indexed by node id. Then it defines the \$form['iam'] element with all the good #ajax stuff including:

- 1 The '#submit' callback: ::submitSelectIam
- 2 The #executes_submit_callback => TRUE
- 3 The 'callback' => '::ajaxReplacelwantForm' specifies what function to call when this field is "submitted"
- 4 The 'wrapper' => 'iwant-container' is the container that will get replaced
- 5 The 'method' => 'replace' which I guess means replace everything in said wrapper.

Then it defines the \$form['iwant_container'] and the \$form['iwant_container']['iwant'] element in readiness for the AJAX magic. Lastly it defines the submit go button.

```

public function buildForm(array $form, FormStateInterface $form_state) {
    $nodeStorage = $this->entityTypeManager->getStorage('node');

    // Get I am I want node ids.
    $nids = $nodeStorage->getQuery()
        ->accessCheck(TRUE)
        ->condition('field_iam', NULL, 'IS NOT NULL')
        ->condition('field_iwant', NULL, 'IS NOT NULL')
        ->condition('field_link', NULL, 'IS NOT NULL')
        ->condition('status', NodeInterface::PUBLISHED)
        ->execute();

    $nodes = $nodeStorage->loadMultiple($nids);
    $iam = [];
    foreach ($nodes as $node) {
        /* @var \Drupal\node\NodeInterface $node */
        $iam[$node->id()] = $node->get('field_iam')->getString();
    }
    $form['iam'] = [
        '#type' => 'select',
        '#title' => $this->t('I am'),
        '#options' => $iam,
        '#required' => TRUE,
        '#submit' => [':submitSelectIam'],
        '#executes_submit_callback' => TRUE,
        '#ajax' => [
            'callback' => '::ajaxReplaceIwantForm',
            'wrapper' => 'iwant-container',
            'method' => 'replace',
        ],
    ];
    $iwant = [];
    // Updates iwant values according to iam.
    if ($node = $form_state->get('node')) {
        $iwant[] = $node->get('field_iwant')->getString();
    }
    $form['iwant_container'] = [
        '#type' => 'container',
        '#prefix' => '<div id="iwant-container">',
        '#suffix' => '</div>',
    ];
    $form['iwant_container']['iwant'] = [
        '#type' => 'select',
        '#title' => $this->t('and I want to'),
        '#options' => $iwant,
    ];
    $form['actions'] = [
        '#type' => 'actions',
    ];
    $form['actions']['submit'] = [
        '#type' => 'submit',
        '#value' => $this->t('Go'),
    ];

    return $form;
}

```

Below is the callback `submitSelectIam` (referenced above) that gets called when the `iam` field value changes. The code grabs the `iam` value from the form, loads up that node and stores it in the `$form_state` with `$form_state->set('node', $node)`; for use later to decide where to jump to.

In `submitForm()`, it grabs the node, pulls out the URI and does a `setRedirectUrl()` which causes a jump to that URL.

In `submitSelectIam()`, it loads whichever value the user has put in the `iam` select. Then he stores that node in the `$form_state`, then calls `$form_state->setRebuild()`. This is the code that runs each time `iam` is chosen.

```
/**
 * Handles submit call when iam field is selected.
 */
public function submitSelectIam(array $form, FormStateInterface $form_state) {
    $iam = $form_state->getValue('iam');
    $node = $this->entityTypeManager->getStorage('node')->load($iam);
    $form_state->set('node', $node);
    $form_state->setRebuild();
}
```

Then in the callback for the `ajax` `iam` element. It returns whatever needs to be replaced in the wrapper container (from above). It simply returns the new value for that container (wrapper).

```
'#ajax' => [
    'callback' => '::ajaxReplaceIwantForm',
    'wrapper' => 'iwant-container',
    'method' => 'replace',
]
```

Then, add the `ajax` callback.

```
/**
 * Handles switching the iam selector.
 */
public function ajaxReplaceIwantForm($form, FormStateInterface $form_state) {
    return $form['iwant_container'];
}
```

And finally, this code does the actual redirecting when the user clicks go:

```
public function submitForm(array &$form, FormStateInterface $form_state) {
    /* @var \Drupal\node\NodeInterface $node */
    $node = $form_state->get('node');
    $uri = $node->get('field_link')->getString();
    $url = Url::fromUri($uri);
    $form_state->setRedirectUrl($url);
}
```

This version handles external URL's

```
public function submitForm(array &$form, FormStateInterface $form_state) {
    /* @var \Drupal\node\NodeInterface $node */
    $node = $form_state->get('node');
    // Get redirect uri from node.
    $fieldLink = $node->get('field_link')->getString();
    $url = Url::fromUri($fieldLink);
    if (UrlHelper::isExternal($fieldLink)) {
        $response = new TrustedRedirectResponse($url->toString());
        $form_state->setResponse($response);
    }
    else {
        $form_state->setRedirectUrl($url);
    }
}
```

When this runs, it has the I am drop down showing '-select-' and the I want dropdown is empty. The I want dropdown is unresponsive. Hmm.

When I debug, as soon as I change the I am value, `buildForm()` runs, then `submitSelectIam()`, then `buildForm()` again and then `ajaxReplacelWantForm()`. On subsequent runs, it skips the first `buildForm()` and runs through the sequence of

- 1 `submitSelectIam()`
- 2 `buildForm()`
- 3 `ajaxReplacelWantForm()`

In `submitSelectIam()` this code `$form_state->set('node', $node);` stores the node into the form state for later use. You can `->set()` anything into a form for use later. This means that the `buildForm` can pull it back out to figure out the value for the I want field, like this (in `buildForm()`). Note. You can do this in a submit callback but not a callback defined as `'#ajax'`. For some reason, they are ignored if you do that type.

```
// Updates iwant values according to iam.
if ($node = $form_state->get('node')) {
    $iwant[] = $node->get('field_iwant')->getString();
}
```

This is the magic bullet as it limits the `$iwant[]` output to only 1 value and also provides the value needed by the submit (go) button so it knows where to send the output. Unfortunately this just sets the `$iwant[]` array to the only one possible `iwant` value. That is not as useful as one would want.

I Am I Want revisited

Revisiting this code to make it limit the `iwant` field to only valid values:

From `ddev81/web/modules/custom/iamiwant/src/Form/IamiwantForm.php` here is `buildForm()` .

```
public function buildForm(array $form, FormStateInterface $form_state) {
    $nodeStorage = $this->entityTypeManager->getStorage('node');

    // Get I_am_I_want node ids.
    $nids = $nodeStorage->getQuery()
        ->accessCheck(TRUE)
        ->condition('field_iam', NULL, 'IS NOT NULL')
        ->condition('field_iwant', NULL, 'IS NOT NULL')
        ->condition('field_link', NULL, 'IS NOT NULL')
        ->condition('status', NodeInterface::PUBLISHED)
        ->execute();

    // Display the message if nodes don't exist.
    if (empty($nids)) {
        $form['error'] = [
            '#type' => 'item',
            '#markup' => $this->t('No "I am I want" nodes found.'),
        ];
    }

    $nodes = $nodeStorage->loadMultiple($nids);
    $iam = [];

    // Build I am select values.
    foreach ($nodes as $node) {
        $iam[$node->id()] = $node->get('field_iam')->getString();
    }

    $form['iam'] = [
        '#type' => 'select',
        '#title' => $this->t('I am'),
        '#options' => array_unique($iam),
        '#required' => TRUE,
        '#submit' => [ '::submitSelectIam' ],
        '#executes_submit_callback' => TRUE,
        '#ajax' => [
            'callback' => '::ajaxReplacelWantForm',
            'wrapper' => 'iwant-container',
        ],
    ];
}
```

```

        'method' => 'replace',
    ],
];

$iwant = [];

// Updates iwant values according to iam.
$node = $form_state->get('node');
if ($node) {
    $iwant[] = $node->get('field_iwant')->getString();
}

$iwantarray = $form_state->get('iwantarray');
if ($iwantarray) {
    $iwant = [];
    foreach ($iwantarray as $key => $value) {
        $iwant[$key] = $value;
    }
}

$form['iwant_container'] = [
    '#type' => 'container',
    '#prefix' => '<div id="iwant-container">',
    '#suffix' => '</div>',
];

$form['iwant_container']['iwant'] = [
    '#type' => 'select',
    '#title' => $this->t('and I want to'),
    '#options' => $iwant,
    '#empty_value' => "",
    '#empty_option' => '- Select -',
    '#prefix' => '<div class="cell imw-want">',
    '#suffix' => '</div>',
    '#submit' => [::submitSelectIwant],
    '#executes_submit_callback' => TRUE,
    '#ajax' => [
        'callback' => '::ajaxUpdateActionsForm',
        'wrapper' => 'actions-container',
        'method' => 'replace',
        'progress' => [
            'type' => 'none',
        ],
    ],
];

// Go button.
$form['actions'] = [
    '#type' => 'actions',
    '#prefix' => '<div class="cell imw-submit" id="actions-container">',
    '#suffix' => '</div>',
];

$form['actions']['submit'] = [
    '#type' => 'submit',
    '#value' => $this->t('Go'),
];

if (!$form_state->get('node')) {
    $form['actions']['submit']['#attributes']['disabled'] = 'disabled';
}

return $form;
}

```

Notice that we are checking the `$iwantarray` variable which is set in the `submitSelectIam()` as shown below. I pull the value from the `iam` select

dropdown, look up all the possible values for `iwant` and populate them in an indexed array. It is indexed by `nid` which is important later.

```
/**
 * Handles submit call when iam field is selected.
 */
public function submitSelectIam(array $form, FormStateInterface $form_state) {
    $nodeStorage = $this->entityTypeManager->getStorage('node');
    $iam = $form_state->getValue('iam');
    $node = $nodeStorage->load($iam);
    $iam_text = $node->get('field_iam')->value;

    // Rebuild the iwant values
    // Get i_am_i_want node ids.
    $nids = $nodeStorage->getQuery()
        ->accessCheck(TRUE)
        ->condition('type', 'i_am_i_want')
        ->condition('field_iam', $iam_text)
        ->condition('field_iwant', NULL, 'IS NOT NULL')
        ->condition('field_link', NULL, 'IS NOT NULL')
        ->condition('status', NodeInterface::PUBLISHED)
        ->execute();

    $nodes = $nodeStorage->loadMultiple($nids);
    foreach ($nodes as $node) {
        $iwant[$node->id()] = $node->get('field_iwant')->getString();
    }

    $form_state->set('iwantarray', $iwant);
    $form_state->setRebuild();
}
```

Here is the callback for when the `iwant` is selected. Most importantly, the line which sets the `$node` into the `form_state` (`$formstate->set('node', $node)`) stores the node, so the submit function can figure out where the go button should take us.

```
/**
 * Handles submit call when iwant field is selected.
 */
public function submitSelectIwant(array $form, FormStateInterface $form_state) {
    $nodeStorage = $this->entityTypeManager->getStorage('node');
    $iwant = $form_state->getValue('iwant');
    $node = $nodeStorage->load($iwant);
    $form_state->set('node', $node);
    $form_state->setRebuild();
}
```

These two little chaps handle updating the `iwant` container and the go button (enabling it when there is a valid node set.). These get fired after the `buildForm()` is run so they can extract meaningful info from the nice render array that is built and update just the container they are pointed at. How do I know which container (or wrapper) that is? See below..

```

/**
 * Fired from the iam selection to update the iwant select field.
 */

public function ajaxReplaceIwantForm($form, FormStateInterface $form_state) {

    return $form['iwant_container'];

}

/**
 * Fired from the iwant selection to update the go button.
 */

public function ajaxUpdateActionsForm($form, FormStateInterface $form_state) {

    return $form['actions'];

}

```

In the buildForm, we specified '#ajax' and identified a callback function with a wrapper – this says “replace” the 'iwant-container' by calling the ajaxReplaceIwantForm() function.

```

$form['iam'] = [
  '#type' => 'select',
  '#title' => $this->t('I am'),
  '#options' => array_unique($iam),
  '#required' => TRUE,
  '#submit' => [ '::submitSelectIam'],
  '#executes_submit_callback' => TRUE,
  '#ajax' => [
    'callback' => '::ajaxReplaceIwantForm',
    'wrapper' => 'iwant-container',
    'method' => 'replace',
  ],
];

```

And if you look at the definition of the form in buildForm, you'll see that the \$form['iwant_container'] is clearly defined like this:

```

$form['iwant_container'] = [
  '#type' => 'container',
  '#prefix' => '<div id="iwant-container">',
  '#suffix' => '</div>',
];

```

With a form element in it

```

$form['iwant_container']['iwant'] = [
  '#type' => 'select',
  '#title' => $this->t('and I want to'),
  '#options' => $iwant,
  '#empty_value' => "",
  '#empty_option' => '- Select -',
  '#prefix' => '<div class="cell imw-want">',
  '#suffix' => '</div>',
  '#submit' => [::submitSelectIwant],
  '#executes_submit_callback' => TRUE,
  '#ajax' => [
    'callback' => '::ajaxUpdateActionsForm',
    'wrapper' => 'actions-container',
    'method' => 'replace',
    'progress' => [
      'type' => 'none',
    ],
  ],
];

```

So the code that “replaces” the `iwant_container` simply does a

```
return $form['iwant_container'];
```

after `buildForm` has run and filled in the `$form['iwant_container']`

Magic!

`ajaxUpdateActionsForm()` cleverly enables the Go button when there is a node stored in the form, otherwise it is disabled (from `buildForm()`). It actually just replaces the whole element with an enabled version:

```

/**
 * Fired from the iwant selection to update the go button.
 */
public function ajaxUpdateActionsForm($form, FormStateInterface $form_state) {
  return $form['actions'];
}

```

This only runs if there is a node, otherwise the Go button is enabled. It seems a little counterintuitive to leave it enabled and only disable if there isn't a node but it would probably work fine the other way around

```

if (!$form_state->get('node')) {
  $form['actions']['submit']['#attributes']['disabled'] = 'disabled';
}

```

Phew! The explanation is much longer than the actual code. Hopefully it is helpful in explaining the intricacies of AJAX Drupal magic.

CUSTOM RESPONSES

Here rather than just returning the part of the form we want to update, we can add a response followed by some JavaScript that should do something. While it seems this should work, sadly it doesn't unless I wrap the function in `(function($){})(jQuery);`. More below.

```

use Drupal\Core\Ajax\AjaxResponse;
use Drupal\Core\Ajax\InvokeCommand;
use Drupal\Core\Ajax\ReplaceCommand;

...

/**
 * Fired from the iam selection to update the iwant select field.
 */
public function ajaxReplacelwantForm($form, FormStateInterface $form_state) {
//  return $form['iwant_container'];

$response = new AjaxResponse();
$response->addCommand(new ReplaceCommand('#iwant-container', $form['iwant_container']));
$response->addCommand(new InvokeCommand(NULL, 'initCustomForms'));
return $response;
}

```

I made a new function called myinitCustomForms in app.js (web/themes/custom/txg/foundation/src/assets/js/app.js).

```

$response->addCommand(new InvokeCommand(NULL, 'myinitCustomForms'));

return $response;

```

And it works a treat!!

At <https://www.drupal.org/docs/8/api/javascript-api/ajax-forms> they suggest an example (which I tried in txg/web/themes/custom/txg/foundation/src/assets/js/app.js).

```

(function($) {
  // Argument passed from InvokeCommand.
  $.fn.myAjaxCallback = function(argument) {
    console.log('myAjaxCallback is called.');
```

// Set textfield's value to the passed arguments.

```

    $('#input#edit-output').attr('value', argument);
  };
})(jQuery);

```

This works fine when called with:

```

$response->addCommand(new InvokeCommand(NULL, 'myAjaxCallback', ['This is the new text!']));

```

So my old JavaScript function:

```

// initialize custom form elements
function initCustomForms() {
  jcf.setOptions('Select', {
    maxVisibleItems: 6,
    wrapNative: false,
    wrapNativeOnMobile: false

  });
  jcf.replaceAll();
}

```

Should be wrapped in (function(\$){}

```
(function($) {  
  // Argument passed from InvokeCommand.  
  $.fn.myinitCustomForms = function(argument) {  
    console.log('myinitCustomForms is called.');    jcf.setOptions('Select', {  
      maxVisibleItems: 6,  
      wrapNative: false,  
      wrapNativeOnMobile: false  
    });  
    jcf.replaceAll();  
  };  
})(jQuery);
```

How do you find all the possible AJAX commands to use with `addCommand()`?

Just look in `docroot/core/lib/Drupal/Core/Ajax`

You will see a bunch of different classes - All the Commands you want to use with `addCommand()` for AJAX response e.g. `RedirectCommand` or `OpenModalDialogCommand`.

Another AJAX Submit example

There is another example of a form with an AJAX submit in `docroot/modules/custom/quick_pivot/src/Form/QuickPivotSubscribeForm.php`.

Note how the callback is explicitly spelled out as:

```
'callback' => 'Drupal\quick_pivot\Form\QuickPivotSubscribeForm::quickPivotAjaxSubmit',
```

Build the form:

```

public function buildForm(array $form, FormStateInterface $form_state) {

    $form['#id'] = 'quick-pivot-subscribe-form';

    $form['#cache'] = ['max-age' => 0];

    $form['#attributes'] = ['autocomplete' => 'off'];

    $form['email'] = [

        '#type' => 'textfield',
        '#id' => 'quick-pivot-email',
        '#placeholder' => $this->t('Email address'),
        '#attributes' => ['class' => ['edit-quick-pivot-email']],
        '#prefix' => '<div class="subscriber-email-msg">',
        '#suffix' => '</div>',
    ];

    $form['actions']['subscribe_submit'] = [

        '#type' => 'submit',
        '#value' => $this->t('Sign Up'),
        '#name' => 'quick_pivot_subscribe_form_submit_button',
        '#ajax' => [

            'callback' => 'Drupal\quick_pivot\Form\QuickPivotSubscribeForm::quickPivotAjaxSubmit',
            'wrapper' => 'quick-pivot-subscribe-form',
            'progress' => ['type' => 'throbber', 'message' => NULL],
        ],
    ];

    $form['message'] = [

        '#type' => 'markup',
        '#markup' => '<div id="quick-pivot-message-area"></div>',
    ];

    return $form;
}

```

Leave the `validateForm()` and `submitForm()` functions empty.

Here is the ajax callback. Note the function has to be static to avoid the possible error:

```

TypeError: Argument 1 passed to Drupal\Core\Routing\RequestContext::fromRequest() must be an instance of Symfony\Component\HttpFoundation\Request, null given

```

This error seems to have something to do with memcache and anonymous users.


```

public static function quickPivotAjaxSubmit(array &$form, FormStateInterface $form_state) {
    $validate = TRUE;
    $email = trim($form_state->getValue('email'));
    if (!filter_var($email, FILTER_VALIDATE_EMAIL)) {
        $message = t('Please enter a valid email address.');
```

```

        $validate = FALSE;
        $css_border = ['border' => '1px solid red'];
        $css_color = ['color' => 'red'];
    }
    if ($validate) {
        $css_border = ['border' => '1px solid green'];
        $css_color = ['color' => 'green'];
        $response = \Drupal::service('quick_pivot.api')->subscribeEmail($email);
        if (strpos(reset($response), 'Success') !== FALSE) {
            $message = t('Thank you for signing up. Your subscription has been activated.');
```

```

        }
        else {
            $message = t('Your subscription could not be processed.');
```

```

        }
    }

    $response = new AjaxResponse();

    $quick_pivot_form = \Drupal::formBuilder()->rebuildForm('quick_pivot_subscribe_form', $form_state);
    if ($validate) {
        $quick_pivot_form['email']['#value'] = "";
        $quick_pivot_form['email']['#placeholder'] = t('Email address');
```

```

    }
    $response->addCommand(new ReplaceCommand("#quick-pivot-subscribe-form", $quick_pivot_form));
    $response->addCommand(new CssCommand("#edit-quick-pivot-email", $css_border));
    $response->addCommand(new HtmlCommand("#quick-pivot-message-area", $message));
    $response->addCommand(new CssCommand("#quick-pivot-message-area", $css_color));

    return $response;
}

```

Config Forms

Generate a config form with drush

Use the [drush command](#) drush generate form:config for a quick boilerplate version.

Config forms overview

Configuration forms extend ConfigFormBase so be sure to

```
use Drupal\Core\Form\ConfigFormBase;
```

The \$config object has get(), set() and save() methods to access config information.

Create a module.settings.yml file in config/install directory for config objects that the module needs.

Also create a module.schema.yml file in config/schema for schema info i.e. definitions and mappings for config objects

Implement the following methods: buildForm(), getEditableConfigNames(), getFormId(), submitForm(), validateForm().

from dev1/web/modules/custom/rsvp/src/Form/RSVPConfigurationForm.php here is the buildForm() function.

```

/**
 * @inheritDoc
 */

public function buildForm(array $form, FormStateInterface $form_state) {

    // $types = node_types_get_names();

    $config = $this->config('rsvp.settings');
    $node_types = \Drupal\node\Entity\NodeType::loadMultiple();

    // If you need to display them in a drop down:

    $options = [];
    foreach ($node_types as $node_type) {
        $options[$node_type->id()] = $node_type->label();
    }

    $form['rsvp_node_types'] = [
        '#type' => 'checkboxes',
        '#title' => $this->t('The content types top enable rsvp collection for'),
        '#default_value' => $config->get('allowed_types'),
        '#options' => $options,
        '#description' => $this->t('On the specified node types, an RSVP option will be available and can be enabled while that node is being edited.'),
    ];

    $form['array_filter'] = ['#type' => 'value', '#value' => TRUE];
    return parent::buildForm($form, $form_state);
}

```

And the submitForm()

```

/**
 * @inheritDoc
 */

public function submitForm(array &$form, FormStateInterface $form_state) {

    $allowed_types = array_filter($form_state->getValue('rsvp_node_types'));
    sort($allowed_types);

    $this->config('rsvp.settings')
        ->set('allowed_types', $allowed_types)
        ->save();

    parent::submitForm($form, $form_state);
}

```

To set a default value for when the module is first installed, create web/modules/custom/rsvp/config/install/rsvp.settings.yml

```

allowed_types:
  - article

```

and to specify more details of what the config stores, create the /Users/selwyn/Sites/dev1/web/modules/custom/rsvp/config/schema/rsvp.schema.yml.

```

#Schema for config file of rsvp module

rsvp.admin_settings:
  type: config_object
  label: 'RSVP Content Type Settings'
  mapping:
    allowed_types:
      type: sequence
      label: 'Content types RSVP form can display on'
      sequence:
        type: string
        label: 'Content type'

```

The basics of implementing forms

Location

Forms are stored in `modules/src/Form/MyClassForm.php` e.g. `/modules/custom/dmod/src/Form/HeaderFooterForm.php`.

Base Classes for forms

- `FormBase` – for any old form
- `ConfirmFormBase` – for generic confirmation form
- `ConfigFormBase` – for config forms

Create your form class by extending Formbase

```
class HeaderFooterForm extends FormBase {
```

The main methods

Forms typically need a `buildForm()`, `submitForm()` and `getFormId()` member function. Validation is handled with a `validateForm()` member function. Each is explained with more detail below:

GETFORMID()

It only returns a simple string identifying the form, e.g.

```
public function getFormId() {  
    return 'dan_header_footer_form';  
}
```

BUILDFORM()

Create the render array representing the form elements. Here I am using a fieldset to group fields. Also the `'#default_value'` provides a default value that users can edit.

```

$form['instructions'] = [
    '#type' => 'markup',
    '#markup' => $this->t('After clicking submit, test changes on the header and footer of the home page.<br/><br/>')
];
$form['header'] = [
    '#type' => 'fieldset',
    '#title' => $this->t('Header'),
    '#collapsible' => TRUE,
    '#open' => TRUE,
];
$form['header']['logo_url'] = [
    '#type' => 'url',
    '#title' => $this->t('Logo URL'),
    '#size' => 64,
    '#default_value' => $logo_url,
];
$form['footer'] = [
    '#type' => 'fieldset',
    '#title' => $this->t('Footer'),
    '#collapsible' => TRUE,
    '#open' => TRUE,
];
$form['footer']['footer_address1'] = [
    '#type' => 'textfield',
    '#title' => $this->t('Address line 1'),
    '#default_value' => $address1,
];

// You need a submit button so users can click on something.
$form['submit'] = [
    '#type' => 'submit',
    '#value' => $this->t('Save'),
];

```

Don't **EVER EVER** forget to return the \$form render array you just created otherwise you get an empty form. Not that it ever ever happened to me ;-))

```
return $form;
```

SUBMITFORM()

When a user clicks on the submit button, this function is called. You can extract the entries from the \$form_state and decide what to do with them. In this example we write them into the database using the State API. State API values are stored in the key_value table.

```

$values = $form_state->getValues();

$address1 = $values['footer_address1'];
$address2 = $values['footer_address2'];
$address3 = $values['footer_address3'];
$email = $values['email'];
$logo_url = $values['logo_url'];
$facebook = $values['facebook'];
$linkedin = $values['linkedin'];
$instagram = $values['instagram'];
$twitter = $values['twitter'];
$youtube = $values['youtube'];

```

Writing:

```

\Drupal::state()->set('logo_url', $logo_url);
\Drupal::state()->set('footer_address1', $address1);
\Drupal::state()->set('footer_address2', $address2);
\Drupal::state()->set('footer_address3', $address3);
\Drupal::state()->set('footer_email', $email);
\Drupal::state()->set('footer_facebook', $facebook);
\Drupal::state()->set('footer_instagram', $instagram);
\Drupal::state()->set('footer_linkedin', $linkedin);
\Drupal::state()->set('footer_twitter', $twitter);
\Drupal::state()->set('footer_youtube', $youtube);

\Drupal::messenger()->addMessage('Values updated');

```

To display the results of the form entry you can put this in `submitForm()`.

```

// Display result.
foreach ($form_state->getValues() as $key => $value) {
  \Drupal::messenger()
    ->addMessage($key . ':' . ($key === 'text_format' ? $value['value'] : $value));
}

```

Form validation example #1

Check a string length for the `company_name` field.

```

public function validateForm(array &$form, FormStateInterface $formState) {
  if (!$formState->isEmpty('company_name')) {
    if (strlen($formState->getValue('company_name')) <= 5) {
      //Set validation error.
      $formState->setErrorByName('company_name', t('Company name is less than 5 characters'));
    }
  }
}

```

Form Validation example #2

From `web/modules/custom/rsvp/src/Form/RSVPForm.php` we call Drupal's `email.validator` service and if it fails, `setErrorByName()`

```

public function validateForm(array &$form, FormStateInterface $form_state) {
  $value = $form_state->getValue('email');
  if (!\Drupal::service('email.validator')->isValid($value)) {
    $form_state->setErrorByName('email', t('The email %mail is not valid.', ['%mail'=> $value]));
  }

  parent::validateForm($form, $form_state);
}

```

Field attributes

They always begin with `#`. You can find all the possible attributes at [Form Element Reference with examples](#)

```

$form['email'] = [
  '#title' => t('Email Address'),
  '#type' => 'textfield',
  '#size' => 25,
  '#description' => t("We'll send updates to the email address"),
  '#required' => TRUE,
];

$form['submit'] = [
  '#type' => 'submit',
  '#value' => t('RSVP'),
];

$form['nid'] = [
  '#type' => 'hidden',
  '#value' => $nid,
];

```

Form Elements

[Form Element Reference with examples](#)

You can add markup to a form e.g. at web/modules/custom/modal_form_example/src/Form/ExampleForm.php

```

public function buildForm(array $form, FormStateInterface $form_state, $options = NULL) {

  $form['zzz'] = [
    '#type' => 'markup',
    '#markup' => $this->t('this is a test'),
  ];

  $form['name'] = [
    '#type' => 'textfield',
    '#title' => $this->t('Name'),
    '#size' => 20,
    '#default_value' => 'Joe Blow',
    '#required' => FALSE,
  ];

```

and prefixes and suffices

```

public function buildForm(array $form, FormStateInterface $form_state, $options = NULL) {

  $form['#prefix'] = '<div id="example_form">';
  $form['#suffix'] = '</div>';

```

Hidden or required via a custom class

```

  '#maxlength' => 40,
  '#attributes' => [
    'class' => ['hidden'],
  ],

```

Another example:

```
'first_name' => [
  '#type' => 'textfield',
  '#title' => 'First Name',
  '#default_value' => "",
  '#size' => 25,
  '#maxlength' => 40,
  '#attributes' => [
    'class' => ['required name-on-card'],
  ],
  '#field_prefix' => '<span class="error-msg">*</span>',
```

Retrieving field values

When you go to grab a field value from a form, use `getValue()`. The values that come back from this are arrays so you have to extract them like this (from `org_mods.module`)

```
function cn_form_validate($form, FormStateInterface $form_state) {
  $extension = $form_state->getValue('field_cn_extension');
  if (is_array($extension)) {
    $extension = $extension['value'];
  }
}
```

Alternatively, you can get all the fields at one time with `getValues()`. And reference their value like this.

```
$values = $form_state->getValues();

if ($values['op'] == 'Goback') {
  ...
}
```

If you define the form with fields like `$form['header']['blah'] = ...` then you can retrieve those with `$form_state->getValue('header','blah');`

or

if you define a checkbox like this:

```
$form['actions']['delete_extras'] = [
  '#type' => 'checkbox',
  '#title' => t('Also delete extra items'),
  '#required' => FALSE,
  '#default_value' => FALSE,
  '#description' => $this->t('Checking this box will delete extra items also.');
```

You can retrieve the value of the checkbox with:

```
$delete_extras = $form_state->getValue('delete_extras');


// And then use it.
if (!$delete_extras) {
  $query->condition('field_extras', "", '<>');
}
```

Resources

- [Drupal API Form Element Reference with examples](#)
- [Drupal AJAX forms updated Dec 2022](#)
- [Drupal AJAX Dialog boxes updated Nov 2022](#)
- [Great tutorial from Mediagurrent on using modal forms in Drupal from Mar 2017](#)
- [Form API Internal Workflow updated Dec 2022](#)

- [#! code: Drupal 9: Creating A GET Form. July 2021](#)
- [Conditional fields module](#)

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