# Easy Social Feeds with the Migrate API

DrupalCampNJ, Feb. 3, 2018

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## Intros

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### Eastern Standard

- Philadelphia-based marketing and technology agency
- Collaborative dev team
- We’re hiring!

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## What do our customers need?

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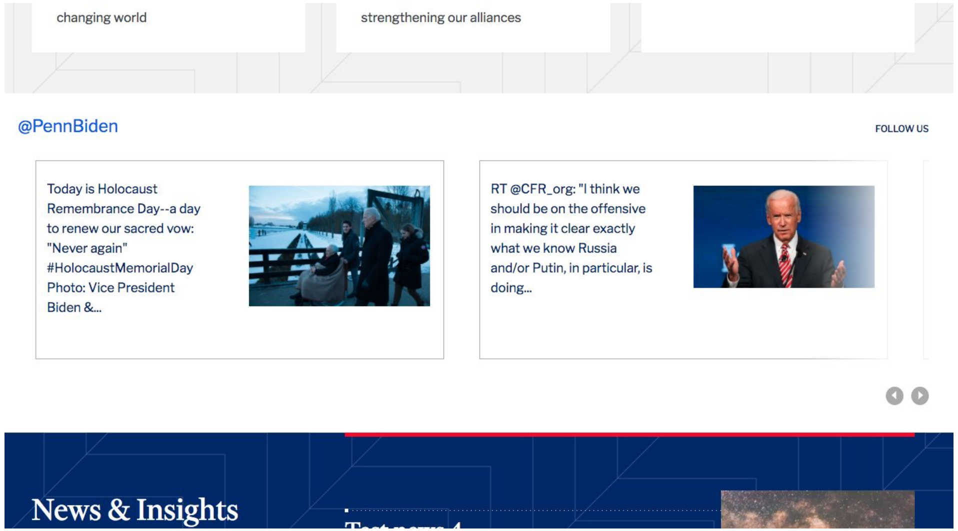
# Quick Demo



changing world

strengthening our alliances

@PennBiden

FOLLOW US

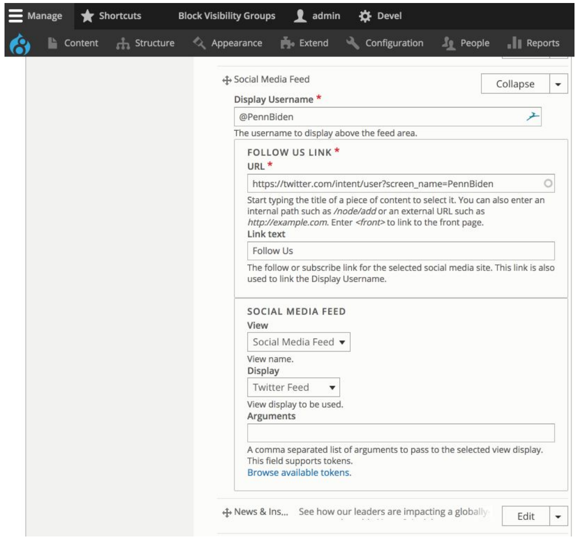
Today is Holocaust Remembrance Day--a day to renew our sacred vow: "Never again" #HolocaustMemorialDay Photo: Vice President Biden &...

RT @CFR_org: "I think we should be on the offensive in making it clear exactly what we know Russia and/or Putin, in particular, is doing...

News & Insights

Penn Biden Center (https://pennbidencenter.global.upenn.edu) homepage showing single Twitter feed

# Quick Demo



Social Media Feed

Display Username *

@PennBiden

The username to display above the feed area.

FOLLOW US LINK *

URL *

https://twitter.com/intent/user?screen_name=PennBiden

Start typing the title of a piece of content to select it. You can also enter an internal path such as */node/add* or an external URL such as *http://example.com*. Enter *<front>* to link to the front page.

Link text

Follow Us

The follow or subscribe link for the selected social media site. This link is also used to link the Display Username.

SOCIAL MEDIA FEED

View

Social Media Feed

View name.

Display

Twitter Feed

View display to be used.

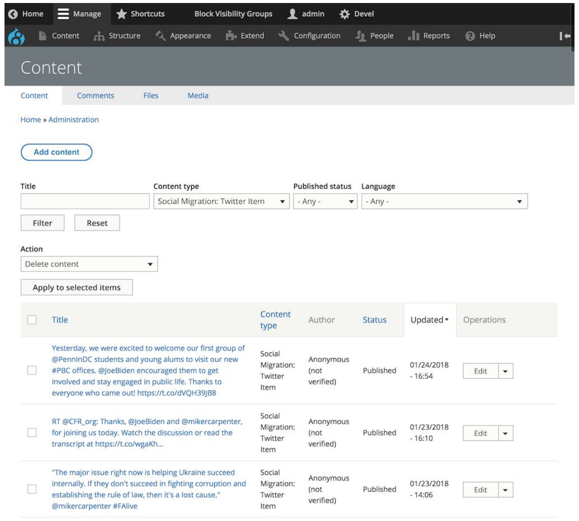
Arguments

A comma separated list of arguments to pass to the selected view display. This field supports tokens.

Browse available tokens.

News & Ins... See how our leaders are impacting a globally

PBC Homepage Component



Content

Home » Administration

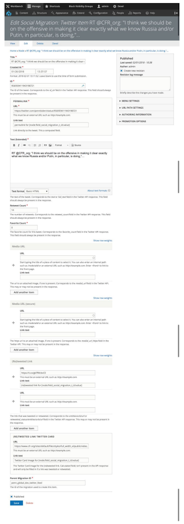
| Title | Content type | Published status | Language |
|---|---|---|---|
| | Social Migration: Twitter Item | - Any - | - Any - |

Action

Delete content

| | Title | Content type | Author | Status | Updated | Operations |
|---|---|---|---|---|---|---|
| ☐ | Yesterday, we were excited to welcome our first group of @PennInDC students and young alums to visit our new #PBC offices. @JoeBiden encouraged them to get involved and stay engaged in public life. Thanks to everyone who came out! https://t.co/dVQH39JB8 | Social Migration: Twitter Item | Anonymous (not verified) | Published | 01/24/2018 - 16:54 | Edit |
| ☐ | RT @CFR_org: Thanks, @JoeBiden and @mikercarpenter, for joining us today. Watch the discussion or read the transcript at https://t.co/wgaKh... | Social Migration: Twitter Item | Anonymous (not verified) | Published | 01/23/2018 - 16:10 | Edit |
| ☐ | "The major issue right now is helping Ukraine succeed internally. If they don't succeed in fighting corruption and establishing the rule of law, then it's a lost cause." @mikercarpenter #FAlive | Social Migration: Twitter Item | Anonymous (not verified) | Published | 01/23/2018 - 14:06 | Edit |

PBC content list showing created nodes



*Edit Social Migration: Twitter Item* RT @CFR_org: "I think we should be on the offensive in making it clear exactly what we know Russia and/or Putin, in particular, is doing."

PBC content editing of individual node

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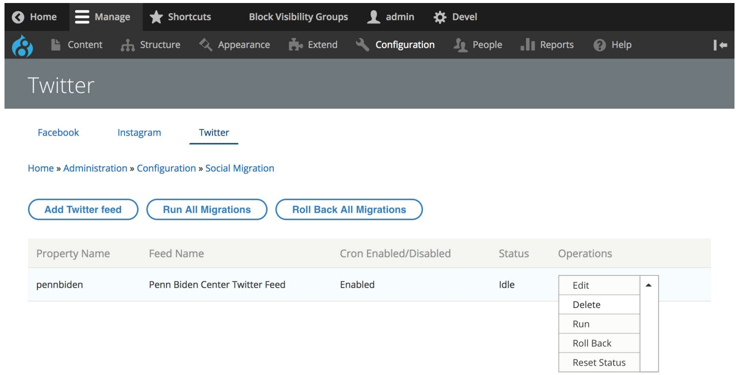
# Quick Demo



Twitter

Facebook Instagram Twitter

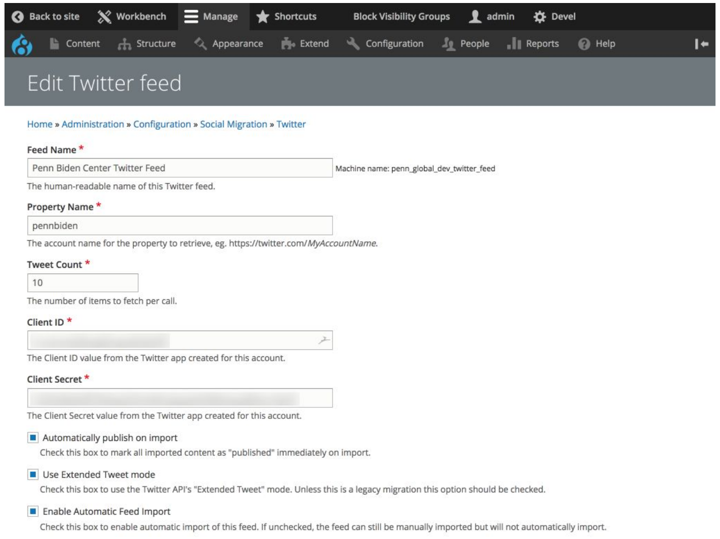
Home » Administration » Configuration » Social Migration

Add Twitter feed | Run All Migrations | Roll Back All Migrations

| Property Name | Feed Name | Cron Enabled/Disabled | Status | Operations |
|---|---|---|---|---|
| pennbiden | Penn Biden Center Twitter Feed | Enabled | Idle | Edit |

Edit
Delete
Run
Roll Back
Reset Status

PBC list of Twitter migrations



Edit Twitter feed

Home » Administration » Configuration » Social Migration » Twitter

Feed Name *
Penn Biden Center Twitter Feed
Machine name: penn_global_dev_twitter_feed
The human-readable name of this Twitter feed.

Property Name *
pennbiden
The account name for the property to retrieve, eg. https://twitter.com/*MyAccountName*.

Tweet Count *
10
The number of items to fetch per call.

Client ID *
[redacted]
The Client ID value from the Twitter app created for this account.

Client Secret *
[redacted]
The Client Secret value from the Twitter app created for this account.

[✓] Automatically publish on import
Check this box to mark all imported content as "published" immediately on import.

[✓] Use Extended Tweet mode
Check this box to use the Twitter API's "Extended Tweet" mode. Unless this is a legacy migration this option should be checked.

[✓] Enable Automatic Feed Import
Check this box to enable automatic import of this feed. If unchecked, the feed can still be manually imported but will not automatically import.

PBC editing Twitter migration

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## What is the Migrate API?

## What is the Migrate API?

- Provides a Drupal-specific implementation of the ETL (**E**xtract, **T**ransform, **L**oad) process.
  - *Extract*: pull data into a system
  - *Transform*: manipulate the data, or use the data to manipulate some other data
  - *Load*: Save the manipulated data somewhere else for use later or by another system
- This is a very synchronous process - *transforming* doesn't happen until data is *extracted*, and *loading* can't happen until the *transform* phase has completed.
- This is also not a real-time process; data is periodically retrieved and cached for later.
- At its simplest, **the Migrate API provides a way of importing structured data from some source, processing it, and saving it somewhere else**.

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## What is the Migrate API?

- The API uses slightly different terms:

| ETL Term | Migrate API Term |
|---|---|
| Extract | Source |
| Transform | Process |
| Load | Destination |

- Each of these API terms matches a *plugin* for the API.
- The plugin configures the pipeline for each step of the process.

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## What is the Migrate API?

- Core Source Plugins
  - Embedded Data Source: data that is included in the YAML configuration fileSQL data source: pull information from a database (but you have to roll the plugin yourself)

**And that's it! There aren't many options for configuring source data in the core module.**

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# What is the Migrate API?

- Core Process Plugins (not a complete list*)
  - Concat: allows multiple pieces of source data to be concatenated into one string
  - Default Value: allows the use of static text
  - Entity Exists: looks up an entity based on source data and returns the entity ID
  - Format Date: uses Drupal's `DateTimePlus` class to convert dates between formats
  - Static Map: converts incoming source data to a different value
  - Subprocess/Iterator: processes structured data through its own pipeline

**Important to note:** in most cases, multiple process plugins can be called on a single piece of source data. The output from one plugin is automatically piped to the input of the next plugin.

* There are plenty of additional process plugins available; see https://www.drupal.org/docs/8/api/migrate-api/migrate-process-plugins/list-of-core-process-plugins for a complete list.

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## What is the Migrate API?

- Core Destination Plugins
  - Config: places data into YAML config files
  - Entity: stores data in entities (the type of entity can be configured)

As with source plugins, there aren't many destination options defined in the core module.

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# What is the Migrate API?

**With all the plugins available, what can we do with what we're given out-of-the-box?**

- Specify structured data manually (in YAML format only!), or pull in SQL data if we have time to write a custom plugin for our specific situation.
- Manipulate that data a bunch of different ways.
- Store the results in nodes.

**Based on what we know about how the API works, what kinds of things *should* we be able to do?**

- It might be cool to grab structured XML or JSON data off the underlying filesystem.
- Maybe we could grab that kind of data from another website instead?
- What if we could do something really crazy, like consume a third-party REST API, maybe from some really complex data source like Facebook, manipulate *that* data, then store that content in nodes?

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## Extending the Migrate API

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# Extending the Migrate API

The `migrate_plus` module contains a collection of additional plugins for the *source*, *process*, and *destination* phases of the API.

**Source Plugins**

- URL: using Drupal's `GuzzleHttp` client, allows the use of a URL as a data source
- File/HTTP Data Fetchers
- JSON/XML/SOAP Data Parsers
- Basic/Digest/OAuth2 Authentication

**Process Plugins**

- Entity Lookup/Generate: finds (or creates) entities based on source data
- Merge: merge several source fields into one
- StrReplace: modifies strings
- Skip On Value: bypasses processing on certain values

**Destination Plugins**

- Table: allows for storing data in any database table, even if it's not registered with Drupal's Schema API

# Extending the Migrate API

As an added bonus, the `migrate_plus` module makes two key changes to the Migrate API:

- Migrations as entities: now migrations can be managed as Drupal entities, exported as YAML files, etc.
- Migration Groups:
    - Allows migrations to be batched together and run as a group.
    - Allows migrations to share a base configuration, which can be omitted or overridden in individual migrations.

## Extending the Migrate API

You can also build your own plugins. I created two *process* plugins for my `social_migration` module:

- Coalesce: takes a list of inputs and returns the first non-empty value in the list.
- Permalink: creates a Twitter permalink given the account name and a tweet ID.

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## Case Study: Importing Facebook Content

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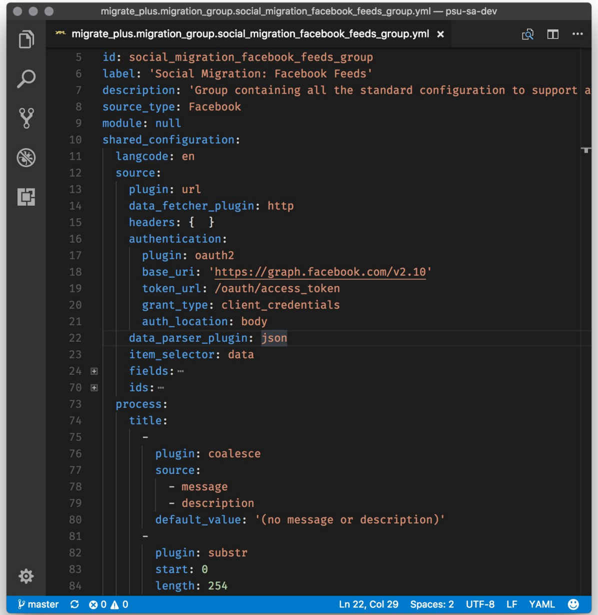
# Case Study: Importing Facebook Content

1. Create a Drupal content type to hold all the information you want to import.
2. Configure *source* to use `url` source plugin with `http` data fetcher and `oauth2` authentication.
    a. Primary source is the Graph API url and includes the desired fields.
    b. `oauth2` plugin must be configured with API key from Facebook Developer.
    c. `oauth2` plugin handles getting the token and applying it to the main call to the Graph API.
3. List all of the necessary fields within the *source* configuration.
4. Identify and configure an ID field in the data source to assist in caching.
5. Configure *process* plugin to assign *source* keys to the field names used in the content type, manipulating the data where necessary (e.g., truncating message value to 255 characters for the title field, converting the date to Drupal's required format, adding descriptions to image URLs, etc.). Use the `default_value` plugin to set the node type and publishing status.
6. Set the *destination* plugin to `entity:node` to save the content as a node.

# Case Study: Importing Facebook Content

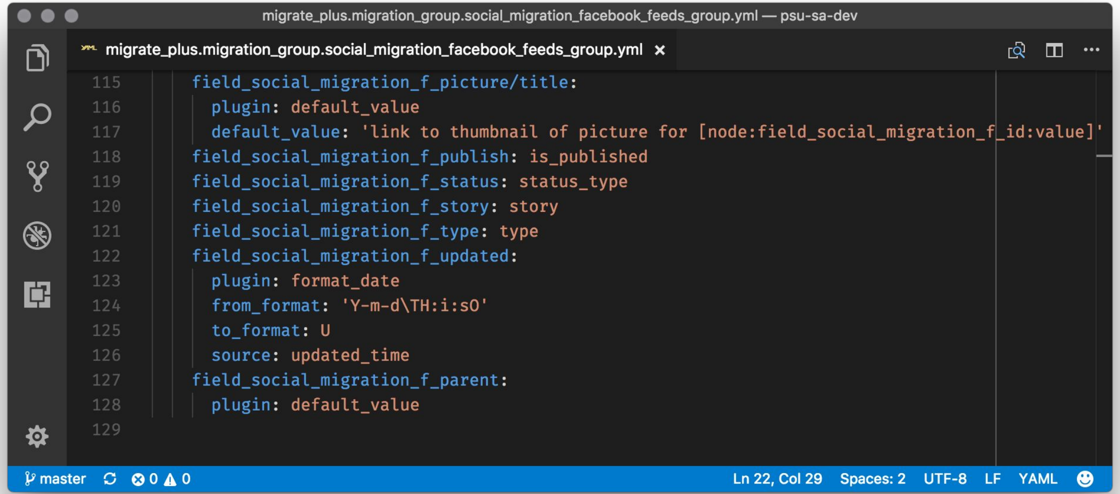


migrate_plus.migration_group.social_migration_facebook_feeds_group.yml — psu-sa-dev

```yaml
id: social_migration_facebook_feeds_group
label: 'Social Migration: Facebook Feeds'
description: 'Group containing all the standard configuration to support a
source_type: Facebook
module: null
shared_configuration:
  langcode: en
  source:
    plugin: url
    data_fetcher_plugin: http
    headers: {  }
    authentication:
      plugin: oauth2
      base_uri: 'https://graph.facebook.com/v2.10'
      token_url: /oauth/access_token
      grant_type: client_credentials
      auth_location: body
    data_parser_plugin: json
    item_selector: data
    fields: ⋯
    ids: ⋯
  process:
    title:
      -
        plugin: coalesce
        source:
          - message
          - description
        default_value: '(no message or description)'
      -
        plugin: substr
        start: 0
        length: 254
```

- `url` source plugin
- `http` data fetcher plugin
- `oauth2` authentication plugin
- Since this is a shared configuration, the actual api keys for individual migrations do NOT appear here. They are supplied in the individual migrations.
- Pipeline of plugins for the title field: `coalesce` with a default value, followed by `substr` to reduce the result to 254 characters.

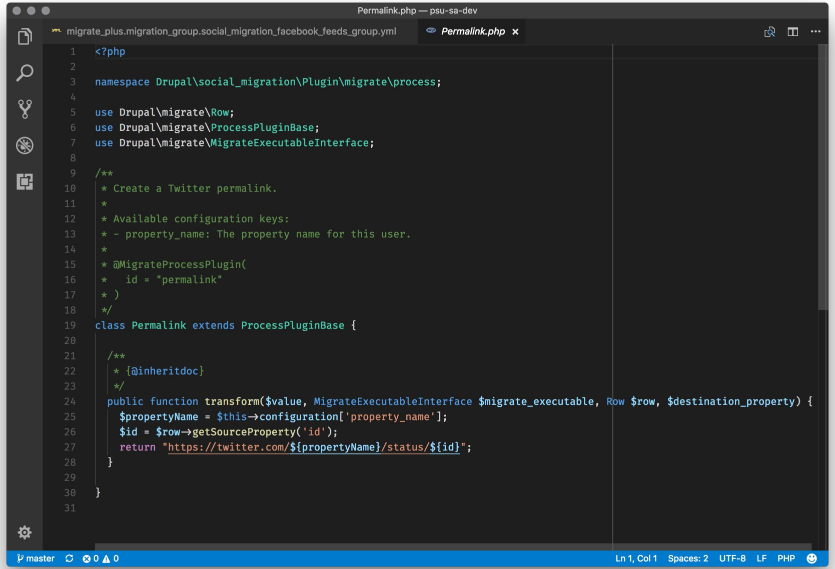
# Case Study: Importing Facebook Content


migrate_plus.migration_group.social_migration_facebook_feeds_group.yml — psu-sa-dev
migrate_plus.migration_group.social_migration_facebook_feeds_group.yml ×
master
0 0
Ln 22, Col 29 Spaces: 2 UTF-8 LF YAML

```yaml
    field_social_migration_f_picture/title:
      plugin: default_value
      default_value: 'link to thumbnail of picture for [node:field_social_migration_f_id:value]'
    field_social_migration_f_publish: is_published
    field_social_migration_f_status: status_type
    field_social_migration_f_story: story
    field_social_migration_f_type: type
    field_social_migration_f_updated:
      plugin: format_date
      from_format: 'Y-m-d\TH:i:sO'
      to_format: U
      source: updated_time
    field_social_migration_f_parent:
      plugin: default_value
```

- Assign values to Drupal content fields.
- Use the `format_date` plugin to transform a source date value into a different format.

# Case Study: Importing Facebook Content


Permalink.php — psu-sa-dev
migrate_plus.migration_group.social_migration_facebook_feeds_group.yml
Permalink.php

```php
<?php

namespace Drupal\social_migration\Plugin\migrate\process;

use Drupal\migrate\Row;
use Drupal\migrate\ProcessPluginBase;
use Drupal\migrate\MigrateExecutableInterface;

/**
 * Create a Twitter permalink.
 *
 * Available configuration keys:
 * - property_name: The property name for this user.
 *
 * @MigrateProcessPlugin(
 *   id = "permalink"
 * )
 */
class Permalink extends ProcessPluginBase {

  /**
   * {@inheritdoc}
   */
  public function transform($value, MigrateExecutableInterface $migrate_executable, Row $row, $destination_property) {
    $propertyName = $this->configuration['property_name'];
    $id = $row->getSourceProperty('id');
    return "https://twitter.com/${propertyName}/status/${id}";
  }

}
```

- Pretty easy to create your own plugin.
- This one takes one input, `property_name`, combines it with data from the source feed (`id`), and returns a Twitter permalink.

## Case Study: Importing Facebook Content

**Some potential next steps:**

1. If more than one Facebook account should be retrieved, create a migration group and use the `shared_configuration` section to store configuration that would otherwise be duplicated with each Facebook migration.
2. Add fields on the content type to store metadata about the migration process in each created node (e.g., which migration generated the node). This is a great place to use taxonomies!
3. Create a module that…
   a. runs migrations on a cron;
   b. allows content managers or site owners to add or remove migrations; or
   c. specifies different permission levels so that larger organizations can control who can modify settings.

## Case Study: Importing Facebook Content

**Benefits of going this route:**

1. Easy integration with Views and any sort of headless Drupal implementation you want.
2. Takes full advantage of Drupal's ability to cache content.
3. Allows non-developers to add or modify social media platforms and properties.
4. By default, the Migrate API won't re-import content that has already been imported, meaning content can be curated after it's been imported and those changes will persist.
5. Fully compatible with content management workflows (e.g., Workbench).
6. Few to no third-party library dependencies.
7. Configuration is 100% compatible with Features or Configuration Export workflows (just be careful not to commit API keys to version control).

## Further Reading

## Further Reading

- Drupal 8 Migrate API docs: https://www.drupal.org/docs/8/api/migrate-api/migrate-api-overview
- `migrate_plus` project page: https://www.drupal.org/project/migrate_plus
- `migrate_tools` project page: https://www.drupal.org/project/migrate_tools (adds Drush commands to run, roll back, and reset migrations)
- "Migrating XML in Drupal 8" by Kelsey Bentham: https://www.palantir.net/blog/migrating-xml-drupal-8 (one of two articles I used to figure out how to get the `social_migration` module working properly)
- "Stop Waiting for Feeds Module: How to Import RSS in Drupal 8" by Campbell Vertesi: https://ohthehugemanatee.org/blog/2017/06/07/stop-waiting-for-feeds-module-how-to-import-remote-feeds-in-drupal-8/ (the second, and probably most helpful, article as I was learning about the Migrate API)
- Eastern Standard Concepts blog post which contains some more background information I didn't include in this session.
- The home page for the social_migration module, now publicly available!

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## Questions

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