Extending the WordPress REST API

iThemes | timothybjacobs.com

History

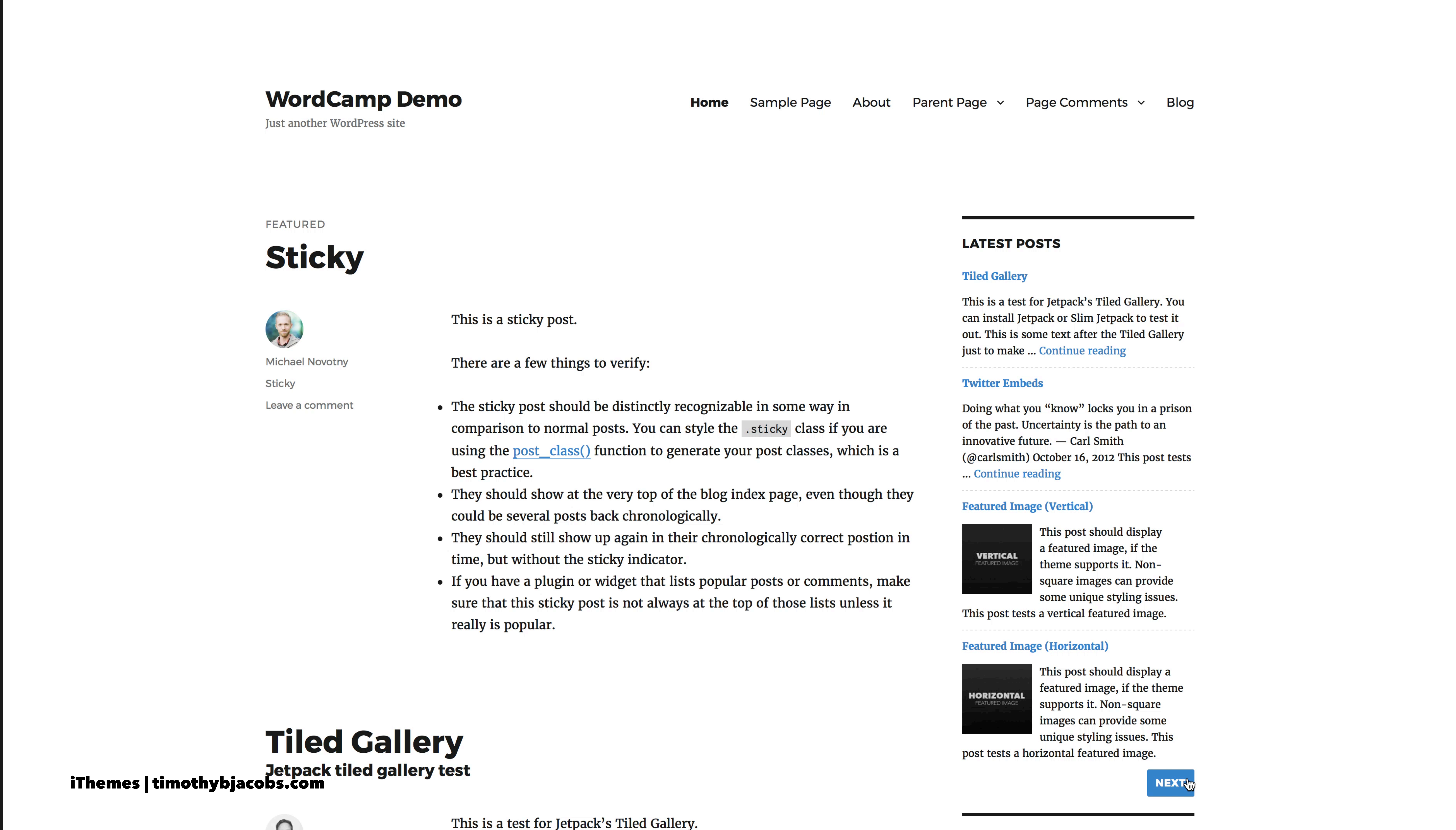
- REST API framework introduced in WordPress 4.4
  - Plugin authors can begin to use the REST API.
  - Content endpoints available in a plugin.
- Content endpoints introduced in WordPress 4.7
  - Additional infrastructure code makes it much easier to build custom endpoints.
  - Easy integration with custom post types, taxonomies, etc…

Built in Endpoints

- Posts & Pages
- Comments
- Terms
- Users
- Media
- Many more

Latest Posts

- WordPress has a built in Recent Posts widget.
- Doesn’t need to be rendered when the page loads.
- Can load latest posts asynchronously using JavaScript.
- Allows for increase interactivity.



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Sticky

Michael Novotny

Sticky

Leave a comment

This is a sticky post.

There are a few things to verify:

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Jetpack tiled gallery test

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Authors Widget

- API provides public access to post authors in the `users` endpoint.
- Could also be implemented in PHP.
- Has same benefits interactivity and performance benefits.

Supporting Metadata

- Example: A post subtitle or “featuring” authors.
- Two ways to include metadata.

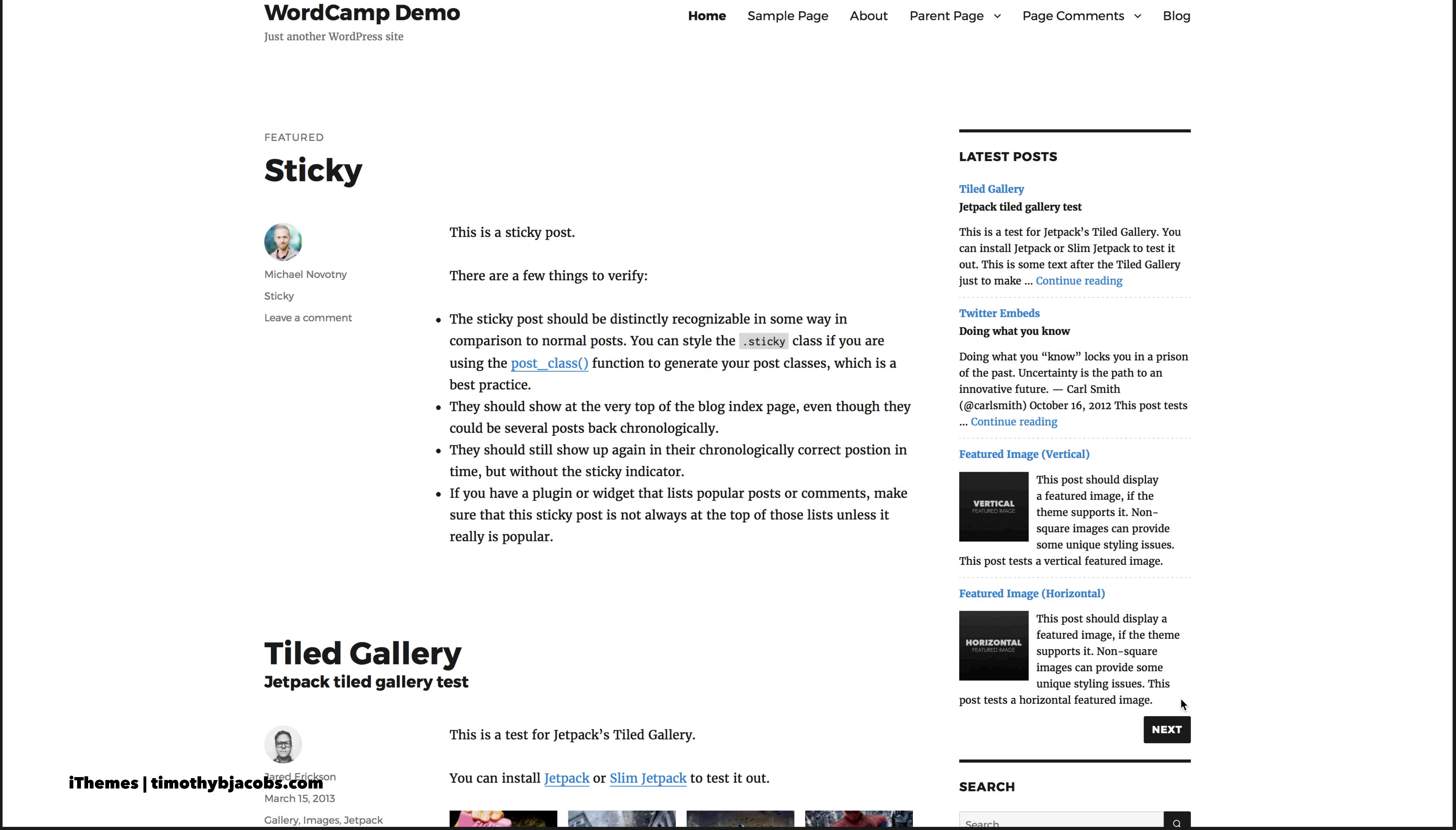
Register Meta

- `register_meta()`
- Expanded in WordPress 4.6

```
function register_meta( $object_type, $meta_key, $args ) {
    // ...
}

register_meta( 'post', '_subtitle', [
    'show_in_rest' => true,
    'single' => true,
    'type' => 'string',
] );
```

```
{
  "id": 5,
  "title": {
    "rendered": "The Post Title"
  },
  "meta": {
    "_subtitle": "The subtitle of the post."
  }
}
```



WordCamp Demo

Just another WordPress site

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Jared Erickson

March 15, 2013

Gallery, Images, Jetpack

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Validation & Sanitization

- Meta data is automatically sanitized and validated on update.
- `string`, `integer`, `number` and `boolean` types are supported.

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- Meta data is automatically sanitized and validated on update.
- `string`, `integer`, `number` and `boolean` types are supported.
  - `integer` and `number` values can be passed as strings.
  - `boolean` accepts `0`, `1`, `'false'` and `'true'`.

Validation & Sanitization

- Meta data is automatically sanitized and validated on update.
- `string`, `integer`, `number` and `boolean` types are supported.
- Can express a more complex constraint with JSON Schema.

JSON Schema

- Provides more complex validation beyond just a data type.
- Starts with a data type.
- Extended with custom keywords.
- WordPress supports a limited subset of JSON Schema out of the box.

```
register_meta( 'post', '_price', [
    'show_in_rest' => [
        'schema' => [
            'type' => 'number',
            'minimum' => 1.00,
        ]
    ]
] );
```

```
register_meta( 'post', '_available_after', [
    'show_in_rest' => [
        'schema' => [
            'type' => 'string',
            'format' => 'date-time',
        ]
    ]
] );
```

https://timothybjacobs.com/2017/05/17/json-schema-and-the-wp-rest-api/

Validation & Sanitization

- Meta data is automatically sanitized and validated on update.
- `string`, `integer`, `number` and `boolean` types are supported.
- Can express a more complex constraint with JSON Schema.
- Provide own sanitization function with `sanitize_callback`.

Drawbacks

- Exposes implementation details.
- Makes it difficult to refactor or provide filtering support.

```
function get_the_subtitle( $id ) {
   return get_post_meta( $id, '_subtitle', true );
}
```

```
function get_the_subtitle( $id ) {
   return get_post( $id )->post_subtitle;
}
```

```
function get_the_subtitle( $id ) {
   $subtitle = get_post_meta( $id, '_subtitle', true );

   return apply_filters( 'subtitle', $subtitle );
}
```

Drawbacks

- Exposes implementation details.
- Makes it difficult to refactor or provide filtering support.
- Currently can only be registered across all post types.
- Can’t provide a custom validation function.
- Can’t support objects or arrays.

Register Rest Field

- Can be registered for a specific route.
- Objects and arrays are supported.
- More sensible naming.

```
function register_rest_field( $object_type, $attribute, $args ) {
    // ...
}
```

```
register_rest_field( 'post', 'subtitle', [
    'get_callback' => 'get_the_subtitle',
    'update_callback' => function( $value, $post ) {
        update_post_meta( $post['id'], '_subtitle', $value );
    },
    'schema' => [
        'type' => 'string',
        'args' => [
            'validate_callback' => function( $value ) {
                return ! empty( $value );
            }
        ]
] );
```

```json
{
  "id": 5,
  "title": {
    "rendered": "The Post Title"
  },
  "subtitle": "The subtitle of the post."
}
```

Drawbacks

- Requires more code.

Custom Post Types

- `show_in_rest` automatically registers routes in the `wp/v2` namespace.
- Includes the same fields as the posts route.
- Respects post type feature support.
- Use `register_rest_field` to provide custom data from post meta.

Default Routes

- `/wp/v2/posts/`
- `/wp/v2/posts/5/`
- `/wp/v2/posts/5/revisions/`
- `/wp/v2/posts/5/revisions/15/`

Customization

- `rest_base` customizes the routes.

```
/wp/v2/$rest_base/

/wp/v2/$rest_base/{post_id}/
```

Customization

- `rest_base` customizes the routes.
- `rest_prepare_{$post_type}` filters the response for each post.
- Can completely customize the route by subclassing `WP_REST_Posts_Controller`.

Customization: What Not to Do

- Don’t completely change the structure of the response.
- Keep the same semantics for fields and query parameters.
- Core in the future (Gutenberg) and other apps will expect different post types to be consistent.

Example

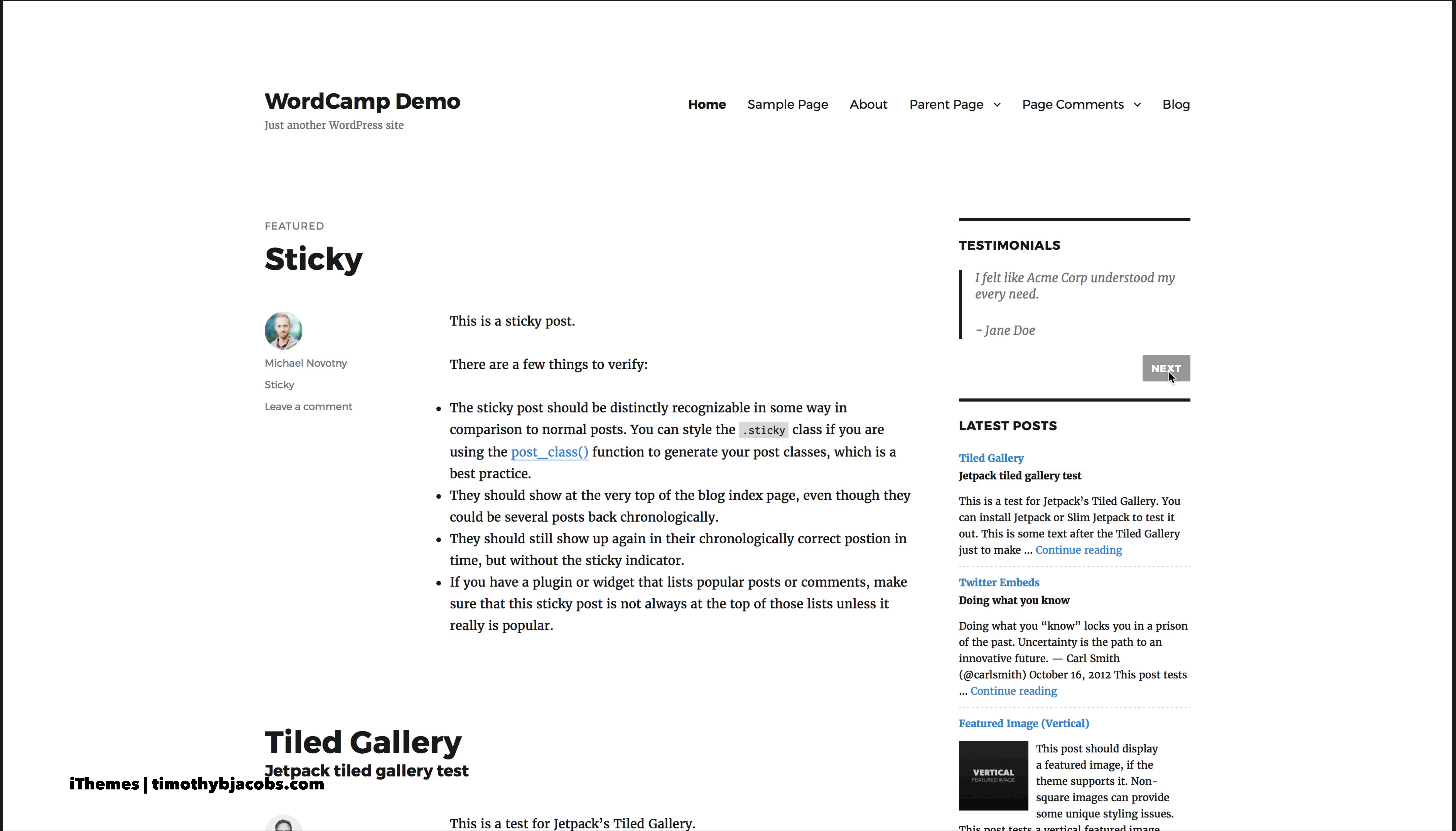
- Testimonials custom post type.
- Only supports the content field.

```
register_post_type( 'testimonial', [
    'supports'     => [ 'editor' ],
    'show_in_rest' => true,
    'rest_base'    => 'testimonials',
    'public'       => false,
    'show_ui'      => true,
] );
```

```
register_rest_field( 'testimonial', 'client', [
    'get_callback'    => function ( $post ) {
        return get_post_meta( $post['id'], '_client', true );
    },
    'update_callback' => function ( $value, $post ) {
        update_post_meta( $post['id'], '_client', wp_strip_all_tags( $value ) );
    },
    'schema'          => [
        'type'        => 'string',
        'required'    => true,
        'minLength'   => 1,
        'description' => 'The client who gave the testimonial',
    ]
] );
```

```
register_rest_field( 'testimonial', 'client_head_shot', [
    'get_callback'    => function ( $post ) {
        return get_post_meta( $post['id'], '_client_head_shot', true );
    },
    'update_callback' => function ( $value, $post ) {
        update_post_meta( $post['id'], '_client_head_shot', $value );
    },
    'schema'          => [
        'type'        => 'string',
        'format'      => 'uri',
        'description' => 'A head shot of the client.',
    ]
] );
```

```json
{
  "id": 1286,
  "content": {
    "rendered": "I felt like Acme Corp understood my every need.",
    "protected": false
  },
  "client": "Jane Doe",
  "client_head_shot": ""
}
```



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TESTIMONIALS

> *I felt like Acme Corp understood my every need.*
>
> *– Jane Doe*

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Custom Taxonomies

- `show_in_rest` automatically registers routes in the `wp/v2` namespace.

Custom Endpoints

- WordPress supports completely custom endpoints that aren’t backed by a core data structure.
- Custom URL structure.
- Response and request formats are flexible.
- Don’t necessarily need to stick with REST semantics.

```
function register_rest_route( $namespace, $route, $args ) {
    // ...
}

register_rest_route( 'my-project/v1', 'testimonials', [
    'callback' => function( $request ) {
        // query testimonials
        $query = get_posts( /* ... */ );
        // format testimonials
        $data = array_walk( $query, function( $t ) { } );

        return new WP_REST_Response( $data );
    }
] );
```

```
class My_Project_Testimonials extends WP_REST_Controller {

    protected $namespace = 'my-project/v1';

}
```

```php
function register_routes() {
    register_rest_route( $this->namespace, 'testimonials', [
        'callback' => [ $this, 'get_items' ],
        'permission_callback' => [ $this, 'get_items_permissions_check' ],
        'schema' => [ $this, 'get_public_item_schema' ],
        'args' => $this->get_collection_params(),
    ] );
}
```

```
function get_items( $request ) {
    // query testimonials
    $query = get_posts( /* ... */ );
    // format testimonials
    foreach ( $query as $t )
        $data[] = $this->prepare_response_for_collection(
            $this->prepare_item_for_response( $t, $request );
        );

    return new WP_REST_Response( $data );
}
```

```
function get_items_permission_check() {
    return is_user_logged_in();
}
```

```
function get_item_schema() { }
```

- Is a full JSON Schema.
- Indicates to clients what data is included in the response.
- *Write* endpoints use it to automatically validate and sanitize.

```
function get_collection_params() {
    $p = parent::get_collection_params();

    $p['after'] = [
        'type' => 'string',
        'format' => 'date-time',
        'description' => 'Show testimonials written after this date.',
    ];

    return $p;
}
```

Use Cases

- Proxying access to an API that requires a private API key or other sensitive data.
- Data stored in custom tables.
- Providing a highly customized view for a post type.

Comment Voting

- WordPress provides a comment route.
- Could just use comment metadata.

```json
{
  "id": 5,
  "content": {
    "rendered": "This is my insightful comment!"
  },
  "meta": {
    "votes": 5
  }
}
```

Comment Voting

- WordPress provides a comment route.
- Could use just comment metadata.
  - How would we prevent duplicate votes?
  - Votes isn’t consistent the whole time.
- Could use `register_rest_field` and accept a vote direction.

```
{
  "id": 5,
  "content": {
    "rendered": "This is my insightful comment!"
  },
  "votes": 5,
  "vote": "up"
}
```

Comment Voting

- WordPress provides a comment route.
- Could use just comment metadata.
- Could use `register_rest_field` and accept a vote direction.
    - An update should describe the resulting state, not an action.
- Great use case for custom endpoint.

```
POST /wp-json/reddit-clone/v1/vote/5 HTTP/1.1
{
  "dir": "up"
}
```

```
register_rest_route( 'reddit-clone/v1', 'vote/(?P<id>[\d]+)', [
    'methods' => 'POST',
    'callback' => function ( $request ) {
        // ...
    },
    'permission_callback' => function ( $request ) {
        // ...
    }
] );
```

Callback

```
function ( $request ) {
    $dir     = $request['dir'];
    $comment = $request['id'];
    $uid     = get_current_user_id();

    $votes = get_comment_meta( $comment, '_votes', true ) ?: 1;
    $votes = $dir === 'up' ? $votes + 1 : $votes - 1;
    update_comment_meta( $comment, '_votes', $votes );
    update_user_meta( $uid, "_voted_{$comment}", $dir );

    return new WP_REST_Response( [ 'votes' => $votes ], 204 );
}
```

Permissions

```
function ( $request ) {

    $comment = $request['id'];
    $uid     = get_current_user_id();

    return $uid && ! get_user_meta( $uid, "_voted_{$comment}" . true );
}
```

... Continue reading

WP Daily

March 14, 2013 at 11:23 am / Edit

We are totally going to blog about these tests!

Reply Up 9 Down

Michael Novotny 👤

March 14, 2013 at 11:30 am / Edit

Thanks for all the comments, everyone!

Reply Up 6 Down

Eryn Erickson

March 14, 2013 at 9:56 am / Edit

Image comment.

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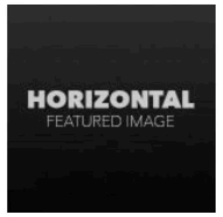

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Questions?