Sitecore CMS 6

Using Sitecore Fast Query

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Chapter 1

Introduction

The techniques described in this document apply to Sitecore CMS 6.

Sitecore Fast Query is designed for retrieving and filtering items from the Sitecore database. Sitecore Fast Query uses the database engine to execute queries.

Sitecore Fast Query has the following benefits compared to the standard Sitecore Query:

- Improved performance — queries are executed by the SQL engine and as a result the scalability and performance of the SQL engine is not limited by.NET or by Sitecore.

- Consumes less memory — Sitecore Query loads every item that it touches into memory (cache) and this can fill the cache with unnecessary information. Sitecore Fast Query only loads the items from the result set and this minimizes the pressure on the cache.

Sitecore Fast Query is similar to XPath and Sitecore Query statements in many ways. The most notable difference in using Fast Query is that you use the `fast:` keyword.

Important
The performance of Fast Query decreases significantly for statements that query many fields in a single condition statement. We therefore recommend that you include no more than 10 fields in each condition statement.

Sitecore Fast Query can be used:

- In the **Content Editor** as a source for List Types fields.

- In the **Developer Center**, in the **XPath Builder** tab.

- In custom .NET code by using the `SelectSingleItem()` method and the `SelectItems()` methods of the `Sitecore.Data.Database` class.

Sitecore Fast Query is processed on the server in the same way as XPath and Sitecore Query.

Important
There are some limitations when using Sitecore Fast Query in the latest version of Sitecore CMS 6. For more information about these limitations, see the **Error! Reference source not found.** chapter.

This document contains the following chapters:

- **Application**
  In the Developer Center, in the XPath Builder tab, Sitecore Fast Queries are used to execute

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queries and populate the lists in Sitecore lookup fields and for retrieving items in the custom .NET code.

- **Sitecore Fast Query Limitations**
  This section describes the limitations of Sitecore Fast Query.

- **Sitecore Fast Query Syntax**
  Sitecore Fast Query uses a path notation, similar to XPath expressions and Sitecore Query, for addressing Items in a Sitecore content tree.

- **Error! Reference source not found.**
  This section describes the known issues associated with Sitecore Fast Query in the release of Sitecore CMS 6 till version 6.2.0 rev. 091012.

Chapter 2

Application

In the Developer Center, in the XPath Builder tab, Sitecore Fast Queries are used to execute queries and populate the lists in Sitecore lookup fields and for retrieving items in custom .NET code.

The XPath Builder is used to test XPath expressions, Sitecore Query, and Sitecore Fast Query.

The Source field is used to populate the lookup fields.

2.1 Executing Queries

1. In the Developer Center, click Tools, XPath Builder to open the XPath Builder.
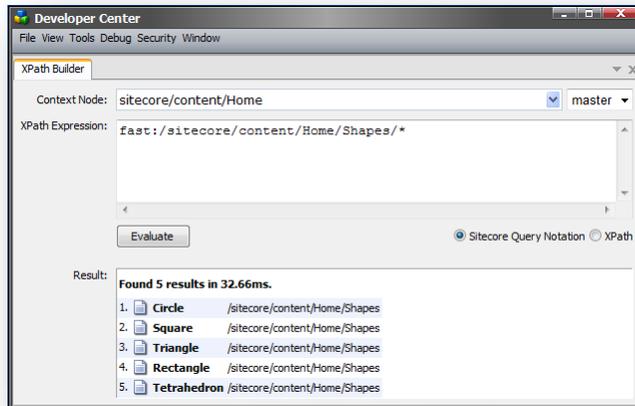
2. In the XPath Builder, click Sitecore Query Notation and fill in the XPath Expression field with a query expression, for example, fast:/Sitecore/content/Home/Shapes/*

The main difference between Sitecore Query and Sitecore Fast Query is the fast: keyword.

You use Sitecore Fast Query in the XPath Builder just like Sitecore Query, except the expression should be preceded by the fast: keyword.

For more information about the syntax, refer to the **Sitecore Fast Query Syntax** chapter.

2.2 Specifying the Source

In items that contain a Source field, in the Source field, enter a query expression:

For example, this source defines the set of shapes that populate the list field.
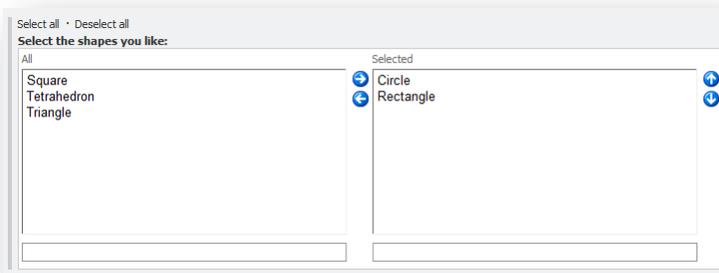
The main benefit of the query expressions is that it retrieves a plain list of the items regardless of the content tree hierarchy.

The `query`: keyword should only be used with Source fields. It specifies that you use Sitecore Query.

You can use three different query types in Source fields:

- Path to the root item:

  o `/sitecore/content/Home/Shapes`
    This expression returns all the items that are children of the Shapes item.

- Sitecore Query:

  o `query:/sitecore/content/Home/Shapes`
    This expression uses Sitecore Query to return the Shapes item.

  o `query:/sitecore/content/Home/Shapes/*`
    This expression uses Sitecore Query to return all the items that are children of the Shapes item.

- Sitecore Fast Query:

  o `query:fast:/sitecore/content/Home/Shapes`
    This expression uses Sitecore Fast Query to return the Shapes item.

  o `query:fast:/sitecore/content/Home/Shapes/*`
    This expression uses Sitecore Fast Query to returns all the items that are children of the Shapes item.

2.3 Using API in the custom .NET code

Sitecore Fast Queries can be executed using the API with the same query methods that you can use with Sitecore query. The `SelectItems()` and `SelectSingleItem()` methods both accept Fast Query statements to perform SQL-based searches.

To retrieve the content items that are stored under the Shapes item:

```
Sitecore.Data.Database database = Sitecore.Data.Database.GetDatabase("master");
Sitecore.Data.Items.Item[] items =
  database.SelectItems("fast:/sitecore/content/home/shapes/*");
```

To retrieve the Shapes item:

```
Sitecore.Data.Items.Item item =
  database.SelectSingleItem("fast:/sitecore/content/home/shapes");
```

Retrieve the Home item:

```
Sitecore.Data.Items.Item[] items =
  database.SelectItems("fast:/sitecore/content/home");
```

To retrieve the first item that is stored under the Shapes item:

```
Sitecore.Data.Items.Item item =
  database.SelectSingleItem("fast:/sitecore/content/home/shapes/*");
```

If you remove the 'fast:' keyword from these query strings and call them, you use Sitecore Query to return the same results.

Chapter 3

Sitecore Fast Query Limitations

Sitecore Fast Query is translated to SQL queries that be executed by the database engine.

Sitecore Fast Query converts all the query conditions into SQL statements, and this places certain limitations on the use of queries:

- Sitecore Fast Query only supports the following axes:
  - o parent::
  - o child::
  - o ancestor:: (when the FastQueryDescendantsDisabled setting is set to "false")
  - o descendant:: (when the FastQueryDescendantsDisabled setting is set to "false")

- Sitecore Fast Query only supports the following special attributes:
  - o @@id
  - o @@name
  - o @@key
  - o @@templateid
  - o @@templatename
  - o @@templatekey
  - o @@masterid
  - o @@parentid

- Standard values are not supported.

- Functions are not supported.
  However the `contains()` function can be replaced by a string equality operator that contains SQL wildcards.
  For example:
  ```
  //*[contains(@Title, 'Sitecore')]
  ```
  is equivalent to
  ```
  fast://*[@Title = '%Sitecore%']"
  ```

- Operators are not supported.

- Subqueries are not supported:
  ```
  fast://*[../@title = 'Sitecore'] will not work properly.
  ```

- Sitecore Fast Query does not return virtual items in the result set.

- Sitecore Fast Query only works on data providers that inherit from the `SqlDataProvider` class and that support the SQL query that is generated by the `QueryToSqlTranslator` class.

- Sitecore Fast Query does not support the use of the pipe ("|") separator to select several paths in one expression:
  `fast:/sitecore/content|/sitecore/content/Home` will not work.

Chapter 4

Sitecore Fast Query Syntax

Sitecore Fast Query uses a path notation to retrieve items from the Sitecore content tree. This is similar to XPath expressions and Sitecore Query. The expression is evaluated to yield an item set. In addition, a query expression can have predicates (filter expressions).

For example, the expression `Entry[@Title = '%Welcome to Sitecore%']` refers to the entry items whose Title field contains the words "Welcome to Sitecore".

Here are some common query expressions:

- `fast:/sitecore/content/Home`
  This expression returns the Home item.

- `fast:/sitecore/content/Home/*`
  This expression returns all the children of the Home item.

- `fast:/sitecore/content/Home//*[@@templatename='Sample Item']`
  This expression returns all the items that have home as their ancestor and are based on the Sample Item template.

Note
Item names in the path expression are not case sensitive. For example, /sitecore/content/Home gives the same result as /sitecore/content/home.

All of the examples in this section are based on the following content tree:
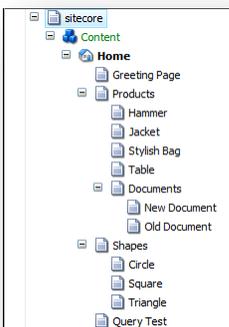
The items in the content tree are based on the following templates: Product, Shape, and Query Test. The Query Test Item is based on the Query Test template and this template contains a multilist field. This field is used to test the queries used in this section.

Note
If the FastQueryDescendantsDisabled setting, in the web.config file, is set to true and then changed back to false, you must rebuild the Descendents table.
To rebuild the Descendents table, click Sitecore, Control Panel, Databases, Clean Up Database and run the Clean Up Database wizard.

4.1　　Basic Query Expression

This is a list of the basic expressions used in the query paths:

/	Selects from the root item
//	Selects items from all the descendants of the specified item
..	Selects the parent of the specified item
@	Selects fields (please refer to the **Attributes** section for details)
@@	Selects attributes (please refer to the **Attributes** section for details)

Fast Query Examples:

- `fast:/sitecore/content/Home/Products`
  Result: returns the Products item.

- `fast:/sitecore/content/Home/Products/*`
  Result: returns all the descendants of the Products item.
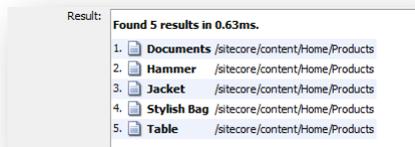
- `fast:/sitecore/content/Home//Circle`
  Result: returns the Circle item that is stored under the Home item.
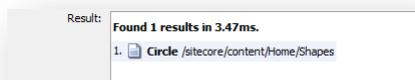
- `fast:/sitecore/content/Home//Circle/..`
  Result: returns the parent of the Circle item that is stored under the Home item.
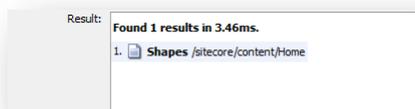
Predicates are used to find a specific Item or an Item that contains a specific value.

4.2 Attributes

This section describes the predicates that are available in Sitecore Fast Query.

Predicates are always embedded in square brackets.

Fast Query Examples:

- Attribute: `[@fieldname]`
  Description: Item field name.
  `fast:/sitecore/content/Home/*[@Title = 'Welcome to Sitecore']`
  Result: returns the items that have the value of the 'Title' field set to 'Welcome to Sitecore'. The search is performed in the children of the Home Item.

  Result: **Found 1 results in 1.97ms.**
  1. Greeting Page /sitecore/content/Home
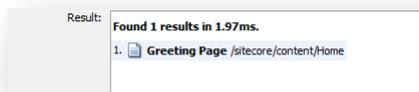
  Note:
  When you use fields in your query expressions, use the database field values.
  To read more about how field values are stored in the database, refer to the Accessing Field Values article.

  `fast:/sitecore/content/Home/Products/Hammer[@Available = '1']`
  Result: returns all the items named Hammer which have the value of the Available check box set to '1'.

  Result: **Found 1 results in 0.91ms.**
  1. Hammer /sitecore/content/Home/Products
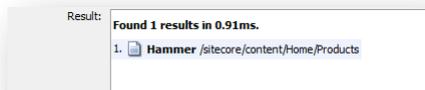
- Attribute: `[@@id]`
  Description: Item ID.
  `fast://*[@@id = '{787EE6C5-0885-495D-855E-1D129C643E55}']`
  Result: searches through the entire content tree and returns the item with the specified ID.

  Result: **Found 1 results in 0.47ms.**
  1. Stylish Bag /sitecore/content/Home/Products
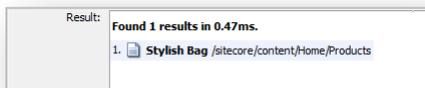
  Note:
  Searches based on item IDs perform faster than searches based in item names.
  You should therefore use item IDs when you need to search for a specific item.

- Attribute: `[@@name]`
  Description: Item name. Case sensitive.
  `fast:/sitecore/content/Home/Products/*[@@name = 'Hammer']`

Result: the search is performed in the children of the Products Item.

```
Result: Found 1 results in 0.80ms.
        1. 📄 Hammer /sitecore/content/Home/Products
```

- Attribute: `[@@key]`
  Description: Item name lower cased. For example: `[@@key = 'item']` will match iTEm and Item.
  Note:
  The key must be in lowercase.

  ```
  fast:/sitecore/content/Home/Products/*[@@key = 'hammer']
  ```
  Result: the search is performed in the children of the Products item.

```
Result: Found 1 results in 0.78ms.
        1. 📄 Hammer /sitecore/content/Home/Products
```
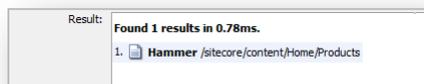
- Attribute: `[@@templateid]`
  Description: Item template ID.
  ```
  fast:/sitecore/content/Home//*[@@templateid = '{F348C2A0-73B8-4AF4-
  BD9E-2C5901908369}']
  ```
  Result: returns all the descendants of the Home item that are based on the template with the specified ID.

```
Result: Found 3 results in 0.70ms.
        1. 📄 Square   /sitecore/content/Home/Shapes
        2. 📄 Triangle /sitecore/content/Home/Shapes
        3. 📄 Circle   /sitecore/content/Home/Shapes
```
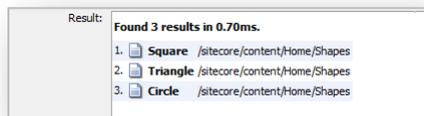
- Attribute: `[@@templatename]`
  Description: Item Template name. The value is case sensitive.
  ```
  fast:/sitecore/content/Home//*[@@templatename = 'Shape']
  ```
  Result: returns all the descendants of the Home item that are based on the Shape template.

```
Result: Found 3 results in 3.91ms.
        1. 📄 Square   /sitecore/content/Home/Shapes
        2. 📄 Triangle /sitecore/content/Home/Shapes
        3. 📄 Circle   /sitecore/content/Home/Shapes
```

- Attribute: `[@@templatekey]`
  Description: The template name in lowercase.
  ```
  fast:/sitecore/content/Home//*[@@templatekey = 'product']
  ```

Result: returns all the descendants of the Home item that are based on the Product template.

Result:
Found 6 results in 4.27ms.
1. Stylish Bag /sitecore/content/Home/Products
2. New Document /sitecore/content/Home/Products/Documents
3. Table /sitecore/content/Home/Products
4. Jacket /sitecore/content/Home/Products
5. Old Document /sitecore/content/Home/Products/Documents
6. Hammer /sitecore/content/Home/Products

- Attribute: `[@@masterid]`
  Description: The master ID.
  ```
  fast:/sitecore/content/Home//*[@@masterid='{47D22B69-AADC-4A79-9347-
  E0AD225F84FB}']
  ```
  Result: returns all the descendants of the Home item that were created by using master (branch) with the specified ID.

Result:
Found 1 results in 1.81ms.
1. Rectangle /sitecore/content/Home/Shapes

- Attribute: `[@@parentid]`
  Description: The parent item ID.
  ```
  fast:/sitecore/content/Home//*[@@parentid='{8F906BEE-BA50-429F-9DCC-
  3EC4794FA182}']
  ```
  Result: returns all the descendants of the Home item whose parent item has the specified ID.

Result:
Found 5 results in 1.18ms.
1. Stylish Bag /sitecore/content/Home/Products
2. Table /sitecore/content/Home/Products
3. Jacket /sitecore/content/Home/Products
4. Documents /sitecore/content/Home/Products
5. Hammer /sitecore/content/Home/Products

More Fast Query Examples:

- Querying a linear list of items with a complex expression.
  ```
  fast:/sitecore/content/Home//*[@@id='{D394CCA7-C88B-418C-8B2B-
  AA97AA52EE14}' or @@key = 'stylish bag' or @@name = 'Hammer']
  ```
  Result: returns all the descendants of the Home item with the specified ID or whose key is 'stylish bag' or whose name is 'Hammer'.

Result:
Found 3 results in 4.51ms.
1. Stylish Bag /sitecore/content/Home/Products
2. Circle /sitecore/content/Home/Shapes
3. Hammer /sitecore/content/Home/Products

  ```
  fast:/sitecore/content/Home//*[@Text='Bargain Price' and
  @Available='1']
  ```
  Result: returns all the descendants of the Home item where the Text field says Bargain Price and

where the Available field is set to true.

- Querying several levels of items (a tree with regular structure).
  ```
  fast://home/*[@@name='Shapes']/*[@Title='%le%']
  ```
  Result: returns the descendants of the Home item that contain the "le" substring in the Title field and are stored under the Shapes item.
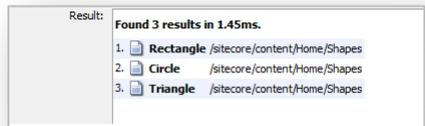

- Querying a subtree of items with an irregular structure.
  ```
  fast:/sitecore/content/home//*[@__Updated >= '20090101' and
  @@templatename = 'Shape']
  ```
  Result:
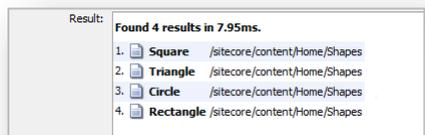

  ```
  fast:/sitecore/content/home//*[@Title = 'Documents' and @@templatename
  = 'Sample Item']//*[@Title = '%New%' and @@templatename = 'Product']
  ```
 Result:
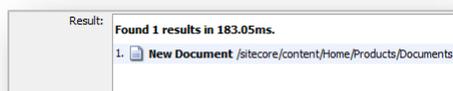
- Querying items by template across the whole database.
  ```
  //*[@@templatename = 'Shape' and @Title = 'Circle']
  ```
  Result:
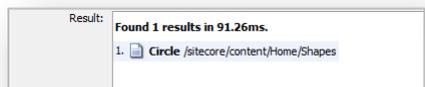

  ```
  fast://*[@Title = '%le%' and @Text = '' and @@templatename = 'Shape']
  ```

Result:
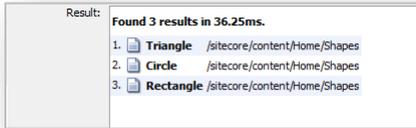
4.3   Axes

The axis component of a query determines the direction of the node selection in relation to the context node. Think of an axis as a directional query.

To read more about axes in Sitecore, refer to the Axes article.

ancestor	Returns all the ancestors of the specified item (same as XPath)
parent	(..) Returns the parent Item of the specified item (same as XPath)
child	(/*) Returns all the children of the specified item (same as XPath)
descendant	(//*) Returns all the descendants of the specified item; a descendant is a child or a child of a child and so on (same as XPath)

Fast Query Examples:

- `fast:/sitecore/content/Home//*[@@name='Jacket']/ancestor::*`
  Result: returns all the ancestors of the Jacket Item and the Jacket Item itself.

- `fast:/sitecore/content/Home/Products/Documents/parent::*/child::*`

  Note:
  Shorthand notation.

  `fast:/sitecore/content/Home/Products/Documents/../*`
  Result: returns all the children of the parent Item of the Documents Item.
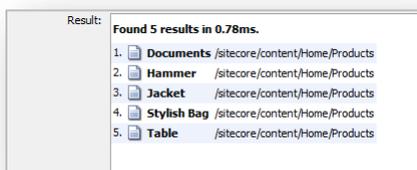
- `fast:/sitecore/content/Home/*[@@name='Shapes']/child::*`

  Note:
  Shorthand notation.

  `fast:/sitecore/content/Home/*[@@name='Shapes']/*`
  `fast:/sitecore/content/Home/Shapes/*`

Result: returns the children of the Products Item.
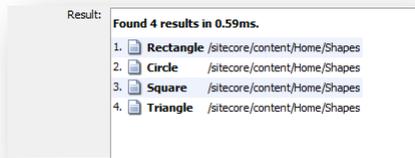
- `fast:/sitecore/content/Home/descendant::*[@@name='Documents' or @@name = 'Shapes']`

    Note:
    Shorthand notation.

    `fast:/sitecore/content/Home//*[@@name='Documents' or @@name = 'Shapes']`
    Result: returns the Documents and Shapes Items if they are among the descendants of the Home Item. This axis expression works the same as that of the `//*` expression.