



# Sitecore CMS 6

## Using Sitecore Fast Query

# Sitecore Fast Query

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 Type* 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 [Sitecore Fast Query, Known Issues](#) section on the SDN.

This document contains the following sections:

- Application  
Using Sitecore Fast Queries to execute 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.

## Application

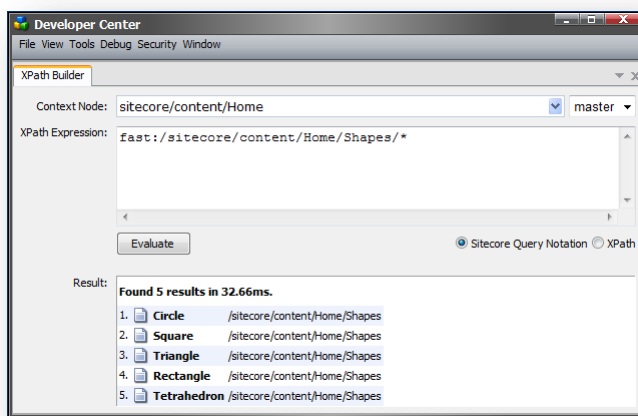
In the **Developer Center**, in the **XPath Builder** tab, Sitecore Fast Queries are used to execute queries and populate the lists in Sitecore lookup fields and for retrieving items in custom .NET code.

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.

## Executing Queries

1. In the **Developer Center**, click **Tools, XPath Builder** to open the **XPath Builder**.



2. In the **XPath Builder**, click the **Sitecore Query Notation** option and fill in the **XPath Expression** field with a query expression, for example, `fast:/Sitecore/content/Home/Shapes/*`

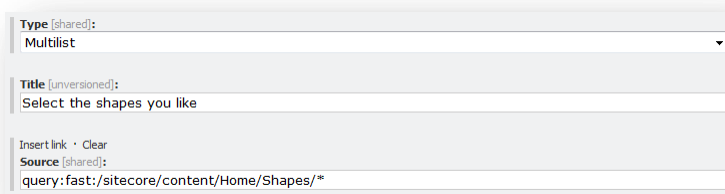
The main difference between Sitecore Query and Sitecore Fast Query is the `fast:` keyword.

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

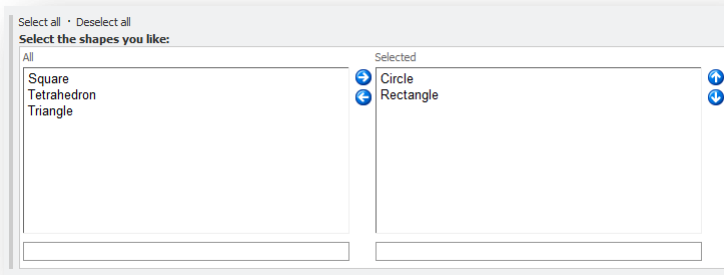
For more information about the syntax, refer to the *Sitecore Fast Query Syntax* section.

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

## 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");
```

To 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.

## 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:

`parent::`

`child::`

`ancestor::` (when the `FastQueryDescendantsDisabled` setting is set to “false”)

`descendant::` (when the `FastQueryDescendantsDisabled` setting is set to “false”)

- Sitecore Fast Query only supports the following special attributes:

`@@id`

`@@name`

`@@key`

`@@templateid`

`@@templatename`

`@@templatekey`

`@@masterid`

`@@parentid`

- Sitecore Fast Query does not work correctly if you place the special attribute at the beginning of the condition.

If you place the special attribute at the beginning of the condition, the query does not return any items.

For example, the following fast query returns *Item A1*

```
fast:/sitecore/content/home/*[@Title = 'Item 1' and @@templatename =
'TestTemplate1']/*[@Title = 'Item A1' and @@templatename = 'TestTemplate2']
```

However, if you place the special attribute at the beginning of the condition, the query does not return a result.

```
fast:/sitecore/content/home/*[@@templatename = 'TestTemplate1' and @Title = 'Item
1']/*[@@templatename = 'TestTemplate2' and @Title = 'Item A1']
```

- Sitecore Fast Query does take the context language into account when it checks the value of non-shared fields. The query results therefore include all the items that have one or more language versions that match the query expression.
- Sitecore Fast Query does not support sorting.

Sitecore Fast Query returns items in random order. This means that the order in which the items are returned varies from query to query. You must sort the returned items.

On the other hand, Sitecore Query always returns items in the tree order — the order that they are presented in the Content Editor.

- Sitecore Fast Query does not support standard values.
- Item clones are not supported. Sitecore Fast Query only returns clones in the result set if the clones contain explicit field values that override the values from the source item.
- Sitecore Fast Query does not support functions.

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%']"
```

- Sitecore Fast Query does not support operators.
- Sitecore Fast Query does not support sub-queries.

For example:

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

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

Virtual items are proxy items — functionality available in Sitecore 5.3 – 6.3 — that are not stored in the database

Similarly, when you create a clone of an item, the unchanged fields in the clone are not stored in the database and Sitecore Fast Query cannot return the cloned items when you use an unchanged field in a query.

The clone functionality was introduced in Sitecore 6.4.

- 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.

For example:

```
fast:/sitecore/content|/sitecore/content/Home will not work.
```

## 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.

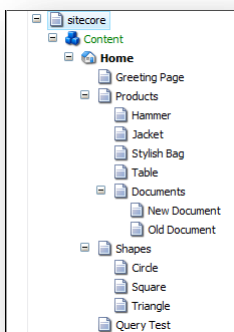
- `fast:/sitecore/content/Home//*[@@templatename='Sample Item']`

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 *Descendants* table.

To rebuild the *Descendants* table, click **Sitecore, Control Panel, Databases, Clean Up Database** and run the **Clean Up Database** wizard.

## Basic Query Expression

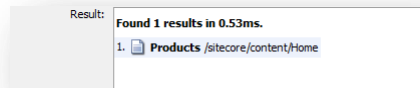
This is a list of the basic expressions used in the query paths:

| Expression | Meaning  |
|------------|--|
| /          | 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 <i>Attributes</i> section for details)     |
| @@         | Selects attributes (please refer to the <i>Attributes</i> section for details) |

### Fast Query Examples:

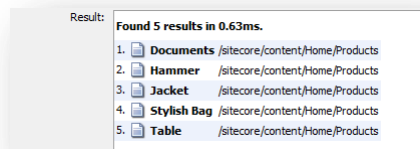
- `fast:/sitecore/content/Home/Products`

Result: returns the *Products* item.



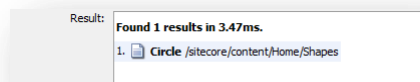
- `fast:/sitecore/content/Home/Products/*`

Result: returns all the descendants of the *Products* item.\*



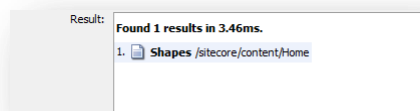
- `fast:/sitecore/content/Home//Circle`

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.

## Attributes

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

Predicates are always embedded in square brackets.

### Fast Query Examples:

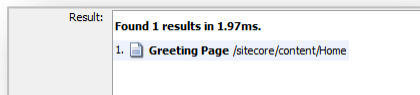
- Attribute: `[@fieldname]`

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.



### Note

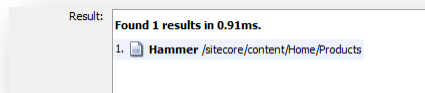
When you use fields in your query expressions, use the database field values.

To read more about how field values are stored in the database, visit:

<http://sdn.sitecore.net/SDN5/Articles/XSL/Accessing%20Field%20Values.aspx>

```
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'.

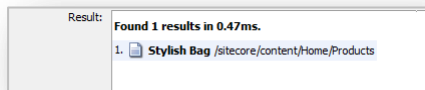


- Attribute: [@@id]

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.



### Note

Searches based on item IDs perform faster than searches based in item names.

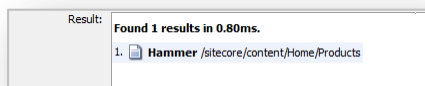
You should therefore use item IDs when you need to search for a specific item.

- 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.



- Attribute: [@@key]

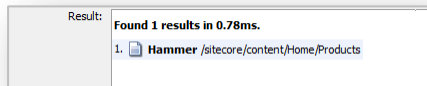
Description: Item name lower cased. For example: `[@@key = 'item']` will match iTEm and Item.

#### 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.

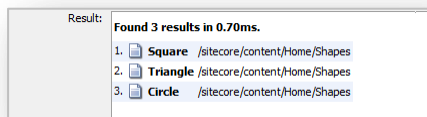


- Attribute: `[@@templateid]`

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.

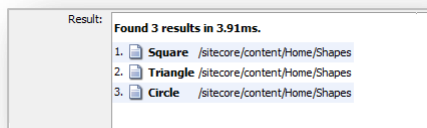


- Attribute: `[@@templatename]`

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.

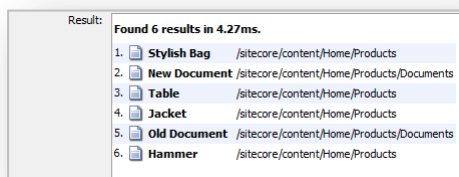


- Attribute: `[@@templatekey]`

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.

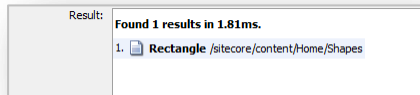


- **Attribute:** [@@masterid]

**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.

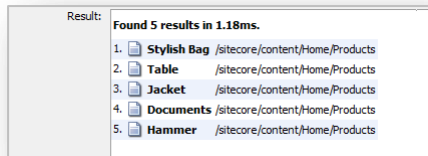


- **Attribute:** [@@parentid]

**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.

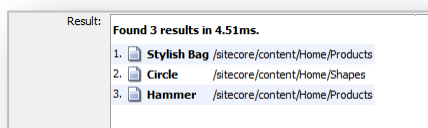


## More Fast Query Examples:

- Querying a linear list of items with a complex expression.

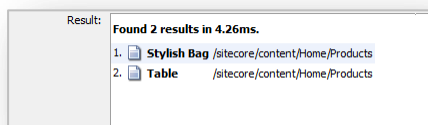
```
fast:/sitecore/content/Home//*[@@id='{D394CCA7-C88B-418C-8B2B-AA97AA52EE14}' or @@key = 'stylish bag' or @@name = 'Hammer']
```

**Result:** returns all the descendants of the *Home* item with the specified ID or whose key is 'stylish bag' or whose name is 'Hammer'.



```
fast:/sitecore/content/Home//*[@Text='Bargain Price' and @Available='1']
```

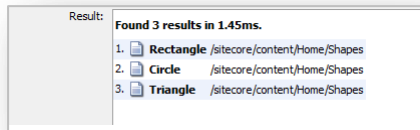
**Result:** returns all the descendants of the *Home* item where the **Text** field says Bargain Price and where the **Available** field is set to true.



- Querying several levels of items (a tree with regular structure).

```
fast://home/*[@@name='Shapes']/*[@Title='%le%']
```

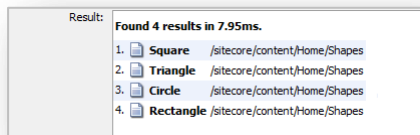
Result: returns the descendants of the *Home* item that contain the “le” substring in the **Title** field and are stored under the *Shapes* item.



- Querying a subtree of items with an irregular structure.

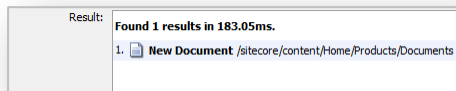
```
fast:/sitecore/content/home/*[@__Updated >= '20090101' and @@templatename = 'Shape']
```

Result:



```
fast:/sitecore/content/home/*[@Title = 'Documents' and @@templatename = 'Sample Item']/*[@Title = '%New%' and @@templatename = 'Product']
```

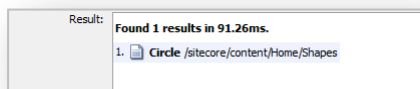
Result:



- Querying items by template across the whole database.

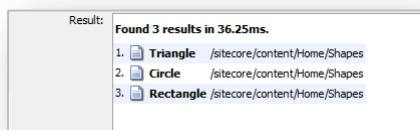
```
//*[@@templatename = 'Shape' and @Title = 'Circle']
```

Result:



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

Result:



## 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.

For more information about axes in Sitecore, see:

<http://sdn.sitecore.net/Developer/Sitecore%20and%20XSL/Axes.aspx>

| Axis       | Behavior   |
|------------|--|
| 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.

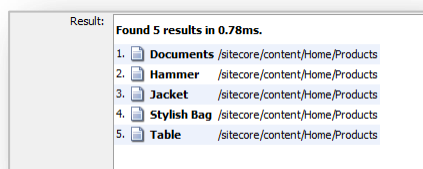


- `fast:/sitecore/content/Home/Products/Documents/parent::*/*/*`

Shorthand notation:

`fast:/sitecore/content/Home/Products/Documents/../*`

Result: returns all the children of the parent item of the *Documents* item.



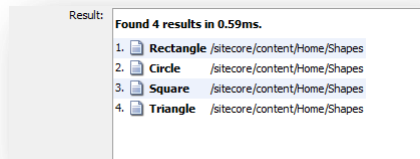
- `fast:/sitecore/content/Home/*[@@name='Shapes']/child::*`

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']
```

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 the `//*` expression.

