vtwsclib – vtiger CRM Web Services

Client Library

version 1.3

http://forge.vtiger.com/projects/vtwsclib

Table of Contents

Version History

Version	Release Date	Highlights
1.3	2009.09.22	* Added doInvoke API to invoke custom webservice functions
1.2	2009.03.28	* Added lastError API to get the last operation error information. * Changed doListTypes API result datastructure to Map instead of List.
1.1	2008.11.06	* Minor bug fix
1.0	2008.10.23	* Provide Basic API wrapper for Webservice support

About

vtwsclib (vtiger CRM Web Services Client Library) provides wrapper classes to use vtiger CRM web services. Using this library you can write new application that integrate with vtiger CRM easily.

The current release of vtwsclib library provides web services client wrappers for PHP, JS and Python languages.

Installation

Unpack the `vtwsclib-x.y.zip` into the folder where your web services client application will reside.

Requirement

You will need to enable the **`php_curl`** extension when using PHP Client Library.

PHP Client Library Overview

PHP Client wrapper (`class Vtiger_WSClient`) provides the following functions:

- doLogin
- doListTypes
- doDescribe
- doCreate
- doRetrieve
- doQuery
- doInvoke
- lastError
- toJSON
- toJSONString

Class overview

class Vtiger_WSClient is defined in the file vtwsclib/Vtiger/WSClient.php. Include this class in your PHP web services client application code as illustrated below

Vtiger_WSClient(url)	
Parameters	url – vtiger CRM URL
Return value	Instantiates class object

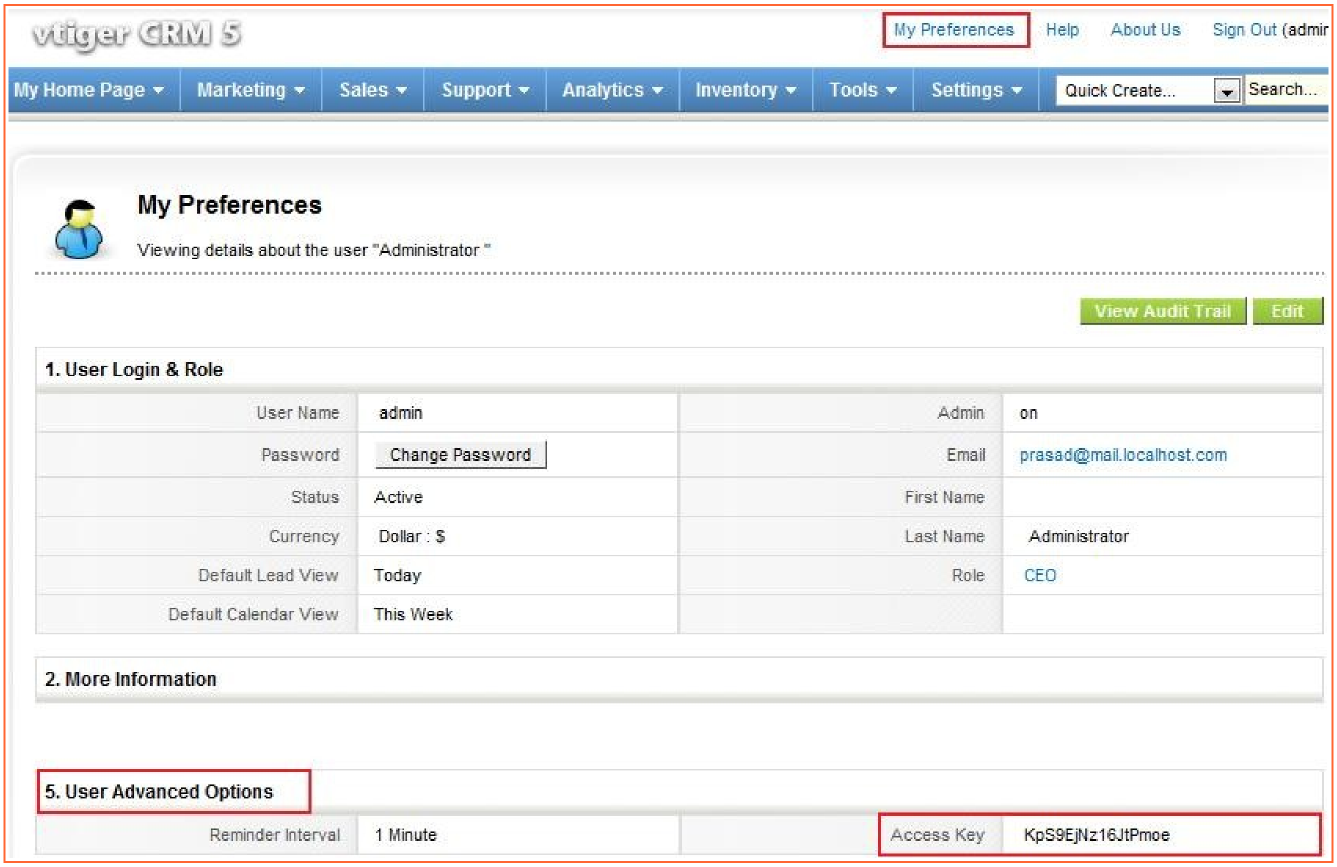
Example	`<?php`
	`include_once('vtwsclib/Vtiger/WSClient.php');`
	
	`$url = 'http://en.vtiger.com/wip';`
	
	`$client = new Vtiger_WSClient($url);`
	
	`?>`

Boolean **doLogin**(username, accesskey)	
Parameters	username – vtiger CRM username accesskey – users unique key (See My Preferences in vtiger CRM as shown here)
Return value	True – on success False – on failure
Details	This function initializes Vtiger_WSClient with sessionId on successful login which is required for performing other operations.

Example	`<?php`
	`include_once('vtwsclib/Vtiger/WSClient.php');`
	
	`$url = 'http://en.vtiger.com/wip';`
	`$client = new Vtiger_WSClient($url);`
	
	`$login = $client->doLogin('admin', 'KpS9EjNz16JtPmoe');`
	`if(!$login) echo 'Login Failed';`
	`else echo 'Login Successful';`

```
?>
```

vtiger CRM User Preferences



My Preferences

Viewing details about the user "Administrator "

1. User Login & Role

User Name	admin	Admin	on
Password	Change Password	Email	prasad@mail.localhost.com
Status	Active	First Name	
Currency	Dollar : $	Last Name	Administrator
Default Lead View	Today	Role	CEO
Default Calendar View	This Week		

2. More Information

5. User Advanced Options

Reminder Interval	1 Minute	Access Key	KpS9EjNz16JtPmoe

Object **doListTypes**()	
Parameters	
Return value	Module information accessible to logged in user.
Details	
Example	

```php
<?php
include_once('vtwsclib/Vtiger/WSClient.php');

$url = 'http://en.vtiger.com/wip';
$client = new Vtiger_WSClient($url);

$login = $client->doLogin('admin', 'KpS9EjNz16JtPmoe');
if(!$login) echo 'Login Failed';
else {
    $modules = $client->doListTypes();
    foreach($modules as $modulename => $moduleinfo) {
        echo “ModuleName: $modulename\n<BR>”;
    }
}
?>
```

`Object` **`doDescribe`**`(module)`	
Parameters	module – module name
Return value	Details of the module as Map
Details	Information about fields of the module, permission to create, delete, update records of the module can be obtained.

Example

```
<?php
include_once('vtwsclib/Vtiger/WSClient.php');

$url = 'http://en.vtiger.com/wip';
$client = new Vtiger_WSClient($url);

$login = $client->doLogin('admin', 'KpS9EjNz16JtPmoe');
if(!$login) echo 'Login Failed';
else {
    $modules = $client->doListTypes();
    foreach($modules as $modulename => $moduleinfo) {
        $describe = $client->doDescribe($module);
        $cancreate = $describe[createable];
        $canupdate = $describe[updateable];
        $candelete = $describe[deleteable];
        $canread   = $describe[retrieveable];
        $fields    = $describe[fields];
    }

}
?>
```

`Object` **`doCreate`**`(module, valuesmap)`

Parameters	module – module name valuesmap – field name and field value pairs
Return value	On successful creation New record information will be returned. Creation may fail if mandatory field name and value pair is not set.
Details	Creating new records in the module can be done using this method.

Example

```php
<?php
include_once('vtwsclib/Vtiger/WSClient.php');

$url = 'http://en.vtiger.com/wip';
$client = new Vtiger_WSClient($url);

$login = $client->doLogin('admin', 'KpS9EjNz16JtPmoe');
if(!$login) echo 'Login Failed';
else {
    $module = 'Leads';
    $record = $client->doCreate($module,
          Array('lastname'=>'CRMLead', 'company'=>'vtiger'));

    if($record) {
        $recordid = $client->getRecordId($record['id']);
    }
}
?>
```

NOTE:

```
The server returns record['id'] in the format <moduleid>'x'<recordid>.
Use method getRecordId method can be used to retrieve only the record id
part from the returned record id from the server.
```

Object **doRetrieve**(record)	
Parameters	record – identifier having the format **<moduleid>'x'<recordid>**
Return value	If specified module record is found its information is returned otherwise False. Creation may fail if mandatory field name and value pair is not set.
Details	Retrieve information of existing record of the module.
Example	

```php
<?php
include_once('vtwsclib/Vtiger/WSClient.php');

$url = 'http://en.vtiger.com/wip';
$client = new Vtiger_WSClient($url);

$login = $client->doLogin('admin', 'KpS9EjNz16JtPmoe');
if(!$login) echo 'Login Failed';
else {
    // Retrieve Contacts record with id 110
    $record = '4x110';
    $recordInfo = $client->doRetrieve($record);
    if($recordInfo) {
        $lastname = $recordInfo['lastname'];
    }
}
?>
```

Object **doQuery**(query)	
Parameters	query – SELECT query to use for fetching the records.
Return value	
Details	Webservices provides custom subset of SQL support to work with vtiger CRM.
Example	

```php
<?php
include_once('vtwsclib/Vtiger/WSClient.php');

$url = 'http://en.vtiger.com/wip';
$client = new Vtiger_WSClient($url);

$login = $client->doLogin('admin', 'KpS9EjNz16JtPmoe');
if(!$login) echo 'Login Failed';
else {
    // Retrieve Accounts matching name 'vtiger'
    $query = “SELECT * FROM Accounts WHERE accountname LIKE 'vtiger'”;
    $records = $client->doQuery($query);

    if($records) {
        $columns = $client->getResultColumns($records);
        foreach($records as $record) {
            // Process record information
        }
    }
}
?>
```

NOTE:	Use getResultColumns API to retrieve column names available in the result records. Please refer the webservices documentation to know more about SQL format and support.

```
Object doInvoke(method, params, type)
```

Parameters	method – Name of the webservice method to invoke params – Parameters to the webservice method type – POST/GET transport type to use to invoke the method
Return value	
Details	This method provides the ability to invoke the custom webservice method that is exposed by REST interface.

Example

```php
<?php
include_once('vtwsclib/Vtiger/WSClient.php');

$url = 'http://en.vtiger.com/wip';
$client = new Vtiger_WSClient($url);

$login = $client->doLogin('admin', 'KpS9EjNz16JtPmoe');
if(!$login) echo 'Login Failed';
else {
    $response = $client->doInvoke(
        'custom_wsmethod',
        array( 'firstparam' => 'F', 'secondparam' => 'S',
        'POST'
    );
    $wasError = $client->lastError();
    if($wasError) {
        var_dump($client->lastError());
    } else {
        // Take action on $response
    }
}
?>
```

<table>
<tr><th colspan="2">Object <b>lastError</b>()</th></tr>
<tr><td>Parameters</td><td></td></tr>
<tr><td>Return value</td><td>Map containing (code, message) if the last operation failed or else false</td></tr>
<tr><td>Details</td><td></td></tr>
<tr><td>Example</td><td><pre>
<?php
include_once('vtwsclib/Vtiger/WSClient.php');

$url = 'http://en.vtiger.com/wip';
$client = new Vtiger_WSClient($url);

$login = $client->doLogin('admin', 'KpS9EjNz16JtPmoe');
if(!$login) echo 'Login Failed';
else {
    // Retrieve Accounts matching name 'vtiger'
    $query = “SELECT * FROM Accounts WHERE WRONGQUERY”;
    $records = $client->doQuery($query);
    $wasError= $client->lastError();
    if($wasError) {
        echo $wasError['code'] . ':' . $wasError['message'];
    }
}
?>
</pre></td></tr>
<tr><td>NOTE</td><td>The lastError information is reset after every operation is executed.</td></tr>
</table>

Object **toJSON**(inputString)	
Parameters	inputString – json format input string
Return value	PHP Array or Map or String
Details	Converts the given input JSON format string to PHP Object

Example	`<?php`
	`include_once('vtwsclib/Vtiger/WSClient.php');`
	
	`$url = 'http://en.vtiger.com/wip';`
	`$client = new Vtiger_WSClient($url);`
	
	`$phpmap = $client->toJSON( '{ “A” : “B” }' );`
	`?>`

String **toJSONString**(input)	
Parameters	input – PHP Array or Map or String
Return value	JSON string
Details	Converts the given input to JSON format string

Example	`<?php`
	`include_once('vtwsclib/Vtiger/WSClient.php');`
	
	`$url = 'http://en.vtiger.com/wip';`
	`$client = new Vtiger_WSClient($url);`
	
	`$jsonstring = $client->toJSONString( { 'a'=>'ValueA'} );`
	`?>`

Javascript Client Library Overview

The following script includes are required on your page to use web services through Javascript client:

```
<script type='text/javascript' src='vtwsclib/third-party/js/jquery.js'></script>
<script type='text/javascript' src='vtwsclib/third-party/js/md5.js'></script>
<script type='text/javascript' src='vtwsclib/Vtiger/WSClient.js'></script>
```

Javascript Client wrapper (`Vtiger_WSClient`) provides the following functions:

- doLogin
- doListTypes
- doDescribe
- doCreate
- doRetrieve
- doQuery
- doInvoke
- lastError
- toJSON
- toJSONString

Class overview

class Vtiger_WSClient is defined in the file vtwsclib/Vtiger/WSClient.js

`Vtiger_WSClient``(url)`	
Parameters	url – vtiger CRM URL
Return value	Instantiates class object

Example	`<script type='text/javascript'>`
	`var url = 'http://en.vtiger.com/wip';`
	
	`var client = new Vtiger_WSClient(url);`
	
	`</script>`

doLogin(username, accesskey, callback)	
Parameters	username – vtiger CRM username accesskey – users unique key (See My Preferences in vtiger CRM as shown here) callback – callback argument (See details explained here)
Callback First parameter	True – on success False – on failure
Details	Initializes Vtiger_WSClient with sessionId on successful login which is required for performing other operations. Function referenced via callback will be invoked.

Example	`<script type='text/javascript'>`
	
	`var url = 'http://en.vtiger.com/wip';`
	`var client = new Vtiger_WSClient(url);`
	
	`client.doLogin('admin', 'KpS9EjNz16JtPmoe', callback);`
	`// postLogin function gets a call once request is completed`
	
	`function postLogin(result, args) {`
	`    if(result) alert('Login was successful');`
	`    else alert('Login failed');`
	`}`
	
	`</script>`

Callback Argument

Asynchronous calls are made to service using AJAX request by webservice client functions.

Hence callback function should be sent, which will be invoked after the response is obtained from the server.

The callback argument can be any of the following:

- Function Reference
- Callback map having the following format:

```
{
  'function'  : <Function Reference>,
  'arguments' : {'arg1' : 'value1', 'arg2' : ['value2']}
}
```

Webservice function will invoke the callback function passing the result as the first parameter. If callback map was sent then the reference sent via 'function' key will be invoked with result as the first parameter and second parameter will be values referenced by 'arguments' key of the callback map.

doListTypes(callback)	
Parameters	callback – callback argument (See details explained here)
Callback First parameter	Module information accessible to logged in user.
Details	

Example

```
<script type='text/javascript'>
var url = 'http://en.vtiger.com/wip';
var client = new Vtiger_WSClient(url);

client.doLogin('admin', 'KpS9EjNz16JtPmoe', postLogin);
// postLogin function gets a call once request is completed

function postLogin(result, args) {
    if(!result) alert('Login failed');
    else getModules();
}
function getModules() {
    client.doListTypes(postGetModules);
    // postGetModules gets a call once request is completed
}
function postGetModules(modules, args) {
    if(modules) alert(client.toJSONString(modules));
}

</script>
```

doDescribe(module, callback)	
Parameters	module – module name callback – callback argument (See details explained here)
Callback First Parameter	Details of the module as Map
Details	Information about fields of the module, permission to create, delete, update records of the module can be obtained.

Example

```
<script type='text/javascript'>
var url = 'http://en.vtiger.com/wip';
var client = new Vtiger_WSClient(url);

client.doLogin('admin', 'KpS9EjNz16JtPmoe', postLogin);
// postLogin function gets a call once request is completed

function postLogin(result, args) {
    if(!result) alert('Login failed');
    else getModuleDetails();
}
function getModuleDetails() {
    var module = 'Leads';
    var callback = {
        'function' : processModuleDetails,
        'arguments': { 'moduleName' : module }
    };
    client.doDescribe(callback);
    // processModuleDetails gets a call once request is completed
}
function processModuleDetails(result, args) {
    var module = args.moduleName;
    if(result)
        alert('Module = ' + module + ', Details = ' +
              client.toJSONString(result));
}
</script>
```

doCreate(module, valuesmap, callback)

Parameters	module – module name valuesmap – field name and field value pairs callback – callback argument (See details explained here)
Callback First Parameter	On successful creation New record information will be sent. Creation may fail if mandatory field name and value pair is not set.
Details	Creating new records in the module can be done using this method.

Example

```
<script type='text/javascript'>
var url = 'http://en.vtiger.com/wip';
var client = new Vtiger_WSClient(url);

client.doLogin('admin', 'KpS9EjNz16JtPmoe', postLogin);
// postLogin function gets a call once request is completed

function postLogin(result, args) {
    if(!result) alert('Login failed');
    else createModuleRecord();
}
function createModuleRecord() {
    var module = 'Leads';
    var valuesmap = {
        'lastname' : 'CRMLead', 'company':'vtiger'
    } ;
    client.doCreate(module, valuesmap, afterCreateRecord);

    // afterCreateRecord gets a call once request is completed
}
function afterCreateRecord(result, args) {
    if(result)
        alert('Record Id = ' + client.getRecordId(result.id));
}
</script>
```

NOTE:

The server returns record['id'] in the format <moduleid>'x'<recordid>. Use method getRecordId method can be used to retrieve only the record id part from the returned record id from the server.

doRetrieve(record, callback)	
Parameters	record – identifier having the format **<moduleid>'x'<recordid>** callback – callback argument (See details explained here)
Callback First Parameter	If specified module record is found its information is sent, otherwise False Creation may fail if mandatory field name and value pair is not set.
Details	Retrieve information of existing record of the module.

Example

```
<script type='text/javascript'>
var url = 'http://en.vtiger.com/wip';
var client = new Vtiger_WSClient(url);

client.doLogin('admin', 'KpS9EjNz16JtPmoe', postLogin);
// postLogin function gets a call once request is completed

function postLogin(result, args) {
    if(!result) alert('Login failed');
    else getModuleRecord();
}
function getModuleRecord() {
    var record = '4x110';
    client.doRetrieve(record, processModuleRecord);

    // processModuleRecord gets a call once request is completed
}
function processModuleRecord(result, args) {
    if(result)
        alert('Record Id = ' + client.getRecordId(result.id));
}
</script>
```

<table>
<tr><th colspan="2"><b>doQuery</b>(query, callback)</th></tr>
<tr><td>Parameters</td><td>query – SELECT query to use for fetching the records.
callback – callback argument (See details explained here)</td></tr>
<tr><td>Callback
First Parameter</td><td>Result sent from the server.</td></tr>
<tr><td>Details</td><td>Webservices provides custom subset of SQL support to work with vtiger CRM.</td></tr>
<tr><td>Example</td><td><pre>
<script type='text/javascript'>
var url = 'http://en.vtiger.com/wip';
var client = new Vtiger_WSClient(url);

client.doLogin('admin', 'KpS9EjNz16JtPmoe', postLogin);
// postLogin function gets a call once request is completed

function postLogin(result, args) {
    if(!result) alert('Login failed');
    else execQuery();
}
function execQuery() {
    var query = “SELECT * FROM Accounts “ +
                “WHERE accountname LIKE '%vtiger%' ”;

    client.doQuery(query, postExecQuery);

    // postExecQuery gets a call once request is completed
}
function postExecQuery(result, args) {
    if(result) {
        var columns = client.getResultColumns(result);
        alert('COLUMNS: ' + client.toJSONString(columns));
        alert(client.toJSONString(result));
    }
}
</script>
</pre></td></tr>
<tr><td>NOTE:</td><td>Use getResultColumns API to retrieve column names available in the result records.
Please refer the webservices documentation to know more about SQL format and support.</td></tr>
</table>

doInvoke(callback, method, params, type)	
Parameters	callback – callback argument (See details explained here) method – Name of the webservice method to invoke params – Parameters to the webservice method type – POST/GET transport type to use to invoke the method
Callback First Parameter	Result sent from the server.
Details	This method provides the ability to invoke the custom webservice method that is exposed by REST interface.

Example

```
<script type='text/javascript'>
var url = 'http://en.vtiger.com/wip';
var client = new Vtiger_WSClient(url);

client.doLogin('admin', 'KpS9EjNz16JtPmoe', postLogin);
// postLogin function gets a call once request is completed

function postLogin(result, args) {
    if(!result) alert('Login failed');
    else invokeMethod();
}
function invokeMethod() {
    client.doInvoke(postInvoke, 'custom_wsmethod,
{ 'firstparam' : 'F', 'secondparam' : 'S'} );

    // postInvoke gets a call once request is completed
}
function postInvoke(result, args) {
    if(result == false) {
        alert(client.lastError()['message']);
    } else {
        // Process result
    }
}
</script>
```

<table>
<tr><th colspan="2">lastError()</th></tr>
<tr><td>Parameters</td><td></td></tr>
<tr><td>Callback
First parameter</td><td>Map containing (code, message) if the last operation failed or else false</td></tr>
<tr><td>Details</td><td></td></tr>
<tr><td>Example</td><td>

```
<script type='text/javascript'>
var url = 'http://en.vtiger.com/wip';
var client = new Vtiger_WSClient(url);

client.doLogin('admin', 'KpS9EjNz16JtPmoe', postLogin);
// postLogin function gets a call once request is completed

function postLogin(result, args) {
    if(!result) alert('Login failed');
    else execQuery();
}
function execQuery() {
    var query = “SELECT * FROM Accounts WRONGQUERY“;

    client.doQuery(query, postExecQuery);

    // postExecQuery gets a call once request is completed
}
function postExecQuery(result, args) {
    if(!result) {
        var wasError = client.lastError();
        alert('ERROR CODE: ' + wasError['code'] + ', MESSAGE: ' +
wasError['message']);
    }
}
</script>
```

</td></tr>
<tr><td>NOTE</td><td>The lastError information is reset after every operation is executed.</td></tr>
</table>

`Object` **`toJSON`**`(inputString)`	
Parameters	inputString – json format input string
Return value	Javascript Array or Map or String
Details	Converts the given input JSON format string to Javascript Object

Example	`<script type='text/javascript'>`
	`var url = 'http://en.vtiger.com/wip';`
	`var client = new Vtiger_WSClient(url);`
	
	`var jsobj = client.toJSON( '{ “A” : “B” }' );`
	`</script>`

`String` **`toJSONString`**`(input)`	
Parameters	input – Javascript Array or Map or String
Return value	JSON string
Details	Converts the given input to JSON format string

Example	`<script type='text/javascript'>`
	`var url = 'http://en.vtiger.com/wip';`
	`var client = new Vtiger_WSClient(url);`
	
	`var jsonstring = client.toJSONString( { 'a'=>'ValueA'} );`
	`</script>`

Python Client Library Overview

Python Client wrapper (`Vtiger_WSClient`) provides the following functions:

- doLogin
- doListTypes
- doDescribe
- doCreate
- doRetrieve
- doQuery
- doInvoke
- lastError
- toJSON
- toJSONString

Class overview

class Vtiger_WSClient is defined in the file vtwsclib/Vtiger/WSClient.py

Vtiger_WSClient(url)	
Parameters	url – vtiger CRM URL
Return value	Instantiates class object

Example	`import sys`
	`# Absolute/Relative path of vtwsclib/Vtiger folder`
	`sys.path.append('vtwsclib/Vtiger')`
	
	`from WSClient import *`
	
	`# Create Vtiger Webservice client`
	`client = Vtiger_WSClient('http://en.vtiger.com/wip')`

Object **doLogin**(username, accesskey)

Parameters	username – vtiger CRM username accesskey – users unique key (See My Preferences in vtiger CRM as shown here)
Return value	True – on success False – on failure
Details	Initializes Vtiger_WSClient with sessionId on successful login which is required for performing other operations. Function referenced via callback will be invoked.

Example

```
import sys
# Absolute/Relative path of vtwsclib/Vtiger folder
sys.path.append('vtwsclib/Vtiger')

from WSClient import *

# Create Vtiger Webservice client
client = Vtiger_WSClient('http://en.vtiger.com/wip')

login = client.doLogin('admin', 'KpS9EjNz16JtPmoe')

if login:
    print 'Login Successful'
else:
    print 'Login Failed!'
```

<table>
<tr><th colspan="2"><code>Object <b>doListTypes</b>()</code></th></tr>
<tr><td>Parameters</td><td></td></tr>
<tr><td>Return value</td><td>Module information accessible to logged in user.</td></tr>
<tr><td>Details</td><td></td></tr>
<tr><td>Example</td><td><pre>
import sys
# Absolute/Relative path of vtwsclib/Vtiger folder
sys.path.append('vtwsclib/Vtiger')

from WSClient import *

# Create Vtiger Webservice client
client = Vtiger_WSClient('http://en.vtiger.com/wip')

login = client.doLogin('admin', 'KpS9EjNz16JtPmoe')

if not login:
    print 'Login Failed!'
else:
    result = client.doListTypes()
    for modulekey in result:
        print 'Module Name: ', result[modulekey]['name']
</pre></td></tr>
</table>

`Object` **`doDescribe`**`(module)`	
Parameters	module – module name
Return value	Details of the module as Map
Details	Information about fields of the module, permission to create, delete, update records of the module can be obtained.

Example	`import sys`
	`# Absolute/Relative path of vtwsclib/Vtiger folder`
	`sys.path.append('vtwsclib/Vtiger')`
	
	`from WSClient import *`
	
	`# Create Vtiger Webservice client`
	`client = Vtiger_WSClient('http://en.vtiger.com/wip')`
	
	`login = client.doLogin('admin', 'KpS9EjNz16JtPmoe')`
	
	`if not login:`
	`    print 'Login Failed!'`
	`else:`
	`    moduleInfo = client.doDescribe('Leads')`
	`    print 'ModuleInfo: ', moduleInfo`

`Object` **`doCreate`**`(module, valuesmap)`	
Parameters	module – module name valuesmap – field name and field value pairs
Return value	On successful creation New record information will be returned back. Creation may fail if mandatory field name and value pair is not set.
Details	Creating new records in the module can be done using this method.

Example	`import sys`
	`# Absolute/Relative path of vtwsclib/Vtiger folder`
	`sys.path.append('vtwsclib/Vtiger')`
	
	`from WSClient import *`
	
	`# Create Vtiger Webservice client`
	`client = Vtiger_WSClient('http://en.vtiger.com/wip')`
	
	`login = client.doLogin('admin', 'KpS9EjNz16JtPmoe')`
	
	`if not login:`
	`    print 'Login Failed!'`
	`else:`
	`    recordInfo = client.doCreate('Leads',`
	`        { 'lastname' : 'CRMLead', 'company' : 'vtiger' })`
	`    print 'RecordId: ', client.getRecordId(recordInfo['id'])`

NOTE:	`The server returns record['id'] in the format <moduleid>'x'<recordid>. Use method getRecordId method can be used to retrieve only the record id part from the returned record id from the server.`

Object **doRetrieve**(record)	
Parameters	record – identifier having the format **<moduleid>'x'<recordid>**
Return value	If specified module record is found its information is sent, otherwise False Creation may fail if mandatory field name and value pair is not set.
Details	Retrieve information of existing record of the module.

Example	import sys
	# Absolute/Relative path of vtwsclib/Vtiger folder
	sys.path.append('vtwsclib/Vtiger')
	
	from WSClient import *
	
	# Create Vtiger Webservice client
	client = Vtiger_WSClient('http://en.vtiger.com/wip')
	
	login = client.doLogin('admin', 'KpS9EjNz16JtPmoe')
	
	if not login:
	    print 'Login Failed!'
	else:
	    # Fetch contact record with id 110
	    record = '4x110'
	    recordInfo = client.doRetrieve(record)
	    print 'RecordId: ', client.getRecordId(recordInfo['id'])

`Object` **`doQuery`**`(query)`

Parameters	query – SELECT query to use for fetching the records.
Return value	Result sent from the server.
Details	Webservices provides custom subset of SQL support to work with vtiger CRM.

Example

```
import sys
# Absolute/Relative path of vtwsclib/Vtiger folder
sys.path.append('vtwsclib/Vtiger')

from WSClient import *

# Create Vtiger Webservice client
client = Vtiger_WSClient('http://en.vtiger.com/wip')

login = client.doLogin('admin', 'KpS9EjNz16JtPmoe')

if not login:
    print 'Login Failed!'
else:
    # Search for Accounts with name like 'vtiger'
    query = “SELECT * FROM Accounts WHERE accountname LIKE
'%vtiger%'”
    result = client.doQuery(query)
    if(result):
        columns = client.getResultColumns(result)
        print 'Columns: ', columns
        print 'Result : ', result
```

NOTE:

Use getResultColumns API to retrieve column names available in the result records.

Please refer the webservices documentation to know more about SQL format and support.

Object **doInvoke**(method, params, type)	
Parameters	method – Name of the webservice method to invoke params – Parameters to the webservice method type – POST/GET transport type to use to invoke the method
Return value	Result sent from the server.
Details	This method provides the ability to invoke the custom webservice method that is exposed by REST interface.

Example

```
import sys
# Absolute/Relative path of vtwsclib/Vtiger folder
sys.path.append('vtwsclib/Vtiger')

from WSClient import *

# Create Vtiger Webservice client
client = Vtiger_WSClient('http://en.vtiger.com/wip')

login = client.doLogin('admin', 'KpS9EjNz16JtPmoe')

if not login:
    print 'Login Failed!'
else:
    # Invoke custom method with parameters
    result = client.doInvoke('custom_wsmethod',
{'firstparam':'f', 'secondparam' : 's'} )
    if(result):
        # Process the result
    else:
        print 'ERROR: ', client.lastError();
```

`Object` **`lastError`**`()`

Parameters	
Return value	Map containing (code, message) if the last operation failed or else false
Details	

Example

```
import sys
# Absolute/Relative path of vtwsclib/Vtiger folder
sys.path.append('vtwsclib/Vtiger')

from WSClient import *

# Create Vtiger Webservice client
client = Vtiger_WSClient('http://en.vtiger.com/wip')

login = client.doLogin('admin', 'KpS9EjNz16JtPmoe')

if not login:
    print 'Login Failed!'
else:
    # Search for Accounts with name like 'vtiger'
    query = “SELECT * FROM Accounts WHERE WRONGQUERY”
    result = client.doQuery(query)
    if(result):
        columns = client.getResultColumns(result)
        print 'Columns: ', columns
        print 'Result : ', result
    else:
        errorInfo = client.lastError()
        print 'Error Code: ', errorInfo['code']
        print 'Message   : ', errorInfo['message']
```

NOTE: The lastError information is reset after every operation is executed.

Object **toJSON**(inputString)	
Parameters	inputString – json format input string
Return value	Python Array or Map or String
Details	Converts the given input JSON format string to Python Object

Example	import sys
	# Absolute/Relative path of vtwsclib/Vtiger folder
	sys.path.append('vtwsclib/Vtiger')
	
	from WSClient import *
	
	# Create Vtiger Webservice client
	client = Vtiger_WSClient('http://en.vtiger.com/wip')
	
	pyobj = client.toJSON('{ “A” : “B” }');

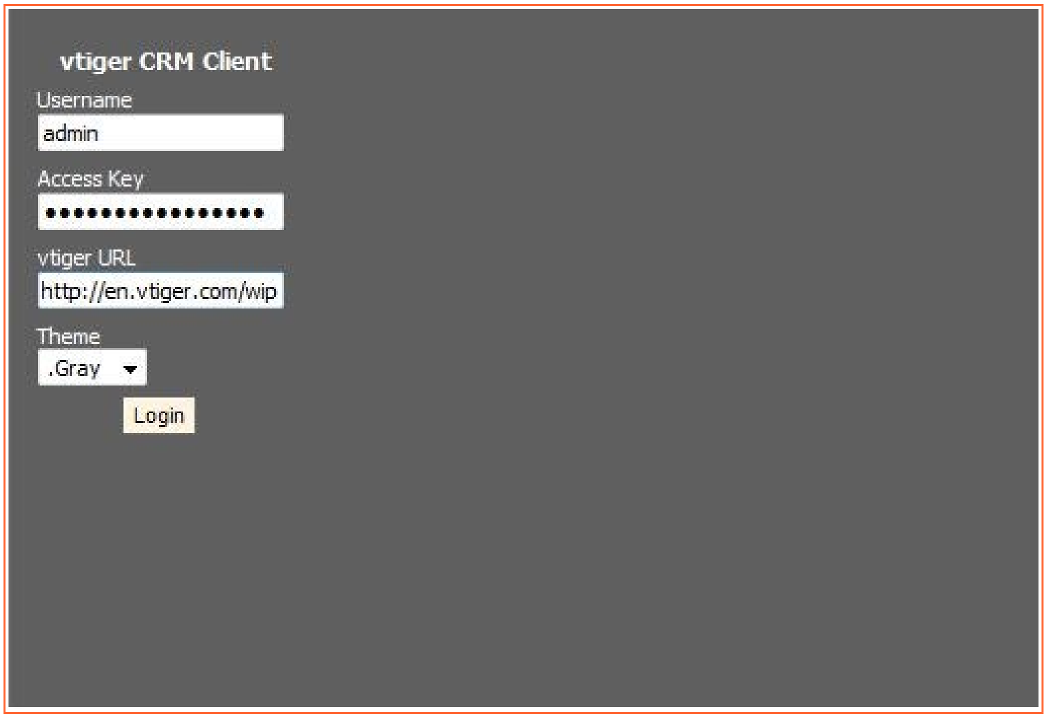
String **toJSONString**(input)	
Parameters	input – Python Array or Map or String
Return value	JSON string
Details	Converts the given input to JSON format string

Example	import sys
	# Absolute/Relative path of vtwsclib/Vtiger folder
	sys.path.append('vtwsclib/Vtiger')
	
	from WSClient import *
	
	# Create Vtiger Webservice client
	client = Vtiger_WSClient('http://en.vtiger.com/wip')
	
	jsonstring = client.toJSONString({ 'a'=>'ValueA'});

vtclient application

vtclient is a sample application written using the PHP client library. It provides a simple vtiger CRM client suitable for mobile devices and other web devices that require simple HTML user interfaces. Its features are demonstrated below:

Login Screen



vtiger CRM Client

Username: admin

Access Key: ●●●●●●●●●●●●●●●●

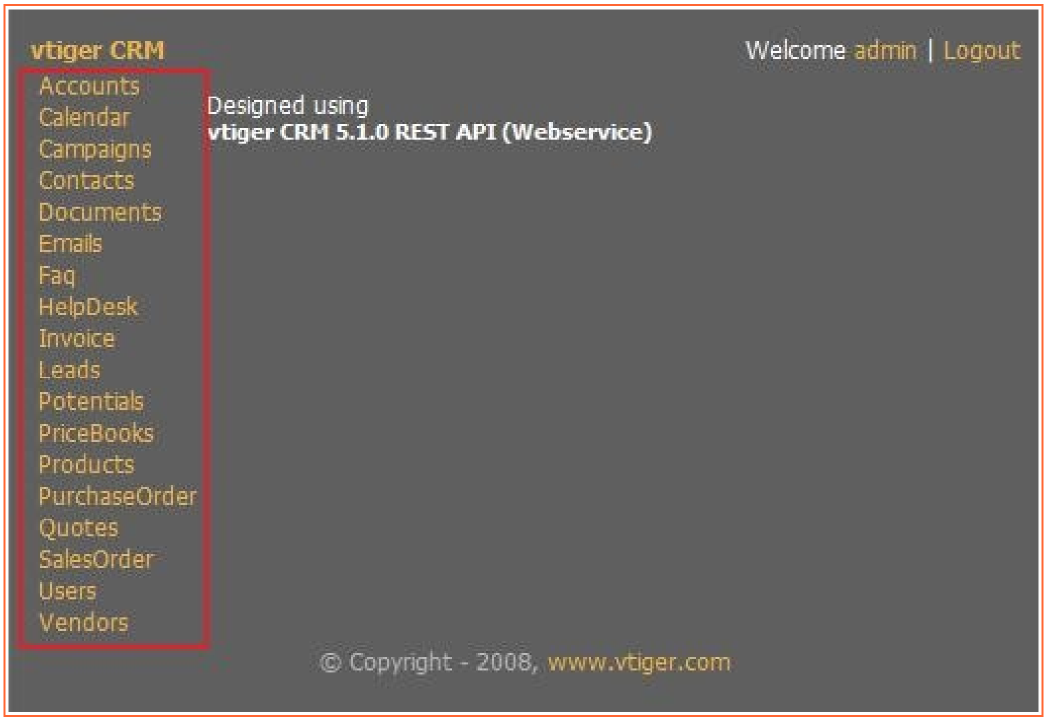
vtiger URL: http://en.vtiger.com/wip

Theme: .Gray

Username	vtiger CRM user
Access Key	Access Key of the user (Check My Preferences in vtiger CRM)
vtiger URL	vtiger CRM Location (like, http://en.vtiger.com/wip)
Theme	Select theme for current login

Home Page

On successful login, the home page displays a list of accessible modules links.



Designed using
vtiger CRM 5.1.0 REST API (Webservice)

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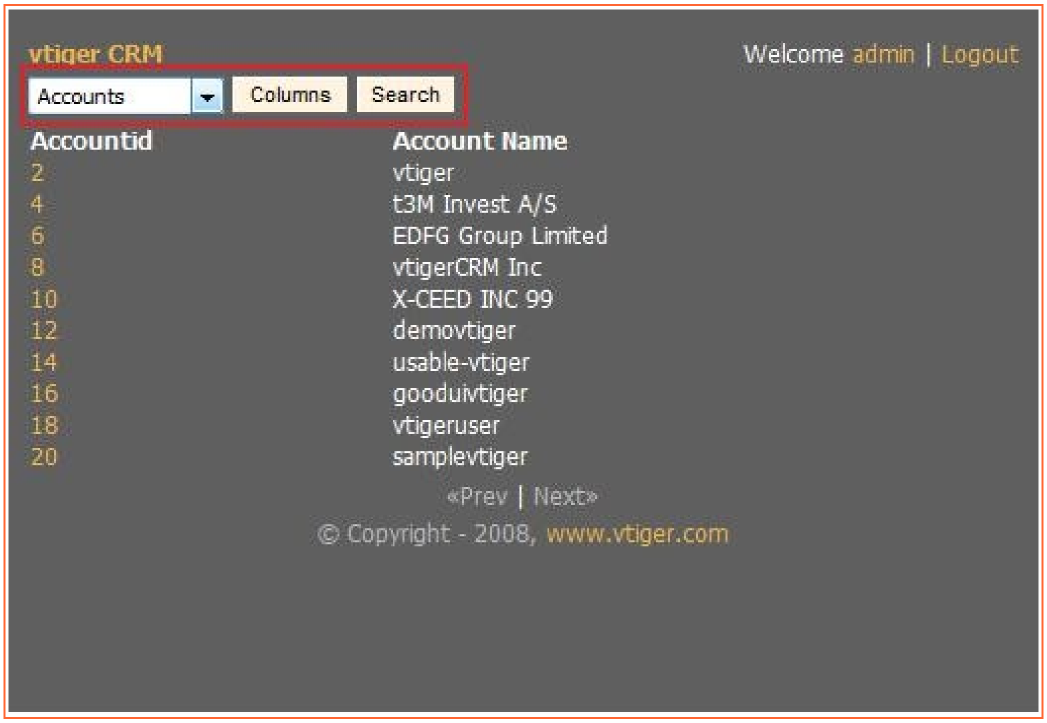
Browse/List view

You can click on the module link from the Home page to start browsing the records.



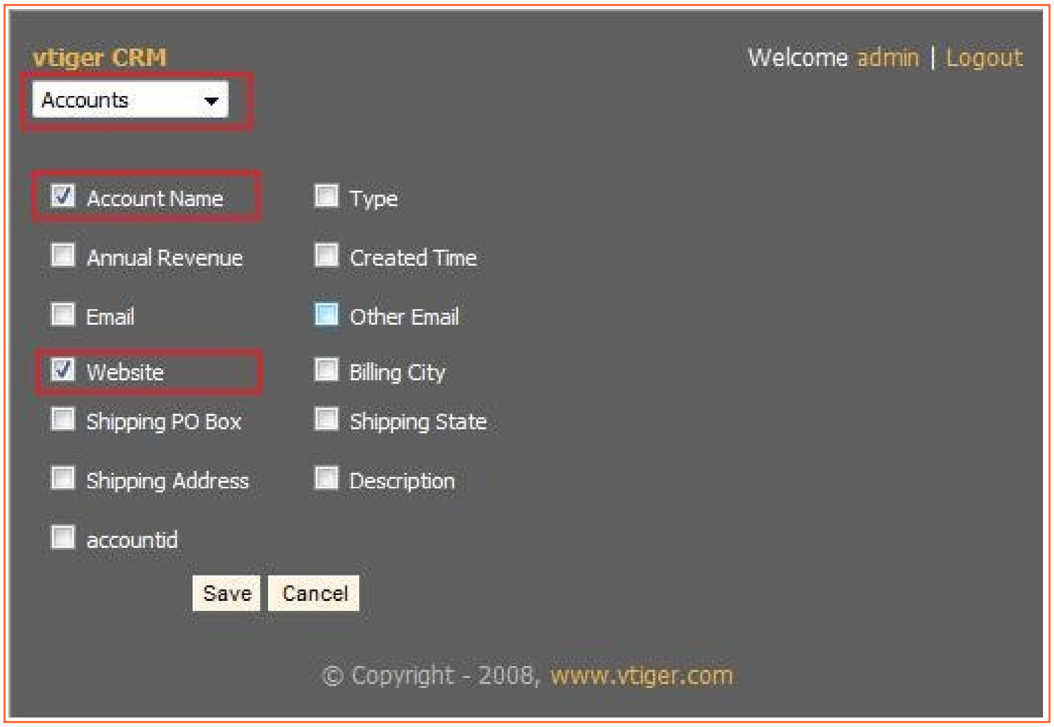
Accountid	Account Name
2	vtiger
4	t3M Invest A/S
6	EDFG Group Limited
8	vtigerCRM Inc
10	X-CEED INC 99
12	demovtiger
14	usable-vtiger
16	gooduivtiger
18	vtigeruser
20	samplevtiger

In the Listview you can perform the following:

- Select other module from the drop down box and continue browsing.
- Click on Columns button and configure Listview columns.
- Click on Search button and proceed with filtered browsing.

Configure Columns

Click on the Columns button to configure module columns.



vtiger CRM

Welcome admin | Logout

Accounts ▾

☑ Account Name
☐ Type
☐ Annual Revenue
☐ Created Time
☐ Email
☐ Other Email
☑ Website
☐ Billing City
☐ Shipping PO Box
☐ Shipping State
☐ Shipping Address
☐ Description
☐ accountid

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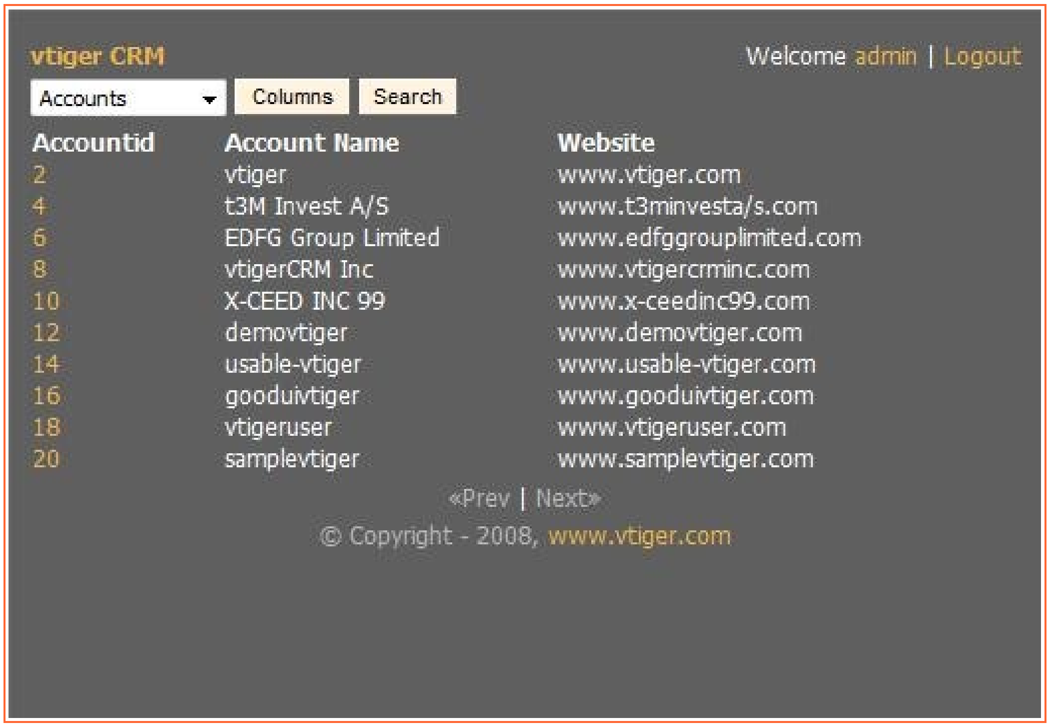
The columns configured for the module will be considered for:

- Displaying in the Listview
- Performing Search for the module

NOTE: Column configured for the module is persistent till Logout.

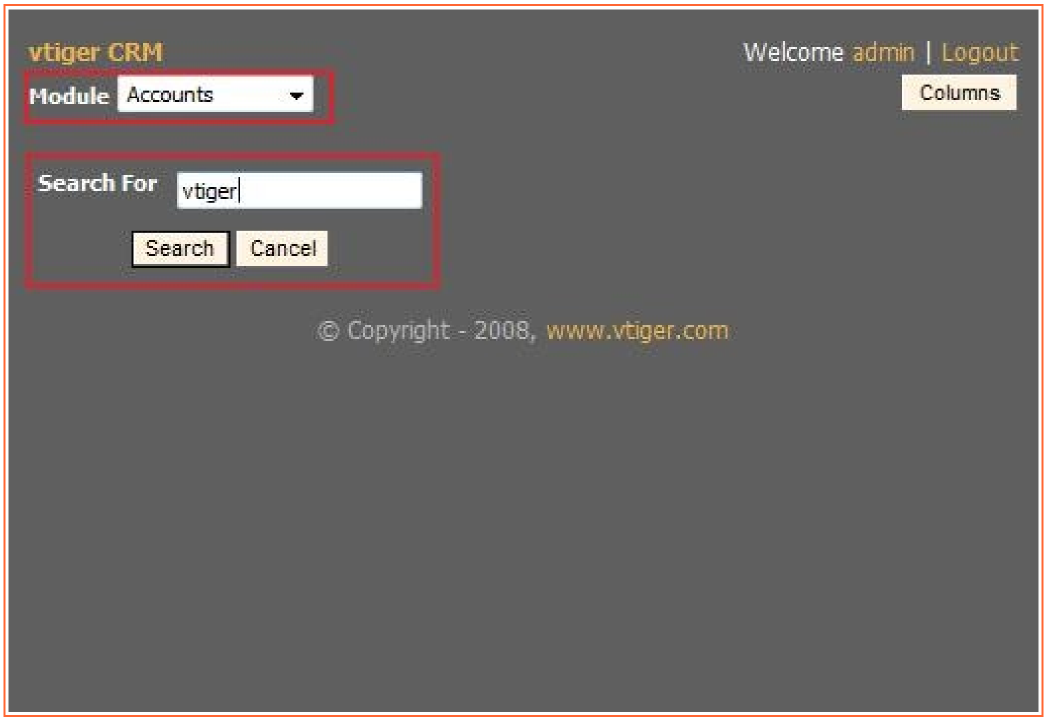
Example: Listview after configuring Accounts module.



Accountid	Account Name	Website
2	vtiger	www.vtiger.com
4	t3M Invest A/S	www.t3minvesta/s.com
6	EDFG Group Limited	www.edfggrouplimited.com
8	vtigerCRM Inc	www.vtigercrminc.com
10	X-CEED INC 99	www.x-ceedinc99.com
12	demovtiger	www.demovtiger.com
14	usable-vtiger	www.usable-vtiger.com
16	gooduivtiger	www.gooduivtiger.com
18	vtigeruser	www.vtigeruser.com
20	samplevtiger	www.samplevtiger.com

Searching

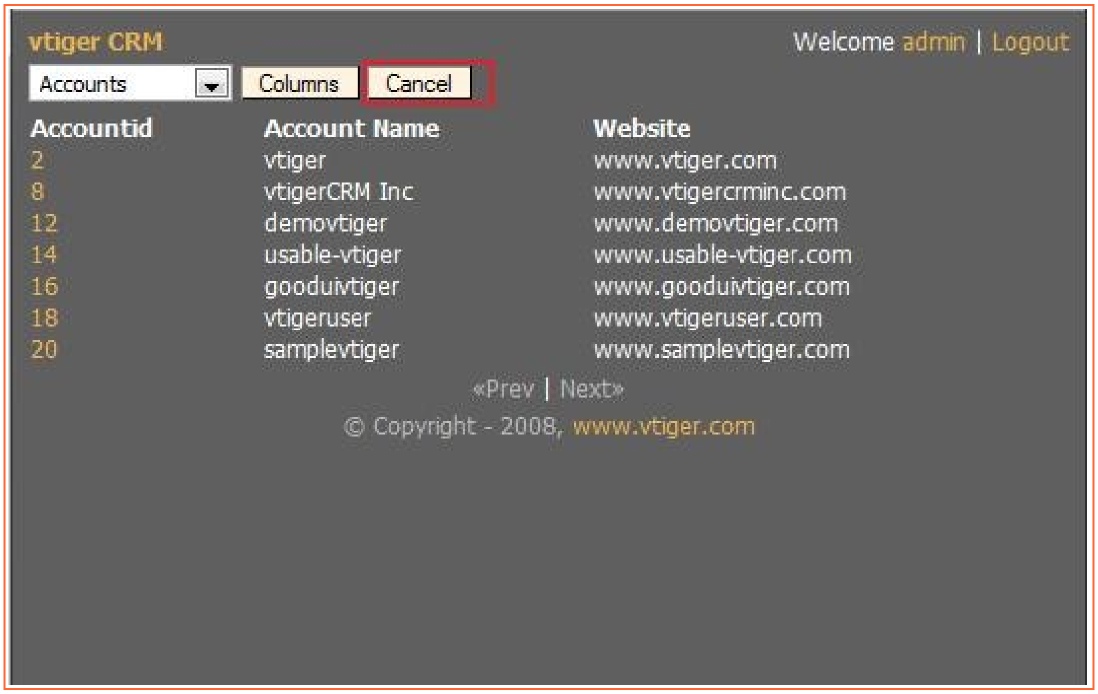
Click on Search button to perform module search.



Module: Accounts

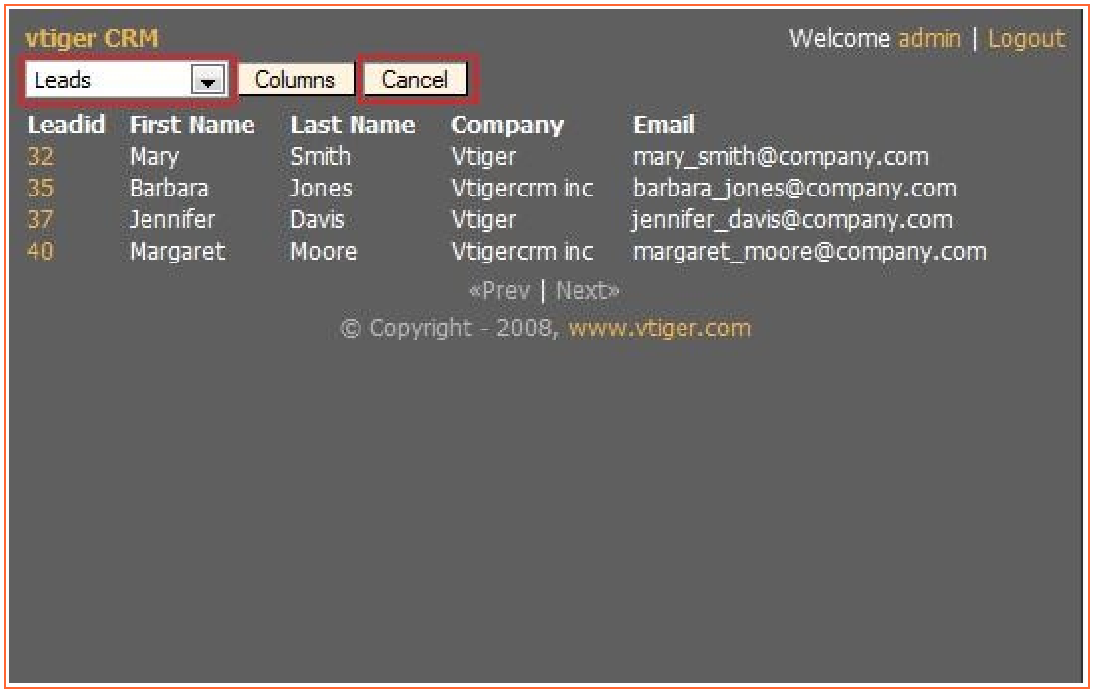
Search For: vtiger

Enter the search input and click Search again. The search input is matched against the columns configured for the module and results are displayed.



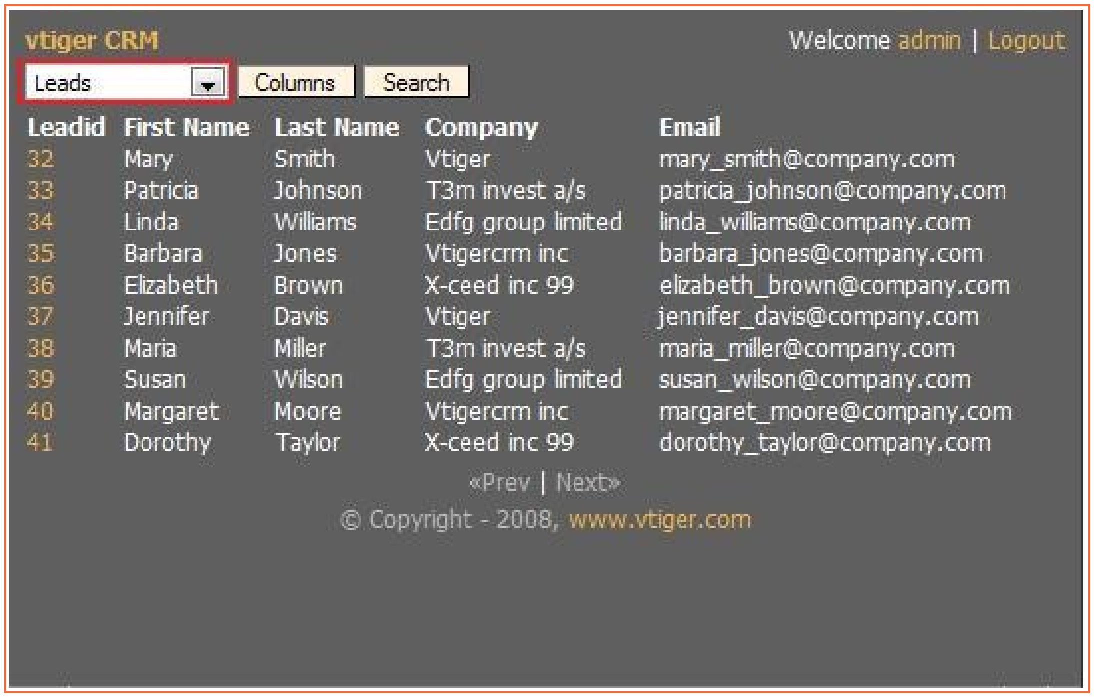
Accountid	Account Name	Website
2	vtiger	www.vtiger.com
8	vtigerCRM Inc	www.vtigercrminc.com
12	demovtiger	www.demovtiger.com
14	usable-vtiger	www.usable-vtiger.com
16	gooduivtiger	www.gooduivtiger.com
18	vtigeruser	www.vtigeruser.com
20	samplevtiger	www.samplevtiger.com

If you select other module, the search is performed on the configured columns of the selected module and results are displayed.



Leadid	First Name	Last Name	Company	Email
32	Mary	Smith	Vtiger	mary_smith@company.com
35	Barbara	Jones	Vtigercrm inc	barbara_jones@company.com
37	Jennifer	Davis	Vtiger	jennifer_davis@company.com
40	Margaret	Moore	Vtigercrm inc	margaret_moore@company.com

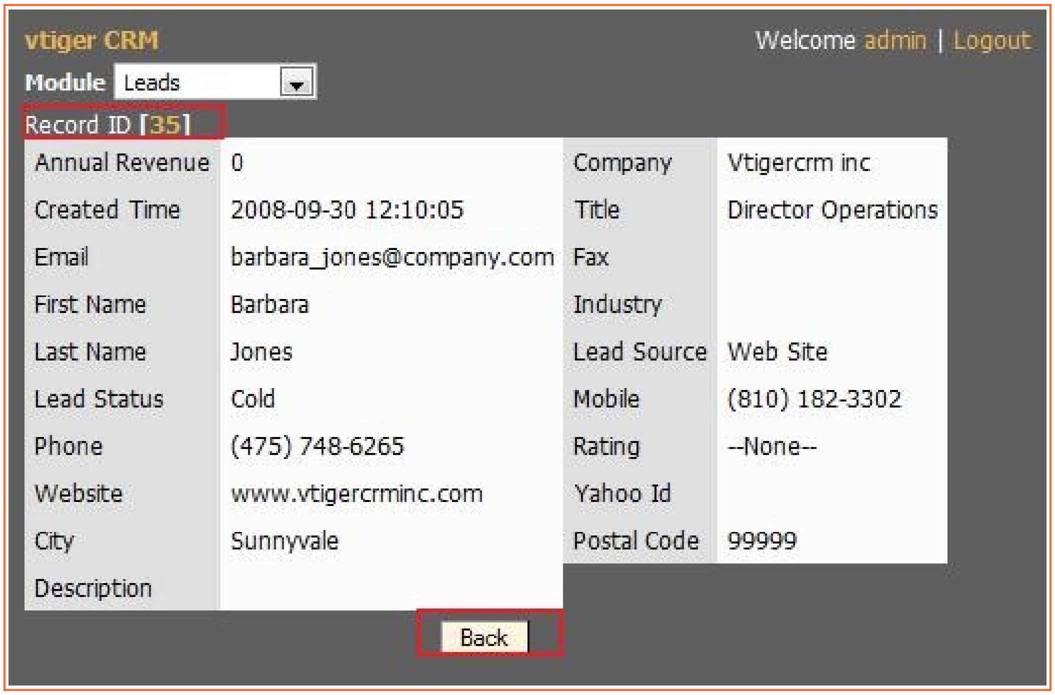
The search browsing will be active until Cancel button is clicked. Once you click on Cancel then it returns to normal Browsing for the selected module.



Leadid	First Name	Last Name	Company	Email
32	Mary	Smith	Vtiger	mary_smith@company.com
33	Patricia	Johnson	T3m invest a/s	patricia_johnson@company.com
34	Linda	Williams	Edfg group limited	linda_williams@company.com
35	Barbara	Jones	Vtigercrm inc	barbara_jones@company.com
36	Elizabeth	Brown	X-ceed inc 99	elizabeth_brown@company.com
37	Jennifer	Davis	Vtiger	jennifer_davis@company.com
38	Maria	Miller	T3m invest a/s	maria_miller@company.com
39	Susan	Wilson	Edfg group limited	susan_wilson@company.com
40	Margaret	Moore	Vtigercrm inc	margaret_moore@company.com
41	Dorothy	Taylor	X-ceed inc 99	dorothy_taylor@company.com

Detail view

You can get complete details of the record by clicking the link of record id.



Record ID [35]

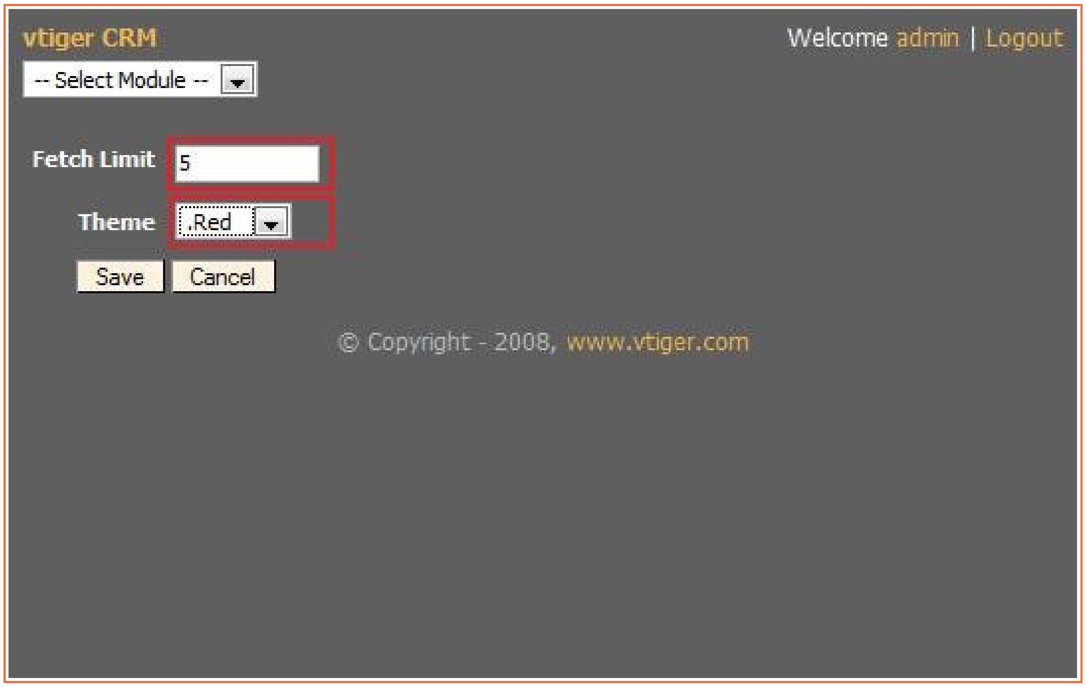
Annual Revenue	0	Company	Vtigercrm inc
Created Time	2008-09-30 12:10:05	Title	Director Operations
Email	barbara_jones@company.com	Fax	
First Name	Barbara	Industry	
Last Name	Jones	Lead Source	Web Site
Lead Status	Cold	Mobile	(810) 182-3302
Phone	(475) 748-6265	Rating	--None--
Website	www.vtigercrminc.com	Yahoo Id	
City	Sunnyvale	Postal Code	99999
Description			

Click the Back button to get back to previous page.

Preferences

You can update other preferences by clicking the username:

Fetch Limit	Number of listview rows displayed on a page.
Theme	Choose a different theme

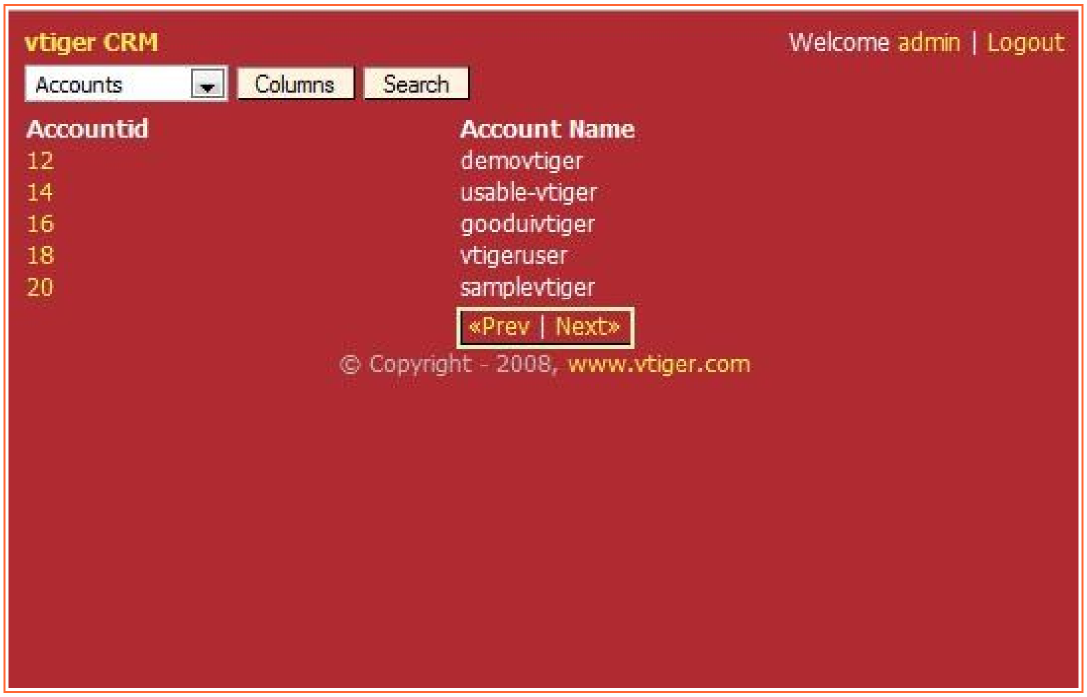


Fetch Limit 5

Theme .Red

NOTE: Preferences setup is persistent till Logout.

Example: Browsing with Fetch Limit 5 and different theme showing Paging.



Accountid	Account Name
12	demovtiger
14	usable-vtiger
16	gooduivtiger
18	vtigeruser
20	samplevtiger

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Appendix – I : API Changes

doListTypes

version 1.1: List of module names was returned

```
 [ 'Module1', 'Module2', ...]
```

version 1.2: Module information is returned as Map

```
{
    'Module1' : {  'name' : MODULENAME },
    'Module2' : {  'name' : MODULENAME }
}
```