qualiware®
Enabling positive change

# Access Log

# 1 Contents

# 1 Managing Access Log Transaction Codes

Have your customers ever wanted to know how often their employees read documentation? Or maybe customer wanted to know how often some button in the client application was pressed?

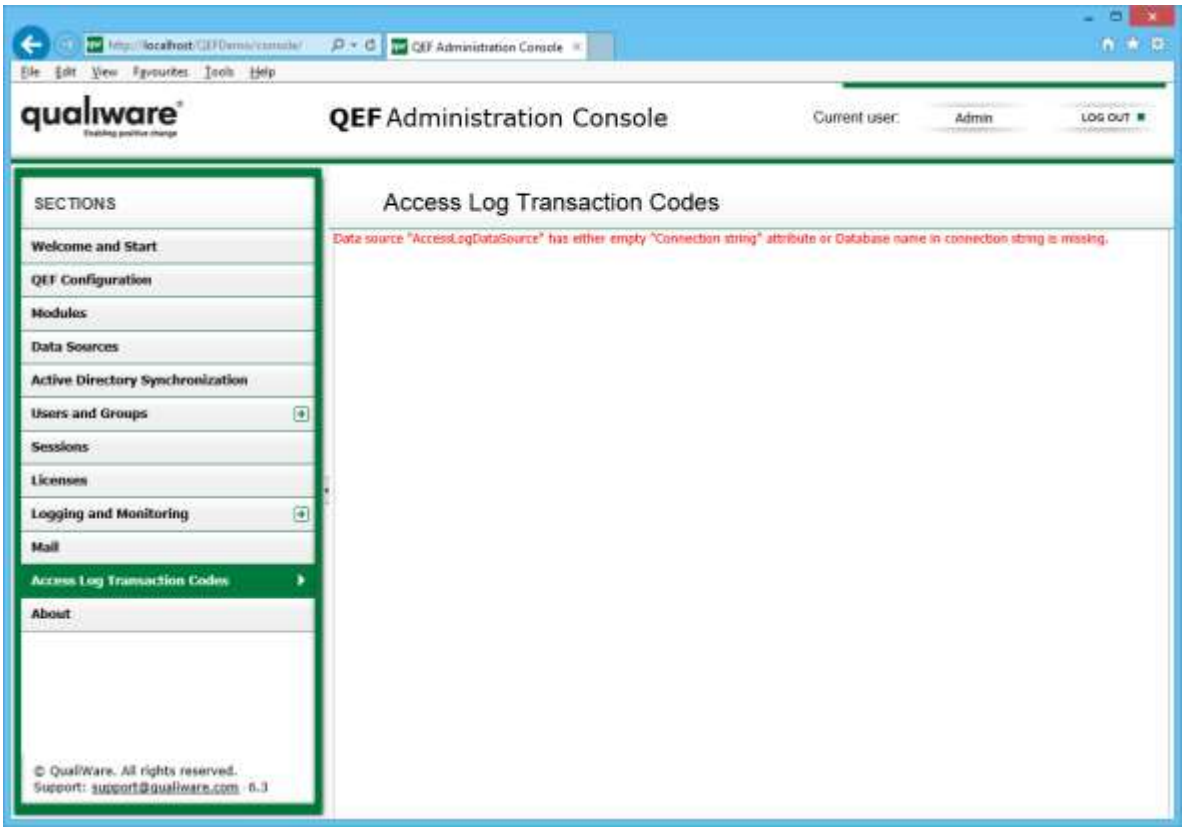
The main idea behind Access Log is recording of events happening during user session. Bundle of built-in events exists for tracing repository objects lifecycle, such as creating, updating or deleting repository objects. Such events are recorded automatically by QIS, and just need to be enabled.

Key elements in Access Log are Transaction codes. Each unique event, either built-in or custom, has its own description in the system. Each description has unique name used as identifier in core products and inside solutions.


Start using Access Log by open QEF Admin Console and pressing Access Log Transaction Codes.

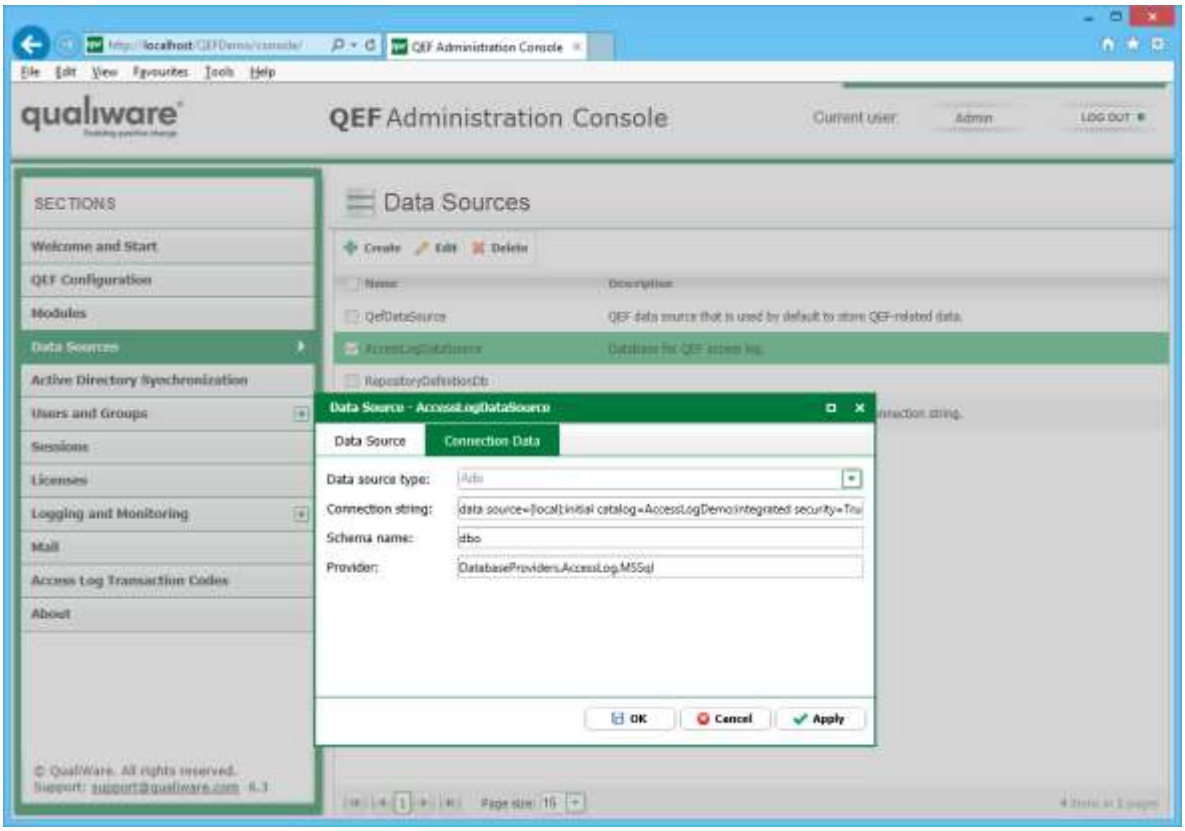
## 1.1 Configuring Data Source

If it is not the first usage, this part of manual can be skipped. Unless you see such message




Please go to Data Sources section, find there the AccessLogDataSource and start editing it. Fill the Connection string field with proper value. For example:

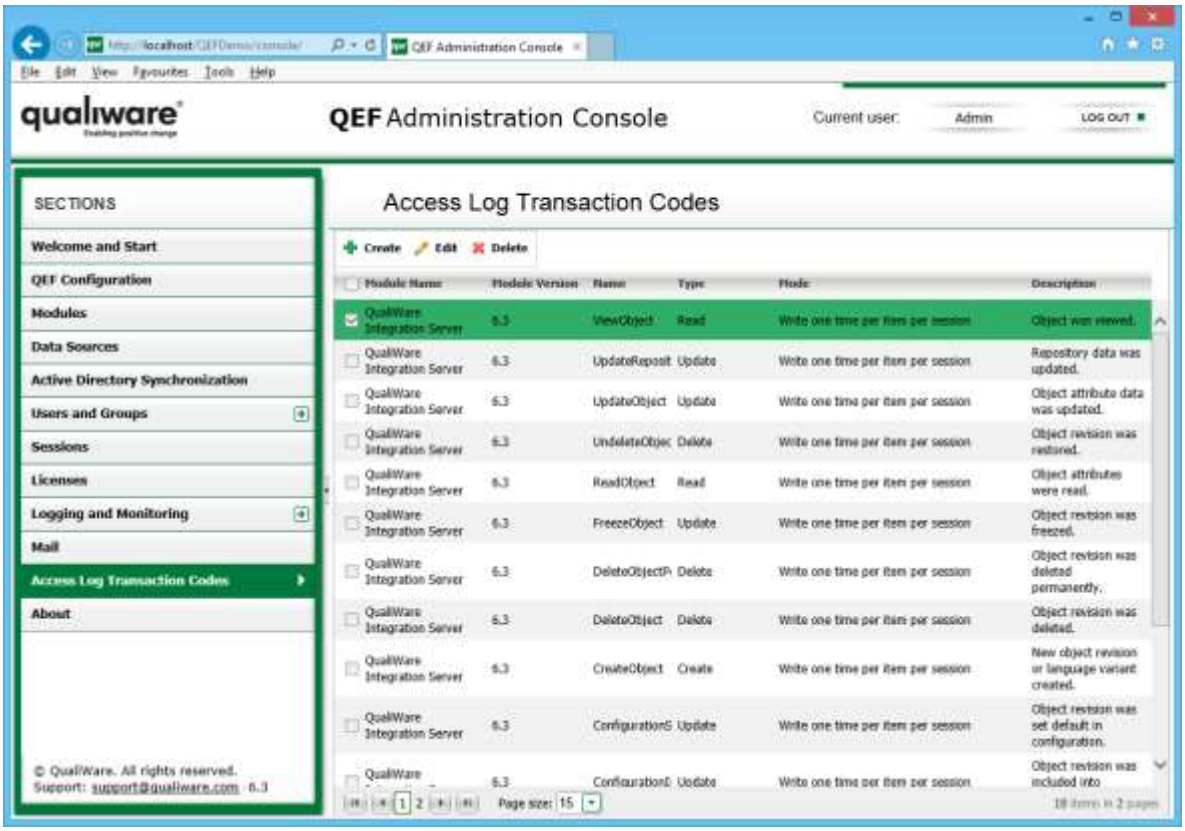
*data source=(local);initial catalog=GlobalAccessLog;integrated security=True;*



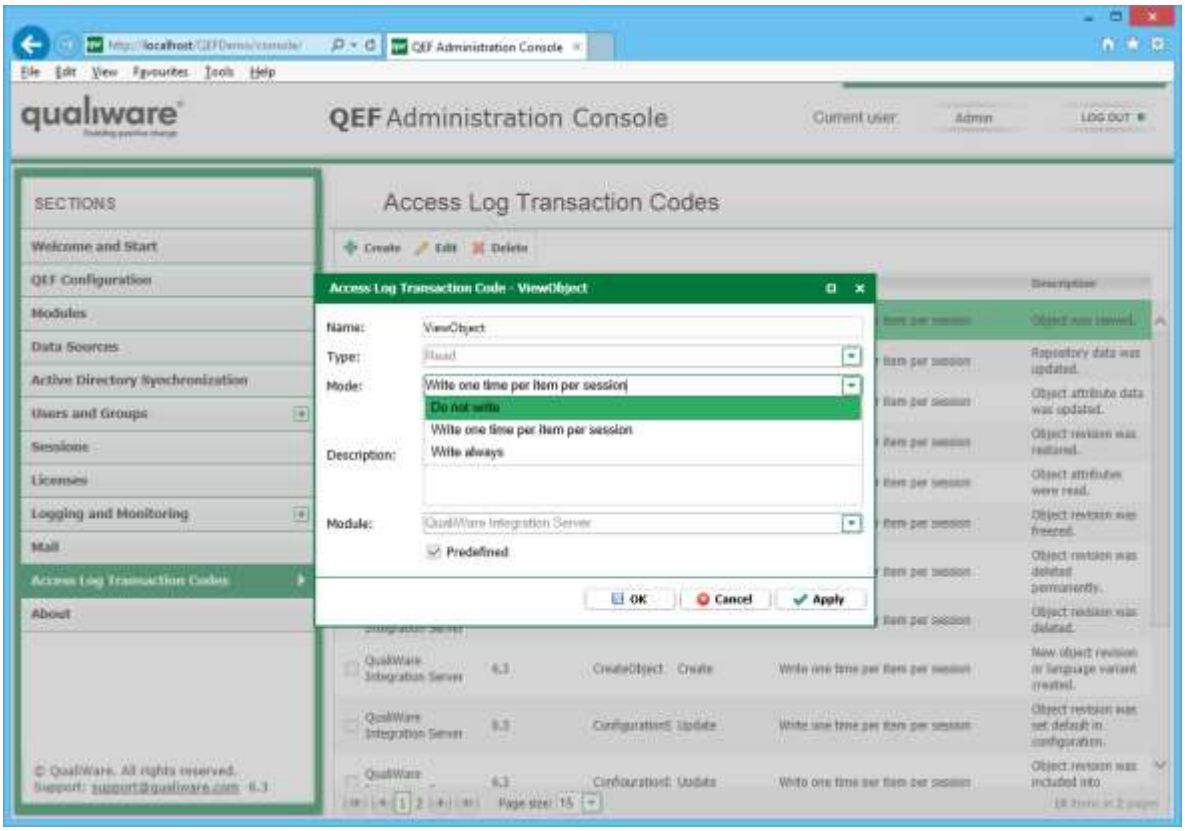

After pressing OK, we can return to Access Log Transaction Codes section for

## 1.2 Enabling Transaction Codes

At first, only predefined transaction codes exist. Those are created by QEF and each installed module. Separation by module allows to have two transaction code with same name for different purposes in different modules.
Predefined codes cannot be edited, just viewed, and they cannot be deleted.




Transaction code mode can be changed though.



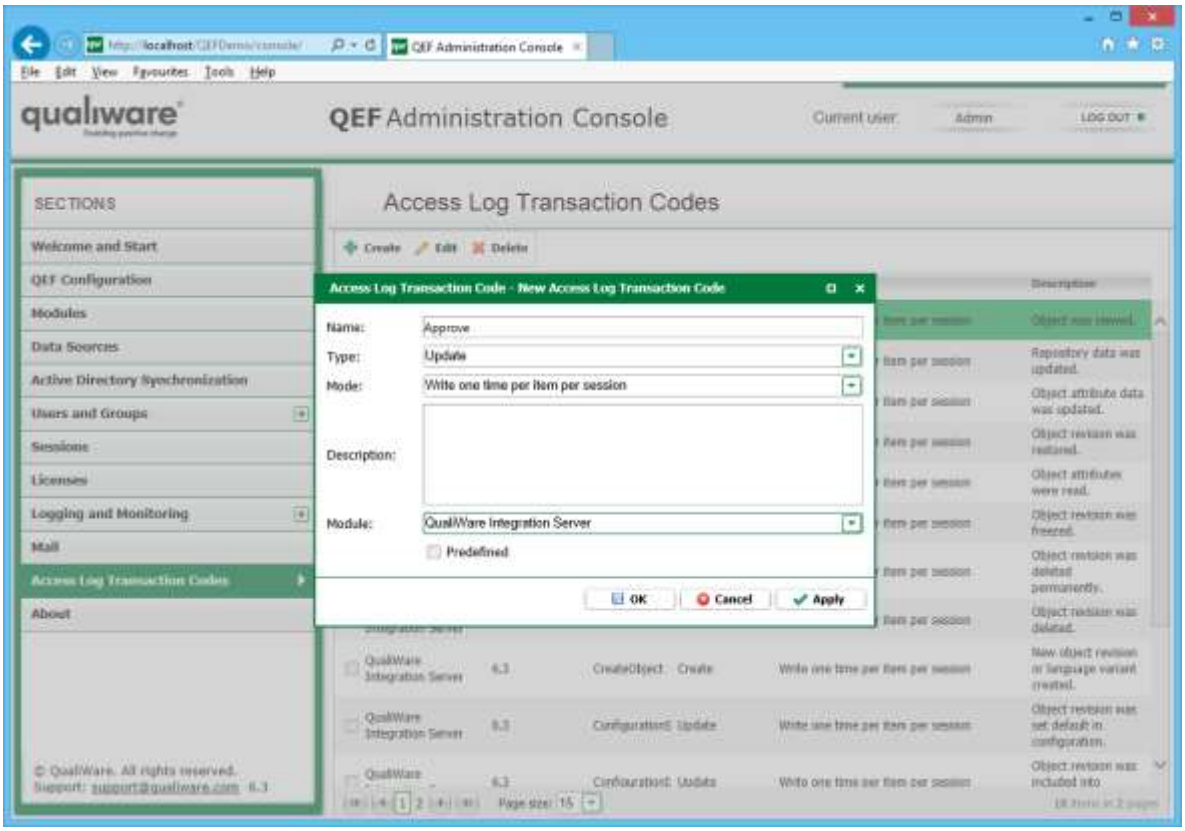

By default transaction code mode is "Write one time per item per session", what means that only one record will be created for same modified object in same user session. And there is no reason to change it, unless you want to stop recording log for specific transaction code.

Switching off the "ReadObject" transaction code, for example, is possible unless customer needs security audit about who, when and how read repository object attributes.

"Write always" will always log the access code. This mode improves performance a little bit, as the system doesn't need to verify if the event is already logged, but it can quickly generate huge log. Usually it is not important to know how many times during session user pressed Save button, which is why this mode is not default.

## 1.3 Creating Custom Transaction Codes

Sometimes solution developers have to extend the above-mentioned list with their own transaction code.




Procedure:

- Select code name unique for selected module
- Type should correspond meaning of code, as it will be later used in aggregating statistics.
- Description is nice to have for clarity.

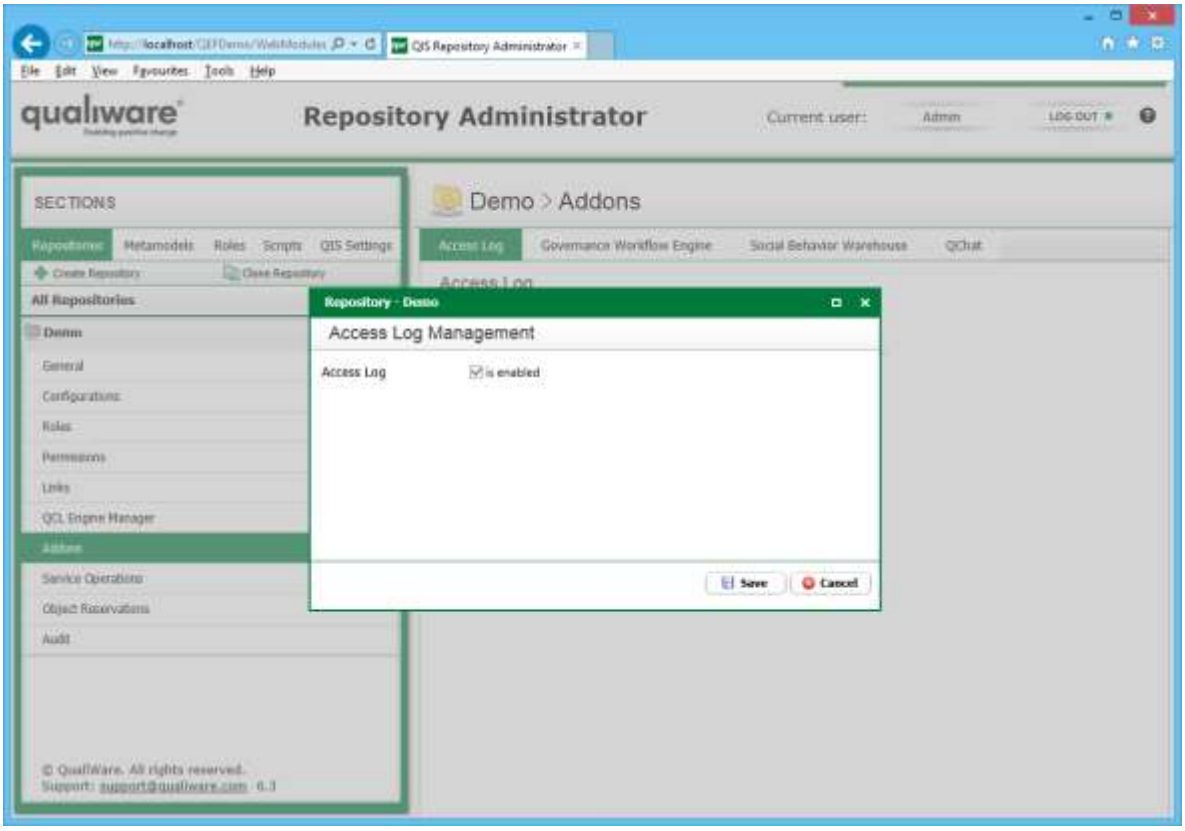
Custom transaction codes are editable and can be deleted. However deleted code remains in database for consistency and can be used in further analysis.

# 2 Writing to Access Log

Once Access Log is configured, there is great temptation to use it. Even though Access Log was created as universal tool that can be used in any QEF module, now it is used mostly in QIS. So at first

## 2.1 Enabling Access Log for Repository

Please go to repository addons in QIS RA and enable Access Log there.




Enabling/disabling addon also leaves traces in Access Log for security reasons. So that users do not switch off logging without control.

Now all built-in QIS module transaction codes are activated for that particular repository and SBW solution can use it for analysis. However, log record can also be written from script.

## 2.2 Writing to Access Log from Script

### 2.2.1 C# example

```
using System.Collections.Generic;
using Qef.Common.AccessLog;
using Qis.Common;
using Qis.Common.AccessLog; // Add this namespace, if you want to use extension
methods
using Qis.Common.AttributeValues;
using Qis.Common.Scripting.Events.EventHandlerArguments;
using Qis.Common.Scripting.Events.EventHandlerAttributes;

namespace Qis.Module.Scripts
{
    public class TestAccessLog
    {
        #region Fields

        private const string c_descriptionField = "Description";
        private static readonly TransactionCodeId s_descriptionChanged =
            new TransactionCodeId("DescriptionChanged");

        #endregion

        [ObjectChanged("BrowserDiagram")]
        public static void LogIfDescriptionIsChanged(ObjectChangedEventArgs args)
        {
            var savedObj = args.Configuration.FindObject(args.ObjectId);
            if (savedObj == null)
            {
                return;
            }

            if (args.OldData.Attributes[c_descriptionField]
                .Value.GetContent() == savedObj.Attributes[c_descriptionField]
                .Value.GetContent())
            {
                return;
            }

            // During saving log record,
            // you can easily store additional information in key-value way
            // Here object name and description are put into dictionary
            var extraInfo = new Dictionary<string, string>()
            {
                { "Name", savedObj.Attributes["Name"].Value.GetContent() },
                {
                    c_descriptionField,
                    savedObj.Attributes[c_descriptionField].Value.GetContent()
                }
            };

            // Sometimes it is convenient to pass object instance
            args.Qis.LogAccess(savedObj, s_descriptionChanged);
```

```
            // And it is possible to add extra information we created before
            args.Qis.LogAccess(savedObj, s_descriptionChanged, extraInfo);

            // However if you don't have object instance
            args.Qis.LogAccess(
                args.RepositoryId,
                args.ConfigurationId,
                args.ObjectId,
                s_descriptionChanged);

            // Or if you need absolutely unique record
            args.Qis.LogAccess(
                AccessSource.Create("InTheMiddleOfNowhere"),
                AccessEntryId.Create(args.ObjectId.Revision.ToString()),
                s_descriptionChanged);
        }
    }
}
```

### 2.2.2 QCL example

For generic log record:

```
local source = 'AlmostQLM';
local entryId = '0001';
local transactionCodeId = 'FromQLM';
local extraData = "key1\tvalue1\nkey2\tvalue2";
WriteToAccessLog(source, entryId, transactionCodeId, extraData);
```

For object log record:

```
local transactionCodeId = 'FromQLM';
local extraData = "key1\tvalue1\nkey2\tvalue2";
WriteToAccessLogForRepository("Audit Report", transactionCodeId, extraData);
```

# 3 Reading Access Log

Sometimes it is necessary to do a manual analysis of the Access Logs. The Social Behavior Warehouse Module does a good job at providing analysis but this is how you should process if you want to conduct a manual analysis:

## 3.1 Access Log Database Structure

Access log database contains:

1. Log table – actual log records
2. LogData table – contains key-value extra information.
3. Modules table – contains information about module, from which log record was created.
4. TransactionCodes table – enumerates transaction codes that are used in existing log.

## 3.2 Example of Log after Calling Test Scripts

### 3.2.1 C# Example

When a new transaction code was is defined and used in script, record appears in TransactionCodes table:

| | Id | ModuleId | CodeId | CodeDescription | ValidFrom | ValidTo | IsPredefined | CodeType | CodeMode |
|---|---|---|---|---|---|---|---|---|---|
| 25 | 25 | 3 | DescriptionChanged | No description added yet. | 2014-08-05 12:41:46.477 | NULL | 0 | -1 | -1 |

Actual log records are:

As you can see, these two records have transaction code 25, which matches DescriptionChange.
And first record has recurrence 3, which matches amount of non-custom calls in C# script.

As we added special value for log record, it can be found in LogData table:

| | LogId | Key | Value |
|---|---|---|---|
| 667 | 235 | Description | Test |
| 668 | 235 | Name | Audit Hanning |

### 3.2.2 QCL Example

When a new transaction code was defined and used in script, in TransactionCodes table appeared record:

| | Id | ModuleId | CodeId | CodeDescription | ValidFrom | ValidTo | IsPredefined | CodeType | CodeMode |
|---|---|---|---|---|---|---|---|---|---|
| 26 | 26 | 3 | FromQLM | No description added yet. | 2014-08-05 12:53:17.273 | NULL | 0 | -1 | -1 |

Actual log records are:

As you can see, these two records have transaction code 26, which matches FromQLM.

As we added special value for log record, it can be found in LogData table: