

文章

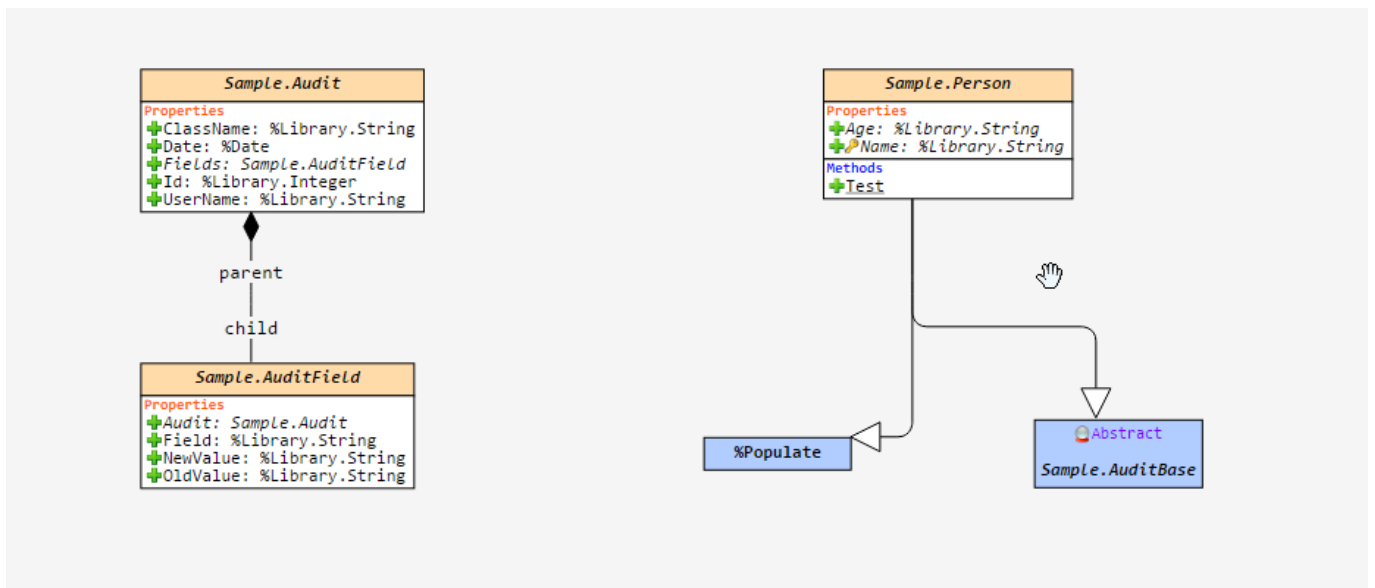
Michael Lei · 六月 26 阅读大约需分钟

跟踪数据更改 - 审计日志 - 篇

在[前一篇文章](#)中,我已经演示了一种简单的方法来记录数据的变化。在这个时候,我改变了负责记录审计数据的 "审计抽象类"和记录审计日志的数据结构。

我已经将数据结构改为父子结构,其中将有两个表来记录 "交易"和在该交易中改变的 "字段的值"。

新的数据模型:



从 "审计类" 改变的代码吧:

```

Class Sample.AuditBase [ Abstract ]
{ Trigger SaveAuditAfter [ CodeMode = objectgenerator, Event = INSERT/UPDATE, Foreach =
row/object, Order = 99999, Time = AFTER ]
{
    #dim %compiledclass As %Dictionary.CompiledClass
    #dim tProperty As %Dictionary.CompiledProperty
    #dim tAudit As Sample.Audit Do %code.WriteLine($Char(9)_" ; get username and ip adress")
    Do %code.WriteLine($Char(9)_"Set tSC = $$$OK")
    Do %code.WriteLine($Char(9)_"Set tUsername = $USERNAME" Set tKey = ""
    Set tProperty = %compiledclass.Properties.GetNext(.tKey)
    Set tClassName = %compiledclass.Name Do %code.WriteLine($Char(9)_"Try {")
    Do %code.WriteLine($Char(9,9)_" ; Check if the operation is an update - %oper = UPDATE")
    Do %code.WriteLine($Char(9,9)_"if %oper = ""UPDATE"" { ")
    Do %code.WriteLine($Char(9,9,9)_"Set tAudit = ##class(Sample.Audit).%New()")
    Do %code.WriteLine($Char(9,9,9)_"Set tAudit.Date = +$Horolog")
    Do %code.WriteLine($Char(9,9,9)_"Set tAudit.UserName = tUsername")
    Do %code.WriteLine($Char(9,9,9)_"Set tAudit.ClassName = "" _tClassName_ """)
    Do %code.WriteLine($Char(9,9,9)_"Set tAudit.Id = {id}")
    Do %code.WriteLine($Char(9,9,9)_"Set tSC = tAudit.%Save()")
    do %code.WriteLine($Char(9,9,9)_"If $$$ISERR(tSC) $$$ThrowStatus(tSC)")
    Do %code.WriteLine($Char(9,9,9)_"Set tAuditId = tAudit.%Id()") While tKey '= "" {
  
```

```

set tColumnNbr = $Get($$EXTPROPSqlcolumnnumber($$pEXT,%classname,tProperty.Name))
Set tColumnName = $Get($$EXTPROPSqlcolumnname($$pEXT,%classname,tProperty.Name))
If tColumnNbr '= "" {
    Do %code.WriteLine($Char(9,9,9)_"")
    Do %code.WriteLine($Char(9,9,9)_"")
    Do %code.WriteLine($Char(9,9,9)_" ; Audit Field: " _tProperty.SqlFieldName)
    Do %code.WriteLine($Char(9,9,9)_"if {" _tProperty.SqlFieldName _"*C"} {"")
Do %code.WriteLine($Char(9,9,9)_"Set tAuditField = ##class(Sample.AuditField).%New()")
Do %code.WriteLine($Char(9,9,9)_"Set tAuditField.Field = "" _tColumnName _""")
Do %code.WriteLine($Char(9,9,9)_"Set tAuditField.OldValue =
{"_tProperty.SqlFieldName _"*O}")
Do %code.WriteLine($Char(9,9,9)_"Set tAuditField.NewValue =
{"_tProperty.SqlFieldName _"*N}")
Do %code.WriteLine($Char(9,9,9)_"Do tAuditField.AuditSetObjectId(tAuditId)")
Do %code.WriteLine($Char(9,9,9)_"Set tSC = tAuditField.%Save()")
do %code.WriteLine($Char(9,9,9)_"If $$$ISERR(tSC) $$$ThrowStatus(tSC)")
Do %code.WriteLine($Char(9,9,9)_"}")
}
Set tProperty = %compiledclass.Properties.GetNext(.tKey)
} Do %code.WriteLine($Char(9,9)_"}") Do %code.WriteLine($Char(9)_) Catch (tException) {"")
Do %code.WriteLine($Char(9,9)_"Set %msg = tException.AsStatus()")
Do %code.WriteLine($Char(9,9)_"Set %ok = 0")
Do %code.WriteLine($Char(9)_) Set %ok = 1
}}

```

通过Test()类方法改变数据,现在你可以到审计类(Sample.Audit)中的"父记录"和"审计字段"类中的"子字段"被改变。(Sample.AuditField),

```

d ##class(Sample.Person).Test(1)
INSERT INTO Sample.Person (Name, Age) VALUES ('TEST PARENT-CHILD', '01')
SQLCODE: 0
ID Age Name
1 01 TEST PARENT-CHILD 1 Rows(s) Affected
UPDATE Sample.Person SET Name = 'INTERSYSTEMS DEVELOPER COMMUNITY', Age = '100' WHERE Name = 'TEST PARENT-CHILD'
SQLCODE:0
ID Age Name
1 100 INTERSYSTEMS DEVELOPER COMMUNITY 1 Rows(s) Affected

```

审计类:

The screenshot shows the InterSystems Ensemble SQL interface. The left sidebar displays a tree view with 'Sample.Audit' selected under 'Tables'. The main window shows the 'Execute Query' tab with the following SQL statement:

```
SELECT
ID1, ClassName, "Date", Id, UserName
FROM Sample.Audit
```

Below the query, the execution results are displayed:

ID1	ClassName	Date	Id	UserName
1	Sample Person	19/04/2017	1	_SYSTEM

Summary statistics: Row count: 1 Performance: 0,001 seconds 8 global references 965 lines executed 0 disk read latency (ms) Cached Query: [Sqlco USER_db14](#) Last update: 2017-04-19 14:10:36.970 Print

1 row(s) affected

The screenshot shows the InterSystems SQL interface. The top navigation bar includes 'Menu', 'Home | About | Help | Logout', and 'System > SQL'. The user is logged in as 'SalesEngineer' with the namespace 'USER Switch' and instance 'ENSEMBLE2017'. The left sidebar shows a tree view with 'Tables' expanded to 'Sample.AuditField'. The main area displays a query editor with the following SQL statement:

```
SELECT
Audit, ID, Field, NewValue, OldValue, childsub
FROM Sample.AuditField
```

Below the query editor, the results are shown in a table:

Audit	ID	Field	NewValue	OldValue	childsub
1	1	Age	100	01	1
1	1	Name	INTERSYSTEMS DEVELOPER COMMUNITY: TEST PARENT-CHILD		2

2 row(s) affected

注意Sample.AuditField记录通过Audit字段=1对Sample.Audit类进行了引用。你可以通过使用两个类的关系来查询数据，如所示：

The screenshot shows the InterSystems SQL interface. The top navigation bar includes 'Menu', 'Home | About | Help | Logout', and 'System > SQL'. The user is logged in as 'SalesEngineer' with the namespace 'USER Switch' and instance 'ENSEMBLE2017'. The left sidebar shows a tree view with 'Tables' expanded to 'Sample.AuditField'. The main area displays a query editor with the following SQL statement:

```
SELECT Audit->ClassName, Audit->Id, Audit->UserName, NewValue, OldValue
FROM Sample.AuditField
```

Below the query editor, the results are shown in a table:

ClassName	Id	UserName	NewValue	OldValue
Sample.Person	1	_SYSTEM	100	01
Sample.Person	1	_SYSTEM	INTERSYSTEMS DEVELOPER COMMUNITY: TEST PARENT-CHILD	

2 row(s) affected

这样就搞定了。这样，我们有一个不同的审计日志数据结构。

[#对象数据模型](#) [#ObjectScript](#) [#Caché](#) [#InterSystems IRIS for Health](#)

源 URL: <https://cn.community.intersystems.com/post/%E8%B7%9F%E8%B8%AA%E6%95%B0%E6%8D%AE%E6%9B%B4%E6%94%B9-%E5%AE%A1%E8%AE%A1%E6%97%A5%E5%BF%97-%E4%B8%8B%E7%AF%87>