

***PAMtutorials* 4: Coping with crisis**

What to do when the sh#! hits the fan...

PIPER-R**x Application Monitor – **PAM**
VIRTUAL APPS ADMINISTRATOR**

PAM Version 4.0

“Blurring the line between software product and training”

May 2012

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1 **What you'll get out of *PAMtutorials* 4**

Unless you did something you're not supposed to, it's actually not your fault if there is a performance issue. This tutorial fits neatly with the presentations on managing performance made at the November 2009 AUSOUG conferences in Perth and Melbourne and whilst it is pretty simple, it provides some incredibly useful tools and learning's for when things do go wrong so you can understand the scale of impact and proactively manage the fallout. You can answer questions such as:

- ❖ Who was doing what?
- ❖ Who was affected by the issue?
- ❖ Were any customers impacted?

Because you can clearly identify the number of users affected, what may have caused the performance issue and how long the performance issue persisted the ***PAM*** reporting provided in this tutorial is an invaluable resource in terms of putting the performance issue in a sensible context and identifying what needs to occur to avoid repeat performances.

2 PAM Response Time Alert

Whenever the Application response time exceeds the **PAM** alert threshold and alert e-mail will be sent as follows:

Example PAM PF-001 - PAM Application Performance Indicator e-mail alert message

ALERT MESSAGE FROM PAM - PIPER-Rx Application Monitor - DO NOT REPLY

Company = Company name

Site = Site name

Alert Level = **Warning**

Detected = 23-Feb-11 (Wed) 12:33:57

Alert Frequency = 10 Minutes

The application response time of 8 Secs has exceeded the threshold value of 3 Secs

Alert Information:

PF-001 Application Performance Indicator

For more information on **PAM** Application response time, refer to **PAMtutorials 2: Your OEBS Application - Surviving performance pressure (business peaks survival tips)**.

3 **Understanding and managing performance issues and user consequences**

During or soon after a performance issue or outage has occurred, an experienced Applications Administrator will assess the business impact of the issue by identifying who was connected to the Application and what they were doing. This will allow them to determine:

- ❖ The scale of impact of the performance issue. E.g. Was there only one person connected or was there 1,000 users connected? Of the users connected how many of these are / were external customers?
- ❖ If the issue was caused by user behaviour

For each of these matters there are three (3) basic scenarios to consider, each requiring a slightly different approach:

- ❖ You are currently experiencing a performance issue
- ❖ You have experienced a performance issue
- ❖ You have had an outage

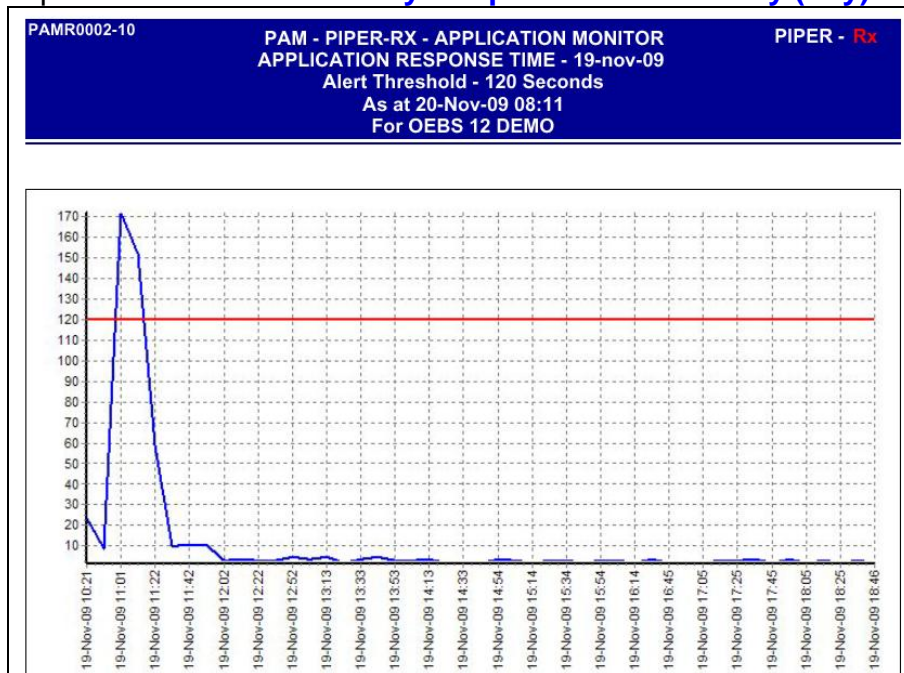
3.1 You are currently experiencing a performance issue

Experience shows that in a stabilised environment **90%** of performance issues are user caused, so during any performance issue you should always ask yourself:

“What are my users doing to my application?”

If there is a current performance issue, run **PAMreports** - General **PAMRGA002 Intraday Response Time History (day)** entering today’s date as the argument:

Example **PAMRGA002 Intraday Response Time History (day)** report



This chart will identify:

- ❖ if the Application response time has exceeded the **PAM** threshold
- ❖ if this has been a gradual performance decrease or instantaneous

The next step is to identify what is happening within your Application by running **PAMreports** – General **PAMRGA006 Application Activity (current)**. This is a very simple yet quite powerful report that lists the following activity that is currently occurring in your Application:

- ❖ Full service connections
- ❖ Self service connections
- ❖ Running concurrent requests including the program arguments

In the case of concurrent programs, the experienced Applications Administrator will be able to ascertain a lot of information from reviewing the program arguments e.g. if the account range is too wide the report will be very slow....

Example PAMRGA006 Application Activity (current) report (Page 1)

PAMRGA006-10		PAM - PIPER-RX - APPLICATION MONITOR		PIPER - Rx	
As at 19-Nov-09 10:30					
For OEBS 12 DEMO					
FS - Login ID	FS - User Description	SS - Session ID	SS - User Description	CR - Request ID	CR - Program Name
Session Start	Account Type				
Full Service Users:					
1995013	GPIPER	Gary Piper			
<i>Resp (Form): System Administrator (Run Reports)</i>					
Self Service Users:					
1852009562	GUEST	guest			
1389842413	IBEGUEST	Guest User for iStore			
<i>Resp (Function): IBE_CUSTOMER</i>					
1542439353	IBEGUEST	Guest User for iStore			
<i>Resp (Function): IBE_CUSTOMER</i>					
1958002641	GUEST	guest			
<i>Resp (Function): JTF Default User Responsibility</i>					
Concurrent Requests:					
2171764	GPIPER	Running - PIPER-RX Pam Long running request			
<i>Argument Text: 20</i>					
2171765	GPIPER	Running - PIPER-RX Pam Long running request			
<i>Argument Text: 20</i>					
2171766	GPIPER	Running - PIPER-RX Pam Long running request			
<i>Argument Text: 20</i>					
2171768	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 1084, 1001, 1085, USD, 1, , 1084, 1, , 58, 1001, N, C, , S, -998, SQLGL</i>					
2171769	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 1084, 1001, 1085, USD, 1, , 1084, 1, , 58, 1001, N, C, , S, -998, SQLGL</i>					
2171770	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 1084, 1001, 1085, USD, 1, , 1084, 1, , 58, 1001, N, C, , S, -998, SQLGL</i>					
2171771	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 3172, 1001, 2982, USD, 1, 1287, 3150, , , 58, 1351, N, C, , S, -998, SQLGL</i>					

Example PAMRGA006 Application Activity (current) report (Page 2)

FS - Login ID	FS - User Description	SS - Session ID	SS - User Description	CR - Request ID	CR - Program Name
Session Start	Account Type				
2171772	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 3172, 1001, 2982, USD, 1, 1287, 3150, , , 58, 1351, N, C, , S, -998, SQLGL</i>					
2171773	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 3172, 1001, 2982, USD, 1, 1287, 3150, , , 58, 1351, N, C, , S, -998, SQLGL</i>					
2171774	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 1084, 1001, 1085, USD, 1, , 1084, 1, , 58, 1001, N, C, , S, -998, SQLGL</i>					
2171775	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 1084, 1001, 1085, USD, 1, , 1084, 1, , 58, 1001, N, C, , S, -998, SQLGL</i>					
2171776	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 1084, 1001, 1085, USD, 1, , 1084, 1, , 58, 1001, N, C, , S, -998, SQLGL</i>					
2171777	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 3172, 1001, 2982, USD, 1, 1287, 3150, , , 58, 1351, N, C, , S, -998, SQLGL</i>					
2171778	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 3172, 1001, 2982, USD, 1, 1287, 3150, , , 58, 1351, N, C, , S, -998, SQLGL</i>					
2171779	GPIPER	Pending - Financial Statement Generator			
<i>Argument Text: Mar-04, 2004/03/31, 3172, 1001, 2982, USD, 1, 1287, 3150, , , 58, 1351, N, C, , S, -998, SQLGL</i>					
2171780	GPIPER	Pending - Gather Schema Statistics			
<i>Argument Text: GL, 10, , NOBACKUP,</i>					
2171781	GPIPER	Pending - Gather Schema Statistics			
<i>Argument Text: PO, 10, , NOBACKUP,</i>					
2171782	GPIPER	Pending - Gather Schema Statistics			
<i>Argument Text: AR, 10, , NOBACKUP,</i>					
2171767	SYSADMIN	Pending - OAM Applications Dashboard Collection			
<i>Argument Text: (None)</i>					

When reviewing the PAMreports – General PAMRGA006 Application Activity (current) what you are looking for is any known causes of performance issues:

- ❖ A form that is known for its performance problems
- ❖ Duplicate requests
- ❖ Long running requests

- ❖ Requests that should not be run
- ❖ Etc...

Generally users doing things they know they should not and think they are getting away with it.

In the above example the user GPIPER has submitted:

- ❖ 3 PIPER-Rx PAM Long running requests
- ❖ 3 Gather Schema Stats programs
- ❖ 12 FSGs

No good can come of this.....

PAMreports – General **PAMRGA006 Application Activity (current)** can also identify the users that are connected that would be experiencing the performance issue and this allows you to tailor your response accordingly. E.g. If there are several hundred or a few “important” users experiencing the problem then urgent action may be required. If it is lunch time and there are only a few users affected then you have more time to deal with the problem (or you may elect to let the Application run and then confront the user directly using the facts shown in your **PAMreports**).

The following two **PAMreports** may also be useful in diagnosing the cause and the impact when you are experiencing a current performance issue:

- ❖ **PAMreports** – Actions **PAMACP002 Pending Requests (manager)**
- ❖ **PAMreports** – Actions **PAMACP003 Running Requests**

These **PAMreports** will list the current pending requests for a selected manager and running requests respectively.

If the performance issue is not related to Application activity then you have the evidence to demonstrate this and press the issue with other technical staff to identify the real cause of the problem.

3.2 “It” was “slow” this morning....

Don’t you just hate this statement? You ask the users when, and they don’t know.....

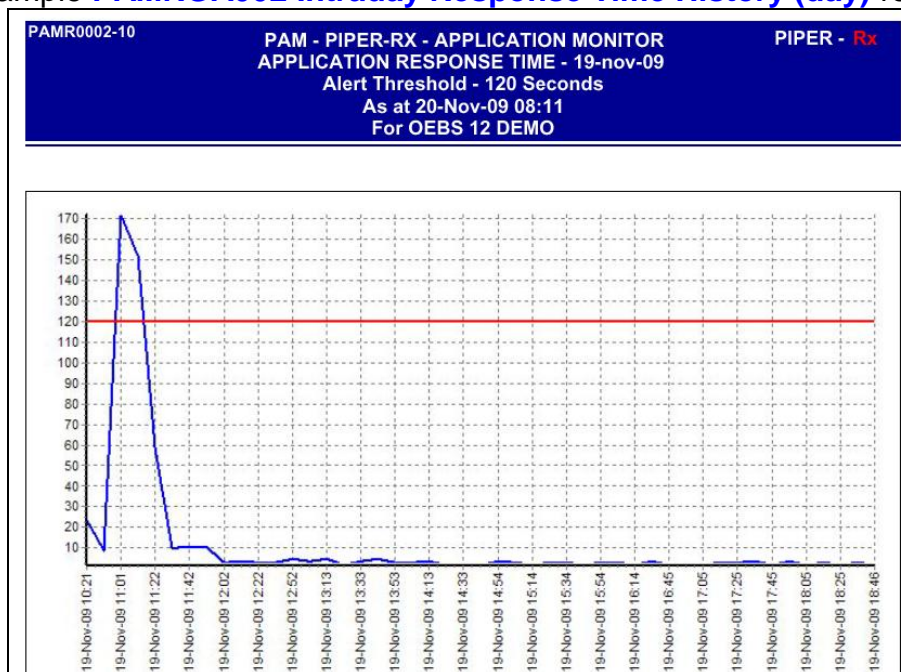
Firstly, if “It” was “slow” you should have received a **PAM PF-001** Application Performance Indicator e-mail alert message. However if the performance of the Application was just below the **PAM** alert threshold for a period of time your users may well have experienced a prolonged slow down....hence the complaint but no **PAM** alert e-mail.

Experience tells us that when the Application is slow for a period of time users generally get very impatient, hitting the refresh key on their forms or submitting the same request again because it was not on the printer when they expected it, thus compounding the issue and causing a real performance issue....

The first step when you receive this type of user complaint is to run **PAMreports** – General **PAMRGA002 Intraday Response Time History (day)** entering the date when the Application was slow. As this information is based on **PAM** recorded information the date entered can be as far back as the oldest record in the **PAM piper_rx_pam_rt_history** repository.

This **PAM** report will let you know if the Application was slow, when and for how long. It will also let you know if the performance was degrading slowly over time or was just a spike. Finally you will be able to tell the length of the performance issue to the nearest 10 minutes.

Example **PAMRGA002 Intraday Response Time History (day)** report



From the chart and data in this report you can determine exactly if and when there was a performance issue and the duration of that issue.

Step two is to determine who was connected and what they were doing during the performance issue using the **PAMreports** – General **PAMRGA005 Application Activity (period)** and entering the time the performance issue started and the time it ended. The report will identify activity for any of the following scenarios:

- ❖ Activity that started before the report start time and completed after the report end time

- ❖ Activity that started after the report start time and completed before the report end time
- ❖ Activity that started before the report start time and completed before the report end time
- ❖ Activity that started after the report start time and completed after the report end time

This scope means **PAMreports** – General **PAMRGA005 Application Activity (period)** provides a complete list of activity that was occurring during the performance issue.

Example **PAMRGA005 Application Activity (period)** report

PAMRGA005-10		PAM - PIPER-RX - APPLICATION MONITOR			PIPER - Rx	
ISSUE AFFECT						
Issue Period - From 19-Nov-09 10:45 To 19-Nov-09 11:15						
As at 20-Nov-09 08:12						
For OEBS 12 DEMO						
FS - Login ID	SS - Session ID	CR - Request ID	User Name	FS - User Description	SS - User Description	CR - Program Name
				Session Start	Session End	Account Type
Full Service Users:						
1995013	GPIPER		Gary Piper	19-Nov-09 10:14	19-Nov-09 23:59	(--)
Total Affected:			1			
Self Service Users:						
841770049	GUEST		guest	19-Nov-09 11:06	19-Nov-09 11:07	(-C-)
2032356433	GUEST		guest	19-Nov-09 10:54	19-Nov-09 10:54	(-C-)
Total Affected:			2			
Concuurent Requests:						
2171780	GPIPER		Gather Schema Statistics	19-Nov-09 10:40	19-Nov-09 11:08	(--)
			Argument Text: GL, 10, , NOBACKUP,			
2171781	GPIPER		Gather Schema Statistics	19-Nov-09 10:40	19-Nov-09 10:51	(--)
			Argument Text: PO, 10, , NOBACKUP,			
2171782	GPIPER		Gather Schema Statistics	19-Nov-09 10:44	19-Nov-09 11:08	(--)
			Argument Text: AR, 10, , NOBACKUP,			
2171783	SYSADMIN		OAM Applications Dashboard Collection	19-Nov-09 10:51	19-Nov-09 10:54	(-C-)
			Argument Text: (None)			
2171784	SYSADMIN		OAM Applications Dashboard Collection	19-Nov-09 11:04	19-Nov-09 11:07	(-C-)
			Argument Text: (None)			
2171705	GPIPER		Workflow Background Process	19-Nov-09 10:54	19-Nov-09 11:01	(--)
			Argument Text: , , , Y, Y, Y			
Total Affected:			6			

You can use this information to determine if the performance issue was user activity related.

In this example the running of three (3) concurrent Gather Schema Statistics programs would definitely have caused an issue as these are very resource intensive programs.

3.3 Outage

Once the outage has been rectified you can run **PAMreports** – General **PAMRGA005 Application Activity (period)** setting the start time about a minute before the actual outage and the end time about 1 minute before the database came back up. This way you will get a list of all the activity was occurring at the time of the outage, the users affected by the outage etc.

When reviewing **PAMreports** – General **PAMRGA005 Application Activity (period)** what you are looking for is who was affected by the outage. From this you can identify the users that were connected that would have been experiencing the performance issue and tailor your response accordingly. E.g. If there are several hundred or a few “important” users experiencing the problem then urgent action may be required.

4 Understanding the scale of impact of a performance issue

It is very important to always understand the scale of impact of a performance issue. Eg If there were only 2 users connected entering data this is a less of an impact than if there were 200 users connected of which 50 were external customers.

With **PAM** you can clearly identify the number of users affected, what may have caused the performance issue and how long the performance issue persisted the **PAM** reporting provided in this tutorial is an invaluable resource in terms of putting the performance issue in a sensible context and identifying what needs to occur to avoid repeat performances.

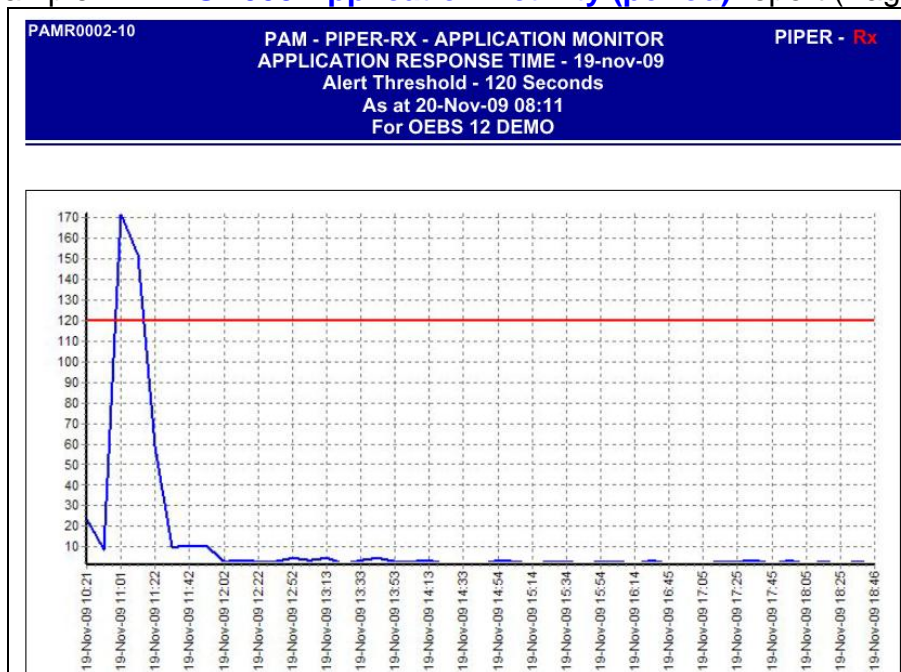
4.1 How long did the problem persist?

You can determine the length of a performance issue by using **PAMreports** – General **PAMRGA002 Intraday Response Time History (day)**.

From the report chart and page two details you can identify the period of the performance issue.

Note: The minimum interval is 10 minutes as this is the scheduled frequency of the underlying performance program (FNDOAMCOL) **PAM** uses to measure performance.

Example **PAMRGA005 Application Activity (period)** report (Page 1)



Example **PAMRGA005 Application Activity (period)** report (Page 2)

Sample Time	Response Time
19-Nov-09 11:52	11
19-Nov-09 11:42	11
19-Nov-09 11:32	10
19-Nov-09 11:22	59
19-Nov-09 11:12	152
19-Nov-09 11:01	172
19-Nov-09 10:41	9
19-Nov-09 10:21	24

Note: Response times are shown in red when that value exceeds the **PAM** alert threshold.

In this example, the Application experienced a severe performance issue during the 20 minute period between 11:01 and 11:22.

To determine who was connected and what they were doing during this period use **PAMreports** – General **PAMRGA005 Application Activity (period)** entering the time the performance issue started and the time it ended.

4.2 How long was the outage?

In future **PAMtutorials**, a report will be provided to view the status of the database in 5 minute intervals. From this **PAM** report you will be able to assess the length of an outage (to within 5 minutes).

4.3 How do I identify if external customers have been impacted by a performance issue?

There are two basic ways to identify external customers:

Method 1:

This first method (the preferable one to use) is to add the **customer id (person)** to the Application account record and check for this value in the report.

The screenshot shows a web application window titled 'Users'. It contains several input fields for user information:

- User Name:
- Description:
- Password:
- Password Expiration: Days
- Person:
- Customer:
- Supplier:
- E-Mail:
- Fax:
- Effective Dates:

The 'Person', 'Customer', and 'Supplier' fields are grouped together and highlighted with a red rectangular box.

PAMreports:

- ❖ **PAMreports** – General PAMRGA005 Application Activity (period)
- ❖ **PAMreports** – General PAMRGA006 Application Activity (current)

provide an Account type which enables you to identify external customers and here is the code to do the translation:

```
'('||decode(employee_id, null ,'-','E')||
      decode(customer_id, null ,'-','C')||
      decode(supplier_id, null ,'-','S')||')' user_type
```

The **PAMreports** – General PAMRGA005 Application Activity (period) has the customer id identifiers:

E = Employee, C = Customer, S = Supplier

Example **PAMRGA005 Application Activity (period)** report

PAMRGA005-10 PAM - PIPER-RX - APPLICATION MONITOR PIPER - Rx									
ISSUE AFFECT									
Issue Period - From 19-Nov-09 10:45 To 19-Nov-09 11:15									
As at 20-Nov-09 08:12									
For OEBS 12 DEMO									
FS - Login ID	SS - Session ID	CR - Request ID	User Name	FS - User Description	SS - User Description	CR - Program Name	Session Start	Session End	Account Type
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2032356433	GUEST		guest				19-Nov-09 10:54	19-Nov-09 10:54	(-C-)
Total Affected: 2									
Concurrent Requests:									
2171780	GPIPER		Gather Schema Statistics				19-Nov-09 10:40	19-Nov-09 11:08	(--)
Argument Text: GL, 10, , NOBACKUP,									
2171781	GPIPER		Gather Schema Statistics				19-Nov-09 10:40	19-Nov-09 10:51	(--)
Argument Text: PO, 10, , NOBACKUP,									
2171782	GPIPER		Gather Schema Statistics				19-Nov-09 10:44	19-Nov-09 11:08	(--)
Argument Text: AR, 10, , NOBACKUP,									
2171783	SYSADMIN		OAM Applications Dashboard Collection				19-Nov-09 10:51	19-Nov-09 10:54	(-C-)
Argument Text: (None)									
2171784	SYSADMIN		OAM Applications Dashboard Collection				19-Nov-09 11:04	19-Nov-09 11:07	(-C-)
Argument Text: (None)									
2171705	GPIPER		Workflow Background Process				19-Nov-09 10:54	19-Nov-09 11:01	(--)
Argument Text: , , , Y, Y, Y									
Total Affected: 6									
20-Nov-09 8:12:18 AM						© Gary Piper 2009 – All rights reserved		Page 1 of 1	

Method 2:

The second method to identify an external customer is to add an identifier to the account description. The major drawback with this method is that in most instances self-service users can change their own description via the self service user profile screen.

An example might be to append one or two full stops to the user's description where that user is an external customer.

Gary Piper..
Fred Smith
Mary Smith..

In this way when you run a user report that includes the description external customers are clearly identifiable.

However, with this method you should be aware that the user's description is displayed on the self-service welcome screen.



5 Disclaimer

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