



**ZDS
Corporation**

ZDS PPM Deployment Metrics

Installation and Operations Guide

Release 1.3 Build 675

7/17/2009

ZDS Software Licensing

'ZDS Deployment Metrics' is not freeware. You are hereby licensed to use the Software for evaluation purposes without charge for a period of 30 days.

If you use the software after the evaluation period a registration fee is required. Unregistered use of the software after the evaluation period is in violation of U.S. and international copyright laws.

An organization may purchase a multi-user site license enabling any number of employees of that company to use the software from any number of computers.

For Deploy Metrics a site is defined as the server location from which the execution logs derived.

Multi site licenses are available subject to negotiation. Site licenses do not cover subsidiary companies or customers of a company.

Distribution

You may make any number of copies for backup, upgrade, and migration purposes within your organization. You may give exact copies of the original time limited trial distribution to anyone provided you do not include your license key. You are specifically prohibited for charging for such copies.

Copyright Notices

This software is Copyright© 2008 by Dave Goodall, ZDS llc, ZDS Corporation, ezds.com.
Upx Packer Copyright (c) 1996-2002 Markus Oberhumer & Laszlo Molnar.
<http://upx.sourceforge.net>

Disclaimer of Warranty

THE SOFTWARE AND SUPPORTING FILES ARE SOLD "AS-IS AND WITHOUT WARRANTIES AS TO PERFORMANCE OF MERCHANTABILITY OR ANY OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED.

NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS OFFERED.
ANY LIABILITY OF THE SELLER WILL BE LIMITED EXCLUSIVELY TO REFUND OF THE PURCHASE PRICE.

Governing Law

This agreement shall be governed by the laws of the State of California.

Trademarks

ZDS llc and ZDS Corporation are not associated with Hewlett Packard Corporation in any way. Kintana, HP PPM (Portfolio and Project Management), Demand and Deliver are registered trademarks of Hewlett Packard Corporation.

Table of Contents

1. Introduction	1
1.1. What ZDS Deployment Metrics does.....	1
1.2. Who can use it.....	1
2. Requirements	
2.1. Hardware	2
2.2. Operating system	2
2.3. Disc space.....	2
3. Unpacking the distribution	2
3.1 The license key file	2
4. Getting Started	3
4.1. Invoking dplmetrics.....	3
4.2. Running dplmetrics on the sample package logs.....	3
4.3. Package Line Migrations.....	4
5. Analysis Reports	5
5.1. The Package Line Step Environment Migration Report	5
5.2. The ERRORS BY TYPE Report.....	6
5.3. The ERRORS BY REASON Report.....	7
5.4. The ERRORS BY OBJECT Report.....	8
6. Audit Reports	9
6.1. The PACKAGES Report.....	9
6.2. The FILESReport.....	9
6.3. The LOGSReport.....	10
6.4. The PROGRAM Report.....	10
6.5. The THROUGHPUT Report.....	10
7 Visualizations	
7.1 The dplmetrics_type.html error type time lapse chart	11
7.2 Server and Local operation (Help! The chart does not show up!).....	12

8. Familiarizing yourself with Deploy	13
8.1. Accessing your own packages.....	13
9. Working with the dplmetrics_logs.html file	14
9.1. Basics.....	14
9.2. Customizing Deploy Metrics for your installation	15
9.3. Configuration 101.....	16
9.4. Handling orange color coded errors (with two examples).....	17
10. The dplmetrics.ini configuration file	20
10.1. The [Program] Section.....	20
10.2. The [Custom Error Objects] section.....	22
10.3. The [Custom Error Types] and [Standard Error Types] Sections.....	23
10.4. The [Custom Error Codes] and [Standard Error Codes] Sections.....	24
10.5. General Notes for Configuration File Maintenance.....	24
11. Advanced Configuration	
11.1. The 'force' feature	25
11.2. Check the Check the pre-set force codes.....	25
11.3. Is the 'force' feature right for you?	25
11.4. Identifying Silent Failures.....	25
11.5. Using the 'Force' feature to monitor-enforce coding standards.....	26
12. Analysis	27
12.1. Current service levels.....	27
12.2. Breakdown of major error categories	30
12.3. Action Plan: Elimination/Reduction of Error Categories.....	31
13. Maintenance	30
13.1. Upgrades.....	
13.2. De-Installation.....	33
13.3. Feedback.....	33
13.4. Support	33
Appendix A	34
Success and Failure Overrides.....	34
Appendix B	
B1. Return Codes	35
B2. Messages	36

1. Introduction

This document describes what ZDS Deployment Metrics does and how to install and use it.

1.1 What Deploy Metrics Does.

The Deployment metrics tool is intended to provide the precise quantitative information you need to determine your current service levels for deployment of Custom and Standard objects, and develop an action plan for improving them. It identifies

- Your current service levels for Custom and Standard object deployments.
- The major categories which contribute to the service levels.
- The individual reasons contributing to each major category
- Finally a drill down from any individual error to the underlying execution log.

On the face of it the following package line status shows a 50% migration failure rate.

Package Lines		Status		
Seq	Object Name	Object Type	3 TST to TSTR	4 TSTR to PROD
3	CR25547_price_lines.sql	Oracle SQL Script	Succeeded	Succeeded
4	CR22875_alter_price_table.sql	Oracle SQL Script	Succeeded	Failed

However this reflects just the current status. It may have taken several migrations before the first line finally succeeded, and several unsuccessful migrations may have preceded the current Failed status of the second line.

Consider a 25 line package being migrated from RICE -> DEV -> TEST -> PROD that all end up successfully migrated to PROD. From one perspective that's a zero percent failure rate.

If every line migrated through every step successfully the first time the user would have done 100 migrations. But suppose the user had problems with one or more lines and had to re-run some step migrations 19 times. The failure rate is 19/119 or 16%. and your Deliver service level is 84%.

To your end users this failure rate, and not the end result is the true measure of the service level you provide them.

The tool identifies the true failure rates by considering the result of EVERY line-step migration that users ran in the selected period. It also identifies, and classifies the errors that contribute to the overall failure rates for Custom and Standard object migrations. This gives you the information you need to create an action plan to improve your service levels and monitor them thereafter.

1.2 Who can use it

The operations group responsible for operating the production PPM system can use the tool to monitor and maintain PPM Deploy migration service levels.

The PPM administration and support team can use it to upgrade object type command code to be more rugged in the ever changing deployment environment.

The Development team can use the advanced 'Force' feature to monitor and enforce adherence to coding standards.

2. Requirements.

2.1 Hardware

The program can be installed either on a Wintel server or personal computer. The recommended minimum configuration is a 2 GHz clock rate processor with 1GB of RAM. The program itself requires about 172K of RAM.

2.2 Operating System

Deploy Metrics will run on Windows Server 200X, XP, Vista.

2.3 Disc Space

Disc space requirements for the *distribution* and working files are typically:

Distribution Files	Space Required	Description
<i>Dplmetrics.exe</i>	55 Kb	A 32-Bit Windows console program
<i>Dplmetrics.ini</i>	16 Kb	Configuration file
<i>Installation and operation guide.doc</i>	537 Kb	This file
<i>Installation and operation guide.pdf</i>	580 Kb	This file
<i>QuickStart Guide.doc</i>	53 Kb	One page cheat sheet
<i>QuickStart Guide.pdf</i>	207 Kb	One page cheat sheet
<i>Getting Started with Deploy Metrics.doc</i>	422 Kb	Setup, Tuning, Integration
<i>Getting Started with Deploy Metrics.pdf</i>	311 Kb	Setup, Tuning, Integration
<i>PKG_files</i>	1-2 Mb	Sample package logs
<i>Video : dplmetrics</i>	3.6 Mb	Package overview
<i>Video: Getting Started with Deploy Metrics</i>	140 Mb	Setup, Tuning, Integration

Working Files	Space Required	Description
<i>Dplmetrics_rpts.html</i>	10-50 Kb	Output log
<i>Dplmetrics_type.html</i>	10-50Kb	Type Chart
<i>Dplmetrics_logs.html</i>	50-200 Mb	Output in object type, error, date order
<i>Dplmetrics_pkgs.html</i>	50-200 Mb	Output in order of the input log tree

3. Unpacking the distribution

For starters we suggest that you unpack the distribution into this directory structure:

```
C:
  :.. PPM Deploy Metrics
  :   :.. dplmetrics.exe
  :   :.. dplmetrics.ini
  :   :.. dplmetrics.sql
  :   :.. sample.bat
  :.. Samples
  :   :.. PKG_30014
  :   :.. PKG_43992
```

After you've tried the tool out, you'll want to relocate it.

3.1 License Key File

For clients who have purchased the product after installing the evaluation version simply place the license key file in the same directory as the *dplmetrics.exe* program.

4. Getting Started

4.1 Invoking dplmetrics

Open a command window and navigate to the PPM_Deploy_Metrics directory

If you enter just dplmetrics and hit the Enter key the program will display the required syntax:

```
dplmetrics v1.3 Build 670 syntax :
```

```
dplmetrics PathToLog Required Required Required Optional
Process=All Display=Packages From=Month ccyy To=Month ccyy
Process=Custom Only Display=Diagnostics
Process=Standard Only Display=Off
```

If the path contains spaces prefix and suffix it with double quotes

Examples:

```
dplmetrics "C:\Prod_Logs_20090625" Process=All Display=Packages (Process all dates by
default)
dplmetrics "C:\Prod_Logs_20090625" Process=Standard Only Display=Off From=January 2007
To=January 2007
dplmetrics "C:\Prod_Logs_20090625" Process=Custom Only Display=Off From=January 2007
To=December 2007
```

4.2 Running dplmetrics on the sample package logs

You can either type:

```
dplmetrics "C:\PPM Deploy Metrics\Samples" Process=All Display=Packages From=January 2000
To=December 2010
```

or just enter sample.bat and hit the Enter key

The program will display ID and run start up information.

```
dplmetrics Version 1.3 Build 670 run start time Sat Dec 20 15:50:25 2008
(c) 2007-2008 ZDS LLC (www.ezds.com)
```

It then lists the command line options you supplied and the parameters specified in the dplmetrics.ini configuration file:

```
OPTIONS
LOGPATH : C:\PPM Deploy Metrics\Samples
PROCESS : All
DISPLAY : Off
PERIOD : From: January 2004 (2004 1) To: December 2008 (2008 12)
```

```
PARAMETERS (dplmetrics.ini)
[Program]
Discard Test Packages=
Skip Custom Percentage=60%
Skip Standard Percentage=40%
Max File Size=430000
Suppress Missing Package Warnings=Y
Suppress Zero Lines on Errors By Reason Report=Y
Output Successful Migrations=N
Fully Qualified Output Directory Path=C:\PPM_Deploy_Metrics
```

```
[Type Chart]
Title=Top 10 PPM Migration Error Types
Period Unit=Quarter
ListTop=10
ListPct=80
widthPx=700
HeightPx=350
```

We'll get to the details of what the parameters do later. For the present you can use the settings in the distribution file as-is (Unless you've changed the initial directory structure we suggested, in which case you'll need to change the 'Fully Qualified Output Directory Path' option).

4.3 Package Line Migrations

As the program processes PKG_ execution logs in the specified log directory tree it displays a running log of failed package line migrations:

Pkg	File	Type	Start date-time	Package Ln	Object	Type	Name	[Code]
1	58	CUSTOM	: Sep 25, 2006 01:58:12 PM PDT	47291	1	Oracle SQL Script	[DE]	f f [PLS-
1	62	CUSTOM	: Sep 25, 2006 02:03:19 PM PDT	47291	3	Oracle SQL Script	[DE]	f f [PLS-
1	63	CUSTOM	: Sep 25, 2006 02:05:59 PM PDT	47291	3	Oracle SQL Script	[DE]	f f [PLS-
1	64	CUSTOM	: Sep 25, 2006 02:09:40 PM PDT	47291	3	Oracle SQL Script	[DE]	f f [PLS-
1	75	STANDARD	: Sep 25, 2006 04:22:44 PM PDT	47291	6	AOL:Conc Prog	[OM]	f f [ERR

If the program encounters any unusual conditions it will also display advisory messages. For example:

```

ERROR      : Unable to locate LOGFILE entry for [PKG...LOGFILE.txt].
INFO       : Refer to eZDS technical support.
ERROR      : Unable to determine the period for package [30205]. Check if logs exist.
WARNING:   : Unknown file type : Package=[43616]           File=[ALT...html]
  
```

All advisory messages are written to the `dplmetrics_rpts.html` file. You can find a full list of messages and their meanings in the exception handling section.

When all the logs have been processed the program will display (and also write to the `dplmetrics_rpts.txt` output file) the following analysis reports plus audit reports with control totals for various aspects of the program's operation.

5. ANALYSIS REPORTS

5.1 The Package+Line+Step+Environments Migrations Report

Deploy Metrics analyzes each individual package-line-step-environment migration for Custom and Standard Objects during the period you selected:

Custom

Succeeded	PPM	s	s	DPM	Agree.	1459	88.26%	
Succeeded	PPM	s	>	s	DPM	Agree. Forcing had no effect.	0	0.00%
Succeeded	PPM	f	s	DPM	Disagree. Check orange errors.	7	0.42%	
Succeeded	PPM	f	>	s	DPM	Disagree. Forced into success count.	0	0.00%
Custom Succeeded						1466	88.69%	
Failed	PPM	f	f	DPM	Agree.	93	5.63%	
Failed	PPM	f	>	f	DPM	Agree. Forcing had no effect.	42	2.54%
Failed	PPM	s	f	DPM	Disagree. Check orange errors.	0	0.00%	
Failed	PPM	s	>	f	DPM	Disagree. Forced into failure count.	39	2.36%
Custom Failed						174	10.53%	
Custom Not Attempted						Not included in ERRORS BY reports.	13	0.79%
Total Custom						1653		

Standard

Succeeded	PPM	s	s	DPM	Agree.	525	93.09%	
Succeeded	PPM	s	>	s	DPM	Agree. Forcing had no effect.	0	0.00%
Succeeded	PPM	f	s	DPM	Disagree. Check orange errors.	0	0.00%	
Succeeded	PPM	f	>	s	DPM	Disagree. Forced into success count.	0	0.00%
Standard Succeeded						525	93.09%	
Failed	PPM	f	f	DPM	Agree.	15	2.66%	
Failed	PPM	f	>	f	DPM	Agree. Forcing had no effect.	8	1.42%
Failed	PPM	s	f	DPM	Disagree. Check orange errors.	0	0.00%	
Failed	PPM	s	>	f	DPM	Disagree. Forced into failure count.	16	2.84%
Standard Failed						39	6.91%	
Standard Not Attempted						Not included in ERRORS BY reports.	0	0.00%
Total Standard						564		

This is the key report. It gives you a precise measure of your PPM Deploy service levels.

You cannot manage what you cannot measure. For the first time, Deploy Metrics gives you the ability to manage the migration process against quantitative service level targets.

To improve your current service levels you need to identify the root causes of the errors that contributed to the failure counts. The next reports help you to understand this.

As you drill down through successive layers of detail you build an action plan to eliminate or reduce the errors and improve your service levels.

5.2 The ERRORS BY TYPE Report

Custom

DE Developer Error	116	66.67%
PW Passwords	28	16.09%
CK Checksum	12	6.90%
TO Timeout	7	4.02%
KB Kintana Bug	6	3.45%
FT File transfer	2	1.15%
DT Directory Tree	2	1.15%
CS Command Script	1	0.57%
EN Environment	0	0.00%
IP Insufficient Privileges	0	0.00%
F6 F60Gen error	0	0.00%
IE Internal Error	0	0.00%
LK Locked table or row	0	0.00%
SC Shell Command	0	0.00%
SH SSH Errors	0	0.00%
SP SQL*Plus error	0	0.00%
PA Patch	0	0.00%
UC Unable to Connect	0	0.00%
Total	174	

Standard

NL Log Not Available	17	43.59%
OM Object Migrator	9	23.08%
IP Insufficient Privileges	7	17.95%
DE Developer Error	3	7.69%
DT Directory Tree	2	5.13%
KB Kintana Bug	1	2.56%
FT File Transfer	0	0.00%
IE Internal Error	0	0.00%
CP Concurrent Program	0	0.00%
IM ITG Migrator	0	0.00%
LK Locked table or row	0	0.00%
PW Passwords	0	0.00%
RS Report Set	0	0.00%
TO Timeout	0	0.00%
UC Unable to Connect	0	0.00%
XX Not Classified	0	0.00%
Total	39	

The Custom Failed and Standard Failed totals listed in the PACKAGE+LINE+STEP+ENV section are now broken down to the broad error reason categories that contribute to them.

Deploy Metrics comes with pre-defined categories that you can add to or change to customize the package to your individual requirements.

This report provides the basis for your action plan. Hitting the top three categories will reduce errors by more than 80% and improve your service levels accordingly.

5.3 The ERRORS BY REASON Report

Custom

PW	ORA-01017: invalid username/password; logon denied	27	15.52%
DE f	ORA-00942: table or view does not exist	25	14.37%
DE f	ORA-00955: name is already used by an existing object	20	11.49%
DE	\$driver] did not complete successfully.	18	10.34%
CK	Command: [test	12	6.90%
DE f	ORA-01434: private synonym to be dropped does not exist	8	4.60%
TO	Command(s) timed out...	7	4.02%
KB	Found text 'KSC_EXIT_STATUS' without a '\$?' and without an	6	3.45%
DE f	ORA-01432: public synonym to be dropped does not exist	6	3.45%
DE	PLS-00323: subprogram or cursor	6	3.45%
DE f	ORA-01471: cannot create a synonym with same name as object	4	2.30%
DE f	ORA-00980: synonym translation is no longer valid	4	2.30%
DE f	protected, no changes were saved.	4	2.30%
DE	PLS-00905: object	3	1.72%
DE f	Compilation errors have occurred.	3	1.72%
DE	FRM-30188: No initial value given, and other values are not	2	1.15%
FT	Source SCPClient:Error: transfer failed	2	1.15%
DE f	ORA-01430: column being added already exists in table	2	1.15%
DE f	Warning: Package Body created with compilation errors.	2	1.15%
DE f	ORA-01403: no data found	2	1.15%
DT	Error: could not create directory on destination.	2	1.15%
DE	PLS-00103: Encountered the symbol	2	1.15%
CS	(KNTA-10127) Unknown or out of sequence command:	1	0.57%
DE	PLS-00302: component	1	0.57%
PW	su: Sorry	1	0.57%
DE	PLS-00306: wrong number or types of arguments	1	0.57%
DE	PLS-00364:	1	0.57%
DE f	ORA-01720: grant option does not exist for	1	0.57%
DE	PL/SQL ERROR 302	1	0.57%

Total

174

Standard

NL f	Logfile not available on server	15	38.46%
IP f	ORA-01031: insufficient privileges	7	17.95%
OM	MSG-00001: Possible problem with database link definition.	5	12.82%
DE	ORA-01427: single-row subquery returns more than one row	3	7.69%
OM	MSG-00001: No objects were successfully migrated.	2	5.13%
DT	The specified directory is not valid	2	5.13%
OM	ERR REP-1419: 'afterreport': PL/SQL program aborted.	2	5.13%
NL f	Could not retrieve logfile	2	5.13%
KB	Found text 'KSC_EXIT_STATUS' without a '\$?' and without an	1	2.56%

Total

39

This report ranks each error that occurred in the specified period from most to least frequent.

It provides another layer of detail for the action plan.

Clearly we need to revisit the procedures for syncing up target server passwords with the PPM environments (again).

Laying in a fresh supply of wet noodles for lashing the developers seems to be indicated.

5.4 The ERRORS BY OBJECT Report

Custom	s	f		f/s
SQL Migration	1129	94	54.02%	8.33%
Oracle SQL Script	60	60	34.48%	100.00%
PMB Oracle Form	43	9	5.17%	20.93%
SQL Script 2.0		4	2.30%	
Oracle workflow 1.1		4	2.30%	
IBIS - CVS File Migration	135	2	1.15%	1.48%
PMB Oracle Report	4	1	0.57%	25.00%
Link Library	46	0	0.00%	
Java Class Files		0	0.00%	
StarTeam File Migration		0	0.00%	
Shell Script	9	0	0.00%	
Oracle Workflow		0	0.00%	
Reports 4.8	33	0	0.00%	
Load Translation Tables		0	0.00%	
R11 Oracle Patch EOESPI		0	0.00%	
BOM Forms 2.1		0	0.00%	
PPM and DM Disagree	7	0		
Total	1466	174		
Standard	s	f		f/s
AOL:Conc Prog	236	16	41.03%	6.78%
AOL:Value Set	112	10	25.64%	8.93%
AOL:Resp		9	23.08%	
AOL:Report Set Rel 11	28	3	7.69%	10.71%
AOL:Message Rel 11	18	1	2.56%	5.56%
AOL:Report Group	1	0	0.00%	
AOL:QuickCode	43	0	0.00%	
AOL:Profile	39	0	0.00%	
AOL:Single Report Group Unit	35	0	0.00%	
AOL:Function	4	0	0.00%	
AOL:GUI Menu		0	0.00%	
AOL:Desc Flex		0	0.00%	
AOL>User		0	0.00%	
AOL:Single Report Group Unit		0	0.00%	
AOL:Menu		0	0.00%	
AOL:Concurrent Manager Rel 11		0	0.00%	
AOL:FSG Set		0	0.00%	
AOL:Folder		0	0.00%	
AOL:Help Text		0	0.00%	
AOL:Printer Def		0	0.00%	
AOL:Single Conc Mgr Entry		0	0.00%	
AOL:Single GUI Menu Entry		0	0.00%	
ITG Workflow Migrator	1	0	0.00%	
ITG Data Source Migrator		0	0.00%	
ITG Module Migrator		0	0.00%	
ITG Portlet Definition Migrator		0	0.00%	
ITG Project Template Migrator		0	0.00%	
ITG Request Header Type Migrator		0	0.00%	
ITG Request Type Migrator	8	0	0.00%	
ITG User Data Context Migrator		0	0.00%	
ITG Validation Migrator		0	0.00%	
Total	525	39		

This analysis focuses on identifying the object types most subject to migration failures.

To a large degree this will follow the order of popularity of the object types you migrate. However, all object types are not created equal. Each contains different command code that may be handling error conditions more or less successfully.

The report shows in the last column the failure to success ratio. A high ratio pinpoints an object for review to see if it's code is adapted to survive successfully in the environments it encounters during it's travels.

6. AUDIT REPORTS

6.1 The PACKAGES Report

PACKAGES

Missing	19935	99.86%
Test	0	0.00%
Processed	27	0.14%
Total Packages	19962	
Processed out of Period	0	0.00%
Processed In Period	26	96.30%
Processed Unable to Determine Period	1	3.70%

Check the 'Missing' total on this report.

For a complete analysis we want all the package execution logs. It is also a SOX requirement, as well as a basic audit trail requirement that the package execution logs that contain the history of your migrations not be deleted.

Deploy Metrics counts and lists (in the dplmetrics_rpts.html file) any missing package gaps found in the package number sequence for the specified period.

If you specified in the configuration file that you wanted test packages excluded from the analysis the total number of packages that were excluded is listed here.

6.2 The FILES Report

FILES

PKG Files	27	0.43%
PKG_BID Files	2410	38.10%
CONC_REQ_LOGFILE Files	130	2.06%
CONC_REQ_OUTFILE Files	121	1.91%
PKG_PKGL_BID Files	1799	28.44%
PKG_PKGL_BID_ENV Files	1836	29.02%
Unknown File Types	3	0.05%
Files Traversed	6326	
File Open Errors	0	
File Size Errors	0	
File Read Errors	0	
File Field Errors	0	
Files Discarded - Over Length	0	
Files Discarded - Unknown Object Type	0	
Files Discarded - Orphan Environment File	0	

The 'Files Discarded – Over Length' line is the one to check on this report.

Execution logs that exceed this size (in bytes) will be excluded from the analysis.

If there seem to be an unusually large number of these then you can adjust the size limit. The configuration section has detail on how to do this.

6.3 The LOGS Report

LOGS

Logs Out of Period	0	0.00%
Logs In Period	3763	100.00%
Total Logs	3763	
Logs Discarded - Unknown Log Type	0	
Logs Discarded - Unknown Started Date	1	
Logs Discarded - Env Link Parse Errors	0	
Logs Discarded - CONC_REQ_LOGFILE	0	

The period totals are informational.

ZDS would appreciate information on non-zero 'Logs Discarded' totals.

6.4 The PROGRAM Report

PROGRAM

Maximum environment array count exceeded	0
Maximum CONC_REQ_FILE array count exceeded	0
CONC_REQ_LOGFILE entry not found	1

This section records counts for internal error conditions. The counts should be zero.

ZDS would appreciate information on non-zero totals.

6.4 The THROUGHPUT Report

THROUGHPUT

Run Time : 00:00:15	
Files Traversed Count	6326
Files Per Hour	1,518,240
Files Traversed Bytes	36,966,664
Bytes Per Hour	8,871,998,400
Logs Read Count	3764
Logs Per Hour	903,359
Logs Read Bytes	29,352,134
Bytes Per Hour	7,044,508,800
Packages Processed Count	27
Packages Per Hour	6,480

dplmetrics version 1.3 Build 670 run end time Sat Dec 20 15:50:40 2008
(c) 2007-2008 ZDS LLC (www.ezds.com)

The program lists the run time together with some throughput metrics. You will normally start by running the program on a restricted period of the execution logs while you are configuring the program. These metrics should help you estimate the run time when the program is run on the complete set of logs.

This section has several different ways to measure throughput: by Files, Logs, or Packages per hour. You can use it to estimate run times. You will need to assess which metric is the most accurate in your particular environment

The time it takes to process the package log tree will vary depending on the several factors : the number of packages, whether you're only processing a limited date range, and the CPU, IO system speed, and other loads on the computer running dplmetrics.

7. Visualizations

Deploy Metrics provides different ways to view your data. The current visualizations are listed below.

7.1 The `dplmetrics_type.html` error type time lapse chart

ZDS Deploy Metrics Error Type Motion Chart

Top 10 PPM Migration Error Types
 Period from: January 2007 To: December 2007

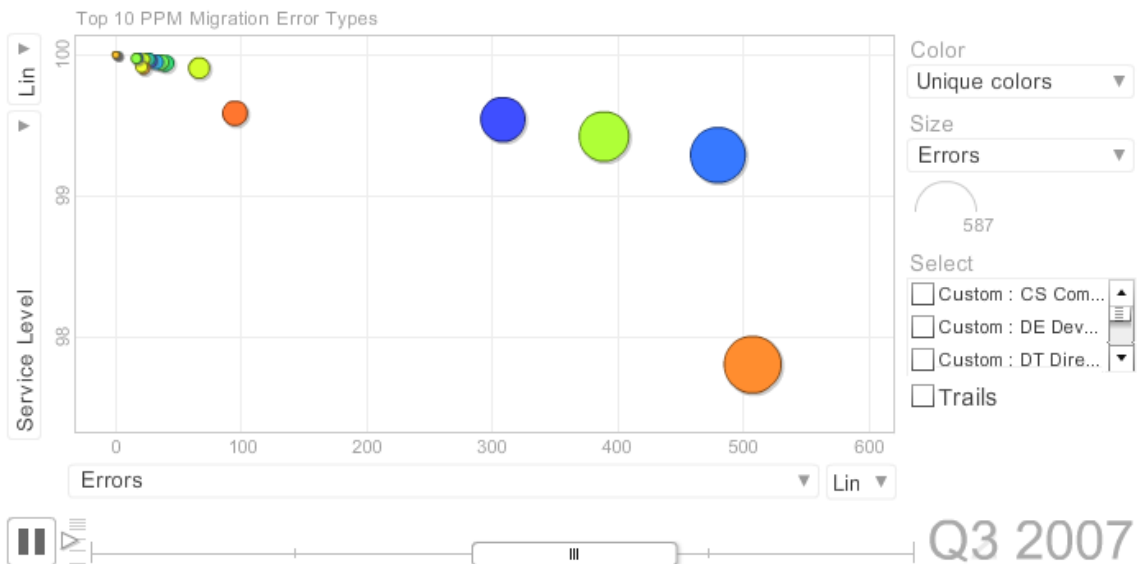
This time lapse animation highlights error categories where the service (success) level is falling, and the error count is increasing.

Change the Color option to 'Unique Colors'.

Change the Size option to 'Errors'.

Click on a bubble to add trails.

Click the button to start the visualization...



The error type animation provides direct insight into the relative contributions made by each error type category, and how they are changing over time.

You can see a live example at this link:

http://www.ezds.com/html/kintana_products_metrics_deploy_mc_type.html

7.1 Server and Local Operation

Help! The chart does not show up!

Deploy Metrics is web oriented and generates web pages. In normal operation you will set up Deploy Metrics to output these pages to a location where they can be served by a web server on your network.

While you are familiarizing yourself with Deploy Metrics, and for presentation purposes, you may want to display Deploy Metrics chart files stored locally on your own computer, rather than deployed on a web server.

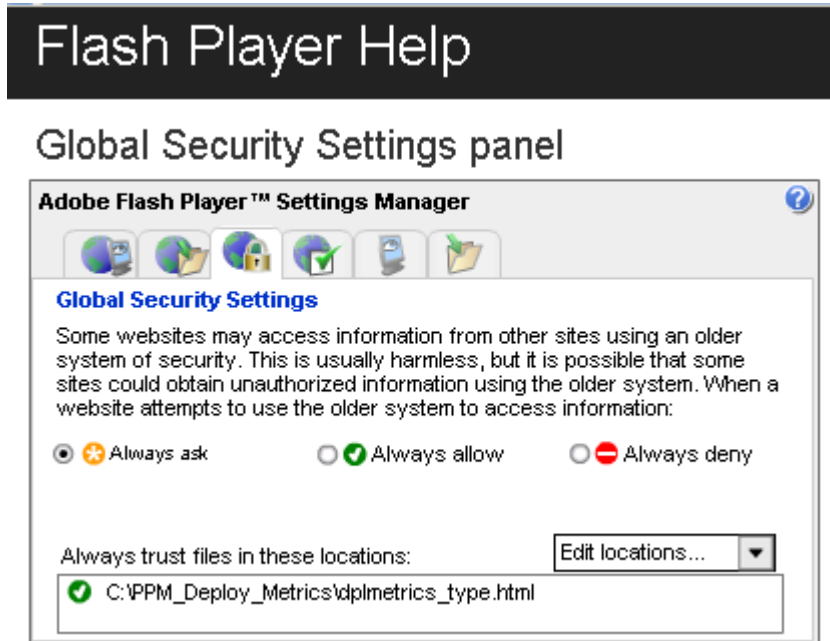
To do this you should adjust your Flash Player Settings Manager to designate dplmetrics generated files as trusted.

1. Access the Settings Manager at this link:

http://www.macromedia.com/support/documentation/en/flashplayer/help/settings_manager04a.html#119065

2. Click on the 'Edit Locations' list box, select 'Add Location', browse for files of type 'All Files (*.*)', and locate and select the 'dplmetrics_type.html' file on your disc.

The result should look like this:



3. Click the 'Refresh' button in the browser, and the chart should appear.

*Note! Although you can achieve the same effect by simply specifying the 'Always allow' option, you are **strongly** advised to follow this procedure, and only use 'Always Ask' or 'Always Deny' as your installation's security policy directs. Doing so limits the permissions you are granting to specific file(s) from trusted sources.*

8. Familiarizing yourself with Deploy Metrics

We suggest you run the supplied sample.bat batch file and then review the dplmetrics_rpts.html and dplmetrics_logs.html files that were generated.

This will give you a feel for the way the tool works.

You might want to experiment with setting 'Output Successful Migrations=Y' in the dplmetrics.ini file. With this setting the program reports successful as well as failed migrations. For production use you will want to set this option back to 'N' to cut down the bulk of the html file.

8.1 Accessing your own package Logs

Deploy Metrics takes as it's first parameter a fully qualified path to the logs directory containing PKG_ subdirectories.

```
dplmetrics "C:\PPM_Deploy_Metrics\Sample_Logs"
```

Even though Deploy Metrics is a read-only application, good security practice suggests that you should not run it directly against the logs tree on the production PPM application server.

It is recommended that you set up a scheduled or cron job to transfer the logs tree periodically, and at a time when the application and network are relatively unloaded, to a server outside the production server group.

If the server is running a Windows OS, then you can either mount it's drive from the client and refer to the mapped drive in the first parameter, or recopy the tree from the server to the client and run the analysis locally.

If the server is running Unix then you will need to either use Samba to mount the logs directory on the Unix server as a logical drive to the client running the dplmetrics package, or use ftp (Putty) to download the package logs to the client running the dplmetrics package.

9. Working with the DPLMETRICS_LOGS.HTML file

9.1 Basics

Open this in any browser. Every migration error is written to this file. Each line is a link to the execution log.

By clicking on a line you can drill down to the log itself, for any migration and navigate around inside the log tree structure itself.

CUSTOM	[??]	[Errors occurred during command execution]	f s	30223	1	2007:07:30	SQL Migration	RICE1
CUSTOM	[??]	[Errors occurred during command execution]	f s	30223	4	2007:07:30	SQL Migration	RICE1
CUSTOM	[??]	[Errors occurred during command execution]	f s	30289	6	2007:10:24	SQL Migration	RICE1
CUSTOM	[PW]	[ORA-01017: invalid username/password	] f f	30200	5	2007:09:05	SQL Migration	RICE
CUSTOM	[PW]	[ORA-01017: invalid username/password	] f f	30200	5	2007:09:05	SQL Migration	RICE
CUSTOM	[PW]	[ORA-01017: invalid username/password	] f f	30200	5	2007:09:05	SQL Migration	RICE
CUSTOM	[PW]	[Log discarded - not in requested period.]		42852	45	2006:02:10	Oracle Form	
CUSTOM	[SC]	[pfksh: awk: not found	] f f	30181	1	2007:08:13	SQL Migration	QASYS1
CUSTOM	[SC]	[pfksh: awk: not found	] f f	30181	1	2007:08:13	SQL Migration	QASYS1a
CUSTOM	[TO]	[Command(s) timed out...	] f f	30181	10	2007:09:13	SQL Migration	QASYS1
CUSTOM	[TO]	[Command(s) timed out...	] f f	30181	10	2007:09:13	SQL Migration	QASYS1a
CUSTOM	[TO]	[Command(s) timed out...	] f f	30181	11	2007:09:17	SQL Migration	QASYS2
CUSTOM	[TO]	[Command(s) timed out...	] f f	30181	11	2007:09:17	SQL Migration	QASYS2a
CUSTOM	[TO]	[Command(s) timed out...	] f f	30181	6	2007:09:24	SQL Migration	QASYS1
CUSTOM	[TO]	[Command(s) timed out...	] f f	30181	6	2007:09:24	SQL Migration	QASYS1
CUSTOM	[VC]	[Command: [cvs co	] f f	30289	6	2007:10:24	SQL Migration	RICE
CUSTOM	[VC]	[Command: [starteam status	] f f	30223	1	2007:07:30	SQL Migration	RICE
CUSTOM	[VC]	[Command: [starteam status	] f f	30223	4	2007:07:30	SQL Migration	RICE
CUSTOM	[VC]	[Command: [starteam status	] f f	30193	1	2007:07:31	SQL Migration	QASYS1
STANDARD	[--]	[	] s s	30165	11	2007:08:01	AOL:Single Rep	QASYS3
STANDARD	[--]	[	] s s	30165	11	2007:08:01	AOL:Single Rep	QASYS3

PPM → DM

Each line is color coded. Two columns indicate 's' (Success) or 'f' (Failure). The first column is PPM's opinion of the outcome of the migration. The second is the Deploy Metrics tool's opinion.

A '>' between the two code letters indicates that you have directed the Deploy metrics tool to force a PPM success to be counted as a failure or vice versa.

Color	Code	Meaning
Red	f f	PPM and the Deploy metrics tool both agree the migration failed.
Pink	f f	The migration was not attempted. This can happen in migrations to environment groups. If the migration to the first environment fails, PM does not attempt to migrate to subsequent environments in the group.
Orange	f s or s f	PPM and the Deploy metrics tool disagree as to the outcome of the migration. This is an indication that you need to click open the execution log, and locate and add an error string that characterizes the error to the dplmetrics.ini configuration file, classifying it as a success or failure.
Green	s s	PPM and the Deploy metrics tool both agree the migration was successful.
Black		The migration was not in the period the DM tool was asked to analyze.

9.2 Customizing Deploy Metrics for your installation

You work with the `dplmetrics_logs.html` file to figure out what changes to make to the `dplmetrics.ini` configuration file to customize it to your installation's exact requirements.

The first step is to run the tool on a reasonable sample of package logs selected from the full set of your production package logs.

You can use the 'Sample_Logs' directory as a sandbox for this. Remove the supplied example package log directories.

Copy your package logs into the sample directory. The evaluation package will process up to 50 packages. If you have purchased the tool there is no limit and you can run it on the entire set if you wish.

Limit the data you're working with initially to a month or a quarter's worth of package logs. This should be enough to give you a representative working set and still get you the benefit of short run times.

You'll need to specify the names of your Custom and Standard objects in the ini file. You'll find detailed instructions for this in the Configuration section of the manual. If you miss one the program will let you know when you run it.

Run the tool, either directly from the Command prompt or using a batch file.

9.3 Configuration 101

You're going to need some basics on the `dplmetrics.ini` configuration file. (Now would be a good time to open the `dplmetrics.ini` file in Notepad.)

There's a full description in the Configuration section, but for now all we need to work with is that the file contains, for Custom and Standard object types, numbered lists of strings.

Deploy Metrics checks every log file for every string until it either finds a match or runs out of strings without finding any.

Each string entry has a number, a type code, a 'force' code, and the string itself. For example:

```
177=TO| |Command(s) timed out...
```

The type codes list defines what the code stands for.

```
TO=Timeout
```

The 'force' code is either a space | | or an |f| or an |s|.

Nearly all the strings will have a space | | force code. This means that Deploy Metrics will consider a migration a failure if it finds the string in the migration log.

A few strings will have |f| or |s| force codes.

A |f| force code directs Deploy Metrics to count a migration a failure if it finds the string in the migration log *regardless of PPM's opinion*.

A |s| force code directs Deploy Metrics to count a migration a success if it finds the string in the migration log *regardless of PPM's opinion*.

There's more detail on force codes in section 8.5 and Appendix A, but this is sufficient for now.

Now you're ready to browse the `dplmetrics_logs.html` file and made whatever changes seem needed to the `dplmetrics.ini` configuration file.

You should drill into individual execution logs and sample each error type category to assure yourself that errors are being assigned to the right category. If they are not, you will usually define a new error string, and perhaps a new type (category) code to go with it.

To get acquainted with how this is done the next section discusses how to fix orange color coded errors with some practical examples.

9.4. Handling Orange color coded errors.

Start by clicking in the `dplmetrics_logs.html` file on migrations color coded orange.

This is an indication that PPM and Deploy Metrics disagree on whether the migration succeeded or failed.

The most common orange lines are coded 'f s'. In this case PPM thinks the migration failed, but Deploy Metrics found none of the strings defined for the object type and therefore considers the migration succeeded. This is the easiest case to fix – just identify and add an error string to characterize the error.

Almost certainly you will find orange color coded errors that relate to your version control system. Because of the large number of systems, error strings for these are not pre-defined in the ini file.

For example suppose you find a 'f s' line with this error:

```
'cvs [checkout aborted]: cannot expand modules'
```

To resolve this, add the string to the Custom and/or Standard Error Codes section(s) and increase the section count. For example:

```
156=VC|cvs [checkout aborted]: cannot expand modules
```

And adjust the section count.

There are cases where the log for an item highlighted in orange shows no visible reason to indicate why a migration failed. For example : 'Connecting to myServer' is followed by 'Errors occurred during command execution.' In this case use the browser's 'View' 'Page Source' option to look at the html. You will then usually find detail that is hidden.

In this case the last two messages were:
Source SCPClient:Password: [encrypted password]
Source SCPClient:Error: transfer failed

Although the error probably was due to a password failure, (as this appears to be the last thing that was being handled before the failure), it would not be a good idea to add the 'Source SCPClient:Password: [encrypted password]' string to the error strings list, as this string might also occur in successful migration logs.

Instead you would add 'Source SCPClient:Error: transfer failed' which is an unambiguous indication of failure of the SSH session to the string list(s). For example:

```
155=FT|Source SCPClient:Error: transfer failed
```

On the next run the migration will display as red or green. When no orange coded migrations remain in the html log, the DM tool has been customized for your organization's specific requirements.

That was somewhat tough sledding. The following real examples may help!

Handling Orange Color Coded Errors

#1 STANDARD [??] [Concurrent Manager encountered an error] f s

Click on the link to open the log:

```
MSG-00002: select
  decode(sum(decode(atc1.column name,'SOURCE LANG',1,0)),0,0,1) ,
  from all_tab_columns@apps_ibisbt atc1
  where atc1.table_name = 'FND_LOOKUP_VALUES'
MSG-00001: BEFORE_RPT (8) ORA-12170: TNS:Connect timeout occurred
ORA-06512: at "SYS.DBMS_SYS_SQL", line 906
ORA-06512: at "SYS.DBMS_SQL", line 39
REP-1419: 'beforereport': PL/SQL program aborted.

Report Builder: Release 6.0.8.27.0 - Production on Wed 18-OCT-2007 00:32:01

(c) Copyright 1999 Oracle Corporation. All rights reserved.

Enter Username:
Program exited with status 1
Concurrent Manager encountered an error while running Oracle*Report
```

Locate the error.

Open the dplmetrics.ini file.

This is a STANDARD error, so check the [Standard Error Codes] section for this string.

```
[Standard Error Codes]
Cnt=35

1=NA| |Not Attempted
2=NL|f|Could not retrieve logfile
...

34=FT| |Source SCPCClient:<b>Error: transfer failed</b>
35=LE| |ORA-01427: single-row subquery returns more than one row
```

The string is not there. We'll need to add it.

Look up the [Standard Error Types] section for an appropriate category code:

The TO category is already defined:

```
[Standard Error Types]
Cnt=12
NA=Not Attempted
NL=Log Not Available
FT=File Transfer
OM=Object Migrator
TO=Timeout
DT=Directory Tree
IM=ITG Migrator
IP=Insufficient Privileges
LE=Logical Error
KB=Kintana Bug
VC=CVS Errors
XX=Not Classified
```

Add the new entry to the [Standard Error Codes] section.

```
36=TO| |ORA-12170: TNS:Connect timeout occurred
```

Don't forget to increase the count or your new string will not be used.

```
[Standard Error Codes]
Cnt=36
```

Handling Orange Color Coded Errors

#2 `CUSTOM [??] [Errors occurred during command execution.] f s`

Click on the link to open the log:

Source:

Protocol: SCP2
 Host: redmond-16
 Username: merc_cvs

Destination:

Protocol: SCP2
 Host: mtnview-04
 Username: applmgr

Connecting to tacoma-44:

Errors occurred during command execution.

Locate the error. At first glance this looks a bit like mission impossible.

Something happened during a SCP file transfer but what?

The error is there it's just hidden. Click 'View' 'Page Source' and look at the bottom of the log.

```
Source SCPClient:EXIT STATUS 2
Source SCPClient:<b>Error: source file not found.</b>
Closing SSH2 Session
</div><b><font color='red'>Errors occurred during command execution.</font></b>
```

Aha!

Open the `dplmetrics.ini` file.

This is a `CUSTOM` error so check the [Custom Error Codes] section for this string

```
[Custom Error Codes]
Cnt=157
```

The string is not there. We'll need to add it.

Look up the [Custom Error Types] section for an appropriate category code:

```
[Custom Error Types]
Cnt=16
NA=Not Attempted
NL=Log Not Available
LE=Logical Error
TO=Timeout
CK=Checksum
PW=Passwords
CS=Command Script
SC=Shell Command
IP=Insufficient Privileges
DT=Directory Tree
EN=Environment
FT=File transfer
KB=Kintana Bug
PA=Patch
VC=CVS Errors
XX=Not Classified
```

The FT (File Transfer) error type seems to be a good fit.

(If you want to add a new type to suit your requirements then you are free to do so! Just remember to increase the count.)

Add the new entry to the [Custom Error Codes] section

```
158=FT|Error: Source file not found
```

Don't forget to increase the count or your new string will not be used.

```
[Custom Error Codes]
Cnt=158
```

10. The dplmetrics.ini Configuration file

The deployment metrics analysis program is provided with a pre-configured ini file. You will need to adapt this to your own requirements.

Configuration changes that **MUST** be made up-front before your first analysis run are highlighted.

10.1 The [Program] Section

[Program]

```
Discard Test Packages=42970,49483,43270
Skip Custom Percentage=60
Skip Standard Percentage=40
Max File Size=430000
Suppress Missing Package Warnings=Y
Suppress Zero Lines On Errors By Reason Report=Y
Output Successful Migrations=Y
Fully Qualified Output Directory Path=C:\PPM_Deploy_Metrics
```

Test Packages: Some at least of the packages you have in your system are likely to be designed to fail. An example of this would be test package lines used for regression testing to see if a particular error has re-appeared following an upgrade. To make sure that these errors are excluded from the analysis, enter the test package number(s), comma separated.

Max File Size: Execution logs that exceed this size (in bytes) will be excluded from the analysis.

The FILES report (Section 3.1) lists the total number of over-length files discarded, and the dplmetrics_rpts.html file contains details on the file names discarded. Unless the discarded count is very high the effect on the counts is likely to be small and the default should be left as-is.

We suggest you leave this parameter as supplied for the time being.

Suppress Missing Package Warnings: This parameter suppresses warning outputs to the screen during the execution of the program. Warnings are still logged to the dplmetrics_rpts.html file.

Suppress Zero Lines On Errors By Reason Report: There are 150+ possible error messages that are tested for. This option simply de-clutters the ERRORS BY REASON report. It does NOT prevent the error messages being checked for.

Output Successful Migrations: For final analysis you will probably want the program to output a compact dplmetrics_logs.html file that lists only migration errors. While you are initially familiarizing yourself with and configuring the tool and working with a sub-set of the execution logs you will probably want to set this option to 'Y'

Fully Qualified Output Directory Path: If set the dplmetrics_rpts.html and dplmetrics_logs.html files will be placed in this directory. This is an optional setting. If not specified the program will output the dplmetrics_rpts.html and dplmetrics_logs.html files in the directory from which the dplmetrics program was invoked.

Skip Custom Percentage/Standard Percentage: A full year's analysis is likely to process execution logs totaling in the region of Gigabytes. Based on the observation that errors leading to migration failures tend to be located close to the end of the execution log, these directives specify that the analysis tool should skip the first 60 (or 40) percent of the execution log, before starting to check it for error string matches. This results in very much shorter run times.

We suggest you leave this parameter as supplied for the time being. The default settings have been conservatively chosen to provide the optimum speed enhancement without loss of accuracy.

If you do want to change them then you should follow this procedure:

In discarding the first xx% of an execution file to gain speed, we are also potentially trading off accuracy. If we discard too much, then the tool will start looking in the execution log AFTER the message string we want to match on. To avoid this we suggest you create a small spreadsheet as below.

From	To	CUSTOM			STANDARD		
		Pct	Success	Failed	Pct	Success	Failed
Jan-07	Jan-07	70	6434	1641	70	1842	24
Jan-07	Jan-07	60	6392	1683	60	1706	160
Jan-07	Jan-07	50	6392	1683	50	1553	313
Jan-07	Jan-07	40	6392	1683	40	1464	402
Jan-07	Jan-07	30	6392	1683	30	1464	402
Jan-07	Jan-07	20	6392	1683	20	1464	402

And do several runs for a small period (1 month), successively increasing the Custom and Standard skip percentages until you are able to determine the highest skip percentage that can be used without the results changing.

These points represent the optimum speed the program can run at without loss of accuracy.

10.2 The [Custom Error Objects] Section

You **MUST** specify to the tool the names of your Custom objects.

```
[Custom Error Objects]
Cnt=5
```

```
1=My Oracle SQL Script
2=My Oracle Report
3=My Oracle Form
and so on...
```

Number the Objects consecutively from 1 upwards and set the Cnt= entry to the highest number.

You can run this sql in SQLRunner to locate your custom object names.

```
select nl.meaning "Object Category",
       dot.object_type_name,
       dot.description
from KDLV_OBJECT_TYPES dot,
     KNTA_LOOKUPS nl
where dot.enabled_flag = 'Y'
      and nl.enabled_flag = 'Y'
      and dot.object_category = nl.lookup_code
      and nl.lookup_type = 'OBJECT_CATEGORY'
order by nl.meaning, dot.object_type_name
```

If you miss a disabled object type that has been previously migrated, the tool will identify this for you when you run it:

```
'unable to classify file [PKG_99999_PKGL_99999_BID_99999.htm] Object
[Fozzy Bear] as CUSTOM or STANDARD.
The file has not been processed.
You may want to add an entry to the [Custom Error Types] or [Standard
Error Types] sections in the ini file.'
```

10.3 The [Custom Error Types] and [Standard Error Types] Sections

Deploy Metrics comes with pre-defined error types (or categories). The ERRORS BY TYPE report is based directly on these sections.

You are completely free to define new type codes or change the pre-defined codes to suit your installation!

Type codes must be two-digit alphanumeric.

You should replace 'My Version Control System' with the name of your version control system.

```
[Custom Error Types]
Cnt=12
CS=Command Script           ; Command Script errors
DT=Directory Tree          ; Missing directory on target
EN=Environment              ; Invalid information in the environment record
FT=File transfer           ; FTP failures
IP=Insufficient Privileges  ; File could not be written to disk or properties changed
KB=Kintana Bug              ; Known 'feature'
DE=Developer Error         ; Error requiring developer to fix and re-submit file
PW=Passwords                ; Obsolete or invalid passwords
SC=Shell Command            ; built-in command failed e.g.: mv, grep,
TO=Timeout                  ; migration timed out
VC=My Version Control System ; A version control system operation failed
XX=Not Classified

[Standard Error Types]
Cnt=5
IP=Insufficient Privileges
DE=Developer Error
OM=Object Migrator          ; An Object Migrator failure of any kind.
TO=Timeout
XX=Not Classified
```

Most of the pre-defined error types are Transport error types. Transport errors are mainly due to problems with the physical movement mechanism. We can deal with these mainly with PPM team and DBA resources.

User errors result primarily from the way the users (ab)use the system. In a PPM Deploy system 'users' usually means 'Developers'. To address user errors we usually need to work with the developer community to agree on standards and safeguards to improve the process. Currently there is only one (DE) type. You might want to split this up.

Process errors can result from command scripts that fail in unexpected circumstances. The CS and SC types are examples of these.

10.4 The [Custom Error Codes] and [Standard Error Codes] Sections

These sections allow you to define strings and associate them with one of the type (category) codes that you defined in the Custom and Standard Error Types sections above.

The analysis tool checks each message string against the execution log. The first message string to match is counted as an occurrence of the category code associated with it.

```
[Custom Error Codes]
Cnt=150
```

```
1=KB| |Found text 'KSC_EXIT_STATUS' without a '$?' and without an exit status.
2=DE| |ORA-00942: table or view does not exist
3=DE|f|ORA-00955: name is already used by an existing object
4=TO| |Command(s) timed out...
5=LE|s|ORA-01418: specified index does not exist
etc
```

```
[Standard Error Codes]
Cnt=24
```

```
1=IP|f|ORA-01031: insufficient privileges
2=OM| |MSG-00001: No objects were successfully migrated.
3=OM| |ORA-12541: TNS:no listener
4=OM| |MSG-00001: LOAD : Did not find any Concurrent Programs
5=TO| |ORA-02049: timeout: distributed transaction waiting for lock
Etc
```

Optionally, a |s| or |f| force code (after the type= and before the string) directs the analysis tool to override PPM's opinion of whether the migration succeeded or failed. Exactly why this happens and what the directives do is documented in Section 8.5 and Appendix A.

For the first run you can leave the defaults as-is.

10.5 The [Type Chart] Section

These options control the `dplmetrics_type.html` time-lapse chart.

```
[Type Chart]
Title=Top 10 PPM Migration Error Types
Period Unit=Quarter
ListTop=10
ListPct=80
WidthPx=700
HeightPx=350
```

Title: You may want to change this if you change either of the List options below.

Period: The choices are: Year Quarter Month

ListTop: List the top 'n' error types or

ListPct: List the types totalling up to 'n' percent of the errors.

The program will use whichever measure results in the most types being listed.

WidthPx: The width of the chart.

HeightPx: The height of the chart.

And, lastly,

10.6 General Notes for Configuration File Maintenance

- * Unused Entries MUST be ;commented out or removed
- * Cnt MUST be correct for all non-comment entries
- * Numbers MUST be consecutive for non-comment entries

You are now ready for your first analysis run. We suggest that you pick a period that is small enough to run in a reasonable time, but big enough to contain the full spectrum of migration errors. This depends very much on the volume of migrations going through the system. A single month is probably the minimum period, and a quarter is recommended, at least for the first run.

11. Advanced Configuration

11.1 The 'force' feature.

The 'force' code feature allows you to set up Deploy Metrics to account correctly for migrations in cases where you consider that PPM has not returned success or failure properly..

It's use is not mandatory, and you can dispense with it entirely if you want to, simply by replacing |f| or |s| force codes in the distribution dplmetrics.ini file with the | | code.

11.2 Check the pre-set force codes

Some of the pre-defined strings in the ini file have pre-set force codes.

You should open any 'f > s' or 's > f' entries in the dplmetrics_logs.html file and check that you agree that the force codes are appropriate for your installation. If you do not agree, then replace the string's |f| or |s| force code with a | |,

11.3 Is the 'force' feature right for you?

If you are using the Deploy Metrics tool solely to monitor and manage service levels then the 'force' feature is not very important.

Count adjustments due to |f| and |s| qualifiers are very unlikely to make any significant change in the ERRORS BY TYPE category counts. The action you would take would be the same whether you had 200 or 202 PW Password errors.

There are other uses of the tool where force codes are valuable:

11.4 Identifying Silent Failures

Identifying migrations where PPM has reported 'Success' when in fact the migration has failed *silently*, and addressing the root causes is an important benefit of using force codes appropriately.

A PPM migration can fail and still return a 'Succeeded' status. In this situation the PPM tool is telling users that a migration has succeeded when in fact it has failed.

```
sent [encrypted] command:
Hidden% sqlplus -s apps/#!/#*****#!/#@RICE1 @/app/RICE1/...

KSC_EXIT_STATUS 0
sent command:
cat 30952_RICE1_30540_39695_sqlplus.txt; echo KSC_EXIT_STATUS $?
Warning: Package Body created with compilation errors.
KSC_EXIT_STATUS 0
```

Silent failures of this kind undermine user confidence in the system at best, and at worst require users to do un-necessary work to verify that migrations have in fact actually succeeded.

11.5 Using the 'Force' feature to monitor-enforce coding standards

Let's suppose a migration runs kMigratorImport.sh and the log contains this warning:

Severity	Error message
Warning (low priority)	The character set of this content bundle (AL32UTF8) is not known to be compatible with the character set of this database Message name: MIG_CHARSET_DIFFERENT

It's just a warning. PPM and Deploy Metrics will (correctly) count the migration as a success.

But suppose we want the developers to explicitly specify the 'Different language or character set value that would prevent this warning?

By defining a 'MIG_CHARSET_DIFFERENT' string and setting it's force flag to |f| we can ensure that these migrations are counted as errors and that we will be warned of migrations that do not comply with our standards rule:

STANDARD	[IM]	[MIG CHARSET DIFFERENT	] s f	30089	14
STANDARD	[IM]	[MIG CHARSET DIFFERENT	] s f	30089	11
STANDARD	[IM]	[MIG CHARSET DIFFERENT	] s f	30089	12

If you decide to use the force code feature then you should read Appendix A.



12. Analysis

Over the course of several runs you will make data driven changes to the configuration file as you discover patterns in the execution logs over the course of several runs.

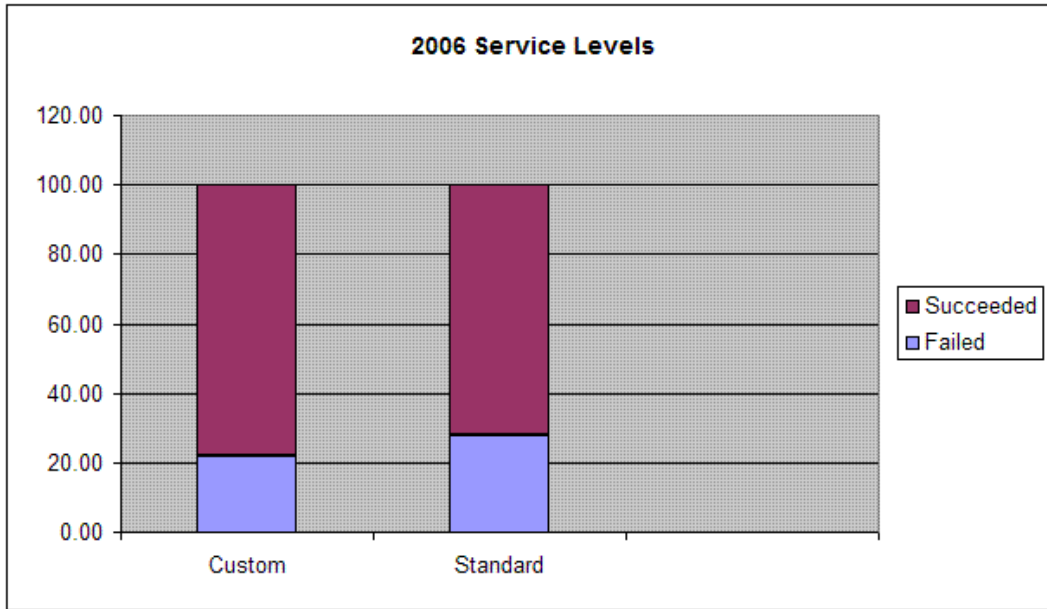
Two or three runs are usually sufficient to get accurate results and you can then move on to process the results for presentation and action.

There's a temptation to keep on fine tuning the results down to the last decimal point, but remember, this is not an accounting tool! The goal is to identify the key error types that are at the root of your service level issues, and put together an action plan to resolve them.

12.1 Current Service Levels

The first thing to do is establish the baseline. Where are we now.

We suggest you start by copying and pasting the PACKAGE+LINE+STEP MIGRATIONS report into a spreadsheet of your choice. From this a summary of current service levels can be generated:



Package+Line+Step Migrations

Custom

Succeeded Normal	28534	76.36%
Succeeded Forced (Kintana Success)	545	1.46%
Succeeded Forced (Kintana Failure)	105	0.28%

Custom Succeeded **29184** **78.10%**

Failed Normal	5804	15.53%
Failed Error (Kintana Success)	614	1.64%
Failed Forced (Kintana Success)	697	1.87%
Failed Forced (Kintana Failure)	1069	2.86%

Custom Failed **8184** **21.90%**

Total Custom 37368

Standard

Succeeded Normal	11338	71.95%
Succeeded Forced (Kintana Success)	0	0.00%
Succeeded Forced (Kintana Failure)	0	0.00%

Standard Succeeded **11338** **71.95%**

Failed Normal	969	6.15%
Failed Error (Kintana Success)	0	0.00%
Failed Forced (Kintana Success)	3347	21.24%
Failed Forced (Kintana Failure)	104	0.66%

Standard Failed **4420** **28.05%**

Total Standard 15758

12.2 Breakdown of major error categories

The next summary is derived from the ERRORS BY TYPE report.

It identifies the major categories that contribute to current error totals and service levels:

Custom

Transport

KB Kintana Bug	2059	25.16%
DT Directory Tree	252	3.08%
PW Passwords	179	2.19%
EN Environment	12	0.15%
TO Timeout	1290	15.76%
MT Middle Tier	254	3.10%
TF Trace Files	183	2.24%
ST Starteam	181	2.21%
IP Insufficient Privileges	55	0.67%
FT File transfer	22	0.27%

User

DE Developer Error	3460	42.28%
--------------------	------	--------

Process

CS Command Script	129	1.58%
SC Shell Command	108	1.32%

Total Custom 8184

Standard

Transport

IP Insufficient Privileges	3451	78.08%
OM Object Migrator	877	19.84%
TO Timeout	46	1.04%

User

DE Developer Error	46	1.04%
--------------------	----	-------

Total Standard 4420

12.3 Action Plan: Eliminations/Reductions of Error Categories

The next step is to work out what broad error categories can be eliminated or reduced.

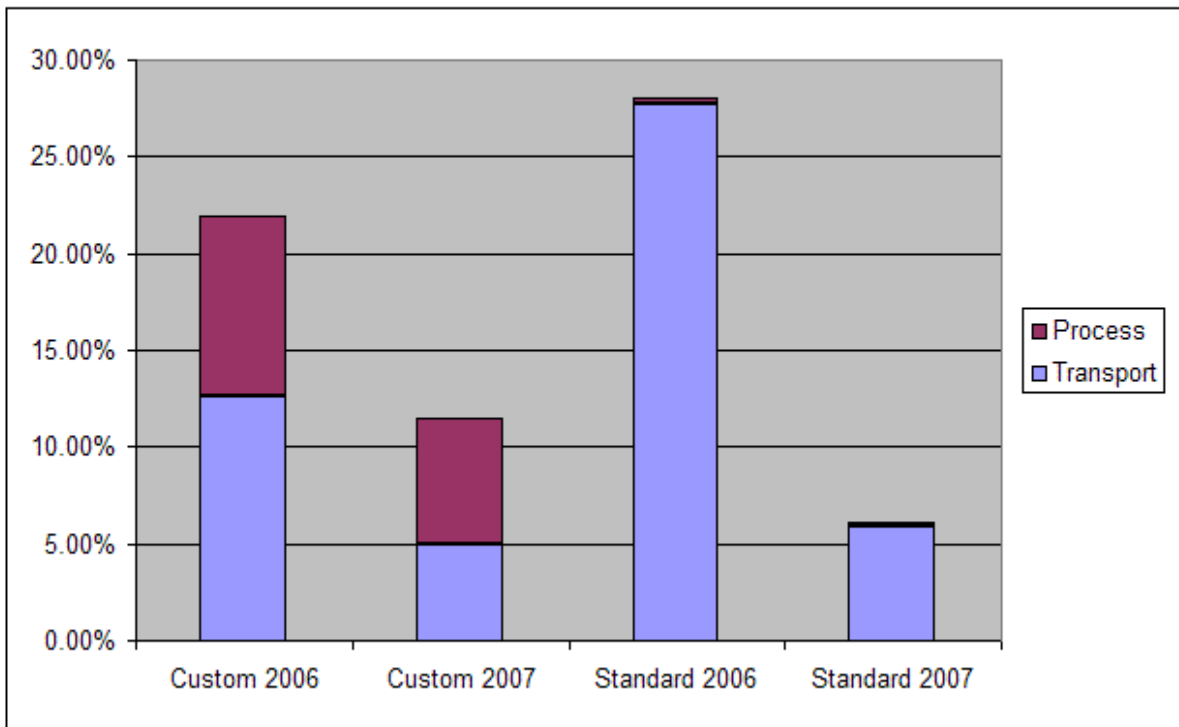
In the following example we've decided that by upgrading the PPM package to eliminate a bug, detecting and dynamically creating missing directories on the fly, and implementing a script to allow the DBA's to update password changes directly to PPM environment records we expect to cut our failed migrations from 21.9% to 11.49% for custom and from 28.05% to 6.15% for standard objects.

In addition to producing the following chart and table to document where you expect to achieve the new service levels you are thus generating in parallel an action plan for achieving them.

You'll want to list the specific error types you plan to reduce or eliminate.

If the analysis has disclosed excessive numbers of deleted packages the action plan to correct that could also be detailed here.

Kintana Deliver 2007 Service Levels Projection



And break down where the improvements are to come from:

	Error Percentages		Contribution to Service Level	
	2006	2007	2006	2007
Custom				
<i>Transport</i>			12.64%	4.92%
KB Kintana Bug	25.16%	0.00%		
DT Directory Tree	3.08%	0.00%		
PW Passwords	2.19%	0.00%		
CS Command Script	1.58%	0.00%		
EN Environment	0.15%	0.00%		
TO Timeout	15.76%	15.76%		
MT Middle Tier	3.10%	0.00%		
TF Trace Files	2.24%	2.24%		
ST Starteam	2.21%	2.21%		
SC Shell Command	1.32%	1.32%		
IP Insufficient Privileges	0.67%	0.67%		
FT File transfer	0.27%	0.27%		
<i>Process</i>			9.26%	6.57%
LE Logical Error	42.28%	30.00%		
Total Custom	100.01%	52.47%	21.90%	11.49%
Standard				
<i>Transport</i>			27.76%	5.86%
IP Insufficient Privileges	78.08%	0.00%		
OM Object Migrator	19.84%	19.84%		
TO Timeout	1.04%	1.04%		
<i>Process</i>			0.29%	0.29%
- LE Logical Error	1.04%	1.04%		
Total Standard	100.00%	21.92%	28.05%	6.15%

13. Maintenance.

13.1 Upgrades.

Frequent upgrades and re-configuration of server hardware and operating systems are a fact of life. Recognizing this, the product is not tied to your hardware in any way. You may move the application between servers in your organization without restriction.

Upgrading the hardware on which you have installed the application will not affect it (except to make it run faster).

13.2 De-Installation

The dplmetrics.exe program is completely standalone and makes no registry entries. It may be completely removed by deleting it, and the associated configuration file, license key file, and installation guide files.

13.3 Feedback

ZDS Corporation would very much appreciate it if you would email dave_goodall@ezds.com or support@ezds.com with your comments or suggestions.

Error messages for specific version control systems would be particularly appreciated. If you are using Borland's StarTeam we can supply defaults for that version control system.

Any information you supply will be held in strict confidence and not disclosed to third parties. Your responses will help us to improve the product.

13.4 Support

Please email requests for support or enhancements to dave.goodall@gmail.com

Appendix A: Success and Failure Overrides

Success and failure are ... slippery concepts in PPM.

PPM is going to classify each migration as either 'Commands completed without any errors' or 'Errors occurred during command execution'.

Normally we're going to agree with this, but the tool lets us add an 's' or 'f' forcing directive to each match string if we think differently.

```
16=SC| |Cannot create the specified file.  
13=LE|f|ORA-01031: insufficient privileges  
28=LE|s|ORA-01408: such column list already indexed
```

This tells the tool that we consider a match to indicate a migration as a failure or success regardless of Kintana's opinion.

As a result the book-keeping can be adjusted so that we will end up with more accurate service level estimates.

Adjustments like this are not simply book-keeping but point to a need to either add code to the command scripts to force the desired result, or fix underlying problems so that the users will get true success or failure indications from Kintana.

Each error string in the `dplmetrics_logs.html` file log to which forcing directives apply is marked:

s > f PPM erroneously reports the migration as succeeded. (Usually because a PL/SQL error is not the last operation, and the last, non-critical operation succeeded.)

The effects of this are that:

1. The user is not made aware that the migration has failed.
2. Errors are under-reported.
3. Silent failures sap user confidence in the system!

The `|f|` force directive forces the apparent success to be counted as a failure.

f > f PPM lucks out and reports the migration as failed. (Usually because the PL/SQL error *is* the last operation).

In this case the `|f|` force directive has no effect as we are of the same opinion. The migration will be counted as failed.

f > s PPM erroneously reports the migration as failed. (Usually because a (harmless) PL/SQL error is the last operation.)

The effects of this are that:

1. The user wastes time verifying from the log that there is in fact no error, and then has to force the package line to the next step.
2. Errors are over-reported.

The `|s|` force directive forces the apparent failure to be counted as a success.

s > s PPM lucks out and reports the migration as succeeded. (Usually because the non-critical PL/SQL error is not the last operation.)

In this case the `|s|` force directive has no effect as we are of the same opinion. The migration will be counted as succeeded.

Appendix B: Exception Handling

B.1 Return Codes

The program returns these codes. You may want to handle them if running the tool under a script.

Ret	Code	Indicates	Action
0		Success	None
1	DPM-00001	Missing or invalid Parameter syntax	User resolvable
2	DPM-00002	Unable to open output report file dplmetrics_rpts.html	User resolvable
3	DPM-00003	Unable to open output html file dplmetrics_type.html	User resolvable
4	DPM-00004	Unable to open output html file dplmetrics_pkgs.html	User resolvable
5	DPM-00005	Reserved	None
6	DPM-00006	Unable to set current working directory to [x] Err=[%x]	Refer to ZDS Support
7	DPM-00007	Unable to calculate html relative path	Refer to ZDS Support
8	DPM-00008	Unable to malloc file buffer space	Refer to ZDS Support
9	DPM-00109	You must correct the dplmetrics.ini file before continuing.	Action as indicated by the preceding message
19	DPM-00119	Invalid flag - not 'sfx' : Section=[%s] Entry=[%d] Code=[%s] Flag=[%c] String=[%s]	Correct the .ini file entry

B.2 Messages

The 'dplmetrics_rpts.html' file may also contain these messages:

Type		Message	Action
INFO	DPM-00009	Sorting the dplmetrics_pkgs.html file	None
ERROR	DPM-00010	dplmetrics_logs.html file was not created	Refer to ZDS Support
INFO	DPM-00011	Created the dplmetrics_logs.html file successfully	None
ERROR	DPM-00100	Max Cfg Parm Len (2048) Exceeded	Refer to ZDS Support
ERROR	DPM-00101	The dplmetrics.ini file Section [Custom Error Codes] entry #5 is mis-numbered.	Correct the entry.
ERROR	DPM-00102	The dplmetrics.ini file Section [Custom Error Codes] entry #9 specifies type code [ZZ] but the [Custom Error Types] section has no entry for this.	Correct the entry.
ERROR	DPM-00103	The dplmetrics.ini file Section [Custom Error Codes] entry #8 specifies force code [z]. Valid codes are ' ', 'f', and 's'.	Correct the entry.
ERROR	DPM-00104	The dplmetrics.ini file Section [Custom Error Codes] entry #6 string has not been specified.	Correct the entry.
ERROR	DPM-00105	The dplmetrics.ini file Section [Custom Error Types] Cnt=13 is incorrect.	Correct the entry.
INFO	DPM-00200	Discarding non PKG_directory [%s]	None
INFO	DPM-00201	Discarding test package [99999]	None
WARNING	DPM-00202	Missing package [99999]	Package logs should never be deleted. You should take action to prevent this.
WARNING	DPM-00203	Unknown file type : Package=[99999] File=[foo.bar]	Check the execution logs
ERROR	DPM-00204	Unable to determine the period for package [%s]. Check if logs exist."	Check the execution logs

INFO	DPM-00300	Discarded Over-length file [PKG_99999_PKGL_99999_BID_99999.html] 99999999 > Max File Size (999999)	See Note 1
ERROR	DPM-00301	Error 99 Reading 999999 bytes from 999999 byte file=[PKG_99999_PKGL_99999_BID_999999.html]	Refer to ZDS Support
ERROR	DPM-00302	Unable to open file [PKG_99999_PKGL_99999_BID_99999.html]	Refer to ZDS Support
ERROR	DPM-00400	File [PKG_99999_PKGL_99999_BID_99999.html] Field [Header : Destination Environment] Field stop limit reached	Refer to ZDS Support
ERROR	DPM-00410	Header field missing : Batch=[x] Line=[9] DestEnv(opt)=[y] WorkflowStepSource(opt)=[z] ObjectTypeName=[a] ObjectName=[b] PackageNo=[c] WorkflowName=[d] Workflow Step=[e] StartedTime=[f]",	Refer to ZDS Support
ERROR	DPM-00411	Unable to process the [Foo] section of the ini file. Check 'Cnt' is correct.	Correct the section 'count'.
ERROR	DPM-00500	Para [9] Unable to extract the CONC_REQ_LOGFILE name from [PKG_99999_PKGL_99999_BID_99999.html]. The file has not been processed."	Refer to ZDS Support
ERROR	DPM-00501	Unable to buffer file [%s]	Refer to ZDS Support
ERROR	DPM-00502	Unable to locate LOGFILE entry for [%s] in CONC_REQ array.	Refer to ZDS Support
INFO	DPM-00503	Refer to eZDS technical support.	Refer to ZDS Support
ERROR	DPM-00600	Unable to determine for log [%s] if the Started date [%s] is in the period %s to %s. The log has not been processed.",	Inspect the execution log. This message usually indicates that the log is malformed.
INFO	DPM-00601	Refer to eZDS technical support	Refer to ZDS Support
ERROR	DPM-00602	Orphan environment migration file [PKG_99999_PKGL_99999_BID_99999_ENV_99999.html%]. The file has not been processed.	Refer to ZDS Support
INFO	DPM-00603	Refer to eZDS technical support	Refer to ZDS Support
ERROR	DPM-00604	Unable to buffer file [%s]	Check file exists
ERROR	DPM-00605	Unable to classify file [PKG_99999_PKGL_99999_BID_99999.html] Object [Fozzy Bear] as CUSTOM or STANDARD. The file has not been processed.	Inspect the execution log.
ERROR	DPM-00606	Unhandled log file type [foo]. The file has not been processed	Refer to ZDS Support
INFO	DPM-00607	You may want to add an entry to the [Custom Error Objects] or [Standard Error Objects] sections in the ini file.	Add an entry to the indicated ini file section and, if needed, a category entry.
ERROR	DPM-00608	Unhandled force code [%c]. Valid codes are ' ', 'f', and 's'. Please correct the entr(ies) for string [%s] in the ini file.	Refer to ZDS Support
ERROR	DPM-00700	Reached maximum number of CONC_REQ_FILES for a package : [%s][%d]	Refer to ZDS Support
INFO	DPM-00701	Refer to eZDS technical support	Refer to ZDS Support
ERROR	DPM-00800	Reached maximum environments for an environment group : [%s][%d]	Refer to ZDS Support
INFO	DPM-00801	Refer to eZDS technical support	Refer to ZDS Support
ERROR	DPM-00900	Unable to follow environment links [PKG_99999_PKGL_99999_BID_99999.html]. The file has not been processed."	Refer to ZDS Support
ERROR	DPM-00901	Unhandled format. Not a link or 'Not Attempted'. The [%s] file has not been processed.	Refer to ZDS Support
ERROR	DPM-01000	Unable to sort Type count array	Refer to ZDS Support

ERROR	DPM-01100	Unable to sort Reason count array	Refer to ZDS Support
ERROR	DPM-01200	Unable to sort Object count array	Refer to ZDS Support
ERROR	DPM-01250	ini Section=[%s] : Unknown Type Code=[%s] File=[%s]	Refer to ZDS Support
ERROR	DPM-01300	ini Section=[%s] : Unknown Type Code=[%s] File=[%s]	Refer to ZDS Support
ERROR	DPM-01400	ini Section=[%s] : Unknown object=[%s] File=[%s]	Refer to ZDS Support
ERROR	DPM-01500	Unable to malloc array buffer space	Refer to ZDS Support
ERROR	DPM-01600	Unable to open input html file dplmetrics_pkgs.html]	Refer to ZDS Support
ERROR	DPM-01601	Invalid record [%d] in input html file [dplmetrics_pkgs.html]	Refer to ZDS Support
ERROR	DPM-01700	Unable to malloc chart counters	Refer to ZDS Support
ERROR	DPM-01701	Unable to malloc chart label array	Refer to ZDS Support
ERROR	DPM-01800	Invalid force code [%c]. Valid codes are ' ', 'f', and 's'.	Correct the ini entry.
INFO	DPM-01801	Please correct the entry for string [%d] [%s] in the ini file.	Correct the ini entry.
ERROR	DPM-01900	Unable to malloc array buffer space	Refer to ZDS Support
ERROR	DPM-01901	Unable to open input html file [%s]	Refer to ZDS Support
ERROR	DPM-01902	Error reading input html file [%s]	Refer to ZDS Support
ERROR	DPM-01903	Unable to open output html file [%s]	Refer to ZDS Support

Note 1: This message advises you that a log was excluded from the analysis because you specified a “Max File Size” parameter in the [Program] section of the configuration file and the program encountered a log that exceeded the size specified. PPM logs are normally only a few KB in size, but PPM occasionally, for unknown reasons, generates very large logs. These should be excluded. The effect on the quality of the analysis is negligible.

[End Document]