User Documentation

i-scream Historical Database Reporter

Data collected from the i-scream monitoring system may be stored in a database for subsequent analysis. The i-scream *historical database reporter* is used to produce graphical representations of data over time and meta data of such data, enabling you to make use of the data in many possible ways.

Revision History

28/03/01	Initial creation				
		Committed by:	pjm2	Verified by:	tdb1
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				Date:	
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				Date:	

Introduction

Data collected from the i-scream monitoring system may be stored in a database for subsequent analysis. The i-scream *historical database reporter* is used to produce graphical representations of data over time and meta data of such data, enabling you to make use of the data in many possible ways.

Obtaining the software

The latest build of the i-scream historical database reporter can always be found in the *Builds* section on the i-scream project web site: -

http://www.i-scream.org.uk/builds

The web site also provides other builds and information that you may find useful to assist in setting up a full i-scream monitoring system.

Installation

The historical database reporter may be run from any platform that has Java 1.2 (or greater) installed. The latest JDK may be obtained from http://java.sun.com.

The software is available in a .zip archive for Windows, or .tar.gz for Unix/Linux. When decompressing the archive, please ensure that you retain the directory structure.

Configuring up the software

It will be necessary to configure the software before it is run. This is a one-off procedure. It is necessary to tell the software which database to obtain data from, which reports to produce and for which period to produce the reports.

DBReporter.properties

This file contains essential settings for producing the historical database reports. The historical reports may be stored in any relational database management system, such as MySQL, so it is necessary to specify the connection string and driver name for the database.

The database connection string is used to specify the location, username and password for accessing the database. The below example assumes that the database is located on the same machine as the historical database reporter (localhost) and that the name of the database is “iscream”. The user name is “co600_10” and the password is “asdf” (These are just for illustration purposes): -

```
DatabaseConnectionString =
      jdbc:mysql://localhost/iscream?user=co600_10&password=asdf
```

The historical database reporter may be used with any relational database system by simply changing the name of the driver used. This software has built in support for use with MySQL databases, using the driver shown in the example below. The MySQL driver required is already in the build: -

```
MySQLDriverName = org.gjt.mm.mysql.Driver
```

To tell the historical database reporter which reports to generate, the filename of a report list must be provided. There is a sample report list (named reportlist.conf) included in the build, and this should be suitable without the need for any alteration: -

```
ReportList = reportlist.conf
```

When the historical database reporter runs, it outputs charts and meta data to a hierarchy of directories. The root of these directories must be specified in the properties file: -

```
OutputDirectory = /home/cut/pjm2/webpages/reports/historical
```

Finally, the two values below may be specified: -

```
ReportDayOffset = 0
DeleteDayOffset = 1
```

If the above values are not specified in the properties file, then the default values are assigned (0 and 1 respectively).

The ReportDayOffset and DeleteDayOffset are used to specify which period will be used to generate the reports and from which time to delete old reports from the database.

Time scale →

Deleted			Unaffected	Report	Unaffected
4	3	2	**1**	**0**	**Today**

The above example depicts the events that occur with the default settings. The ReportDayOffset may be used to specify which day to produce reports for. Typically, this will be left at the default value so that early each morning, the previous day's reports can be generated. However, if for some reason you wish to produce reports for a period several days ago, then you may increase this value as appropriate.

The DeleteDayOffset is relative to the start of the report period. This value defaults to 1, which means that all data that is a day older than the start of the report period will be deleted from the database when the historical reports have been generated. The value defaults to 1, such that an extra day's data will always be left in the database for recovery purposes in the event of problems.

reportlist.conf

This file contains the list of reports to be generated by the historical database reporter. It is only necessary to alter this file if you wish to produce your own types of reports.

Adding a custom report to the file is trivial. Any line in the file that begins with a comment ("#" character) or any line that does not make sense, is ignored by the historical database reporter. Each line consists of two or three parameters.

The first parameter is the name of the attribute stored in the database. This is specified as hierarchical XML, for example, `packet.load.load1` represents the contents in the <packet><load><load1> tag.

The second parameter Is a "friendly name" for the attribute. This allows custom reports to be sensibly named, for example "Load 1".

The final parameter is optional and is a number used to set the expected maximum value for the data. This can, for example, be used to set a limit of 100 on values which are known to be percentages.

Producing the reports

Once the software has been correctly configured, it may be run by executing the following: -

```
java –jar iscream-dbreproter.jar DBReporter.properties
```

Notice that the properties file is specified as the only command line parameter. This allows other properties files to be produced and used separately. The generation of reports may take a long time, depending on how many different reports are being generated and how many different machines reports are being produced for.

Expected output

Charts

Each report for each machine produces a GIF image that represents the average (mean) value for the report attribute over time. These are stored in a hierarchical directory structure of the form: -

```
[date]/[machine name]/[report name]
```

This directory structure allows the use of third party tools to allow easy navigation and summarisation of the reports. An example of such a tool has been produced by i-scream, and allows viewing of historical data via a web server. This tool is part of a collection of web utilities that is available from the *Builds* section of the i-scream web site, entitled “i-scream PHP web reports”.

All chart files have a file name of “i-chart.gif”.

Meta data

day.inc

This is a file containing PHP mark-up that specifies the day of the last report generated. This is used by the web interface provided by the i-scream team. This is located in the root of the output directory.

report.inc

This file is located in the [date] directory and is used by the i-scream web interface. It contains an option list of all reports produced for the particular date.

machines.inc

This file is also located in the [date] directory. It is also used by the i-scream web interface. It contains an option list of all machines for which reports are available.

i-data.txt

This is a file containing the data used to produce the chart. It is produced for each report and located in [date]/[machine name]/[report name]. This contains pairs of values, one pair per line, and may be used by future i-scream (or possibly third party) tools to produce reports of large periods of time without the requirement of long term database storage.

i-maxmin.txt

This file is written to [date]/[machine name]/[report name] and contains PHP mark-up to specify the maximum and minimum values for the report attribute during the report period.

Recommendations

It is recommended that the reports are generated early in the morning, or whenever there is least likely to be activity on the system. Producing reports can put a huge demand on the database management system, although the internal queuing within the i-scream monitoring system will be able to transparently cope with this for reasonable periods. Automatic daily running of the program can be done using cron on Unix/Linux or the Task Scheduler on Windows.

You are strongly advised to use the default value of DeleteDayOffset in order to ensure that the database contents keep within manageable levels.

You may produce your own interfaces to view the reports, but it is strongly recommended that you try out the web report interface produced by i-scream. This allows the viewing of the historical data produced by the historical database reporter as well as being able to view real-time data from host and alert information.

The web interface is available from the same *Builds* page on the i-scream web site.

Further information

Further information is available in our other documentation; the latest versions of which may be found online at the project website. Thank you for using i-scream products.

http://www.i-scream.org.uk