Bull Performance Report Server Edition

User's Guide

ESCALA

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Software

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Preface

Scope and Objectives

The purpose of this guide is to explain how to install, configure and use *Bull Performance Report Server Edition* (BPRse) on Bull Escala SP-LPAR-capable (Shared Processor Logical Partition) systems, running AIX 5L V5.3 or later and AIX V6.1.

Intended Readers

This guide is for AIX administrators of Bull Escala systems.

Structure

This guide is organized as follows:

Chapter 1   *Concepts and Components Overview*, describes the functionalities and the different components of the *Bull Performance Report Server Edition* product.

Chapter 2   *Installation and Configuration*, describes how to install, set up and configure *Bull Performance Report Server Edition* (BPRse) product on **BPRse server** and **BPRse client(s)**.

Chapter 3   *BPRse Web Application Interface*, explains how to use the BPRse Web Application, which is the Graphical User Interface of the BPRse product.

Chapter 4   *Generating PDF* Reports describes how to generate weekly and monthly PDF reports.

Chapter 5   *Administration and Troubleshooting* describes some tips and tricks you should be aware of, as administrator of BPRse.

Chapter 6   *Internal Architecture* describes the different processes used by the **BPRse client** and **server** to collect, analyse and build statistics and graphs from collected files.

Related publications

- The *Software Release Bulletin* (SRB) for Bull Performance Report Server Edition (Ref 86 A2 74EJ), provides release-specific information, restrictions and known problems for BPRse product.

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Chapter 1. Concepts and Components Overview

1.1 Functionalities

BPRse (Bull Performance Report Server Edition) is a Web-based application, providing daily, weekly and monthly statistics and graphs for:

- Processor pool utilization on SP-LPAR capable Escala systems (shared default pool and configured pools if any),
- Partition processor utilization and memory utilization on SP-LPAR capable systems for the following type of partitions: shared partitions, dedicated partitions, donating partitions and full-system partitions.
- Processor utilization and memory utilization on standalone Escala systems.

Statistics and graphs are based on data collected from one of the partitions of the SP-LPAR-capable system (collecting partition) using Topas Cross-Partition Recording tool.

Abnormal conditions are highlighted to make easier the detection of potential problems.

1.2 Bull Performance Report Server Edition Architecture

The *Bull Performance Report Server Edition* is composed of two parts:

- A **client** part, running on one of the partitions of each SP-LPAR-capable Escala system to monitor and on each standalone system to monitor. The client executes the collects of metrics from all other partitions of the system.

- A **server** part running on one standalone AIX machine or partition. The server builds graphs, statistics and Web pages.

Terminology

BPRse client   refers to a single partition of a SP-LPAR-capable system or to a standalone system where daily metrics are effectively collected and recorded. The term **collecting partition** is also used to designate the **BPRse client**.

Collected partitions   refer to other partitions of the SP-LPAR-capable system.

BPRse server   refers to the machine where collected data from client machines is stored, analyzed and where Web pages are generated to show graphs and statistics.

1.2.1   BPRse Client

The **BPRse client** runs the Topas Cross-Partition Recording Tool (**topas –R** option) to collect and record metrics from all the partitions of the SP-LPAR-capable system or from the standalone system.

The **topas** command is executed in background (with no display) and records the cross-Partition data. Recording files are stored in the **/etc/perf** directory in the form **topas_cec.YYMMDD**. Recordings cover single-day period (24 hours) and are retained for 8 days before being automatically deleted. This allows a week worth of data to be retained on the system at all times. The **topasout** command is used to convert these recordings into text-based reports (**topas_cec.YYMMDD_01**).

The **BPRse client** sends compressed collected reports (**topas_cec.YYMMDD_01.gz**) to the **BPRse server** every day, using FTP (or SSH)

1.2.2   BPRse Server

The **BPRse server** receives the daily collected reports from each **BPRse client**.

The **BPRse server** stores the reports in a directory hierarchy, then analyses the reports to calculate statistics and generates graphs showing the following information (for a day, a week and a month):

- The <u>shared processor pool utilization</u> of each SP-LPAR-capable monitored system
- The <u>configured multiple pools utilization</u> of each SP-LPAR-capable monitored system.
- The <u>physical CPU utilization</u> of the shared, dedicated and donating partitions of the SP-LPAR-capable monitored system.
- The <u>physical CPU utilization</u> of standalone monitored system.
- The <u>physical memory utilization</u> of the shared, dedicated and donating partitions of the SP-LPAR-capable monitored system.
- The <u>physical memory utilization</u> of standalone monitored system.
- The <u>repartition of processor utilization</u> between partitions (pool pie and cumulative graph representation)

Then the **BPRse server** builds the Web pages presenting the daily, weekly and monthly statistics and graphs and highlights abnormal situations (red for critical, orange for warning). This is performed once a day, using a cron.

You must use any Web browser with Flash Player plug-in to navigate through all the statistics and graphs views.

1.3   Hardware Requirements

The *Bull Performance Report Server Edition* product can monitor any SP-LPAR-capable Escala system.

The **BPRse server** can run on an AIX standalone server or partition. We recommend 2 GB of memory.

The **BPRse client** can run in a partition of a SP-LPAR-capable system or on a standalone machine.

1.4   Software Requirements

The minimum required AIX level is AIX 5.3 Technical Level 05 or AIX V6.1.

See also *Prerequisites* on page 2-1 for required software.

Chapter 2. Installation and Configuration

This chapter describes how to install, set up and configure *Bull Performance Report Server Edition* (BPRse) product on **BPRse server** and **BPRse client(s)**.

2.1 Installing Bull Performance Report Server Edition

Bull Performance Report Server Edition product is not factory pre-loaded. The software is composed of four filesets:

- **bprse.client** to be installed on each **BPRse client**.

- **bprse.tools, bprse.rte, bprse.gui** to be installed on **BPRse server**.

2.1.1 Prerequisites

2.1.1.1 Prerequisites on BPRse server

The **bprse.tools, bprse.rte, bprse.gui** filesets require:

- Java5 Software Development Kit (**Java5.sdk** fileset)

- GCC compiler dynamic runtime library (**libgcc** rpm)

- A library for reading and returning lines on a terminal (**readline** rpm)

- A library for manipulating JPEG image format files (**libjpeg** rpm)

- A library of functions for manipulating PNG image format files (**libpng** rpm)

- A library providing XML and HTML support (**libxml_*2*_** rpm)

- A free and portable TrueType font rendering engine (**freetype2** rpm)

- A pixmap library for the X Window System (**xpm** rpm)

In addition, a HTTP server (**apache2**) and a database (**PostgreSQL**) are required. The **apache2** Web server and **PostgreSQL** database are provided in the fileset **bprse.tools**.

Before installing **bprse.tools** fileset, check that there is enough free space in the following directories:

- **/usr**: 46 MB free for apache2
- **/opt**: 32 MB for PostgreSQL
- **/tmp**: 90 MB free (58 MB free for apache2 and 42 MB free for PostgreSQL)

2.1.1.2 Prerequisites on BPRse client

Bull Performance Report Server Edition software requires AIX 5L for POWER V5.3 (TL 05 or higher), or AIX V6.1 on **BPRse client(s)**.

The **bprse.client** fileset requires **perfagent.tools** fileset.

2.1.1.3 Optional Software Prerequisites

If you plan to use **ssh** instead of **ftp** for transferring collected data from **BPRse client(s)** to **BPRse server**, the following software must be installed on **BPRse server** and **BPRse client(s)**:

- **Open Secure Shell** (**openssh.base** fileset)
- **Secure Sockets Layer** and **Cryptography libraries** and tools (**openssl** rpm)

2.1.1.4 Hardware Requirements

- At least 2 GB of memory is recommended on **BPRse server**.
- It is also recommended to have enough disk space on **BPRse server** for database, collected files and generated graphs.

2.1.2 Read the Software Release Bulletin

It is highly recommended to read the SRB (*Software Release Bulletin*) *for Bull Performance Report Server Edition (BPRSE) V2* (Ref. 86 A2 74EJ) that comes with the software. It includes environment requirements and restrictions as well as late-breaking news. The SRB also includes the procedure to install the software.

2.1.3 AIX Files Modified by BPRse Scripts

The *Bull Performance Report Server Edition* software installation modifies the following AIX files.

On BPRse server

/etc/inittab	To start automatically **apache2** Web server and **PostgreSQL** database.
/var/spool/cron/crontabs/bpr	To process daily, weekly and monthly the data collected by **BPRse client(s)** and to generate graphs, statistics and Web pages.
/etc/passwd, /etc/group	To create **bpr** and **postgres** groups
	To create **bpr** and **postgres** users

On BPRse client

/etc/inittab	To start automatically metrics collecting and recording (execute the **topas –R** command)
/var/spool/cron/crontabs/root	To transfer daily the collected data to **BPRse server**

2.1.4 Installing over 2.0 version

If BPRSE 2.1 is installed over the 2.0 version, the following warning is displayed during the installation:

```
WARNING: Version 2.0 of BPRSE is installed. Installing the 2.1 version
will invalidate the database you used with 2.0 version. Version 2.1
will use a new database.To migrate the data from 2.0 database to 2.1
database, contact the Bull support.
```

After installation of V2.1, comments marks are added to the **crontab** entries related to **bpr** so that **process_day**, **process_week** and **process_month** are not launched.

After installing BPRSE V2.1 over V2.0, you can choose between two options:

- You can migrate data from 2.0 database to 2.1 database:
  Contact your Bull support representative.

- Or you can start with an empty new database and take into account existing collects. Do as follows:

  a. Remove graphs of V2.0 version:
  ```
  rm -rf /home/bpr/site/graph
  rm -rf /usr/bprse/site/graph
  ```

  b. Remove 2.0 database:
  ```
  /usr/bprse/bin/bpr_delete_db2.0
  ```

  c. Remove 2.0 log files:
  ```
  rm /home/bpr/log/*
  ```

  d. Configure BPRSE Server 2.1, as specified in section 2.2.1 *Configuring BPRse Server*, on page 2-4.
  Note: it will not be necessary to create and link the **/bprsefs/bpr_output** directory, because collects already exist in this directory.

  e. Launch **/usr/bprse/bin/bpr_process_day** as **bpr** user (it can take a long time if you have many collect files; it is recommended to launch this process as **nohup**).

  f. Launch **/usr/bprse/bin/bpr_process_week** as **bpr** user.

  g. Launch **/usr/bprse/bin/bpr_process_month** as **bpr** user.

  h. Remove the comments marks in the **crontab** entries related to **bpr**.

2.2　Configuring Bull Performance Report Server Edition

You must configure **BPRse server** first, then **BPRse client(s)**.

2.2.1　Configuring BPRse Server

This section explains how to set up **BPRse server** and how to get started.

At installation time, **BPRse server** is configured as follows:

- The **bpr** user and **bpr** group are created.
- The **postgres** user and **postgres** group are created.
- The working directories in the home directory of the **bpr** user are created.
- The default configuration files are created.
- The **crontab** entry for **bpr** user is updated to execute daily, weekly and monthly processing on stored collects.
- The **inittab** is updated for launching **apache2** Web server and **PostgreSQL** database.

The configuration of **BPRse server** consists in the following steps:

1. Set up the passwords for the **bpr** and **postgres** users.
2. Check disk space and create file system for database and collects.
3. Set up and Start PostgreSQL database.
4. Set up and Start apache2 Web server.
5. Edit configuration files.

Note   If you encounter problems to configure **BPRse server**, refer to *Internal Architecture*, on page 6-1.

2.2.1.1　Setting Up the Passwords for the bpr and postgres Users

The **bpr** AIX user and **postgres** AIX user are created at *Bull Performance Report Server Edition* installation time.
The **bpr** user will be used for processing collects and generating graphs and Web pages.
The **postgres** user will be used for setting up and managing the database.

To set up the password for **bpr** or **postgres** user:

1. Login as **root** user.
2. Use a standard AIX method to set an AIX password for the **bpr** or **postgres** user.
3. Logout.
4. Login as **bpr** or **postgres** user and set the password again.
5. Logout.

2.2.1.2 Checking Disk Space and Creating File System for Database and Collects

Important

1. It is required to create file systems for database. The file system name will be required at the database creation.

2. It is recommended to create a file system for storing the collected files and storing generated graphs. Then link the predefined directories under /home/bpr for storing collected files and generated graphs to the created file system directories.

File system for database

It is required to create a file system for database (for example, **/bprsedb**)
The file system size depends on:
– the number of machines,
– the number of partitions,
– the data retention parameters.

The estimated size of the database is about 500 MB for one machine with 8 partitions for 2 months of data.

/home/bpr sub-directories

You have to check if there is enough space in the **/home/bpr** sub-directories where the collected files from the monitored machines are stored and where graphs are generated:
– **/home/bpr/bpr_output** directory
– **/home/bpr/graph** directory

The required disk space depends on:
– the number of machines,
– the number of partitions,
– the number of graphs to keep (data retention parameters for daily, weekly, monthly data and graphs),
– the number of processed collects to keep (data retention parameters for collects).

Recommended size for /home/bpr/bpr_output directory

This directory contains collected files (**topas_cec.YYMMDD_01**) of all machines to monitor. The directory hierarchy is the following:

/home/bpr/bpr_output/<collecting partition hostname>/topas_cec.*

The size of the collected files depends on the number of partitions of the SP-LPAR-capable system. The estimated size is about **2,5 MB** per day for one partition.

• A machine with 8 partitions requires **20 MB** for one **topas_cec.YYMMDD_01** file.

• A machine with 24 partitions requires **60 MB** for one **topas_cec.YYMMDD_01** file.

After the process of a collected file, the file is automatically compressed into **topas_cec.YYMMDD_01.gz** (the compression rate is about 13, which means 1,5 MB for 8 partitions) and moved to **topas_cec.YYMMDD_01.gz.done**.

For **one** machine with eight partitions, the estimated size for **2 months** of collect (default duration) is:

20 MB x 1 day + 1,5 MB x 60 days = 110 MB
for **/home/bpr/bpr_output/<collecting partition hostname>**

You can backup *.gz files on any support and delete them from the **/home/bpr/bpr_output/<collecting partition hostname>** directory.

Recommended size for /home/bpr/graph directory

This directory contains the generated graphs for days, weeks and months.
The directory hierarchy is the following:

/home/bpr/graph/day
/home/bpr/graph/week
/home/bpr/graph/month

The size for the graphs of one day (or one week or one month) is about **1.4 MB** for one machine with eight partitions.

The estimated size for a machine with eight partitions for storing the graphs of 2 months (daily, weekly and monthly graphs) is about **50 MB**.

Creating /home/bpr sub-directories

It is recommended to create a file system for the two sub-directories according to the estimated sizes then use symbolic links as follows.

1. Create a file system with **automount** option at boot time (for example, `/bprsefs`) according to the estimated size.

2. Mount the file system:

```
mount /bprsefs
```

3. Create the directories under the file system:

```
mkdir -p /bprsefs/bpr_ouptut
mkdir -p /bprsefs/graph/day /bprsefs/graph/week /bprsefs/graph/month
```

4. Link directories:

```
ln -sf /bprsefs/bpr_output /home/bpr/bpr_output
ln -sf /bprsefs/graph /home/bpr/graph
```

5. Modify the access rights for the **bpr** user:

```
chown -R bpr:bpr /<bprsefs>
```

2.2.1.3 Setting up and Starting PostgreSQL database

The software for **PostgreSQL** database is delivered in **bprse.tools** fileset and it is installed in **/opt/freeware/pgsql** directory.

The scripts to create and set up the database are delivered in **bprse.rte** fileset. At installation time, the **postgres** user and **postgres** group are created.

To create and set up the database follow these steps.

PATH for postgres user

Modify the **PATH** environment variable (edit the **.profile**) of **postgres** user to add:

```
/opt/freeware/pgsql/bin
```

postgresql.conf file

This file is the **PostgreSQL** configuration file located in **/usr/lpp/bprse.database** directory. You have to edit this file to adjust two parameters according to the memory size available on the **BPRse server**. By default, the parameters values are suitable for a memory size of 2 GB:

```
shared_buffers = 512 MB
effective_cache_size = 1024 MB
```

Run the command **lsattr –El mem0** on the **BPRse server** to retrieve the memory size. If the memory size is different from 2 GB, modify the two values according to the following rule:

```
shared_buffers = 25% of memory size
effective_cache_size = 50% of memory size
```

Example:
For a memory size of 1 GB, **lsattr -El mem0** output is:

```
goodsize 1024 Amount of usable physical memory in Mbytes False
size     1024 Total amount of physical memory in Mbytes  False
```

Set the **shared_buffers** and **effective_cache_size** parameters to:

```
shared_buffers = 256 MB
effective_cache_size = 512 MB
```

Create the database

Before creating the database, you have to create a file system (for example, **/bprsedb**). See 2.2.1.2 *Checking Disk Space* paragraph for sizing rules of the database file system.

To create the database, log as root user and run the following command:

```
/usr/bprse/bin/bpr_create_db </filesystem_mount_point>
```

Where: `</filesystem_mount_point>` is the mount point of the file system for database.

The command performs the following operations:
- Store database environment variables in **/usr/bprse/data/setdb** file,
- Mount file system for database if not already mounted,
- Create data and log directories database file system and modify access rights (for example, **/bprsedb/data** and **/bprsedb/log** directories)
- Initialize database
- Copy **postgresql.conf** file to database directory,
- Start PostgreSQL processes,
- Create database and database user: database name is **bprse** and user name is **bpr** (password: **bpr**),
- Add entry in **/etc/inittab** to start database at boot time.

Initialize the database schema

To define database tables and functions necessary to BPRse server, log as root user and run the following command:

```
su - postgres -c "/usr/bprse/bin/bpr_init_db"
```

The command performs the following operations:
- Define all database tables,
- Define all statistics functions.

Stopping, starting PostgreSQL database

Usually, run the following commands to stop / start PostgreSQL database:

```
/usr/bprse/bin/bpr_stop_db [-m fast]
/usr/bprse/bin/bpr_start_db [-w]
```

You can also use **pg_ctl** command under **postgres** user to stop or start database.
Enter **pg_ctl –help** to get information on options.
See also the **PostgreSQL** documentation.

2.2.1.4   Setting up and Starting apache2 Web Server

The software for **apache2** Web database is delivered in **bprse.tools** fileset and it is installed in **/usr/local/apache2** directory.

The **apache2** Web server is automatically configured and launched when the **bprse.gui** fileset is installed:

- The configuration file **/usr/lpp/bprse.gui/httpd-bprse.conf** is automatically copied in **/usr/local/apache2/conf/extra** directory and included in standard **/usr/local/apache2/conf/httpd.conf** file.
  This file contains all needed information for apache2 Web Server configuration such as user, directory index, alias, script alias…)

- The apache2 Web server is started.

- An entry in **/etc/inittab** is automatically added to start **apache2** Web server at boot time.

Stopping, starting or restarting apache2 Web Server

Usually, run the following commands to stop / start / restart apache2 Web Server:

```
/usr/local/apache2/bin/apachectl stop
/usr/local/apache2/bin/apachectl start
/usr/local/apache2/bin/apachectl restart
```

2.2.1.5   Editing Configuration Files for BPRse Server

Two configuration files are necessary for the BPRse Server:
  - **/usr/bprse/classes/bprse.properties**
  - **/home/bpr/bpr_conf/color.properties**

bprse.properties file

Note   To edit the **bprse.properties** file, you have to login as **bpr** user or you can modify the rights of the file using the **chown bpr.bpr bprse.properties** command.

This file contains the following properties with their default values:

```
dbLogin = postgres
dbPassword = postgres
dbDriver = org.postgresql.Driver
dbName = bprse2.1
dbServer = 127.0.0.1
logLevel = info
rootPath = /home/bpr/
graphPath = /home/bpr/graph/
logPath = /home/bpr/log/
outputPath = /home/bpr/bpr_output/
confPath = /home/bpr/bpr_conf/
machineList = machine.txt
userProperties = /home/bpr/bpr_conf/user.properties
colorProperties = /home/bpr/bpr_conf/color.properties
```

color.properties file

Note   To edit the **color.properties** file, you have to login as **bpr** user or you can modify the rights of the file using the **chown bpr.bpr color.properties** command.

This file contains the following properties with their default values. It is possible to customize the colors of graphs.

```
#
# Colors can be defined in 3 different ways:
#    - by their name:
#           red, blue, black, cyan, magenta, orange, green, yellow, pink
#    - by their hexadecimal value:
#           #FFFFFF
#    - by their RGB value:
#           111,111,111
#

# colors for machine graphs
machine.dedicated=black
machine.pool_used=blue
machine.nbcpu=red

# colors for pool graphs
pool.used=cyan
pool.used_avg= blue
pool.day_night_average=magenta
pool.poolsize=black
pool.warn=orange
pool.high=red

# colors for history graphs
history.peak=red
history.average=blue
history.avg_max_day=magenta
history.avg_max_night=green

# colors for partition cpu graphs
partioncpu.used=cyan
partioncpu.used_avg=blue
partioncpu.day_night_average=magenta
partioncpu.entitled=green
partioncpu.usable=black

# colors for partition memory graphs
partitionmem.inuse=cyan
partitionmem.used_avg=blue
partitionmem.inlinemem=black

# colors for pool area and pie graphs
poolareapie1=red
poolareapie2=blue
poolareapie3=orange
poolareapie4=green
poolareapie5=yellow
poolareapie6=magenta
poolareapie7=cyan
poolareapie8=pink
poolareapie9=2,158,0
poolareapie10=156,2,14
poolareapie11=9,2,144
```

2.2.1.6 Editing Configuration Files for Web application

A configuration file is necessary for the BPRse Web interface:

/home/bpr/bpr_conf/machine.txt

machine.txt file

Note	To edit the **machine.txt** file, you have to login as **bpr** user or you can modify the rights of the file using the **chown bpr.bpr machine.txt** command.

This file lists the machines to monitor and the collecting partition for each of them. You must create a **machine.txt** under **/home/bpr/bpr_conf** directory file and edit this file to set the appropriate values. An example is available: **/home/bpr/bpr_conf/machine.txt.sample** file.

Syntax:

```
<collecting_partition_uname>=<machine_name>[=group_name]
```

collecting_partition_uname

Result of **uname –n** command on the collecting partition (Bprse client)

machine_name   Name of the machine as displayed in the Web pages and graphs. It is recommended to use the name defined in Hardware Management Console (**Properties** menu of the Managed Server).

group_name   Name used for generating PDF reports for a group of machines; it is optional (see *Administration and* Troubleshooting, on page 5-1).

Example:

To monitor two machines (`pl1650` and `pl6450`), assuming that the collecting partition for `pl6450` is `partitionA` and the collecting partition for `pl1650` is `partitionB`, the **machine.txt** file is as follows:

```
partitionA=pl6450
partitionB=pl1650
```

2.2.2 Configuring BPRse Client(s)

Important   Prerequisite:

Using HMC interface, you must set the flag "Allow Performance Information Collection" in the partition properties dialog box (Hardware tab) of the BPRse client.

This section explains how to set up **BPRse client(s)** and how to get started. The configuration steps explained in this section must be done on each **BPRse client**.

Note   Configuration information is also available in the **README.bprse.client** file in the **/usr/lpp/bprse.client** directory.

After **BPRse client** software installation (**bprse.client** fileset), you can find configuration files and scripts in the **/usr/lpp/bprse.client** directory.

The configuration of a **BPRse client** consists in the following steps:

1. Check disk space.

2. Edit/Update the **topasR.conf** configuration file.

3. Start or Stop collecting and reporting (using **config_topasR** script).

4. Install/Configure **ssh** (only if you plan to use scp as transfer method between **BPRse client(s)** and **BPRse server**).

2.2.2.1 Checking Disk Space

Note   Increase the **/** file system size or create a new file system mounted on **/etc/perf**.

Before starting collecting, you have to check if there is enough space in the **/etc/perf** directory where collected files (**topas_cec.YYMMDD**) are stored.

The size of the collected files depends on the number of partitions of the SP-LPAR-capable system:
- A machine with 8 partitions requires **8 MB** for one **topas_cec.YYMMDD** file.
- A machine with 24 partitions requires **24 MB** for one **topas_cec.YYMMDD** file.

Collected files in the **/etc/perf** directory are retained for 8 days before being deleted. You have also to take into account the text-based file size (output of **topasout** command on a collected file: **topas_cec.YYMMDD_01**) which is about 6 x size of **topas_cec.YYMMDD.**

You can estimate the total size required for collected files according to the following rule (for a machine with 8 partitions):

(8 MB x 8 days) + (8 MB x 6)=112 MB

If you plan to keep local copies of **topas_cec.YYMMDD_01** compressed files, check that there is enough space in the local directory defined for storing the copies.

2.2.2.2 Editing and Updating the topasR.conf Configuration File

Two samples of configuration file are provided under **/usr/lpp/bprse.client**:

- **topasR.conf.sample**
- **topasR.conf.sample1**

If you plan to use **ftp** to transfer collected files to **BPR server**, use the **topasR.conf.sample** file as template.
If you plan to use **scp** to transfer collected files to **BPR server**, use the **topasR.conf.sample1** file as template.

To create the configuration file:

1. Copy the selected sample file to **/usr/sbin/bpr/bin/topasR.conf**

```
cp /usr/lpp/bprse.client/topasR.conf.sample /usr/sbin/bpr/bin/topasR.conf
```

or:

```
cp /usr/lpp/bprse.client/topasR.conf.sample1 /usr/sbin/bpr/bin/topasR.conf
```

2. Edit and Modify **/usr/sbin/bpr/bin/topasR.conf** file to define the values described below.

SYSTEM_INFO	Y/N to append system information to collected files (default: **Y**)
SEND_TO_SERVER	Y/N to transfer the collected file to the server (default: **Y**)
KEEP_LOCAL_COPY	Y/N to keep a compressed local copy of the collected file (default: **N**)
KEEP_LOCAL_DIR	Directory for local copies of collected files (default: **/tmp/BPR_collects**)
KEEP_LOCAL_DAYS	Number of days the local copies are retained (default: **3**)
USE_SSH	Transfer method to use between **BPRse client** and **BPRse server**. Enter 0 for **ftp**, 1 for **scp**. To use **scp**, the **tssh** key must be exchanged between **BPRse client** (**root** user) and **BPRse server** (**bpr** user). Refer to *Installing and Configuring* SSH (optional), on page 2-15.
BPR_LOGIN	**bpr** user on **BPR server** (default: *bpr*).
BPR_PASSWD	**bpr** user password on **BPR server** (default: *bpr*). This implies to have already set a password on **BPRse server**. Refer to *Setting Up the Passwords for the bpr and postgres* Users , on page 2-4. The value is not significant for scp transfer.
SERVER_NAME_OR_IP	BPRse server IP label or IP address. This address must be set to 127.0.0.1 if BPRse server and client are installed on the same machine and if you plan to use ftp for transfer.

2.2.2.3 Starting and Stopping Collecting and Reporting (config_topasR Script)

Starting collecting and reporting

To start topas Cross-Partition collecting and recording (**topas -R**) for Bull Performance Report Server Edition, execute the command:

```
/usr/sbin/bpr/bin/config_topasR add
```

This script automatically:

- Updates the **/etc/inittab** file to execute Cross-Partition recording and collecting on startup
- Launches the Cross-Partition recording and collecting
- Updates the **root crontab** to transfer collected files to BPR server each day at 00h15.

Stopping collecting and reporting

To stop collecting and reporting, execute the command:

```
/usr/sbin/bpr/bin/config_topasR delete
```

This script automatically:

- Removes the **/etc/inittab** entry for Cross-Partition recording and collecting
- Stops the Cross-Partition recording and collecting process
- Removes the **crontab** entry for collected files transfer to BPR server.

Refreshing collecting and reporting

To refresh collecting and reporting, execute the command:

```
/usr/sbin/bpr/bin/config_topasR refresh
```

This script automatically:

- Stops the Cross-Partition recording and collecting process
- Launches the Cross-Partition recording and collecting.

2.2.3   Installing and Configuring SSH (optional)

If you plan to use **scp** transfer method between BPRse client(s) and BPRse server, **ssh** must be installed and configured on the BPRse server and each BPRse client.

Installing SSH

openssh fileset and its prerequisite rpm package **openssl** must be installed on **BPRse server** and each **BPRse client**..
Read the SRB (*Software Release Bulletin* for *Bull Performance Report Server Edition*) for installation procedure.

Generating SSH key

On **BPRse client**, use the following steps to generate an RSA key pair of the SSH protocol. This is the default starting with OpenSSH.

1. Log in as **root** user and go to the **/.ssh** directory.

2. Enter the **ssh-keygen –t rsa** command.

3. Accept default location key file and do not enter passphrase.

4. The output is the following:

```
Generating public/private rsa key pair.
Enter file in which to save the key (//.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in //.ssh/id_rsa.
Your public key has been saved in //.ssh/id_rsa.pub.
The key fingerprint is:
d6:3f:11:da:44:63:ee:17:0a:e0:98:ca:3b:16:4d:fe root@lpar2
```

Repeat these steps on each **BPRse client**.

Enabling no password mode

1. On BPRse client:

    a. Transfer the key file **/.ssh/id_rsa.pub** of user root from **BPRse client** to the **/tmp** directory of **the BPRse server** using the **scp** command (user **bpr**):

```
scp id_rsa.pub bpr@<BPRse_server_IP_address>:/tmp
```

    b. Enter **bpr** password when asked.

2. On BPRse Server

    a. Login as **bpr** user an go to **.ssh** directory

    b. Append the file **/tmp/id_rsa.pub** to the **authorized_keys2** file:

```
cat /tmp/id_rsa.pub >> authorized_keys2
```

c. Remove the **/tmp/id_rsa.pub** file:

```
rm /tmp/id_rsa.pub
```

d. Verify the communication from **BPRse client** to **BPRse server** by entering the command (no password prompt):

```
ssh bpr@<BPRse_server_IP_address> date
```

Repeat these steps for each **BPRse client**.

Chapter 3. BPRse Web Application Interface

This chapter explains how to use the BPRse Web application Interface, which is the user interface of the BPRse product.

3.1 BPRse Web Application Components

3.1.1 Web Browser

The Web browser is the interface through which the user requests information.

The user can run the Web browser from any host or station on the network, as long as the **BPRse server** is known and reachable through the network.

Any Web browser with **Flash Player** plug-in can be used (**Mozilla**, **Internet Explorer** …)

3.1.2 Web Application

The BPRse Web application is in charge of gathering and displaying information requested by the user through the Web browser. The user interface is available in French or in English and conforms to the browser's language.

The related fileset is **bprse.gui**.

Note   The BPRse Web application mainly consists of a Flex application and PHP scripts that build the Web pages to display through the Web browser.

3.2 Accessing BPRse Web Application and Specifying URLs

You can access BPRse Web Application from your Web browser by specifying an URL that has the following format:

http://<IP-spec>/bprse

In this URL, **IP-spec** is an IP label or an IP address that is valid and reachable to connect to the **BPRse server**.
When an appropriate URL is specified, you are prompted to enter a **user ID** and a **password**.

- You must specify **bprw** for user ID (default password: **bprw**) if you want to consult the statistics and graphs.
- You must specify **bpradm** for used ID (default password: **bpradm**) if you want to perform administrative tasks.

Once the correct password is entered, BPRse Web Application Home page is built and displayed.

3.3   BPRse Web Application Pages

3.3.1   Home page

The Home page displays information for each monitored system.

Figure 3-1.   Home page

Machines:
Name of the system as defined in the **machine.txt** file (refer to *Editing Configuration Files for Web application*, on page 2-11).

Shared Pool Utilisation:
Percentage of the shared pool utilisation for the previous month, the previous week and the day before for SP-LPAR capable system only.

Resources:
Colour areas indicating if thresholds (**Warning** threshold and **High** threshold) have been reached or not for the previous month, week or day. Select a machine and click on **Show** button to display detailed graphs and statistics for the machine and for the corresponding timeframe.

The metrics taken into account to calculate the utilization of the resources are:

- **shr_physb** (shared pool busy): a value per minute

- **shr_physb_avg**: a value = moving average of **shr_physb** for a 30 minutes period

The areas are colored according to the following rules:

- ORANGE
    - A peak value has been detected: max(shr_physb) > high threshold

Or:

– The moving average maximum is greater than the warning threshold: max(shr_physb_avg) > warning thresold

- RED
  – The moving average maximum is greater than the high threshold: max(shr_physb_avg) > high threshold

- GREEN
  – No peak detected : max(shr_physb) < warning threshold
  And:
  – The moving average maximum is less than the warning threshold: max(shr_physb) < warning threshold

The thresholds values are defined in the **Setup** -> **Thresholds** panel (see *Changing Thresholds*, on page 3-23).

Last available:
Date of the last available daily report.

- If there is a daily report for day before, the date is in green color.

- If there is no daily report for day before, the date is in red color.

3.3.2 Showing Machine Information

From the Home page, select a machine and click the **Show** button. By default, the last processed day is displayed.

The displayed page is divided into three areas (see Figure 3-2 for example):

- Navigation tree

- Calendar

- Graphs and statistics
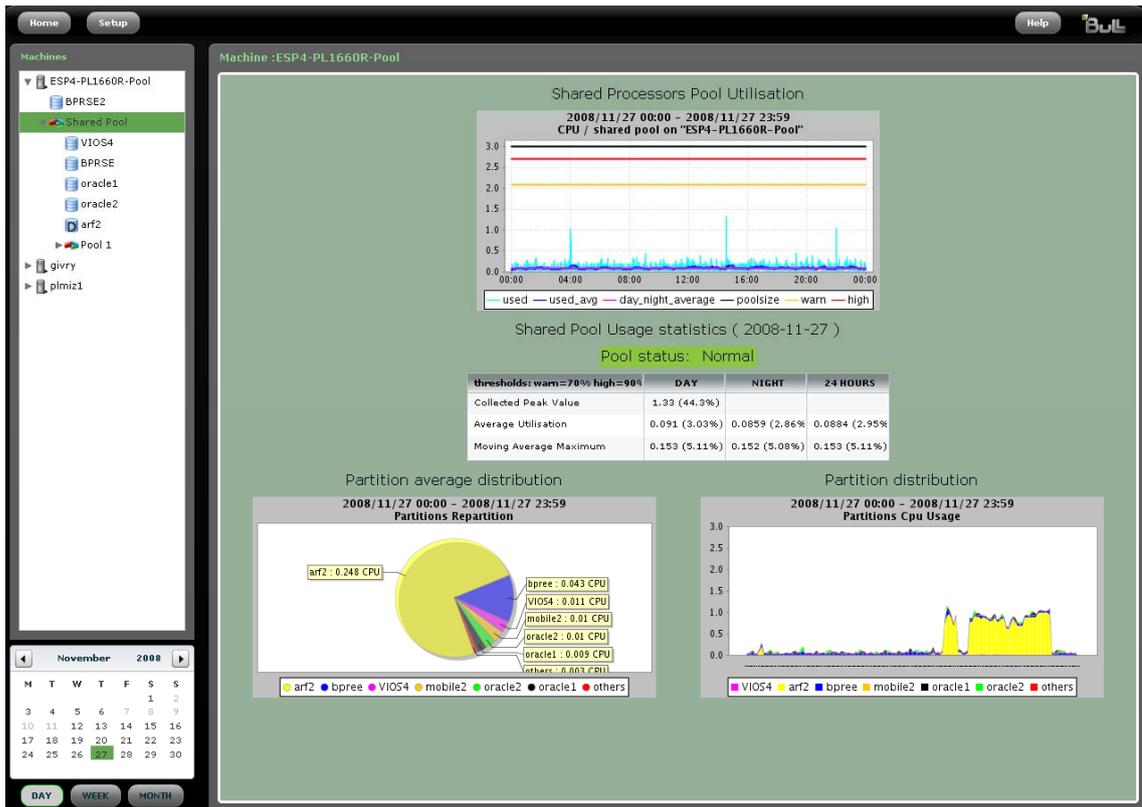
Figure 3-2.   Showing a "machine"

3.3.2.1   Navigation Tree

The navigation tree represents the monitored machines with their partitions classified as follows:

- **Dedicated partitions** or **full-system partitions** are directly attached under machine,

- **Shared partitions** and d**onating partitions** using default pool are grouped together under **Shared Pool** item,

- **Shared partitions using configured pool** are grouped under **Pool n** item, where n is the configured pool ID.
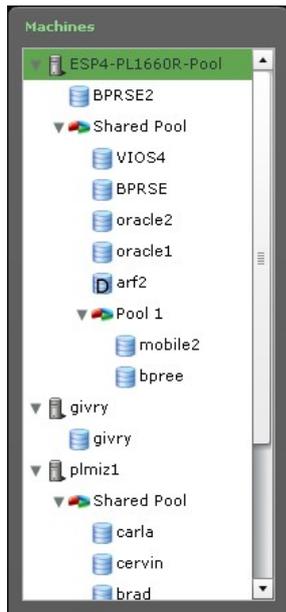
Figure 3-3.   Navigation tree

In the figure above, the navigation tree shows three machines:

- **ESP4-PL1660R-Pool**, a SP-LPAR capable machine with several type of partitions:
  - A dedicated partition (**BPRSE2**)
  - A Shared Pool with 4 shared partitions (**BPRSE**, **VIOS4**, **oracle1**, **oracle2**) and 1 donating partition (**arf2**)
  - A configured pool (**Pool 1**) with 2 shared partitions (**mobile2**, **bpree**)

- **givry**, a standalone machine (it appears as a machine with only one dedicated partition (**givry**)

- **plmiz1**, a SP-LPAR capable machine with only shared partitions belonging to a Shared Pool (**carla, cervin, brad**, …).

3.3.2.2   Calendar

Figure 3-4.   Calendar

The calendar allows to select the days, weeks and months to display corresponding graphs and statistics. By default, the last available day processed is selected; it appears in green color.

If no report is available for a day, the date is in grey and cannot be selected.

To switch to day, week, or month mode, click the **DAY**, **WEEK** or **MONTH** button:

- In DAY mode, the selected day appear in green colour.

- In WEEK mode, when you select a day of the week, all the days of the week appear in green colour.

- In MONTH mode, when you select a day of the month, all the days of the month appear in green colour.

You can use the arrows at the top of the calendar to change month.

3.3.2.3 Graphs and Statistics

The graphs and statistics displayed depend on:

- The item selected in the navigation tree: machine name, Shared Pool, Pool n or partition name.

- The type of item selected in the navigation tree: SP-LPAR system or full-system, dedicated or donating or shared partition, shared default pool or configured pool.

- The date and period selected in the calendar.

The following table summarizes the type of graphs displayed according to the selected item and the machine characteristics for a **day** period.

	SP-LPAR-capable System			Full-system partition Standalone system
	Shared partitions & donating partitions	Dedicated partitions	Mix of shared partitions & dedicated partitions	
Machine	N/A	N/A	- dedicated + shared pool utilization graph	N/A
Partition	- CPU usage graph and statistics - Memory usage graph and statistics	- CPU usage graph and statistics - Memory usage graph and statistics	- CPU usage graph and statistics - memory usage graph and statistics	- CPU usage graph and statistics - Memory usage graph and statistics
Shared pool	- Shared processor pool usage graph and statistics - Partition average distribution pie - Partition distribution		- Shared processor pool usage graph and statistics - Partition average distribution pie - Partition distribution	
Pool n	- Configured pool usage and statistics - Partition average distribution pie - Partition distribution		- Configured pool usage and statistics - Partition average distribution pie - Partition distribution	

Table 3-1.   Type of graphs displayed according to selection and to system, for a day period

If the selected period is **week** or **month**, additional graphs are displayed.

For week:
– typical day graph for processor usage
– typical day graph for memory usage
– historical graph for processor usage

For month:
– typical week graph for processor usage
– typical week graph for memory usage
– historical graph for processor usage

3.4 Examples of Daily Graphs and Statistics

3.4.1 SP-LPAR machine with dedicated partitions, shared partitions and a configured pool.

The machine **ESP4-PL1660R-Pool** is a SP-LPAR capable machine with 4 processors and several types of partitions:

- A dedicated partition **BPRSE2 :** one dedicated processor

- A **Shared Pool** (3 processors) with 4 shared partitions **BPRSE, VIOS4, oracle1, oracle2** and 1 donating partition **arf2**

- A configured pool **Pool 1** (limited to 2 processors of the shared pool) with 2 shared partitions **mobile2, bpree**

3.4.1.1 Machine

When you select the machine name, the displayed page shows the graph of the processor utilization for the whole machine.

- Processor utilization of dedicated partitions appears in the bottom of the graph (**dedicated** value represented by the green line).

- Processor utilization of shared partitions or shared pool appears just above (**pool_used** value represented by the red curve).

- The number of physical processors of the machine appears at the top (**#Cpu** value represented by the black line).

- The Processor Type and Processor Clock Speed are displayed in this page.
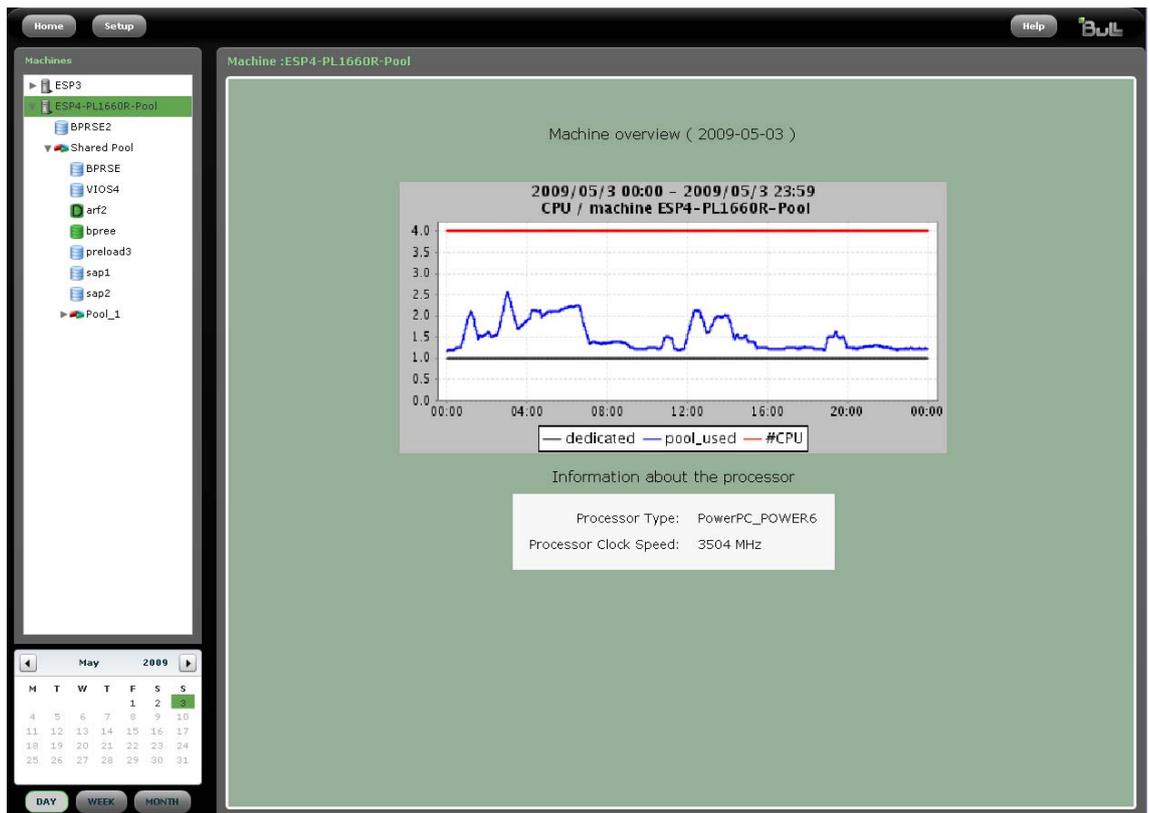
Figure 3-5.   Machine overview graph

This type of graph is displayed only for machines with a mix of partitions: Dedicated and Shared partitions.

If you click the arrow just on the left of the machine name, you expand the navigation tree for that machine; this allows to access to daily graphs and statistics for partitions, shared pool and configured pool.

3.4.1.2   Shared Pool

When you select the **Shared Pool** item, the displayed page shows several graphs and tables.

- **Shared Processors Pool Utilisation graph**
  The graph represents the shared processors pool utilization (**used** value) expressed in number of physical processors of the shared pool (**poolsize** value) on a 24-hour period.
  The **used_avg** value is the moving average, computed on a 30-minutes period based. The 24-hour period is split into a day period (7h00-19h00) and a night period (19h00-07h00) by default (**day_night_average** value). Use the **Setup -> Misc** page to modify the day and night beginning hours.
  Two lines indicate the warning and high thresholds expressed in percentage (**warn** and **high** values, by default, 70% and 90%). Use the **Setup -> Thresholds** page to modify the thresholds.

- **Shared pool usage statistics**

  The table displays the following statistics (expressed in number of physical processors of the shared pool and percentage):

  Collected Peak Value: maximum number of physical processors of the shared pool consumed in the 24-hour period. It indicates if the peak has appeared during the day or night.

  Average Utilisation: average on day, night and 24-hour period.

  Moving Average Maximum: maximum value of moving average on day, night and 24-hour period.

  According to the thresholds set, the value and color of **Pool Status,** above the table, depends on **Moving Average Maximum** or **Collected peak Value**.

Normal:	green color (< warning threshold)
Warning:	orange color (> warning threshold and < high threshold)
High:	red color (> high threshold)

- **Partition average distribution pie**

  The pie shows the average utilization of the n top-consuming partitions on a 24-hour period. The less consuming partitions are grouped together under others item. By default, n is set to 6. Use the **Setup -> Misc** panel to modify the number of partitions to display in the pie.

- **Partition distribution graph**

  The graph represents the cumulative utilization of the n top-consuming partitions on a 24-hour period. The less consuming partitions are grouped together under others item.
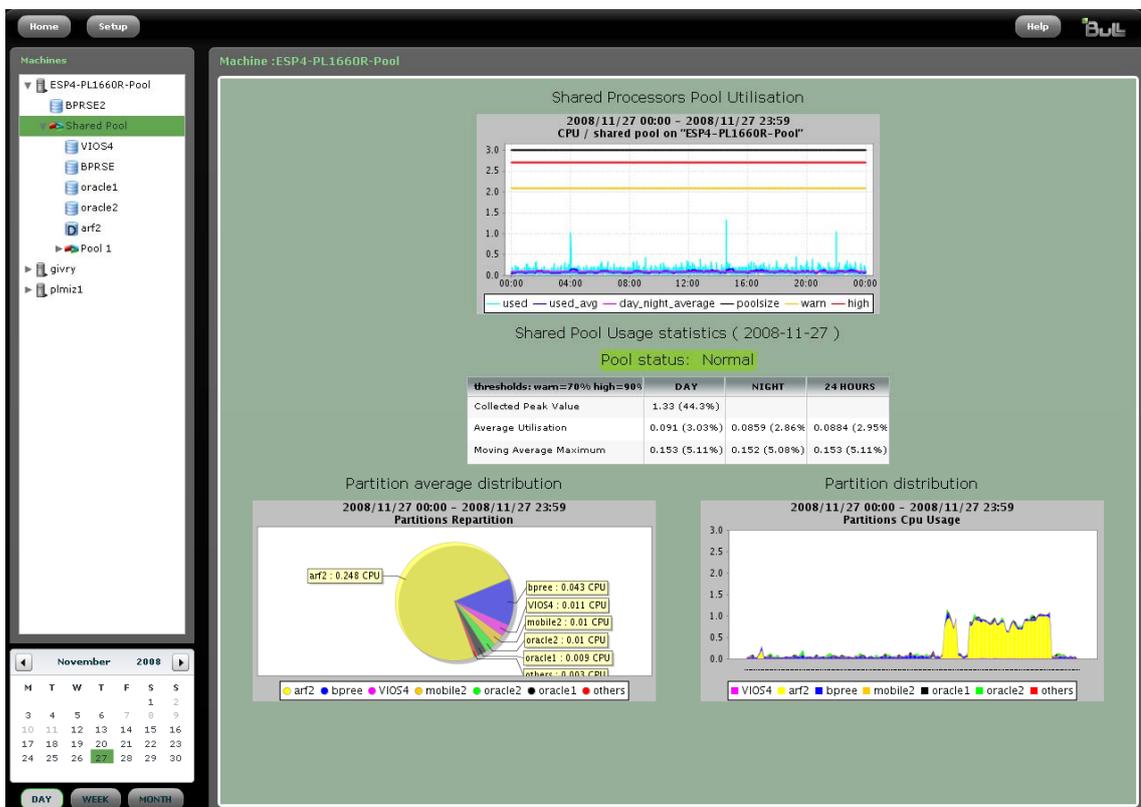
Figure 3-6.   Shared Pool graphs and statistics

3.4.1.3   Configured Pool (Pool1)

When you select a configured pool (**Pool n** item), the displayed page shows several graphs and tables similar to the graphs and tables of a shared pool.

The pool size is restricted to the configured pool size.

The partitions distribution graphs are restricted to shared partitions belonging to the configured pool.

There is no pool status information for a configured pool.
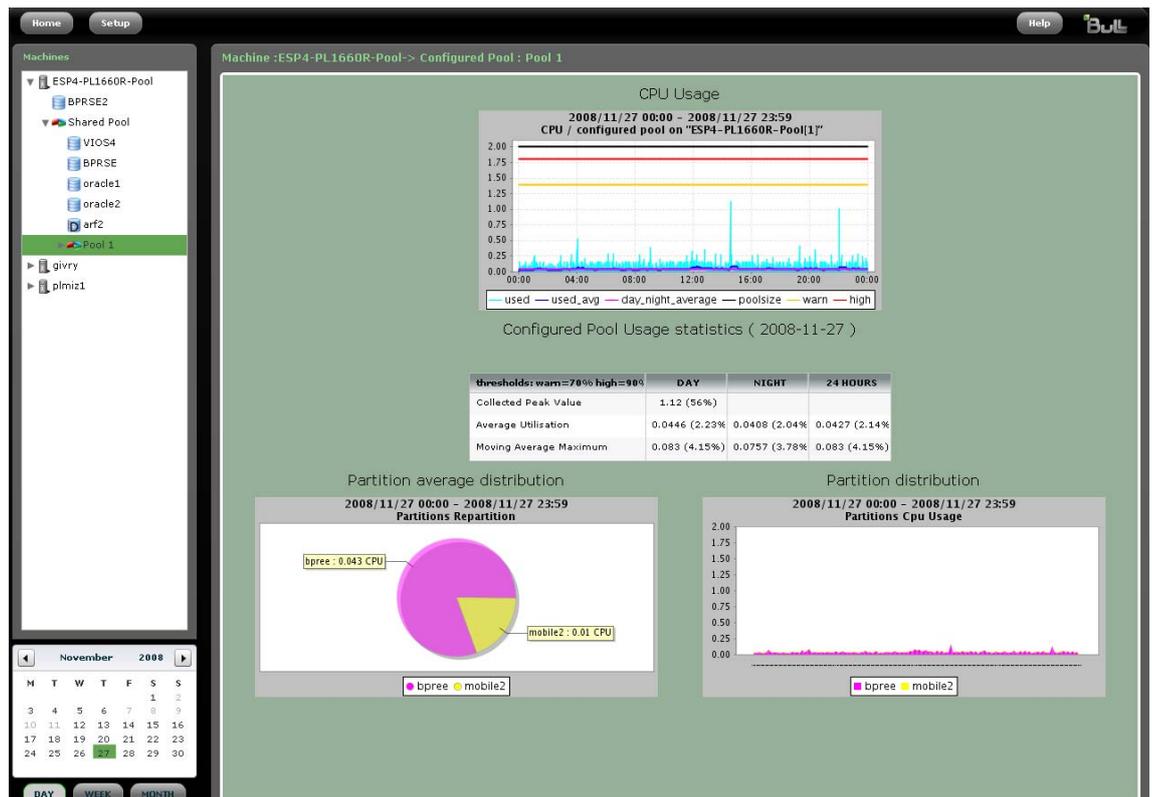
Figure 3-7.   Configured pool graphs and statistics

3.4.1.4   Shared Partitions

If you select a **Shared Partition** under a **Shared Pool** item or **Pool n** item, the displayed page shows several graphs and tables.

- **CPU Usage graph**
  The graph represents the partition CPU utilization (used value) expressed in number of physical processors on a 24-hour period.
  The used_avg value is the moving average, computed on a 10-minutes period based. The 24-hour period is split into a day period (7h00-19h00) and a night period (19h00-07h00) by default (day_night_average value). Use the **Setup -> Misc** page to modify the day and night beginning hours.
  The green line (entitled value) shows the entitled capacity of the partition.
  The black line (usable value) shows the maximum number of processors for the partition.

- **Memory Usage graph**

  The graph shows the partition memory utilization on a 24-hour period.
  The blue line shows the memory utilization of the partition (**inuse** value)
  The black line shows the maximum memory allocated to the partition (**onlinemem** value).

- **CPU Usage statistics**

  The array displays the following statistics related to the CPU utilization of the partition (expressed in number of physical processors and percentage).

  Collected Peak Value:
  maximum number of physical CPU consumed in the 24-hour period. It indicates if the peak has appeared during the day or night.

  Average Utilisation:
  average on day, night and 24-hour period. An average utilization greater than the high limit (50 by default) is highlighted at partition level in the navigation tree, by a red icon.
  An average utilization less than the low limit (10 by default) is highlighted at partition level in the navigation tree, by a blue icon.
  An average utilization comprised between these two limits is highlighted, at partition level, in the navigation tree, by a green icon. Use the **Setup -> Thresholds** page to modify the limits values.

  Moving Average Maximum:
  maximum value of moving average on day, night and 24-hour period.

- **Memory Usage statistics**

  The array displays the following statistics related to the memory utilization of the partition (expressed in size of allocated memory and percentage).

  Collected Peak Value:
  maximum number of memory consumed in the 24-hour period. It indicates if the peak has appeared during the day or night.

  Average Utilisation:
  average on day, night and 24-hour period.

  Moving Average Maximum:
  maximum value of moving average on day, night and 24-hour period.
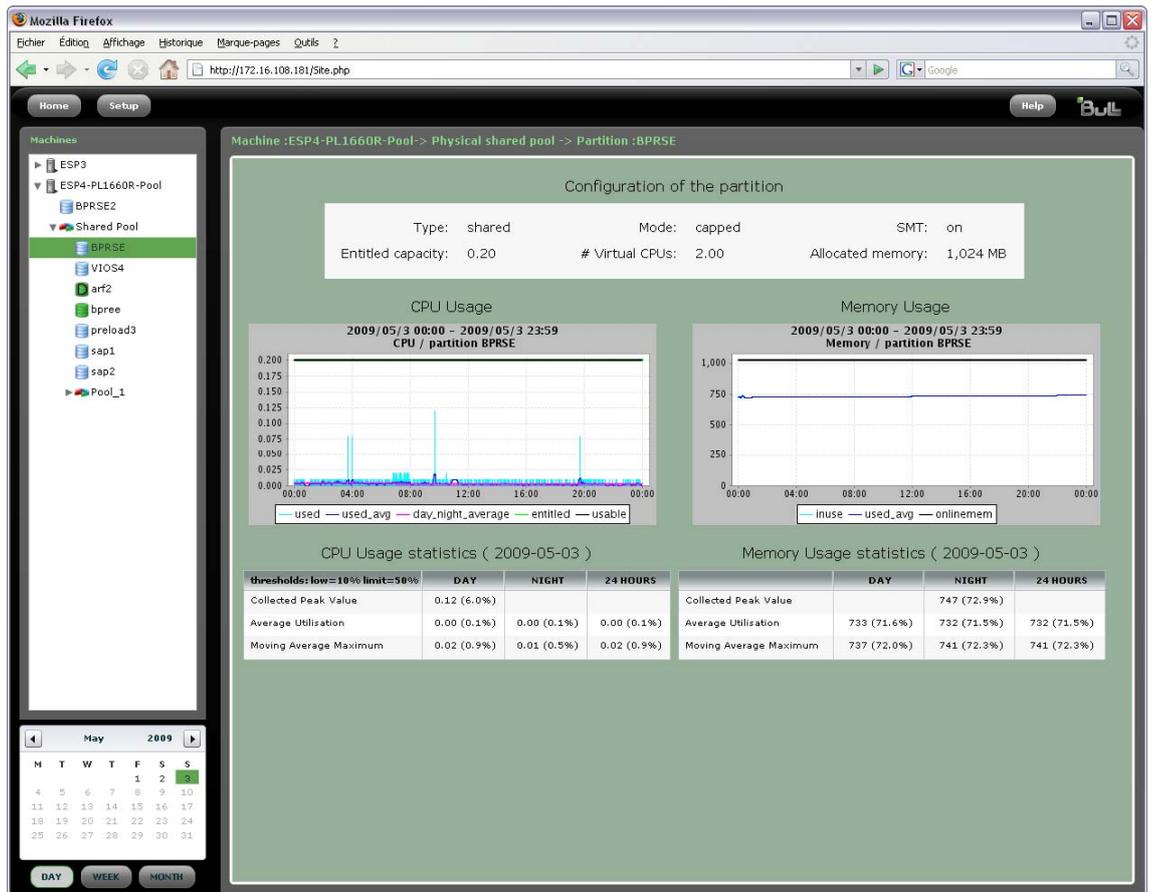
Figure 3-8. Shared partition graphs and statistics

3.4.1.5 Dedicated Partitions

Partitions names displayed under the machine name are **Dedicated Partitions** (for example, `BPRSE2`).

If you click the partition name, the displayed page shows:

- **CPU Usage graph**

  The graph represents the partition CPU utilization (**used** value) expressed in number of physical processors on a 24-hour period.
  The **used_avg** value is the moving average, computed on a 10-minutes period based.
  The 24-hour period is split into a day period (7h00-19h00) and a night period (19h00-07h00) by default (**day_night_average** value). Use the **Setup -> Misc** page to modify the day and night beginning hours.
  The green line (**entitled** value) shows the numbers of processors dedicated to the partition.

- **Memory Usage graph**

  See the description of memory usage graph in *Shared Partitions*, on page 3-11.

- **CPU Usage statistics**

  See the description of CPU usage graph in *Shared Partitions*, on page 3-11.

- **Memory Usage statistics**

  See the description of memory usage statistics in *Shared Partitions*, on page 3-11.

3.4.1.6 Donating partitions

Donating Partitions appear under **Shared Pool** item and are represented by a icon with a D (for example, `arf2` partition).

Statistics and graphs are similar to those described in *Dedicated Partitions*, on page 3-13.

3.4.2 Standalone machine and full-system partition

The machine `givry` is a standalone machine with two processors. For this type of machine, there is no value for shared pool utilization on the home page.

Full-system partition or standalone machine appear at the first level of the navigation tree with only one partition attached (for example, `givry` machine).

Statistics and graphs are similar to those described in *Dedicated Partitions*, on page 3-13.

3.4.3 SP-LPAR machine with only shared partitions

The machine `plmiz1` is a SP-LPAR machine with 2 processors shared by 8 partitions. There is no configured pool.

The graphs and statistics are similar to those described in *Shared Pool*, on page 3-9 and *Shared Partitions*, on page 3-11.

3.5   Example of Weekly Graphs and Statistics

To display the weekly reports, click on a day in the calendar and then on **WEEK** button.
The weekly graphs and statistics for the selected item in the navigation tree are displayed.

There are two specific types of graphs for weeks:
–   A CPU usage graph for a typical day
–   History graph
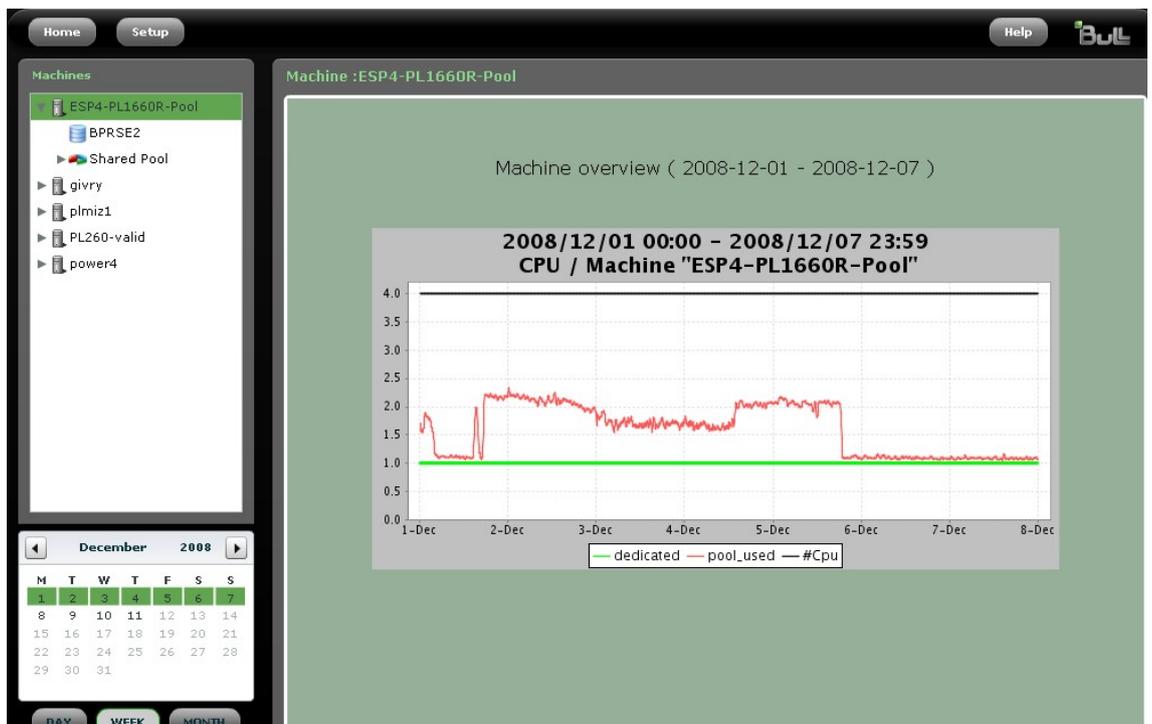
Figure 3-9.   Weekly machine overview report
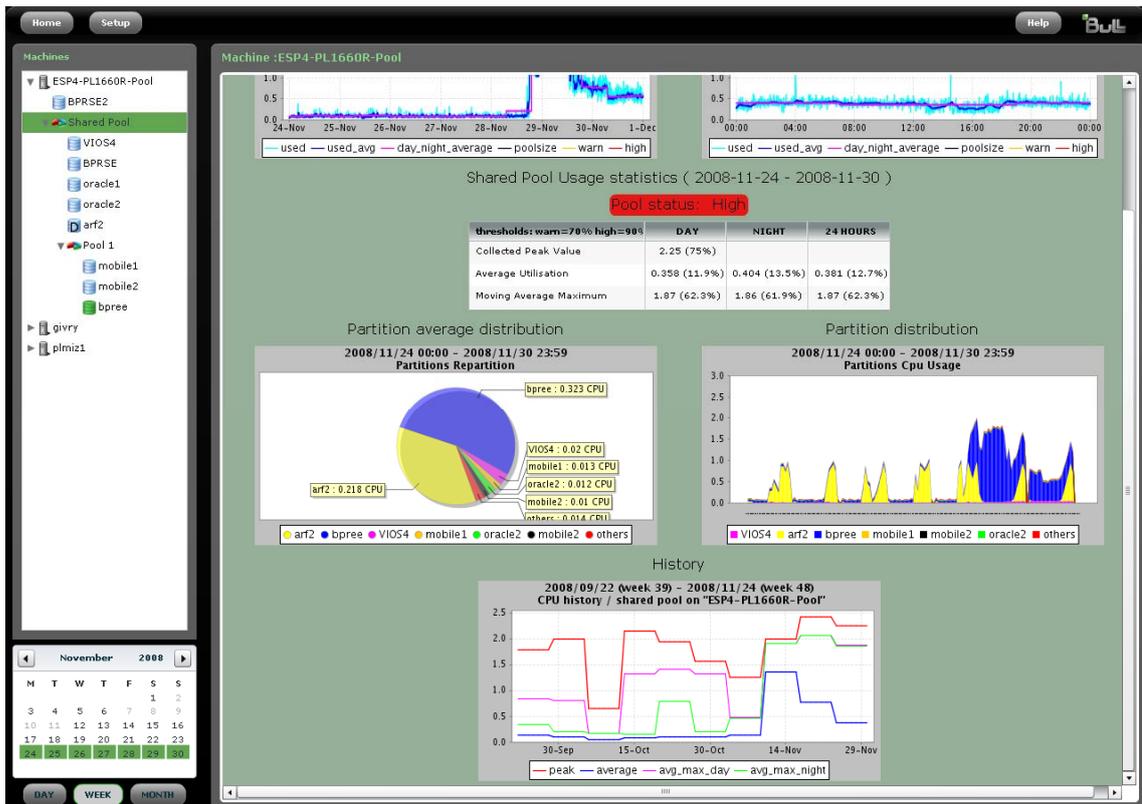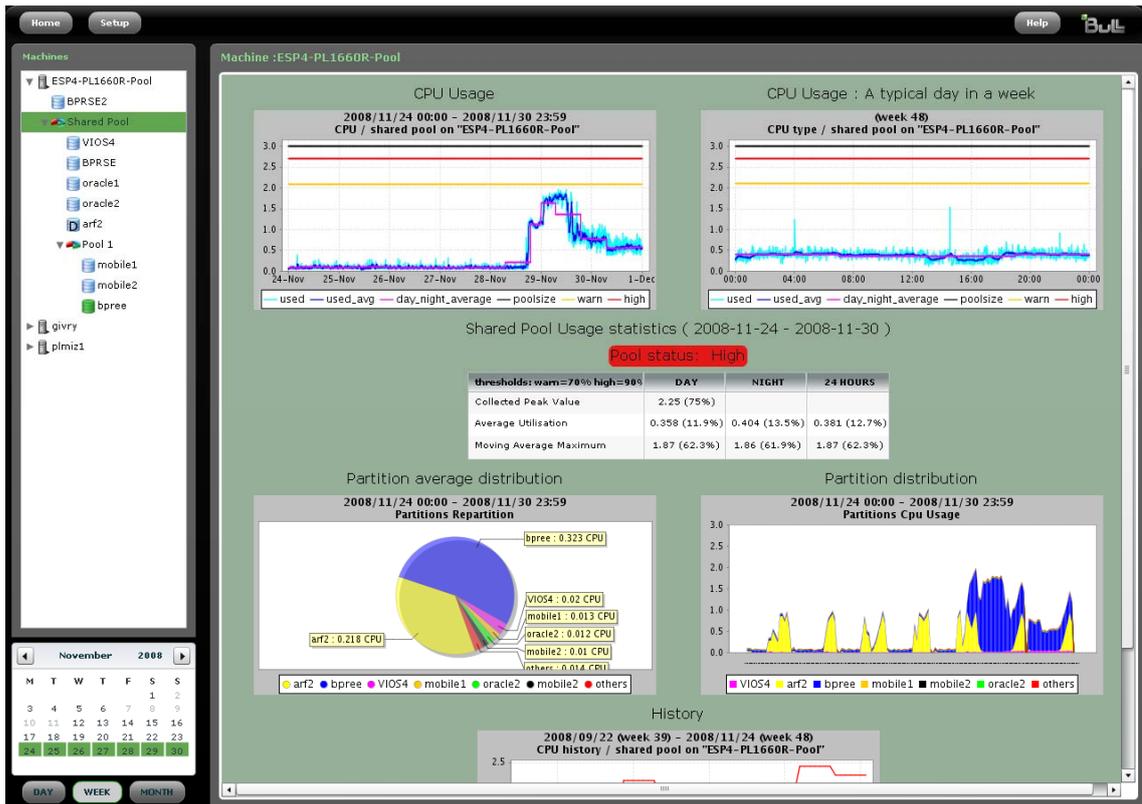
Figure 3-10. Weekly shared pool graphs and statistics (part 1 and 2)

Figure 3-11. Weekly shared partition graphs and statistics (part 1 and 2)

3.6 Example of Monthly Graphs and Statistics

To display the monthly reports, click on a day in the calendar and then on **MONTH** button.

The monthly graphs and statistics for the selected item in the navigation tree are displayed.

There are two specific types of graphs for months:
- – A CPU usage graph for a typical week
- – History graph
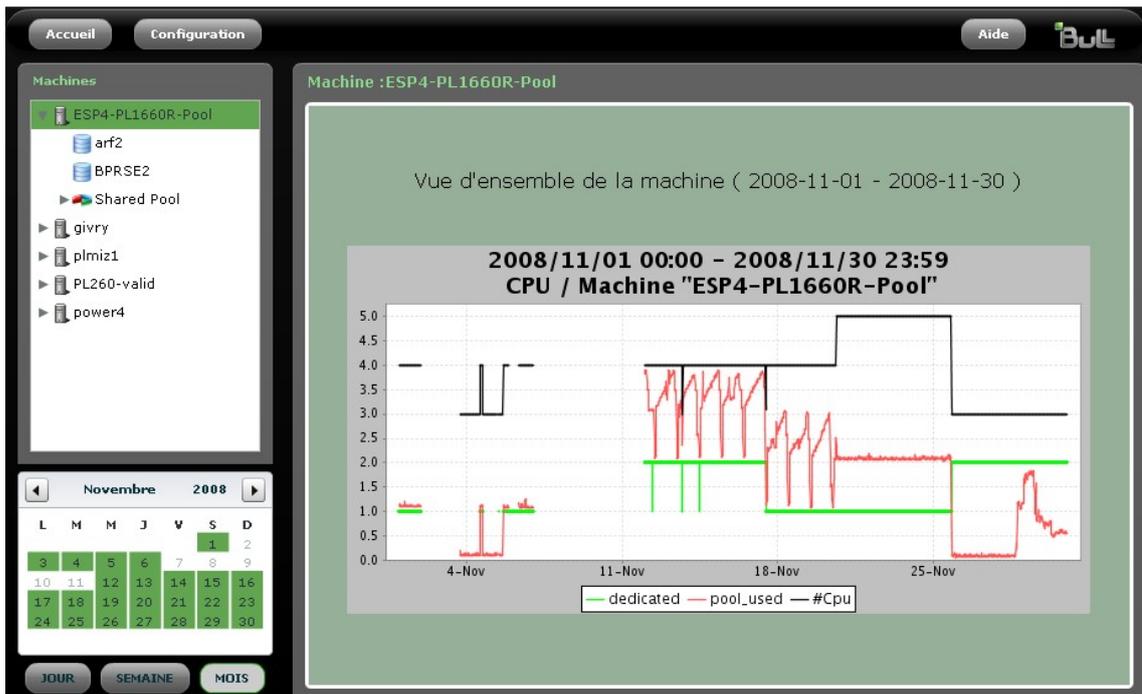
Figure 3-12. Monthly machine overview report
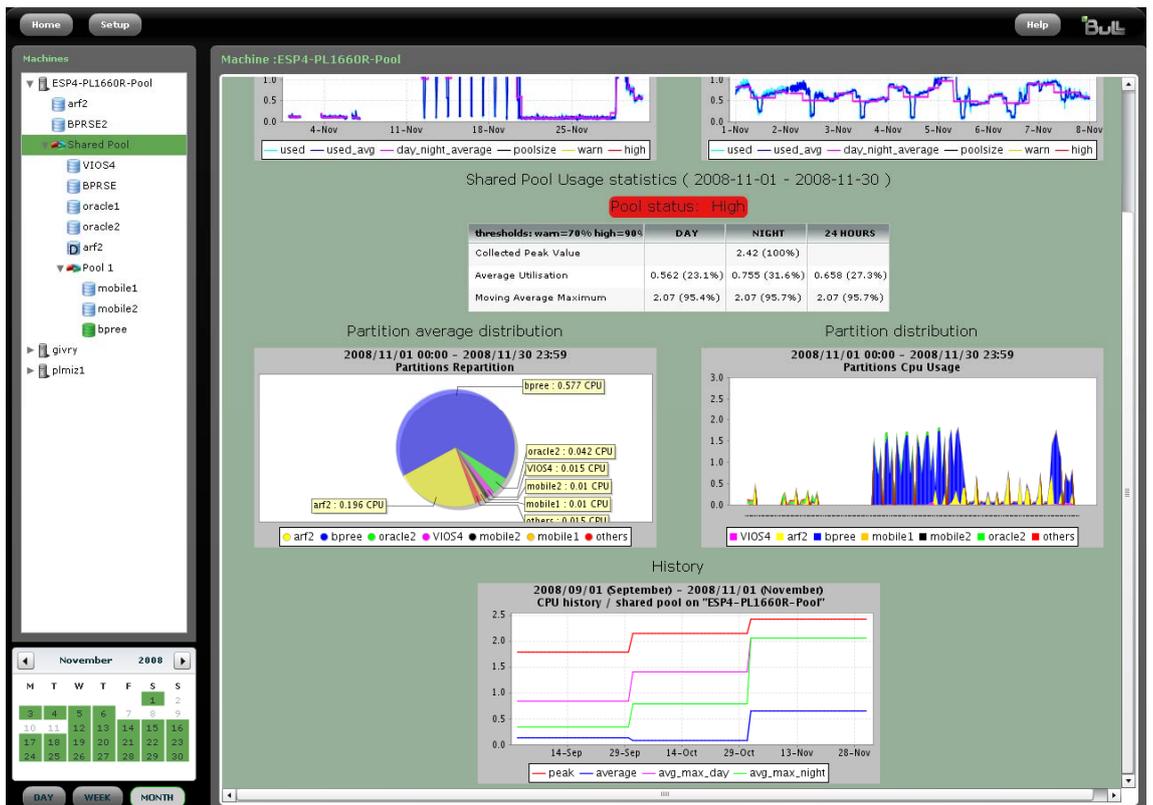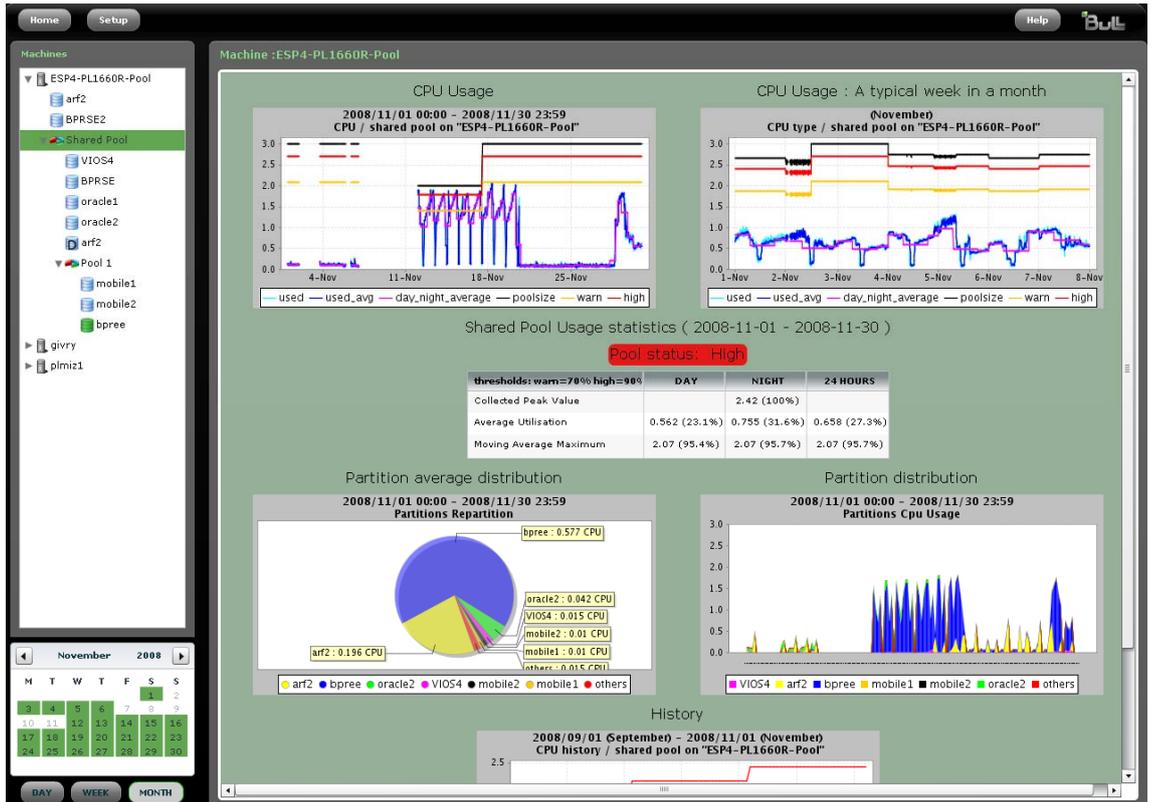
Figure 3-13. Monthly shared pool graphs and statistics (part 1 and 2)
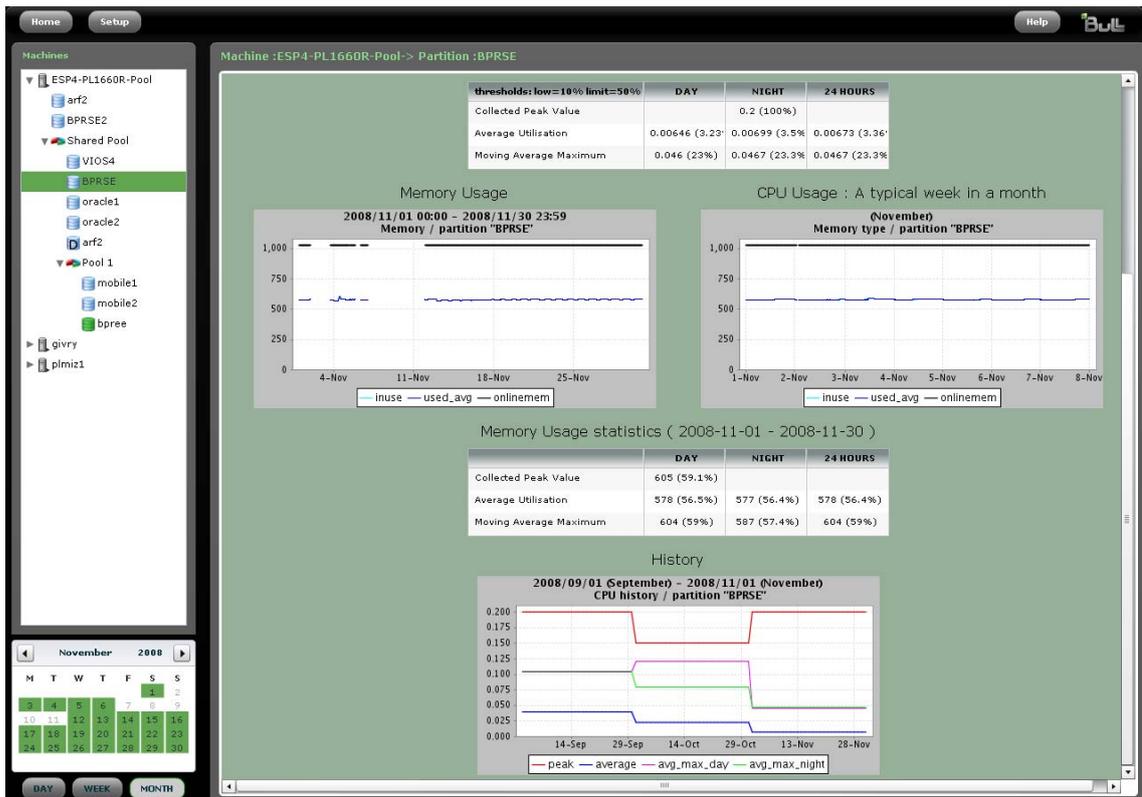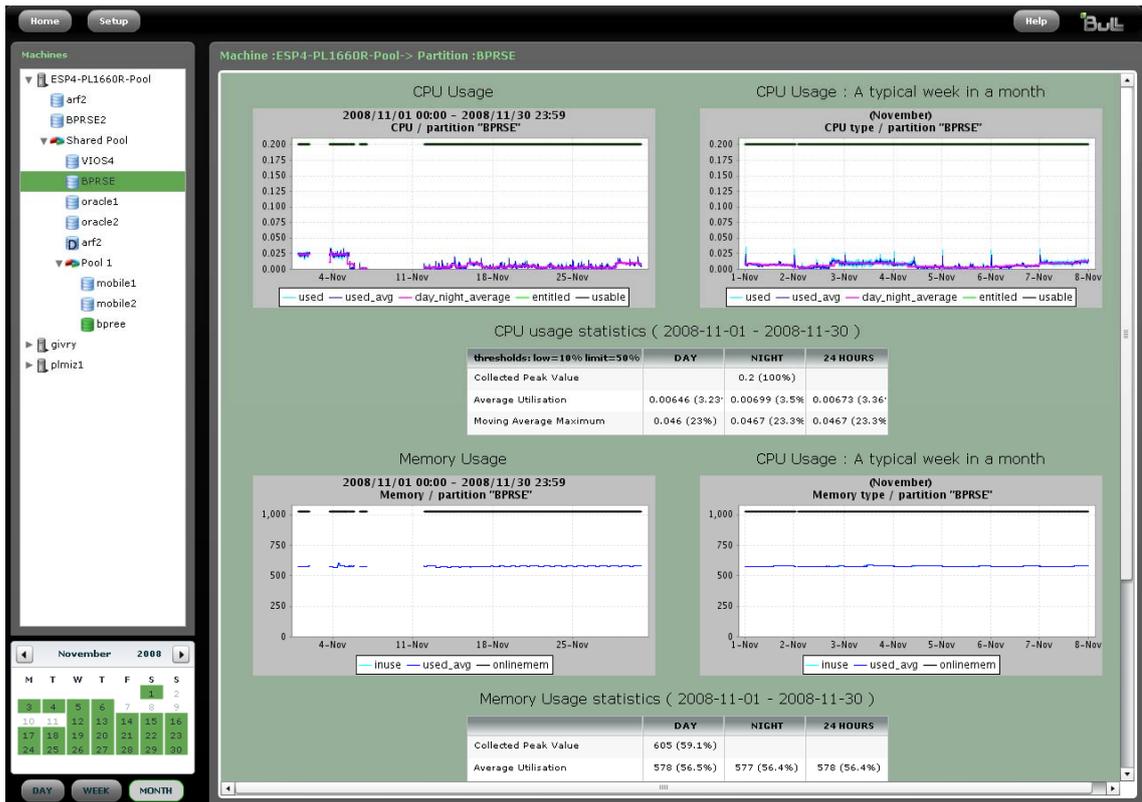
Figure 3-14. Monthly shared partition graphs and statistics (part 1 and 2)

3.7 BPRse Web Application Setup

You can change the BPRse Web Application passwords and preferences. Click the **Setup** button in the Home page to access the **Setup** pane.

3.7.1 Changing Password

Click **Password** in the **Setup** pane.

To change the current password, enter the new password twice in the form and click **Update** to modify the password. (The default password is **bprw**).
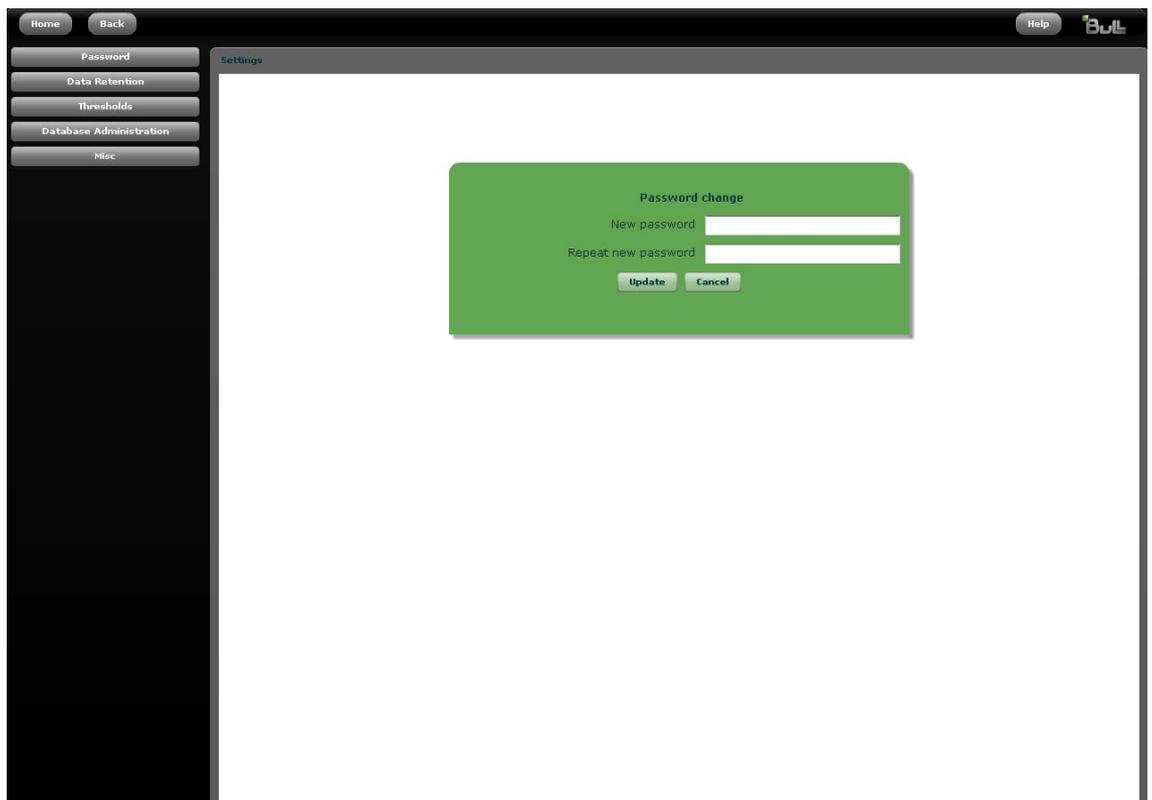
Figure 3-15. Password setup

3.7.2   Changing Data Retention Parameters

Click **Data Retention** in the **Setup** pane.

The **bpradm** user can change default values for data retention in the database for day, week and month.
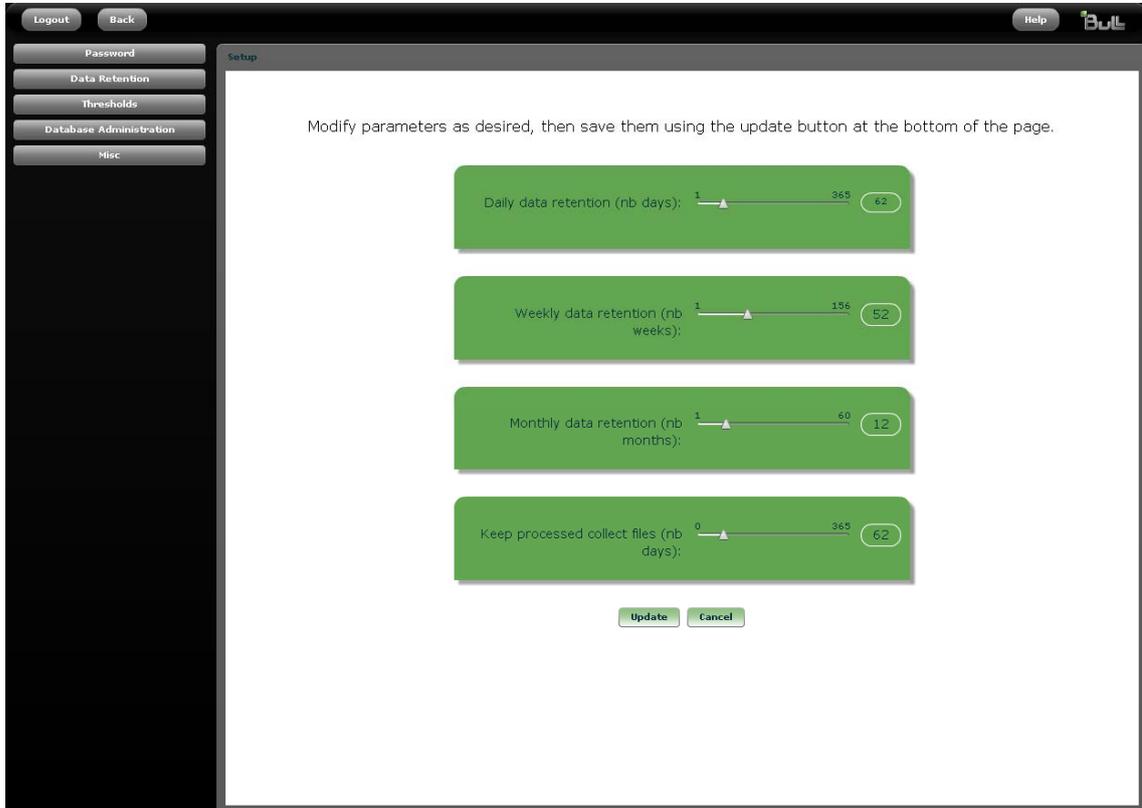
Figure 3-16. Data retention setup

3.7.3   Changing Thresholds

Click **Thresholds** in the **Setup** pane.

The **bpradm** user can modify default thresholds values for shared pool and partition.
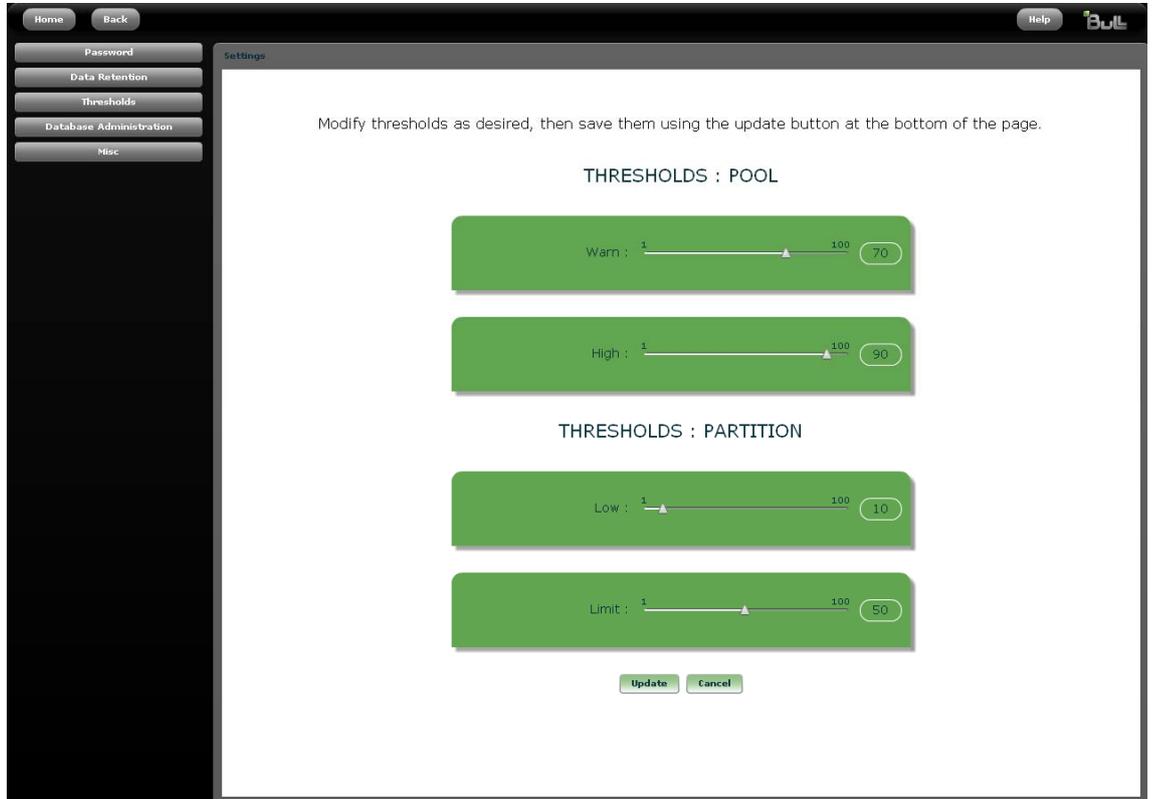
Figure 3-17. Thresholds setup

3.7.4   Administrating the Database

Click **Database Administration** in the **Setup** pane.

The **bpradm** user can purge all data of the database, delete data only for a specified period for all machines, or delete data only for a specified period and a specified machine.

Select the beginning and ending period in the two calendars.
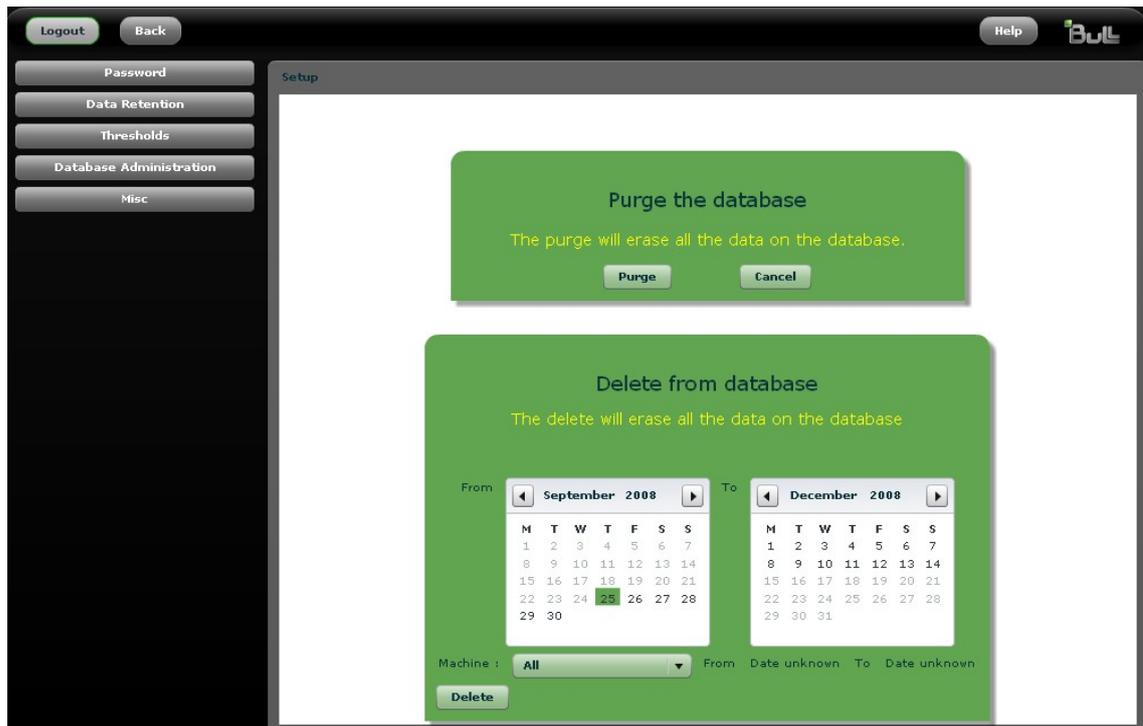
Figure 3-18. Database administration setup

3.7.5   Misc Setup

Click **Misc** in the **Setup** pane.

The **bpradm** user can change the day period (by selecting the beginning and ending hours) and the number of partitions to take into account in distribution graphs.
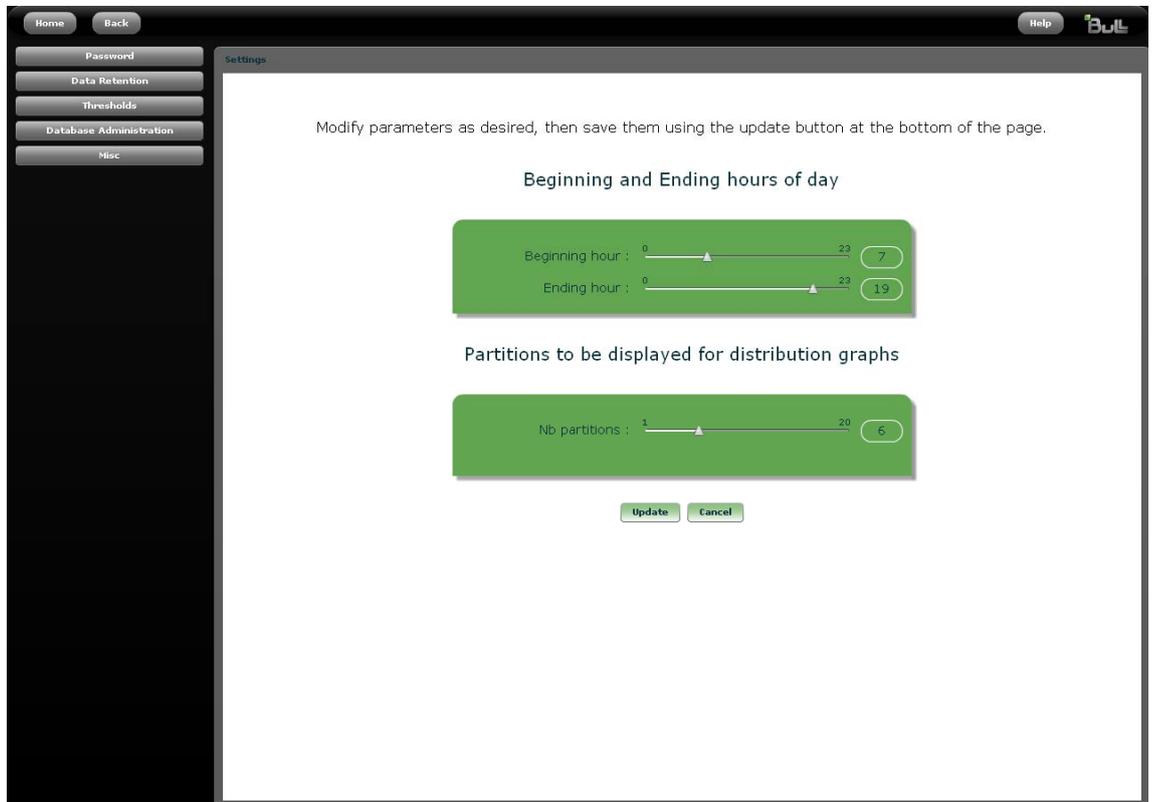
Figure 3-19. Misc setup

Chapter 4. Generating PDF Reports

You can generate weekly and monthly PDF reports of processor utilization for a group of machines. Statistics and graphs generated for the Web interface are included in these reports.

PDF reports are generated using the **bpr_report** this command:

```
/usr/bprse/bin/bpr_report
```

With no option, this command generates a weekly report beginning at the current date for all machines defined in **/home/bpr/bpr_conf/machine.txt file**. The report will be generated under **/home/bpr/bpr_reports/WEEK**.

Options:

-d directory	Home directory of bpr files (default is **/home/bpr**)
-f date	Generate report beginning at date in YYMMDD format
-g group	Group name of machines for which report must be generated. the group name is defined in **machine.txt** file.
-x machines:	Comma-separated list of machines to exclude from the report. names must be taken from the **machine.txt** file
-w	Generate a report covering a week period
-m	Generate a report covering a month period
-h	Generate a report with history graphs
-l fr or en	Generate a report in French (**-l fr**) or in English (**-l en**). By default, the report is generated with the locale of the AIX machine. For example, if the locale of the AIX machine is **en_US**, you must use the **-l fr** option to generate a report in French.

Reports are generated under the following directories:
/home/bpr/bpr_reports/WEEK and **/home/bpr/bpr_reports/MONTH**.

Chapter 5. Administration and Troubleshooting

This chapter describes some tips you should be aware of, as administrator of BPRse.

5.1 Changing BPRse Web Application Password

Using the BPRse Web Application **Setup > Passwords** page, you can modify BPRse Web Application password. The default password set at installation time is **bprw**. The **bprw** user is the Web server user. It is different from the **bpr** user.

For details, refer to the BPRse Web Application online help and to *BPRse Web Application Setup*, on page 3-21.

5.2 Processing all collects

If you want to process again all collects for all monitored machines, follow these steps:

1. Clean the database (log a **root** user)

    ```
    su - postgres -c "/usr/bprse/bin/bpr_init_db"
    ```

2. Log as **bpr** user:

    ```
    su - bpr
    ```

3. Remove all graphs:

    ```
    cd /home/bpr/graph
    rm day/* week/* month/*
    ```

4. Rename all collects:

    ```
    cd /home/bpr/bpr_output
    ```

    Rename **topas_cec.YYMMDD_01.gz.done** as **topas_cec.YYMMDD_01.gz** for all partitions and all collects.

5. Execute the following commands:
    Before executing these commands, set comment marks in the **crontab** entries for **bpr**.

    ```
    /usr/bprse/bin/bpr_process_day
    /usr/bprse/bin/bpr_process_week
    /usr/bprse/bin/bpr_process_month
    ```

    Theses operations can take a while depending on the number of collects.
    After completion, remove the comment marks in the **crontab** entries for **bpr**.

5.3 No metrics collected for a shared partition

1. Log on that partition.

2. Check that **perfagent.tools** LPP is installed; if not install it from AIX media.

3. Check that **xmtopas** process is running:

```
ps -ef|grep xmtopas
```

4. If it is not running, then:
   - Check the presence of the following line in **/etc/inetd.conf**:
   ```
   xmquery dgram   udp     wait    root    /usr/bin/xmtopas xmtopas -p3
   ```
   - Refresh **inetd**:

```
refresh -s inetd
```

5.4 Saving Disk Space

Processed collects are automatically compressed under **/home/bpr/bpr_output/*** using **gzip** command and renamed with the **.done** suffix.

This chapter describes the different processes used by the **BPRse client** and **server** to collect, analyze and build statistics and graphs from collected files.

Chapter 6. Internal Architecture

6.1 Process on BPRse Client

6.1.1 Collecting and Recording

Collecting and recording is done on only one partition of each SP-LPAR-capable system to monitor. That partition is known as **BPRse client** (or collecting partition).

A **BPRse client** is configured using:
- /usr/sbin/bpr/bin/config_topasR script
- /usr/sbin/bpr/bin/topasR.conf file

The topas cross-partition recording tool (**topas –R**) is launched on that partition to collect and record metrics for all the partitions of the SP-LPAR-capable system or for a standalone system:

/usr/sbin/bpr/bin/launch_topasR script

The collect recording is done in:

/etc/perf/topas_cec.YYMMDD file.

6.1.2 Transfer to the BPRse Server

Each day at 00h15 (cron process), the collect is formatted on the **BPRse client** by the **topasout** command:

/etc/perf/topas_cec.YYMMDD_01

The formatted collect is sent to the **BPRse server** by **ftp** or **ssh**:

/usr/sbin/bpr/bin/upload_topasR script (crontab entry of root user)

6.2 Process on BPRse Server

Once the **BPRse server** is configured, it can process the collected files.

The collects (**topas_cec.YYMMDD_01** files) from all the **BPRSE clients** are stored on the **BPRse server** in the directory:

/home/bpr/bpr_output/<collecting partition hostname>
where **<collecting partition hostname>** is the result of **uname -n** command on the partition.

When the collects have been analysed, they are compressed using the **gzip** command (**topas_cec.YYMMDD_01.gz**).

6.2.1 Analysing the Collect and Generating Graphs

There are three types of processes:

- **Daily process:**
  each day at 01h00 (**/usr/bprse/bin/bpr_process_day** script)

- **Weekly process:**
  each Monday at 02h00 (**/usr/bprse/bin/bpr_process_week** script)

- **Monthly process:**
  the first day of each month at 03h00 (**/usr/bprse/bin/bpr_process_month** script)

These processes are **crontab** entries of **bpr** user.

Daily process

The collects of the day before, received from all **BPRse clients**, are analyzed, each day, to generate daily statistics and graphs.

The result of the analysis is stored in the database and the corresponding graphs are stored in the **/home/bpr/graph/day** directory.

Old graphs in the **/home/bpr/graph/day** directory are deleted according to the **daily data retention** value defined in the the **Data Retention** pane.

Processes collected files in the /home/bpr/bpr_output directory are deleted according to the **keep processes collect files** value defined in the **Data Retention** pane.

Weekly process

The first day of the week (on Monday), the data related to all days of the week, are analyzed from Monday to Sunday to prepare the weekly graphs and statistics. The result is stored in the database and the corresponding graphs are stored in the **/home/bpr/graph/week** directory.

Old graphs in the **/home/bpr/graph/week** directory are deleted according to the **weekly data retention** value defined in the **Data Retention** pane.

Monthly process

The first day of the month, the data related to all days of the month, are analyzed to prepare the monthly graphs and statistics. The result is stored in the database and the corresponding graphs are stored in the **/home/bpr/graph/month** directory.

Old graphs in the **/home/bpr/graph/month** directory are deleted according to the **monthly data retention** value defined in the **Data Retention** pane.

6.3   Log Files

Information on the processing is logged in several files on BPRse client and BPRse server.

BPRse client

/usr/sbin/bpr/bin/launch_topasR.log:
log file when the topas cross-partition recording tool is launched.

/tmp/upload_topasR.log:
log file when recording files **topas_cec.*** are sent to the **BPRse server**.

BPRse server

- Log file in the **/home/bpr/log** directory: **bprse.log**
- Database log file in **/<FS-database>/log** directory: **postgres.log**

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