

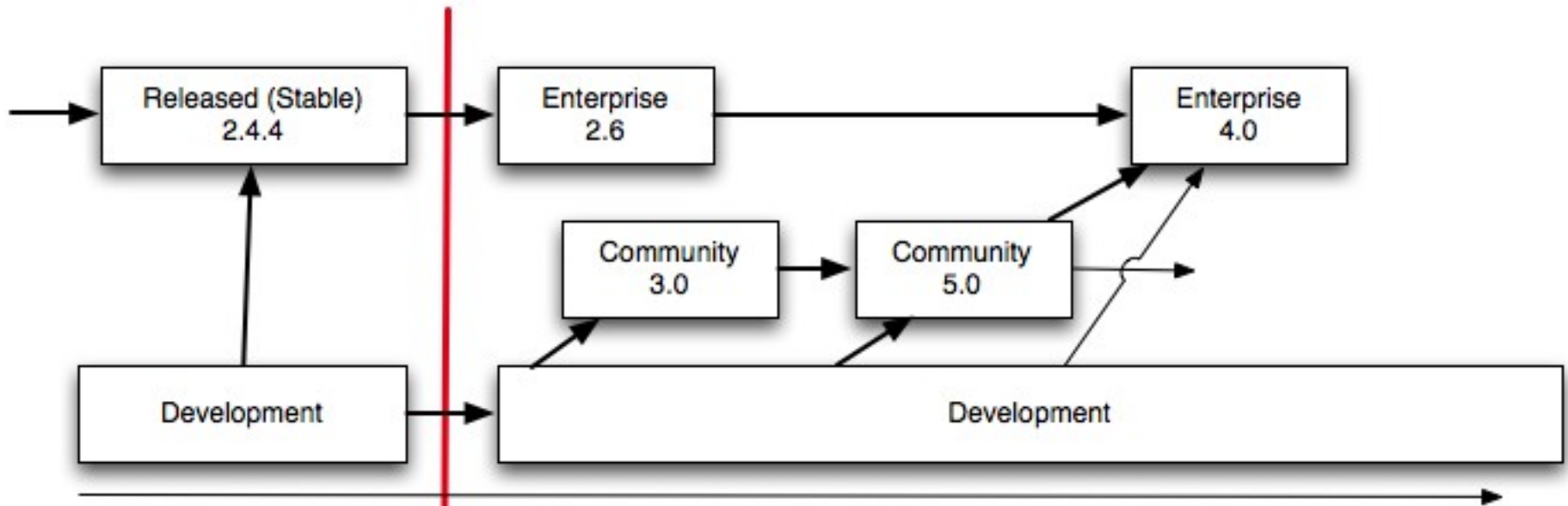


Enterprise backup & recovery

Bacula Developer's Conference 27-28 September 2010

Development plans & directions

Evolution of Release Cycle



RELEASES...

- thoroughly tested
- suitable for production
- bug fixes backported
- long release cycle
- slow to release contributions

July'09

COMMUNITY RELEASES...

- rapid release cycle, new contributions released quickly
- community tested; may not be suitable for production
- bug fixes not backported
- only latest release supported

ENTERPRISE EDITION 4.0.4 (AGPLv3)

- advanced features
- thoroughly tested, suitable for production
- long term support, all releases
- bug fixes backported
- optimized for larger installations



- New Bug Tracking Database (planned)
 - ✓ Migrate from Mantis to RT
 - ✓ Require registration with user info and bacula-report.pl
- Two bug levels

Community Bugs (current offering)



- Community
 - ✓ Free
 - ✓ Patches for critical bugs
 - ✓ Can see all bug reports but only own patches
 - ✓ Normal bugs in next version
 - ✓ No guarantee on response time
 - ✓ No support



- Advanced access to bug tracking and patches
 - ✓ €899 / year
 - ✓ Patches for all bugs
 - ✓ Can see all patches
 - ✓ Guaranteed response time
 - ✓ Bugs only, no support or consulting



- Bacula Enterprise version 4.0.4 August 2010
 - ✓ Based on 5.0.2 + new System State plugins:
MSSQL, SharePoint, MSSQL, Exchange, Active Directory
 - ✓ Better Windows Bare Metal Recovery - USB Key
 - ✓ Bweb improvements (multi-director)



4.0.4 – System State backup

- Capture Windows' System State (Registry and critical files)
- Example:

```
File Set {  
  Name = "WinSysState"  
  Include {  
    Options {  
      Signature = MD5  
    }  
    File = "C:/"  
    Plugin =  
    "vss://@SYSTEMSTATE/"  
  }  
}
```

```
cwd is: /  
$ ls  
@SYSTEMSTATE/  
C:/  
$ cd @SYSTEMSTATE  
cwd is: /@SYSTEMSTATE/  
$ ls  
ASR Writer/  
COM+ REGDB Writer/  
Performance Counters Writer/  
Registry Writer/  
System Writer/  
Task Scheduler Writer/  
VSS Metadata Store Writer/  
WMI Writer/  
$ cd "System Writer"  
cwd is: /@SYSTEMSTATE/System Writer/  
$ ls  
System Files/  
instance_{5D1C2AD4-8B79-4097-83B6-  
79144BCEF427}
```

4.0.4 – System State backup



Restore Select of Director s-su-1-dir

Restore Select Up Mark Unmark Files

Directories

- /
- @SYSTEMSTATE/**
 - ASR Writer/
 - COM+ REGDB...
 - Performanc...
 - Registry W...
 - System Wri...
 - Task Sched...
 - VSS Metada...
 - WMI Writer/
- C:/
 - \$Recycle.Bin/
 - Bacula/
 - Documents and...
 - PerfLogs/
 - Program Files/
 - Program Files...
 - ProgramData/

Mark	File	Mode	User	Group
<input checked="" type="checkbox"/>	ASR Writer/	drwx-----	root	root
<input checked="" type="checkbox"/>	COM+ REGDB Writer/	drwx-----	root	root
<input checked="" type="checkbox"/>	Performance Counters Writer/	drwx-----	root	root
<input checked="" type="checkbox"/>	Registry Writer/	drwx-----	root	root
<input checked="" type="checkbox"/>	System Writer/	drwx-----	root	root
<input checked="" type="checkbox"/>	Task Scheduler Writer/	drwx-----	root	root
<input checked="" type="checkbox"/>	VSS Metadata Store Writer/	drwx-----	root	root
<input checked="" type="checkbox"/>	WMI Writer/	drwx-----	root	root

Current Dir: /@SYSTEMSTATE/ OK Cancel

Status:

4.0.4 – Multi-Director in Bat



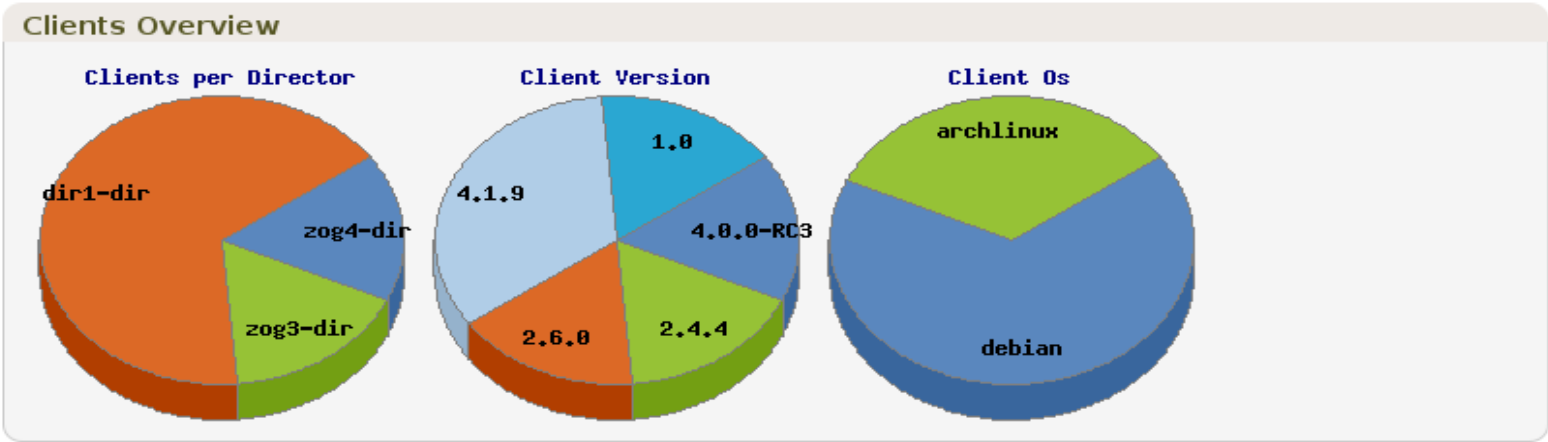
The screenshot shows the 'bat - Bacula Admin Tool' application window. The title bar reads 'bat - Bacula Admin Tool'. The menu bar includes 'File', 'Settings', and 'Help'. The toolbar contains icons for home, list, mail, document, help, settings, save, search, and refresh. The main interface is divided into two panes. The left pane, titled 'Select Page', shows a tree view with two main nodes: 'lsb-250-dir' (highlighted in pink) and 's-su-1-dir' (highlighted in grey). Each node has a sub-menu with icons and labels for 'Console', 'Clients', 'FileSets', 'Jobs', 'Jobs Run', 'Pools', 'Media', and 'Storage'. The right pane is titled 'Console' and contains a text area with the following text: 'Connecting to Director lsb-250:' followed by a blank line and '1000 OK: lsb-250-dir Version: 4'. Below the text area is a scrollbar. At the bottom left of the window, there is a 'Command:' label and an empty text input field.

4.0.4 – Multi-Director Bweb



- Manage multiple sites
- Group clients across directors
- Manage jobs on several directors
- Enhanced statistics
- Statistics for several sites in one front-end
- Centralized, customized reporting

Multi-Director bweb



Clients

Name▲	Select	Desc	Auto Prune	File Retention	Job Retention
admin-fd	<input type="checkbox"/>	4.0.0-RC3 (20Jun10) x86_64-pc-linux-gnu-bacula-enterprise,debian,5.0.4	1	90 days	180 days
admin2-fd	<input type="checkbox"/>	2.4.4 (28Dec08) x86_64-pc-linux-gnu,debian,lenny/sid	1	90 days	180 days
bstest-fd	<input type="checkbox"/>	1.0 (30Mar09) x86_64-pc-linux-gnu-bacula-systems,debian,lenny/sid	1	90 days	180 days
dir1-fd	<input type="checkbox"/>	4.1.9 (18Sep10) x86_64-unknown-linux-gnu,archlinux,	1	30 days	180 days
dir2-fd	<input type="checkbox"/>	4.1.9 (18Sep10) x86_64-unknown-linux-gnu,archlinux,	1	30 days	180 days
freepbx-fd	<input type="checkbox"/>	2.6.0 (20Aug09) x86_64-pc-linux-gnu,debian,lenny/sid	1	90 days	180 days

Managing Bacula Versions



- Enterprise “Branch-4.0”
 - ✓ git repository (repo)
 - ✓ Bug fixes, minor new features for Enterprise 4.0.x
- Enterprise “master”
 - ✓ git repository
 - ✓ Development for next major Enterprise version
- Community “Branch-5.0”
 - ✓ git repository → Source Forge branch-5.0
 - ✓ Bug fixes, minor new features for community 5.0.x
- Community “Branch-5.1”
 - ✓ git repository → Source Forge branch-5.1
 - ✓ Development for next major Community version

Future Directions



- Bacula community version 5.2.0 Feb 2011
- Bacula Enterprise 4.2.0 April 2011 (possible)
- Bacula Enterprise version 6.0.0 - Sept-Dec 2011



- Bacula community version 5.2.0 Feb 2011
 - ✓ Community submissions
 - ✓ Restart failed jobs
 - ✓ FTP Storage daemon device
 - ✓ Bat enhancements
 - ✓ Compatibility with MySQL 5.5
 - ✓ Automatic correction of Volume size between Volume and catalog
 - ✓ New safer pruning algorithm
 - ✓ New CRC32 implementation (much faster)
 - ✓ Many but not all of Bacula Systems contributions

Next Minor Enterprise Version (possible)



- Bacula Enterprise 4.0.x or 4.2.0 April 2011
 - ✓ Ingres DB driver
 - ✓ AFS support
 - ✓ Restart failed jobs
 - ✓ More certified binaries (SLES 10 and 11, RedHat 5.5, Solaris)
 - ✓ Working on HP-UX and AIX FD binaries
 - ✓ Improved SD statistics (dynamic rates)
 - ✓ Volume and Device logs



- Bacula Enterprise version 6.0.0 – Sept-Dec 2011
 - ✓ SD redesign -- one thread per drive will double speed for despooling and migration/copy jobs
 - ✓ Snapshot backup by images
 - ✓ Deduplication of images (i.e. Deltas)
 - ✓ Deduplication of comm line data for better laptop support
 - ✓ New (additional) Volume format that permits easier deduplication
 - ✓ More automatic archival features
 - ✓ Additional Modules (plugins or scripts)
 - SAP (Oracle and MaxDB – Swisscom) (EricS/Arno)
 - Oracle (Arno)
 - Zimbra
 - Zarafa
 - Lotus Notes
 - ✓ NDMP backup (Marco)
 - ✓ Configuration GUI (Philip Storz)

Source Forge replacement



Multi-Director bweb



Bweb - Bacula Web Interface

Main Directors Clients Jobs Media Statistics Configuration About search...

Global Overview

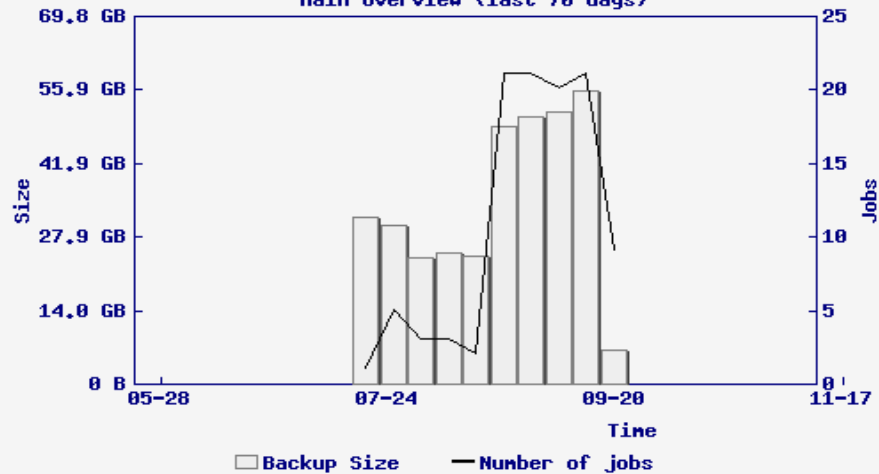
Total Clients: 6 Total bytes stored: 1.5 TB Total files stored: 11714068
Total Databases size: 24.3 MB Total Pools: 12 Total Jobs: 243
Jobs failed (last 7 days): 0 Total Media: 12

Global Trends

Job Status all (last 7 days)



Main Overview (last 70 days)

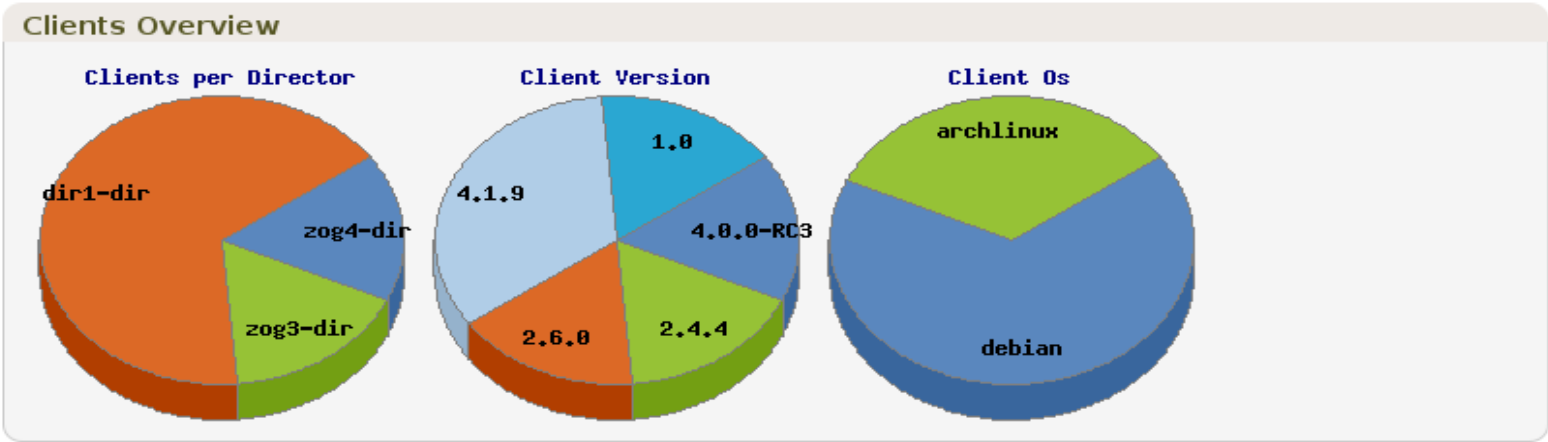


Running Jobs

JobId Client Job Name Level Start Time Duration Status Select

+ View X Cancel

Multi-Director bweb



Clients

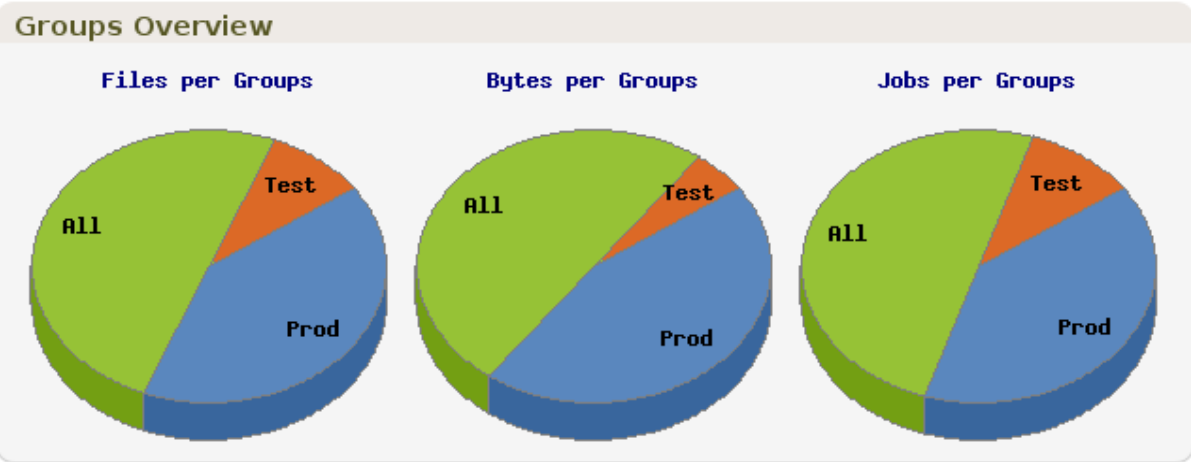
Name▲	Select	Desc	Auto Prune	File Retention	Job Retention
admin-fd	<input type="checkbox"/>	4.0.0-RC3 (20Jun10) x86_64-pc-linux-gnu-bacula-enterprise,debian,5.0.4	1	90 days	180 days
admin2-fd	<input type="checkbox"/>	2.4.4 (28Dec08) x86_64-pc-linux-gnu,debian,lenny/sid	1	90 days	180 days
bstest-fd	<input type="checkbox"/>	1.0 (30Mar09) x86_64-pc-linux-gnu-bacula-systems,debian,lenny/sid	1	90 days	180 days
dir1-fd	<input type="checkbox"/>	4.1.9 (18Sep10) x86_64-unknown-linux-gnu,archlinux,	1	30 days	180 days
dir2-fd	<input type="checkbox"/>	4.1.9 (18Sep10) x86_64-unknown-linux-gnu,archlinux,	1	30 days	180 days
freepbx-fd	<input type="checkbox"/>	2.6.0 (20Aug09) x86_64-pc-linux-gnu,debian,lenny/sid	1	90 days	180 days

Multi-Director bweb



Bweb - Bacula Web Interface

Main Directors Clients Jobs Media Statistics Configuration About search...



Groups

Name▲	Selection
All	<input type="radio"/>
Prod	<input type="radio"/>
Test	<input type="radio"/>

Add Remove Edit View members View jobs View stats

View others

Multi-Director bweb



Bweb - Bacula Web Interface

Main Directors Clients Jobs Media Statistics Configuration About

Group: 'All'

Group:

Directors:

- All
- zog4-dir
- zog3-dir
- dir1-dir

Clients:

- freepbx-fd
- bstest-fd
- admin2-fd
- admin-fd

Members of this group:

- bstest-fd
- admin-fd
- freepbx-fd
- admin2-fd

Client filter

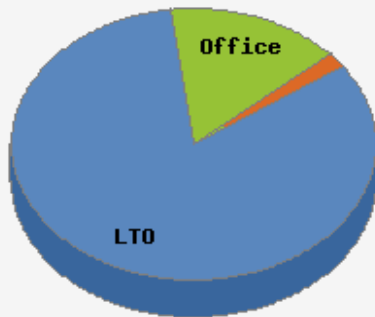
Save

Multi-Director bweb

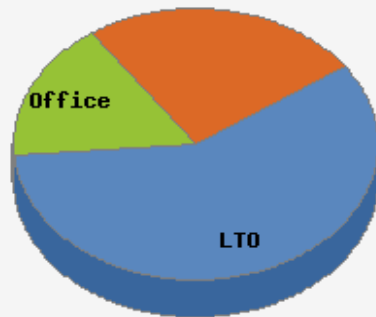


Locations Overview

Size per Location



Nb per Location

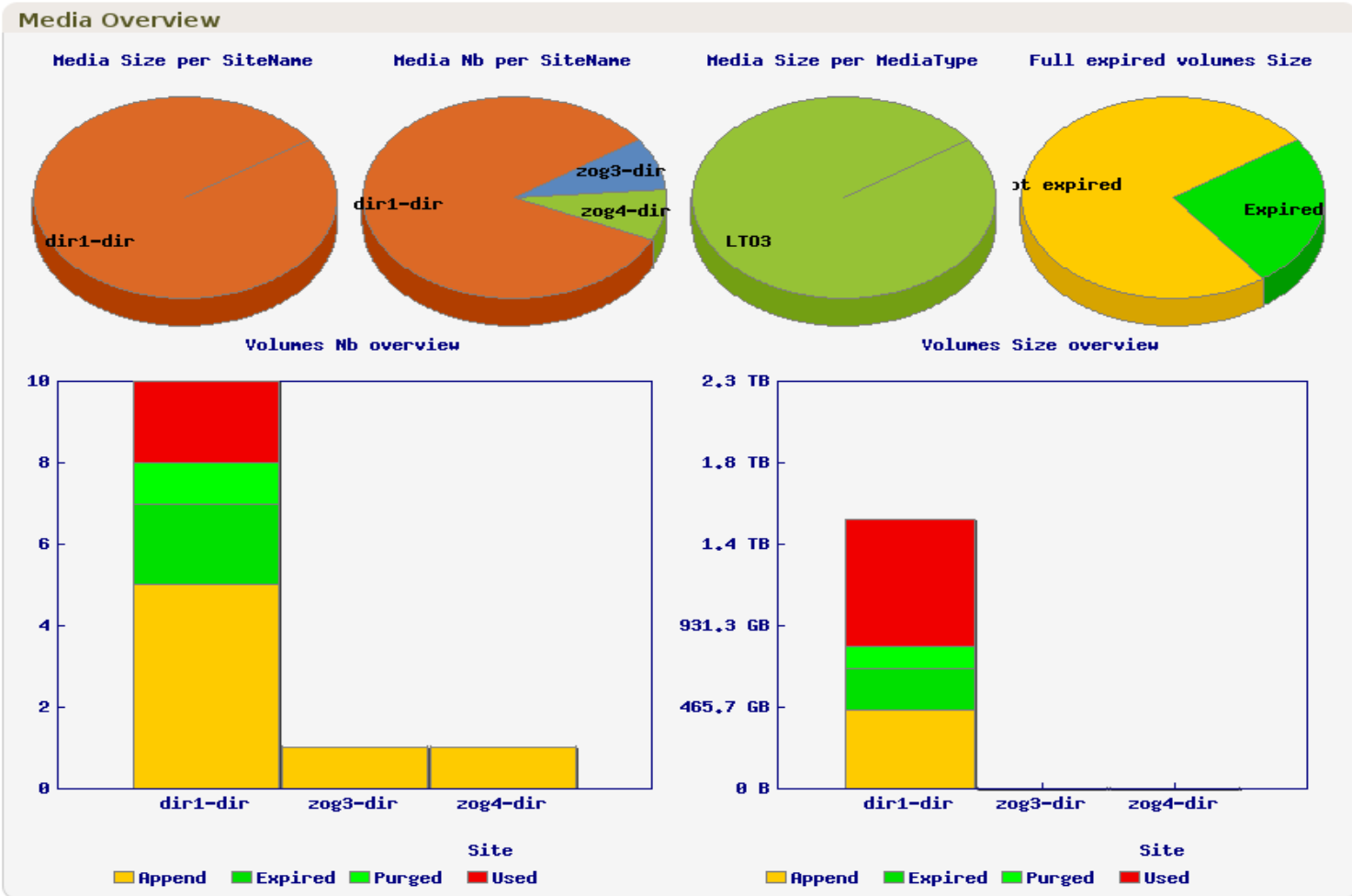


Locations

Name▲	Enabled	Cost	Nb volumes	Select
Bank		100	0	<input type="radio"/>
LTO		10	7	<input type="radio"/>
Office		10	2	<input type="radio"/>

+ Add - Remove Edit View content

Multi-Director bweb



Multi-Director bweb



Bweb - Bacula Web Interface

Main Directors Clients Jobs Media Statistics Configuration About search...

Filter

Since: 2010-09-14 18:33:14

Age: 1 week

Number of items:

Groups

- All
- Prod
- Test

Directors

- zog4-dir
- zog3-dir
- dir1-dir

Statistics Overview (last 7 days limited to 100)

Bytes per Groups

Jobs per Groups

Files per Groups

Statistics (since 2010-09-14 18:33:14 and during 7 days)

Name	Nb Jobs	Nb Err	% Ok	Nb Resto	Nb Bytes	Nb Bytes	Nb Files
All	21	0	100.00		55.3 GB	59385270078	543593
Prod	14	0	100.00		52.9 GB	56770378347	456862

Multi-Director bweb



Bweb - Bacula Web Interface



Overview

Main

Directors

Clients

Jobs

Media

Storages

Statistics

Configuration

About



search...

on zog3-dir

Information about job *backup*

JobId	Client	Job Name	FileSet	Level	StartTime	Duration	JobFiles	JobBytes	Errors	Pool	Volume Name	Status
1	dir1-fd	backup	Full Set	F	2010-09-21 15:32:35	00:00:01	2260	49.0 MB	0	File	TestVolume001	✓



Delete



View media



View jobs



View stats



View FileSet



View file usage



Run this job

Log: backup on dir1-fd (1)

```
dir1-dir JobId 1: No prior Full backup Job record found.
dir1-dir JobId 1: No prior or suitable Full backup found in catalog. Doing FULL backup.
dir1-dir JobId 1: Start Backup JobId 1, Job=backup.2010-09-21_15.32.33_03
dir1-dir JobId 1: Using Device "FileStorage"
dir1-sd JobId 1: Wrote label to prelabeled Volume "TestVolume001" on device "FileStorage" (/tmp/regress1/tmp)
dir1-sd JobId 1: Job write elapsed time = 00:00:01, Transfer rate = 51.70 M Bytes/second
dir1-dir JobId 1: Bacula dir1-dir 4.1.9 (18Sep10): 21-Sep-2010 15:32:36
  Build OS:          x86_64-unknown-linux-gnu archlinux
  JobId:             1
  Job:               backup.2010-09-21_15.32.33_03
  Backup Level:     Full (upgraded from Incremental)
  Client:           "dir1-fd" 4.1.9 (18Sep10) x86_64-unknown-linux-gnu, archlinux,
  FileSet:          "Full Set" 2010-09-21 15:32:33
  Pool:             "File" (From Job resource)
  Catalog:          "MyCatalog" (From Client resource)
  Storage:          "File" (From Job resource)
  Scheduled time:   21-Sep-2010 15:32:33
  Start time:       21-Sep-2010 15:32:35
  End time:         21-Sep-2010 15:32:36
  Elapsed time:    1 sec
  Priority:         10
  FD Files Written: 2,260
  SD Files Written: 2,260
  FD Bytes Written: 51,414,551 (51.41 MB)
  SD Bytes Written: 51,708,165 (51.70 MB)
  Rate:            51414.6 KB/s
  Software Compression: None
  VSS:             no
  Encryption:      no
  Accurate:        no
  Volume name(s):  TestVolume001
  Volume Session Id: 1
  Volume Session Time: 1285075952
  Last Volume Bytes: 51,820,711 (51.82 MB)
  Non-fatal FD errors: 0
  SD Errors:       0
  FD termination status: OK
  SD termination status: OK
  Termination:    Backup OK

dir1-dir JobId 1: Begin pruning Jobs older than 6 months .
dir1-dir JobId 1: No Jobs found to prune.
dir1-dir JobId 1: Begin pruning Jobs.
dir1-dir JobId 1: No Files found to prune.
dir1-dir JobId 1: End auto prune.
```

Multi-Director bweb



Bweb - Bacula Web Interface

Overview Main Directors Clients Jobs Media Storages Statistics Configuration About search... on zog3-dir

Information about job *backup*

JobId	Client	Job Name	FileSet	Level	StartTime	Duration	JobFiles	JobBytes	Errors	Pool	Volume Name	Status
1	dir1-fd	backup	Full Set	F	2010-09-21 15:32:35	00:00:01	2260	49.0 MB	0	File	TestVolume001	✓

Delete View media View jobs View stats View FileSet View file usage Run this job

/tmp/regress1/ go

