dassModus - the Bacula configuration GUI

Philipp Storz, dass IT GmbH

Introduction and motivation

Goal

whole bacula system can be configured

use bacula config files to store data

usability

deployment

features and possibilities

prospects

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27. September 2010

dass IT

Rev : 8413

Overview

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What you can expect

1. motivation to program dassModus
2. goals of the development
3. how these goals were achieved
4. open todos
5. future prospects

Desmodus

dass IT   +

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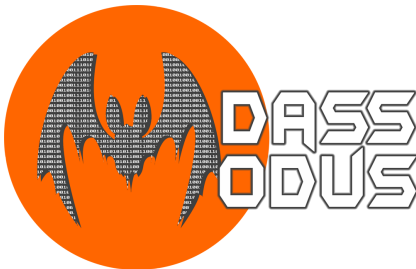
use bacula
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Bacula is very powerful, but

- configuration is done only in files
- large amount of configuration items/directives
- relations between resources and passwords not easy to understand
- high barriers to entry

- 3 Jobs
- 1 JobDefs
- 1 Client
- 313 Zeilen

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- 74 Jobs
- 8 JobDefs
- 53 Clients
- 4719 Lines

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Questions?

practice: user interface overview

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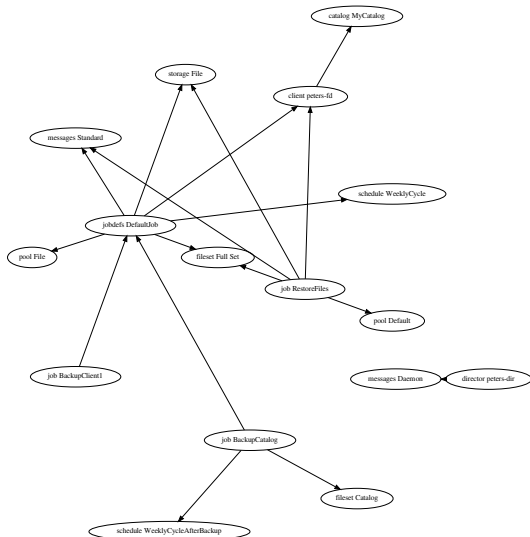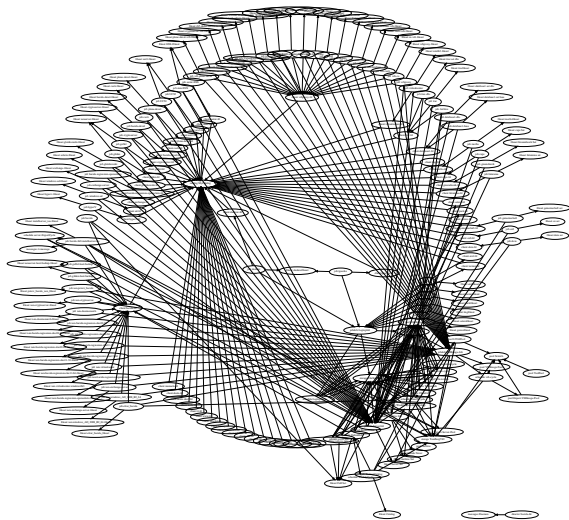Introduction and motivation

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user interface overview

1. application is programmed in PyQt
2. runs on Linux, Windows, MacOs
3. left side: overview
4. right side: details
5. online help window

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development goals

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development goals

1. the complete Bacula system can be configured
2. existing configurations must be readable and writeable
3. the program shall help the user.
4. the configuraton can be deployed securely and easily

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additional goals

1. extract as many information as possible from the bacula source code

2. the extraction shall be repeatable

3. internal logic an representation shall be independent from graphical interface

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6. can be deployed securely and easily

7. features and possibilities

8. prospects

whole bacula system can be configured

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a bacula system is configured in the following files:

- 1x bacula-dir.conf
- 1x bacula-sd.conf
- 1x bconsole.conf
- 1-n x bacula-fd.conf
- to configure the whole system, we need access to **all** Files

the dassModusfile type

file type

- own file format: dmdz
- dassModus Datacenter
- is a .tar.gz archive
- contains all configuration files of a bacula system

the dassModusfile type

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contents of the file type

```
dc1/storagedaemons/
dc1/storagedaemons/bacula-sd.conf
dc1/directors/
dc1/directors/bacula-dir.conf
dc1/filedaemons/
dc1/filedaemons/bacula-fd.conf
dc1/consoles/
dc1/consoles/bconsole.conf
```

practice: loading a dmdz file

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User Interface after loading a dmdz file

1. Datacenter is the first level
2. all configuration files are contained
3. treestructure inside of each config file
4. onlinehelp window is context sensitive

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needed functionalities

- write a parser for bacula configuration files
- rules for bacula configurations can be extracted from the bacula sources
- special data types have to be analyzed

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writing: ergonomic output

- only print the parameters, that have to be printed
- "pretty" output of keywords
- "short" ouptut of configuration parameters

write bacula configuration files

special data types have to be analyzed

- time values (`1 month, 2 hours, 1 year`)
- data amounts (`1 gb, 1mb, 100 kb`)
- run entries(`Full 1st sun at 23:05`)
- ACLs (`CommandACL = status, .status`)

write bacula configuration files

The output of keywords shall be in a pretty way Solution:
Dictionary (manual work)

PrettyNames Dictionary

```
PrettyNames = {
        '3des' : '3DES' ,
        'abortjobonerror'        :       'Abort Job On Error',
        'accurate'        :        'Accurate',
        'aclsupport' : 'ACL Support',
[...]
        'writepartcommand'       :       'Write Partcommand',
        'writeverifylist'        :       'Write Verify List',
        'xattrsupport' : 'xattrsupport',
        'yes': 'Yes',  }
```

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example: Job

1. Job Resource has the most konfiguration items (71)
2. Output was minimized to 2 items (2)
3. by activating "show all items", all options can be shown
4. job can inherit options from JobDefs (parentheses)

extract information from the bacula sources

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what information is extracted from the bacula sources?

Resource

- possible Items
- possible Subresources

Items

- name
- value
- defaultvalue
- default
- type
- required

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what information is extracted from the bacula sources?

more

- Message Types
- Job Types
- Job Levels
- Migration Types
- Replace Options
- Fileset Options

automatic generation of Python Code

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Beispiel:

src/dird/dird_conf.c

```
static RES_ITEM cat_items[] = {
    {"name",      store_name,     ITEM(res_cat.hdr.name),    0, ITEM_REQUIRED, 0},
    {"description", store_str,     ITEM(res_cat.hdr.desc),    0, 0, 0},
    {"address",   store_str,       ITEM(res_cat.db_address),  0, 0, 0},
    {"dbaddress", store_str,       ITEM(res_cat.db_address),  0, 0, 0},
...
    {NULL, NULL, {0}, 0, 0, 0}};
```

auto_configrules.py

```
dird_cat_items = [
    Item('name', None, None, False, 'store_name', True),
    Item('address', None, None, False, 'store_str', False),
    Item('description', None, None, False, 'store_str', False),
    Item('dbaddress', None, None, False, 'store_str', False),
...
]
```

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the program shall help the user

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user support by

- show available options during configurations
- choose from available objects when referencing
- show all options on ACLs, Overrides, etc.
- support of the user with wizards
- online help

practise: usability

special dialogs in practise

- Add Client Wizard
- Run Entry Editor
- time data
- data amounts
- ACLs

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steps to activate a new configuration

activate a new configuratoin

- transfer new configuration to Bacula Server
- write configuration on Server
- activate configuration via "reload"
- version management

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Backup Server   dassModus Client

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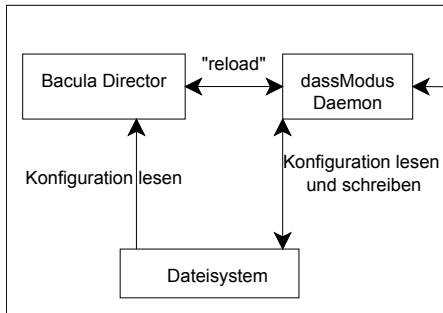
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overview over the features

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features and properties

- 11127 leilen python, ca. 50%GUI
- OnlineHelpWindow
- references can be configured with drop-down boxes
- references are shown
- time and data amounts are supported
- Run Entry editor
- Messages editor
- ACLs

overview over the features

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features and properties 2

- fusion of bacula configurations into "Datacenter" files
- wizards to create new resources
- Job: display of from JobDefs inherited properties
- display of "Default" values
- only output of configured values
- find not referenced objects

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todo

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next tasks

- automatic regression tests
- test with many configurations (please donate)
- code cleanup
- interactive creation of filesets (Kerns help needed)
- determine the license
- packaging

Ideas for the future

long term tasks and ideas

- TLS configuration in dassModus
- integration virtualisation products
- plugin integration
- more abstraction / diffenent views of the system
- integrity check of the complete configuration
- Wizards for more complex configuration tasks like migrationsjobs, virtual full, deduplication
- Syntaxhighlighting in configuration window
- automatische configuration from inventory systems
- comment support
- internationalisation
- ...

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Thank you