DELL EMC NetWorker
Plugin Configuration Guide

Contents

Supported Collection Types

The plugin currently supports the following collection types from NetWorker servers:

Collection Type	Supported	Description
Backup	✓	Collects transactional details about backup, duplication and restore jobs. Example metrics include, start times, durations, bytes, files, errors etc.
Occupancy	✓	Collects point-in-time inventory information. Example metrics include, total recoverable gigabytes (occupancy), media volume count, media volume status, etc.
Policy	✓	Collects and stores information on policy attributes, schedules, storage units, storage groups, storage lifecycle policies and clients.

Data Sources

The plugin relies on the following NetWorker data sources:

Data Source	Collection Type	Connection Method	NetWorker Version	Notes
jobquery.exe	Backup	NSR Client	9.x +	NetWorker Extended Client on Bocada DCS
mminfo.exe	Backup Occupancy	NSR Client	All	
nsradmin.exe	Policy Occupancy	NSR Client	9.x +	
nsrpolicy.exe	Policy	SMB/SSH	9.x +	Runs Remotely on NSR
savegrp.log	Backup	SMB/SSH	8.x	NOT SUPPORTED for NetWorker 9.0 and newer
GST	Backup	postgreSQL	9.x +	Deprecated, will be removed
daemon.log	Media	SMB/SSH	All	Deprecated, will be removed
daemon.raw	Media	SMB/SSH	All	Deprecated, will be removed

Firewalls and Ports

Ports that need to be open at the firewall on the NetWorker server are displayed below. These are inbound direction indicating communication from the public network to the NetWorker server on the private network.

Service Port	Bocada Collection Type	NetWorker Version	Connection Method	NetWorker Data Source	Notes
7937-9936 111 (TCP-UDP)	Backup	9.x +	NetWorker Extended Client	jobquery.exe mminfo.exe	Recommended
	Occupancy	9.x +		mminfo.exe nsradmin.exe	Recommended
	Policy	9.x +		nsradmin.exe	Recommended
22 (TCP)			SSH2 (Unix)	nsrpolicy.exe	
445 (TCP)			SMB (Windows)		
22 (TCP)	Media	All	SSH2 (Unix)	daemon.log	Deprecated Legacy
445 (TCP)			SMB (Windows)	daemon.raw	
22 (TCP)	Backup	8.x	SSH2 (Unix)	savegrp.log	Deprecated Legacy
445 (TCP)			SMB (Windows)		
5432 (TCP-UDP)	Backup	9.x	postgreSQL	GST Database	Deprecated Legacy

The current NetWorker Administrator Guide references the default port range as 7937 to 9936, and refers to the EMC NetWorker Security Configuration Guide:
http://www.emc.com/collateral/TechnicalDocument/docu61097.pdf

Excerpt:
NetWorker dynamically opens ports. A NetWorker host can allocate any port in the defined service port range and the NetWorker daemons select the dynamic ports within that range randomly. ***The default range is 7937-9936*** *and you can narrow or expand this range.*

NetWorker uses two types of TCP/IP ports for inter-process communication: connection ports and service ports. Communication between NetWorker processes is initiated from a connection port on the source host and the communication request is sent to a service port on the destination host where a NetWorker process is listening. If the configured service ports range is not large enough, the associated services and processes cannot communicate through the firewall.

Permitted port ranges are stored in the NSR system port ranges resource in the resource database, /nsr/res/nsrladb on each NetWorker host. The resource is used and managed by nsrexecd. Whenever NetWorker daemons/services are started, nsrexecd is always the first process to start.

Collection Requirements

NetWorker Client

The plugin uses the NetWorker command line tools to communicate with the NetWorker server. To make these tools available, install the NetWorker Client software on each Bocada Data Collection Server.

The client software version should be the same as or newer than the version of the NetWorker servers. Do not disable the NetWorker Remote Exec Service installed with the NetWorker Client software. This service is used by the Data Collection Servers to communicate with a NetWorker Server.

NetWorker Extended Client

In addition to the NetWorker Client, the Extended Client is also needed to collect data against NetWorker servers. Download the appropriate version of the NetWorker Extended Client Software from EMC Online Support and follow the steps in the NetWorker Installation Guide to install or upgrade from an older version.

Note: Should installation of the NetWorker Client fail with a config checker error, please check if the Data Collection Server has access to the internet. Without internet access, the NetWorker client installer cannot check the VMware cert file. The KB article at the location below includes the cert file required and steps required to import the file. Once you complete these steps on any Data Collection Server(s) that do not have internet access, then the install will complete properly:
https://community.emc.com/docs/DOC-63254

Policy Data: Remote Filesystem Access

SMB access for Windows or SSH access for Unix is needed to run the nsrpolicy.exe command on the NetWorker server in order to collect backup policy information.

Required:

- Access to the NetWorker executables in the server bin path
  - SMB (Windows)
  - SSH2 (UNIX)
- Read permissions via one of the following authentication methods.
  - Password (SMB or SSH2)

    or
  - Public/private key (SSH2)
- Read, write, and execute permissions for the SSH directory on the Bocada DCS (only if using SSH public/private key authentication).

Note: SMB collections are possible when connecting via a socks server when the Data Collector has access to the log file locations.

Bocada Plugin Configuration

The following procedure is the recommended method for configuring of the Bocada plugin to collect data from supported NetWorker servers

NEW! Added in Bocada 19.3, the Bocada NetWorker plugin collects data using the output from NetWorker jobquery.exe installed on the Bocada DCS as part of the NetWorker Extended Client. This is a first step in simplifying the configuration of data collection from NetWorker servers.

Pleae see the ___ section for data differences between previous GST and current jobquery.exe data.

Checklist

- ☐ On the Bocada DCS running collections:
  - Install the NetWorker Client (required for extended client)
  - Install the NetWorker Extended Client
- ☐ Policy updates only: Verify SMB or SSH credentials to access the NetWorker server bin path:
  - Default Unix/Linux: */usr/sbin*
  - Default Windows: *c:\Program Files\EMC NetWorker\nsr\bin*
- ☐ Verify required TCP ports have been opened
- ☐ Add the NetWorker server to Bocada under Operations > Backup Servers, and set Server Properties

The NetWorker Extended client installs the following commands used by the Bocada plugin:

- jobquery.exe (Backup update data)
- mminfo.exe (Backup & Occupancy update data)
- nsradmin.exe (Policy & Occupancy update data)

In the future these commands will be run remotely on the NetWorker server through SMB or SSH and the Extended client will no longer be required.

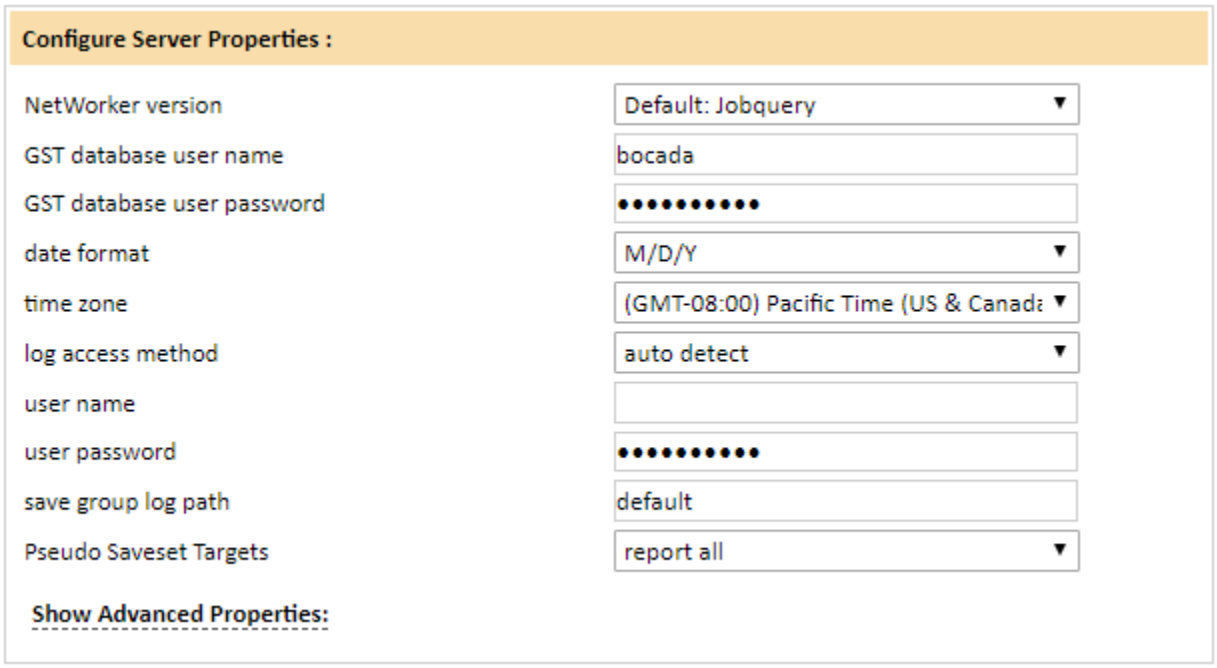
Bocada Collection Setup

After completing the above prerequisites, add your NetWorker server to Bocada:

1. Open the Bocada application.
2. Navigate to Operations > Backup Servers.
3. Select 'Add' (the Plus icon) from the right Action panel.
4. Enter Server Properties.

Server Properties

Backup Server Properties determine how the plugin will interact with the NetWorker server and are accessed from the Operations > Backup Servers view when adding or editing a server.



Plugin Server Properties

NetWorker Version

Auto detect the NetWorker version or force a version to manage methods used by the plugin to collect data. Options and brief descriptions are as follows:

- ***Default: Jobquery***

  Recommended: Uses the jobquery.exe output run against the NetWorker server remotely from the Bocada DCS. Jobquery.exe is installed with the NetWorker Extended client.

- ***9.x GST Database***

  Forces plugin to collect data against NetWorker 9.x using the GST database. This option is same as the *Default*, but can be useful if the plugin ever experiences an issue with NetWorker version recognition.

- ***9.x Savegroup Log***

  Data is collected from NetWorker 9.x using the savegrp.log. This option can be only used when savegrp.log was configured prior to upgrade to NetWorker 9.0 or higher. The *9.x jobquery output* option is highly recommended.

- ***8.x Savegroup Log***

  This option is the same as *Default* when NetWorker server is version 8.x, but can be useful if the plugin ever experiences an issue with NetWorker version recognition.

- ***7.x Savegroup Log***

  This option is the same as *Default* when NetWorker server is version 7.x, but can be useful if the plugin ever experiences an issue with NetWorker version recognition.

GST database user name/password

We hilghly recommend selecting *9.x jobquery output* as the preferred collection method, rendering these properties obsolete.

If directed by Bocada Support to set the *Version* property to *9.x GST Database*, enter the user created on the NetWorker server to collect backup data.

Date Format

Identifies the cultural date format for dates in the Save Group Log file which have the form "number/number/number".

Time Zone

Select the time zone where NetWorker server resides.

Log Access Method

Auto Detect will determine the method of connection based on operating system of the NetWorker server. Explicit selections of SSH, SMB, and Local exist for troubleshooting as needed by Bocada Support.

Although *'SSH'* is displayed in this setting, the Bocada plugin uses SSH2 for connections.

User Name & Password

Enter the user name and password for an account that has read access to the NetWorker savegrp.log and daemon.log files. The user name should be in one of the formats:

- Domain\User name (Windows servers)
- User name (UNIX/Linux)

Save Group Log Path

This setting is only required when collecting data using the Legacy method and is not recommended unless directed by Bocada Support.

The EMC installer may protect these installation directories from SMB access. If that is the case, sharing may need to be set explicitly for the files specified in this parameter.

Advanced Properties

The following properties are found in Advanced Properties wieh editing or adding a NetWorker server to Bocada. These have been broken into logical sections in this document for clarity but are combined in the actual interface.

Backup job data

This advanced setting gives the option to add on MMINFO data to jobs collected with backup collection methods, like saveset-id, media target destinations for each job, etc. While we continue to enhance the new jobquery.exe collection method this can behave differently dependent on the earlier properties:

Important: *mminfo only, no backup failures* is NOT RECOMMENDED as it only captures successful backups that have written to media.

Jobquery.exe: Currently this setting is ignored and the mminfo data is not merged with the jobquery output data. This will be added in an upcoming release.

GST database and Savegroup: This will merge media information with the backup data when set to *Default: all backup data*. With these methods, some successful jovs will be missed when set to *no mminfo / media*.

Note: While all mminfo entries are reported once found, these may display only “MMINFO<sid>” in the description until matched with completed Savegrp.log or GST database entries.

Server bin path

This is the location of the executable directory where nsrpolicy.exe lives on the NetWorker server. This is required to collect policy information from supported NetWorker servers.

GST Database Properties

Please see Appendix B: for details related to specialized GST configuration notes.

Selected Additional Advanced Properties (Bocada Support Only)

Update Type

The property should remain set to *Default: current* unless otherwise directed by Bocada Support for troubleshooting purposes.

Daemon Log Path

This plugin property is only used if the server property "Update Type" is set to *Deprecated Legacy* which is not recommended unless directed by Bocada Support. Use this setting to provide the path to the location of daemon log files on the NetWorker server. Choose *default* or enter a path:

- If the *log access method* property is *SMB*, default path is: C$\Program Files\Legato\nsr\logs
- If the *log access method* property is *SSH*, default path is: /nsr/logs
- If the *log access method* property is *local*, default path is C:\Program Files\Legato\nsr\logs

Capture Source Data

Note: Used to capture the process of data collection. The default *no* setting should be used unless otherwise directed by Bocada Support for troubleshooting purposes.

Appendix A: NetWorker Legacy Collection (8.x and earlier)

Note: Configuration and automatic creation of the savegroup.log was deprecated by EMC with NetWorker version 9.0. All Bocada servers using this method of collection should be updated to use the jobquery.exe methods.

Checklist

Savegroup Log Method for Windows or UNIX :

- ☐ Verify savegrp.log is enabled and available on the NetWorker server.
- ☐ Verify SMB or SSH access to the NetWorker logs share
- ☐ Configure NetWorker plugin in Bocada to collect data from the NetWorker server

Enable savegrp.log

This is only applicable to NetWorker version 8.x and older Backup Servers. Use the following steps to verify that the savegrp.log is created by the NetWorker server and available.

Windows

1. Start the NetWorker Administrator.
2. Select the appropriate NetWorker server.
3. Select the Configure tab.
4. Click Server Notifications.
5. Verify that a notification (e.g. Savegroup completion) is available with the following minimum configuration:
   - Event: Savegroup
   - Priority: Alert and Notice
   - Action: Write log output to file, e.g.:
     nsrlog –f "D:\Program files\EMC NetWorker\nsr\logs\savegrp.log

UNIX

In UNIX, the Savegroup Completion notification is set to send email, rather than writing the results to savegrp.log. Because of this, a new notification (that writes Savegroup Completion notices to file) needs to be created. Perform the following steps on the NetWorker server to create the savegrp.log file:

1. On the NetWorker server, start nwadmin.
2. Select *Customize Notifications* from the nwadmin menu bar.
3. Select *View* and *Details* from the Notification window to display detailed information.
4. Select the *Create* button in the Notification window to create a new notification.
5. Enter *Savegroup notification log* in the name field.
6. Type "`/usr/bin/cat >> /nsr/logs/savegrp.log`" (without quotes) in the Action field.
7. Select *savegroup* from the Event field.
8. Select *Apply*.

Note: The NetWorker server does not prune the savegrp.log. To keep the savegrp.log file a manageable size it may be necessary to rename the existing log. Before attempting to rename the log, ensure that no NetWorker Groups are running.

Appendix B: GST Database collection for NetWorker 9.x

Due to changes the removal of savegroup.log in NetWorker 9.0, We introduced a new data source from which to pull backup data. Over time, this has proven difficult to configure, incomplete, and inconsistent and will be removed from a future release.

We have since refactored the backup collection to utilize jobquery.exe provded with the NetWorker Extended Client. The GST collection method was has been deprecated, and will be removed in a future release; this should only be used in extreme cases when directed by Bocada Customer Support.

Checklist

Scripted configuration for Windows or UNIX:

- ☐ Copy the appropriate script for either Windows or UNIX to the NetWorker server from the Bocada install directory: …*Bocada**DataCollection**scripts*
- ☐ Run script on the NetWorker server to create a GST Database user with access to the PostgreSQL database.
- ☐ Configure NetWorker plugin in Bocada to collect data from the NetWorker server

Manual configuration for Windows:

- ☐ Stop Services on the NetWorker server.
- ☐ Modify pg_hba.conf file to permit remote access to the database.
- ☐ Restart EMC GST database service.
- ☐ Create a user & password for database access.
- ☐ Modify pg_hba.conf file again to restrict access, if desired.
- ☐ Change Read permissions of the NETWORK group for the \nsr filesystem to 'Allow'.
- ☐ Restart services.
- ☐ Install the NetWorker Extended Client on the Bocada DCS.
- ☐ Complete steps in All Methods list below.

User creation and Setup on the NetWorker Server

Data is collected from the NetWorker GST database using a GST Database User with read-only access. This user must be created to provide access and can be done manually or by executing a Bocada-provided script. Both methods temporarily require administrator privileges on the NetWorker server.

These credentials are entered in the Bocada server properties above.

Method 1: Scripted

Bocada has provided user setup scripts for UNIX and Windows to create read-only users in a NetWorker GST database. The scripts can optionally create a superuser account if desired. These scripts may be found in your Bocada installation directory under \DataCollection\scripts (default location is C:\Program Files (x86)\Bocada\DataCollection\scripts).

The NetWorker and GST Database daemons must be running when using the Bocada setup script and the daemons will continue to operate without interruption while running the Bocada setup script.

UNIX Script Execution

To setup the script for use on a NetWorker Unix server, perform the following:

UNIX Script

NetWorker9-Unix-Setup.ksh

Setup

1. Copy script to a temporary directory such as "`/tmp`" on the NetWorker server.
2. Open a shell to the server as root or equivalent.
3. Navigate to the directory where the script is stored, e.g. "`/tmp`".
4. Change access permissions on the script so it can be executed, e.g.:

   ```
   chmod 775 NetWorker9-Unix-Setup.ksh
   ```

5. Locate the directory containing the NetWorker GST Database.

   Default: `/nsr/nmc/nmcdb/pgdata`

Help Menu

The latest help information for the script is available by issuing the following command:

```
./NetWorker9-Unix-Setup.ksh -help
```

Executing the script with no arguments will cause it to update the default location where GST Databases are stored and create a read-only user named "bocada".

Default Run Command

6. The following is an example of running the script using default settings:

```
$ ./NetWorker9-Unix-Setup.ksh

------------------
Procedure start: Wed Dec  6 13:16:32 PST 2017
Using NetWorker GST database folder '/nsr/nmc/nmcdb/pgdata'.
Job name: 20171206_131632
Procedure parameters:
   arg_dbdir=/nsr/nmc/nmcdb/pgdata
   arg_superuser=''
   arg_user=bocada
   proc_datetime='Wed Dec  6 13:16:32 PST 2017'
   proc_jobname=20171206_131632
   proc_pgdir=/opt/lgtonmc/postgres/bin
   proc_port=5434
------------------
Creating read only user account 'bocada'.
in Postgres database in folder '/nsr/nmc/nmcdb/pgdata '.
Enter 'yes' to continue:
```

7. After you type "yes" and press enter, the script will perform the action specified: Creating the read-only database user account "bocada" in the specified GST database. The procedure will prompt you for the new account password, and then to verify the new account password.

Note on Password Confirmation

The password prompt is controlled by the native PostgreSQL engine, and if the password confirmation entry does not match the original password entered, the engine will create the specified user with *no*

password. If this occurs, the script output is as follows and it is recommended to re-run the script for the same user again:

Example:

```
Creating read only user account 'bocada'.
DO
GRANT
GRANT
GRANT
Enter new password:
Enter it again:
Passwords didn't match.
Read only user account 'bocada' created.
------------------
```

Windows Script Execution

To setup the script for use on a NetWorker Windows server, perform the following:

Windows Script

NetWorker9-Win-Setup.cmd

Setup

1. Copy script to a temporary directory such as "C:\temp" on the NetWorker server.
2. Open a command shell with administrator priviledges.
3. Navigate to the directory where you put the script , e.g. "C:\temp".
4. Locate the directory containing the NetWorker GST Database.

   Default: `C:\Program Files\EMC NetWorker\Management\nmcdb\pgdata`

Help Menu

The latest help information for the script is available by issuing the following command:

```
.\NetWorker9-Win-Setup.cmd -help
```

Executing the script with no arguments will cause it to update the default location where GST Databases are stored and create a read-only user named "bocada".

Default Run Command

5. The following is an example of running the script using default settings:

```
$ .\NetWorker9-Win-Setup.cmd

================================================================================
Procedure start: Thu 12/14/2017  9:37:21.28
Using NetWorker GST database folder "D:\Temp\Management\nmcdb\pgdata".
Job name: 20171214_09372128

Procedure parameters:
   proc_cmd=C:\Temp\NetWorker9-Win-Setup.cmd
   proc_date=Thu 12/14/2017
   proc_dir=C:\Temp\
   proc_job=NetWorker9-Win-Setup.cmd
   proc_jobname=20171214_09372128
   proc_logfilename=C:\Temp\NetWorker9-Win-Setup_20171214_09372128.log
   proc_name=NetWorker9-Win-Setup
   proc_time= 9:37:21.28
   arg_dbdir=C:\Program Files\EMC NetWorker\Management\nmcdb\pgdata
   arg_pgdir=C:\Program Files\EMC NetWorker\Management\nmcdb\pgdata
\..\..\GST\postgres\bin
   arg_user=bocada

Found GST Database port to be 5432
Found GST Database process ID to be 768
Creating read only user account "bocada".
in Postgres database in folder " C:\Program Files\EMC NetWorker\Management
\nmcdb\pgdata".
Enter "yes" to continue:
```

6. After you type “yes” and press enter, the script will perform the action specified: Creating the read-only user account “bocada” in the specified GST database. The procedure will prompt you for the new account password, and then to verify the new account password.

Note on Password Entry

PostgreSQL shows the password as you type in plain text. Take care that no unauthorized individuals are watching while you type the password, and be certain to enter the “`cls`” command to clear the command shell window when finished, or “`exit`” to close the window.

Method 2: Manual

The following manual steps may be used instead of the Bocada scripts to create a GST Database User and allow this user access to the GST Database. For more on NetWorker commands, reference the *EMC NetWorker Administration Guide*.

The user added will have superuser/administrator access to the NetWorker GST database. If a user with read-only permissions is desired, the above Bocada scripts in Method 1 must be run. However, the access granted to this superuser/administrator may still be limited to only a single server or network via the pg_hba.conf file.

UNIX/Linux NetWorker Server

Open a command shell to the UNIX or Linux NetWorker server and, as root or using the sudo command, perform the following steps. Note: the default NetWorker directories are used in the examples; adjust accordingly as needed if not using default locations.

1. Stop the NetWorker service:
   ```
   /etc/init.d/networker stop
   ```
2. Stop the EMC GST Database service:
   ```
   /opt/lgtonmc/postgres/bin/pg_ctl stop -w -D /nsr/nmc/nmcdb/pgdata
   ```
3. Change directories to NetWorker PostgreSQL location:
   ```
   cd /nsr/nmc/nmcdb/pgdata
   ```
4. Copy pg_hba.conf to pg_hba_original.conf:
   ```
   cp pg_hba.conf pg_hba_original.conf
   ```
5. Add the following line as the **first**[1] entry in the configuration section of pg_hba.conf, and save it:
   ```
   host      all    all    samehost      trust
   ```

```
# TYPE  DATABASE        USER            ADDRESS          METHOD
#local  all             lgtogst         127.0.0.1/32     md5
# IPv4 local connections:
host    all             all             samehost         trust
host    all             lgtogst         127.0.0.1/32     md5
host    all             lgtogst         samehost         md5
host    replication     lgtogst         127.0.0.1/32     md5
host    replication     lgtogst         samehost         md5
hostssl lgto_gst        lgtogstr        all              md5
# IPv6 local connections:
host    all             lgtogst         ::1/128          md5
host    replication     lgtogst         ::1/128          md5
host    all             lgtogstr        ::1/128          md5
```

6. Start the EMC GST Database service:
   ```
   /opt/lgtonmc/postgres/bin/pg_ctl start -w -D /nsr/nmc/nmcdb/pgdat
   ```
7. Create the Bocada GST Database User and password using the following command:
   ```
   /opt/lgtonmc/postgres/bin/createuser -p <port> -h <host ip> -U lgtogst -P -s <user name>
   ```
   Note: In this step, you will be asked to “Enter password for new role”, and then “Enter it again” (see screenshot below). If the system asks for a password after you enter it the second time,

[1] Since the `pg_hba.conf` records are examined sequentially for each connection attempt, the order of the records is significant, and this must be the first non-comment line in the file. Reference: https://www.postgresql.org/docs/9.3/static/auth-pg-hba-conf.html

there is an error; review Steps 1 through 6. Possible reasons for this are that the new entry in the pg_hba.conf is incorrect, or that the EMC GST Database Service has not been cycled.

8. Stop the EMC GST Database Service again:

```
/opt/lgtonmc/postgres/bin/pg_ctl stop -w -D /nsr/nmc/nmcdb/pgdat
```

9. Update the first entry added to the *pg_hba.conf* (in step 5, above) to be the following; choose a more restrictive address if desired:

```
Host      all    <new user name>      samenet md5
```

Notes:

- The username must be all lower case. No capital letters may be used.
- Note: 'samenet' may be used when the Bocada server and NetWorker server are in the same subnet. If the NetWorker server is on a separate subnet than the Data Collection Server, this may be set to 'all'
- As above, you will be asked to "Enter password for new role", and then "Enter it again" (see screenshot below). If the system asks for a password after you enter it the second time, there is an error; Review Steps 1 through 6; Possible reasons for this are that the new entry in the pg_hba.conf is incorrect, or that the EMC GST Database Service has not been cycled.

```
# TYPE  DATABASE        USER            ADDRESS                 METHOD
#local  all             lgtogst         127.0.0.1/32            md5
# IPv4 local connections:
host    all             bocada          samenet                 md5
host    all             lgtogst         127.0.0.1/32            md5
host    all             lgtogst         samehost                md5
host    replication     lgtogst         127.0.0.1/32            md5
host    replication     lgtogst         samehost                md5
hostssl lgto_gst        lgtogstr        all                     md5
# IPv6 local connections:
host    all             lgtogst         ::1/128                 md5
host    replication     lgtogst         ::1/128                 md5
host    all             lgtogstr        ::1/128                 md5
```

10. Start NetWorker service:

```
#/etc/init.d/networker start
```

11. Start the EMC GST Database service:

```
/opt/lgtonmc/postgres/bin/pg_ctl start -w -D /nsr/nmc/nmcdb/pgdat
```

Windows NetWorker Server

1. Stop NetWorker services on the NetWorker server.
2. Stop the *EMC GST Database Service*.
3. Navigate to <NetWorkerInstall_Dir>\ Management\nmcdb\pgdata
4. Create a copy of *pg_hba.conf* named *pg_hba_original.conf*
5. Add the following line as the **first**[2] entry in the Configuration Section of the *pg_hba.conf*
   - host all all samehost trust

```
# TYPE  DATABASE        USER            ADDRESS         METHOD
#local  all             lgtogst         127.0.0.1/32    md5
# IPv4 local connections:
host    all             all             samehost        trust
host    all             lgtogst         127.0.0.1/32    md5
host    all             lgtogst         samehost        md5
host    replication     lgtogst         127.0.0.1/32    md5
host    replication     lgtogst         samehost        md5
hostssl lgto_gst        lgtogstr        all             md5
# IPv6 local connections:
host    all             lgtogst         ::1/128         md5
host    replication     lgtogst         ::1/128         md5
host    all             lgtogstr        ::1/128         md5
```

6. Start only the *EMC GST Database Service*
7. Create the Bocada GST Database User and password using the following command:

   ```
   <NetWorkerInstall_Dir>\Management\GST\postgress\bin\createuser.exe -p <port> -h
   <host ip> -U lgtogst -P -s <user name>
   ```

   Notes:
   - The username must be all lower case. No capital letters may be used.
   - As above, you will be asked to "Enter password for new role", and then "Enter it again" (see screenshot below). If the system asks for a password after you enter it the second time, there is an error; Review Steps 1 through 6; Possible reasons for this are that the new entry in the pg_hba.conf is incorrect, or that the EMC GST Database Service has not been cycled.

```
C:\Program Files\EMC NetWorker\Management\GST\postgres\bin>createuser.exe -p 5432 -h 192.168.1.12 -U lgtogst -P -s bocada
Enter password for new role:
Enter it again:
```

8. Stop the *EMC GST Database Service* again.
9. Update the first entry added to the *pg_hba.conf* in step 5, above to be the following:

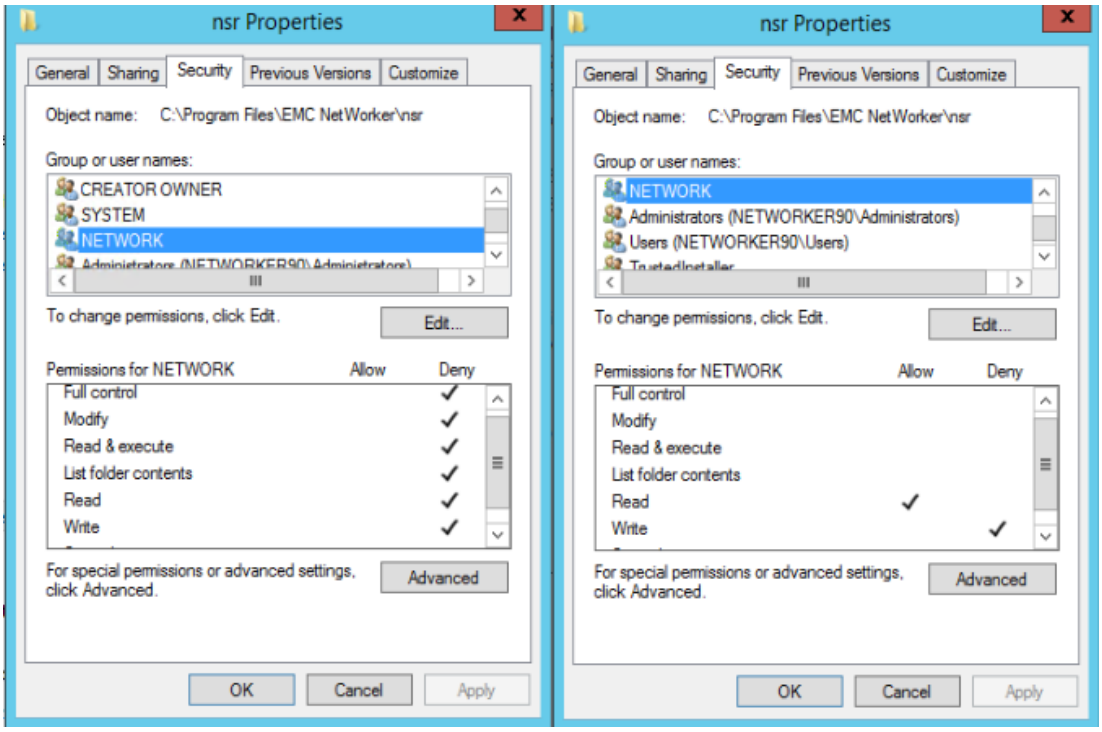
   ```
   Host      all    <new user name>      samenet md5
   ```

   - Note: 'samenet' may be used when the Bocada server and NetWorker server are in the same subnet. If the NetWorker server is on a separate subnet than the Data Collection Server, this may be set to 'all'.

[2] Since the `pg_hba.conf` records are examined sequentially for each connection attempt, the order of the records is significant, and this must be the first non-comment line in the file. Reference: https://www.postgresql.org/docs/9.3/static/auth-pg-hba-conf.html

```
# TYPE   DATABASE          USER              ADDRESS           METHOD
#local   all               lgtogst           127.0.0.1/32      md5
# IPv4 local connections:
host     all               bocada            samenet           md5
host     all               lgtogst           127.0.0.1/32      md5
host     all               lgtogst           samehost          md5
host     replication       lgtogst           127.0.0.1/32      md5
host     replication       lgtogst           samehost          md5
hostssl lgto_gst           lgtogstr          all               md5
# IPv6 local connections:
host     all               lgtogst           ::1/128           md5
host     replication       lgtogst           ::1/128           md5
host     all               lgtogstr          ::1/128           md5
```

10. Change the *Read* permissions of the NETWORK Group for the <NetWorkerInstall_Dir>\nsr filesystem from *Deny* to *Allow* (see screenshot below):

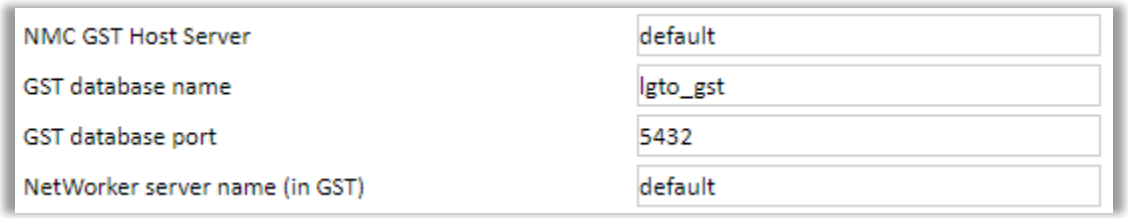


11. Restart All NetWorker Services.
12. Restart All EMC GST Services.

Note: More information on the PostgreSQL can be found on the following link:
https://www.postgresql.org/docs/9.2/static/auth-pg-hba-conf.html

Specialized GST Configuration

The default NetWorker installation uses itself as the GST database repository. The following is used when a dedicated NetWorker Management Console server is configured to run a single GST database for multiple NetWorker servers.



NMC GST Host server

This defaults to the name of your NetWorker server when using the GST database collection method.

GST database name

For NetWorker 9.x; defaults to *lgto_gst*

GST database port

For NetWorker 9.x; defaults to *5432*

NetWorker server name (in GST)

Used if your NetWorker server name (as known to itself) is different from the name of the NetWorker Server as added to Bocada.

Appendix C: Public/Private Key (SSH)

Note: These steps are only needed if the log files cannot be reached via standard user / password authentication.

The process of using a public/private key with Bocada is a two-step process. Step one is to generate the public/private key. Step two is to use the Bocada broneline.exe utility to modify the key pair into a format compatible with Bocada. The broneline.exe utility transforms a public/private RSA key pair into a single line of text.

We recommend using Cygwin to generate a public/private key so this document uses ssh-keygen.exe as its example. Consult the appropriate software documentation for more information.

Generate a Public/Private Key

1. Install a SSH2 client on the Bocada Data Collection Server.
2. Create a folder called ssh in a local directory path on the Data Collection Server
3. Open a command prompt and use the following cygwin command:

   ssh-keygen -t rsa -f *[local_directory_path]*\ssh*[key_file_name]*

4. When prompted, enter and re-enter the passphrase for the key pair.

The full command is: ssh-keygen[-ceilpqyB] [-t type] [-b bits] [-f file] [-C comment] [-N new-pass] [-P pass]
Where:

- -t = type (format) of key (RSA is the recommended format).
- -f = file name (or path and file name) for the private key.

Modify Key

Modify the key just created with broneline.exe:

1. Open a command prompt and change directory to the location of the public/private key.
2. Enter the command:

   ***[bocada_install_dir]*\Bocada\DataCollection\bin\broneline.exe *[key_file_name]* > output**

3. Open the resulting output file in a text editor.
4. Copy and paste the contents into the user name and password fields for the server properties in Add/Edit Server wizard for the server.

Troubleshooting

Failed to open 'savegrp.log' file:

Should you experience this error:

```
Error 545: ApplicationException: Failed to open 'savegrp.log' file,
last message: Failed to create file system entry. Check debug log for
details.
```

If the NetWorker server is Windows, follow these steps:

1. Log in to the NetWorker server as the User account listed in the Bocada Server settings.
2. Use File Explorer onto the NetWorker server to verify the location of Savegrp.log (default is \nsr\logs, but your installation location may vary)
3. Verify that the user account can open the savegrp.log file.

If the NetWorker server is Unix, then follow these steps:

1. Verify Savegrp.log location on the NetWorker server (default is /nsr/logs)
2. Verify Bocada Edit Server setting matches the Savegrp.log file location that is on the NetWorker server
3. Install PuTTY (a free SSH and Telnet client), available from https://putty.org/
4. PuTTY to the backup server, with the user credentials entered in the Bocada server properties for that server.
5. `cd` to the log directory
6. List the files to verify it's there, e.g. `ls -l`
7. Open the file, e.g. `less savegrp.log`
8. Print the dir (`pwd`), highlight, and copy the result
9. Paste the result into the Bocada property for "save group log path".

Failed to launch mminfo.exe

Should you experience this error:

```
Error 545: ApplicationException: Failed to launch mminfo.exe
```

1. Verify that the NetWorker Extended Client is installed on the Bocada Data Collection Server. If not, install the Extended Client and try again.

2. Try running the MMINFO command on the Bocada Data Collection server: Open a command prompt on the Bocada DCS and run the following command (filling in the name of the NetWorker server):
   ```
   mminfo -s <NetWorker backup server> -v
   ```

   If the MMINFO command is encountering problems, it may return something like the following:
   ```
   mminfo: no matches found for the query
   ```

   This message can indicate that there are no (zero) backups in the NetWorker server (this can occur if the backup volumes contain no backups) or that the mminfo command failed because of a DNS lookup failure.

   To debug the MMINFO command, run the command with the -D1 flag:
   ```
   mminfo -s <NetWorker backup server> -v -D1
   ```

   If there are issues with DNS, this command will likely return errors such as “Host name verification failed – unknown host” or similar.

3. Try running the MMINFO command on the NetWorker server: On the NetWorker server, open a command prompt and run the same command (again, filling in the correct name for the NetWorker server):
   ```
   mminfo -s <NetWorker backup server> -v
   ```

   If this still returns no results, then there are no backup jobs to be found in the media database.

   If this returns an error, then the issue is on the NetWorker server – please work with your NetWorker admin to resolve.

4. If the MMINFO command is successful on the NetWorker server but fails from the Bocada DCS, check network connectivity and name resolution (using ping -a and nslookup, with both the IP address and FQDN) from the DCS to the NetWorker server, then perform the same checks from the NetWorker server to the DCS.

Technical Support

For technical support or a copy of our standard support agreement, please contact us.

E-mail: support@bocada.com
Support Portal: http://www.bocada.com/product-support/
Phone: +1-425-898-2400