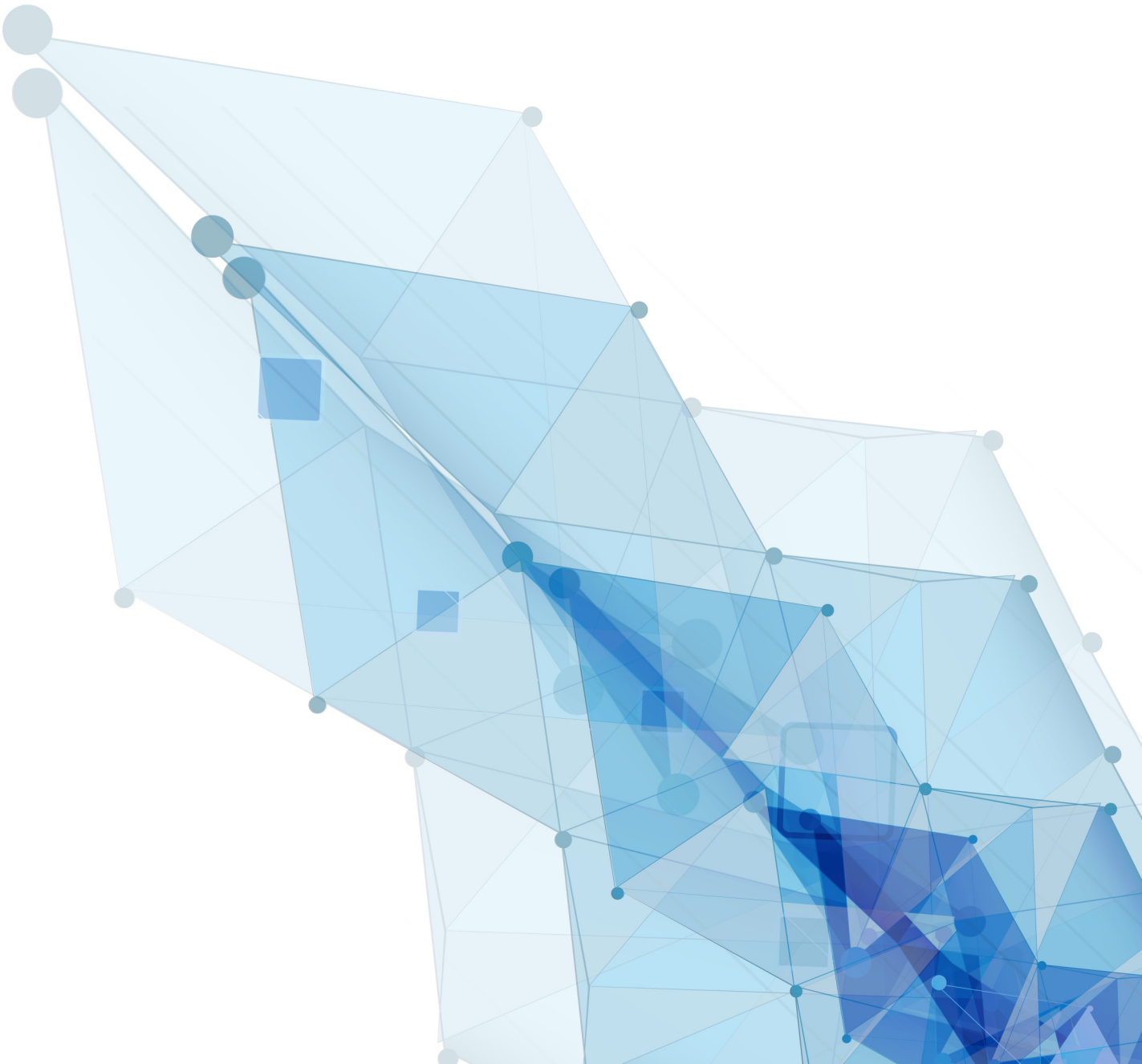
panagenda

ApplicationInsights™

Setup Guide



SETUP GUIDE

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Welcome to panagenda ApplicationInsights!

This guide will help you to set up panagenda ApplicationInsights.

About ApplicationInsights

panagenda ApplicationInsights (also referred to as "AI" in this document) is delivered as a virtual appliance that provides continuous and detailed information on IBM Notes / Domino application usage and design in the form of easily understandable graphs and visualizations. It offers reports on design complexity of applications, gives insights into the application landscape for optimization, migration, modernization and transformation purposes. panagenda ApplicationInsights offers administrators, developers and management the means to plan, manage execute and monitor a Domino application modernization strategy.

In order to do so, AI provides:

- Environment and inventory overviews
- Insights into usage from IBM Notes Rich clients and browsers
- Analytics on design and source code complexity
- Detailed „Design Insights" based on source code search patterns
- Design similarity and identification of „Template Candidates"
- Continuous collection of data (overview, usage and design changes)

System Requirements

Host Software

panagenda ApplicationInsights comes as a virtual appliance including its own operating system based on the popular CentOS Linux distribution. No operating system needs to be prepared for the installation on the virtualization software side.

Virtual appliances are available for VMWare vSphere (recommended for production), Microsoft Hyper-V and VMWare Workstation (for evaluation purposes). The underlying hardware and OS need to have VT-x support enabled (in BIOS). This is mainly relevant in scenarios where Workstation act as host software. Detailed information about operating system requirements can be found on the respective product pages: www.vmware.com/products/

Virtual Hardware

Minimum hardware requirements for production environment:

- Enterprise grade server hardware for all components
- CPU: 4 Cores
- RAM: 8 GB
- Disk: 120 GB

Adapting virtual hardware to the environment size:

Most system requirements scale with the collection period and environment size. CPU is the exception, where the four cores are adequate for most customer sizes.

RAM and disk space: taking the minimum requirements as base line, add an additional 8GB RAM and ~200GB disk space for every 25k users.

Amount of Users	RAM	Disk Space (1 year)
Up to 5k (minimum/base line)	8 GB	120 GB
Up to 25k	16 GB	300 GB
Up to 50k	24 GB	500 GB
Up to 75k	32 GB	700 GB
100k and above	40 GB	10 GB per 1k users

Partitions and disk growth:

The virtual appliance consists of several partitions for the operating system, applications, log files and the database. The database partition at /opt/panagenda/pgdata is the only one that continuously grows over time and needs to be resized in the course of normal operations (see "Enlarging ApplicationInsights Data Disk" on page 29).

Access and Permissions

IBM Domino Notes:

The following access to the Domino environment is required:

- **Single Notes ID file with access (cross certification) to all servers in scope**
  - **Reader access to at least one Domino Directory per Domain**
  - **Reader access to all servers' log.nsf databases**
  - **Reader access to all servers' catalog.nsf databases**
  - **Reader access to all servers' domlog.nsf databases where enabled**
  - **Designer access to all databases where design should be analyzed**

In environments where it is not possible to grant Designer access to the uploaded Notes ID file on all relevant databases, an alternative is available by granting Full Access Administrator rights to the ID for design collection purposes.

Domino server requirements:

- **Statlog task scheduled on all servers**
- **Catalog task scheduled on all servers**
- **INI entry LOG_DISABLE_SESSION_INFO must not be set to 1**
- **"Domlog.nsf" enabled and "Access log format" set to "Extended Common"** (*names.nsf > Server Document > Internet Protocols... > HTTP*)
  MIME types "image/*", "text/css" and "text/javascript" can be excluded

Network (Firewall/Ports):

Connections to and from the appliance need to be allowed for the following services:
Outbound (originating in virtual appliance):

- Notes **RPC** to Domino servers for data collection (TCP 1352)
- **HTTP/HTTPS** to Domino servers for data collection (TCP 80/443)

Inbound (accessing virtual appliance):

- **HTTP/HTTPS** for configuration and reports (TCP 80/443)
- **SSH** for system configuration and application tuning (TCP 22)
- **VNC** for system configuration and Notes client access (TCP 5901)
- Optional: PostgreSQL for data warehouse access where enabled (TCP 5432)
- Optional: Docker Management UI Portainer (TCP 9000)

It is recommended that the ApplicationInsights owner has access to the console of the virtual machine (e.g. via vSphere client).
Internet access for the appliance is not mandatory, but it is recommended to grant at least proxy access to *.panagenda.com and your defined CentOS repository for security and application updates.

Client System Requirements

Hardware, Operating System and Software Requirements:

The panagenda ApplicationInsights web interface is based on HTML5 and therefore accessible on any **HTML5 capable device**.

- We recommend the following browsers in latest **64-bit** versions: **Chrome** and **Firefox**

Browser Security and Network Access:
No special web browser security settings are required to run the panagenda ApplicationInsights web interface.
To access the ApplicationInsights web interface, you need to have access to the panagenda ApplicationInsights appliance via TCP/IP, Port 80 (HTTP) and Port 443 (HTTPS).

ApplicationInsights Appliance Details

panagenda ApplicationInsights is developed as a virtual appliance:

The panagenda ApplicationInsights Virtual Image

- **CentOS 7.3**

  panagenda ApplicationInsights is based on the very popular CentOS Linux distribution, which is based on the source code of Red Hat Enterprise Linux (RHEL). CentOS 7 was chosen because of its stability and its long time support (Maintenance until June 2024). It uses a current kernel version (3.10.x) for virtual systems. Only security patches are configured for automatic update via the YUM (yellowdog updater modified).

- **Docker 17 CE**
- **Docker Compose 1.11**
- **Tomcat 8 Application Server**
- **NodeJS 6 Application Server**
- **Nginx 1.11 Reverse Proxy Server**
- **Java 8 Virtual Machine**
- **PostGreSQL 9.6 Relational Database Server**
- **A sub-set of Domino 9.0.1 Linux 64 Bit binaries**
  (Domino server will not be started)

ApplicationInsights Setup Files

There are two options to get the virtual appliance image and license file for ApplicationInsights:

1. Customers with active **IBM Domino maintenance** (S&S) - including Domino Express offerings - have access to a **special IBM Entitlement License**. Please see this tech note for further information and download instructions: https://ibm.co/2plriSL

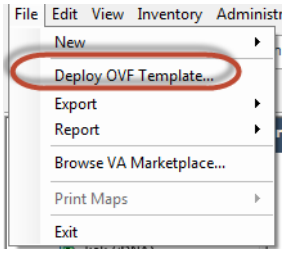
2. All other customers, please contact sales@panagenda.com for a trial version. In order to create the ApplicationInsights licenese, we need the following information:

   - Your **Company Name**
   - **Text Certifier(s)** of the servers you wish to analyze, e.g. /O=panagenda or /O=ACME/C=XX
   - **Number of users and servers** of the environment you wish to analyze

Launching ApplicationInsights using virtualization software

Recommended: VMWare vSphere/ESX via OVA

Open VMWare ESX, ESXi or vSphere and select:



The Deploy OVF Template dialog will open:

1. **Source:** Specify the location where you saved the ApplicationInsights OVA file on your hard drive – for example: *C:/Temp/panagena_ApplicationInsights.ova*

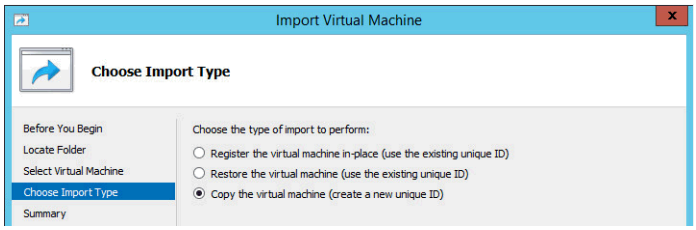
2. **OVF Template Details:** In this step you can inform yourself about the ApplicationInsights version you are about to deploy. When you are done, just click on Next

3. **Name and Location:** Is the next relevant step for deploying ApplicationInsights. We recommend to name this template "**panagenda ApplicationInsights**"
4. **Storage:** Then you have to select a destination storage for the virtual machine files.
5. **Disk Format:** In this step, please select the storage format for the virtual disks. We recommend to choose "Thick Provision Eager Zeroed"
6. **Network Mapping:** Then select the network the deployed ApplicationInsights template should use.
7. **Ready to Complete:** In the final step you are shown the options you set up. Click on Finish if you are satisfied with your setting to start the deployment task.

Alternative: Microsoft Hyper-V

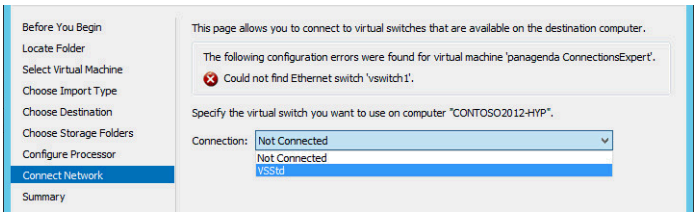
- Extract the file **panagenda_Applicationinsights_HyperV.exe**
- Start Hyper-V Manager
- Right-click on your server and select "Import Virtual Machine" from the context menu

- Click **Next** on "Before you Begin" screen
- Select the folder that contains the extracted files and click **Next**
- Select the ApplicationInsights image
- Select "Copy the virtual machine (create a new unique ID)"



- Click **Next** in the "Choose Destination" screen, unless you want to set the folders individually
- Select the folder where you want to store the virtual hard disk

- Click **Next** int the "Configure Processor" step – please don't change the processor settings
- Specify a network connection



Select **Finish** on the summary screen to start the copy

Alternative: VMWare Workstation/Player via VMX

- Extract the file **panagenda_ApplicationInsights.exe**
- Start VMWare Player or VMWare Server
- Open Virtual Machine
  - Navigate to the folder where the files from the ApplicationInsights EXE are extracted
- Select the ApplicationInsights VMX file

If you are prompted to update the VMWare Tools during appliance update, decline the request. Appropriate VMWare Tools are already installed on the panagenda ApplicationInsights appliance.

Alternative: VMWare vSphere/ESX via VMX and Converter

After extracting the file **panagenda_ApplicationInsights.exe**, a VMWare Workstation type virtual machine is available (ApplicationInsights VMX file). To use this machine on a VMWare ESX Server, a free tool from VMWare named vCenter Converter Standalone (downloads.vmware.com) can be used to convert and upload it to your VMWare environment. Please see VMWare product documentation (www.vmware.com/support/pubs/converter_pubs.html) on detailed installation and usage instructions.

Converter:

To convert and install panagenda ApplicationInsights, please follow these steps:

- Start converter
- Select **convert machine**
  - Source Type: VMWare Workstation virtual machine
  - Navigate to the folder, to where the files from panagenda_ApplicationInsights.exe are extracted
  - Select the ApplicationInsights VMX file
  - Select **Next**
  - Destination Type: VMWare Infrastructure virtual machine
  - Enter your VMWare ESX Server connection details and credentials
  - Select **Next**
  - Host/Resource: No changes required
  - Select **Next**
  - Options: No changes recommended for Trial Version
  - Select **Finish** to start Upload
- Depending on your network speed the upload can take several minutes
- After the Upload is finished, start your VMWare server management tool and run the newly created virtual machine
- The first few steps of setting up the system will require access to the virtual machine console

Starting the Virtual Appliance

Welcome Screen and IP Address

After starting up the appliance for the first time, you should be presented with a panagenda ApplicationInsights welcome screen. If your network has a public DHCP server available, the system might already have acquired an IP address and will display the URL. **Use the shown IP address (interface URL) in your web browser to connect to the panagenda ApplicationInsights web interface.** If DHCP is not available within your network or the panagenda ApplicationInsights appliance did not acquire any IP address, you have to configure the panagenda ApplicationInsights appliance network settings (see "Network Settings:" on page 16).

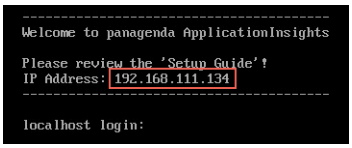


Figure 1: Welcome Screen

Appliance Login

ApplicationInsights provides a console and a graphical user interface in order to configure operating system level settings like network, time and time zone settings.

Default login information:

user "root" with password "config"

Console

After login, basic information, such as disk space, system time and IP address, are shown:

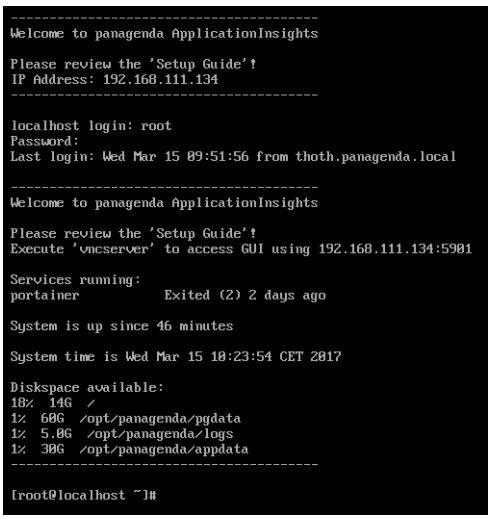


Figure 2: Basic System Information - Console

Graphical User Interface

There are two ways to use the GUI to configure your ApplicationInsights appliance:

1 **Local**

In order to start the GUI locally, enter the command "**startx**"
To start the GUI automatically when ApplicationInsights is booted, please enter the following command: "**systemctl set-default graphical.target**"

2 **Remote Access via VNC**

Please note that remote VNC access is only possible if the ApplicationInsights appliance received an IP address via DHCP.

Please refer to "Remote Appliance Access (VNC)" on page 28 for more details on VNC access.

GUI Basics

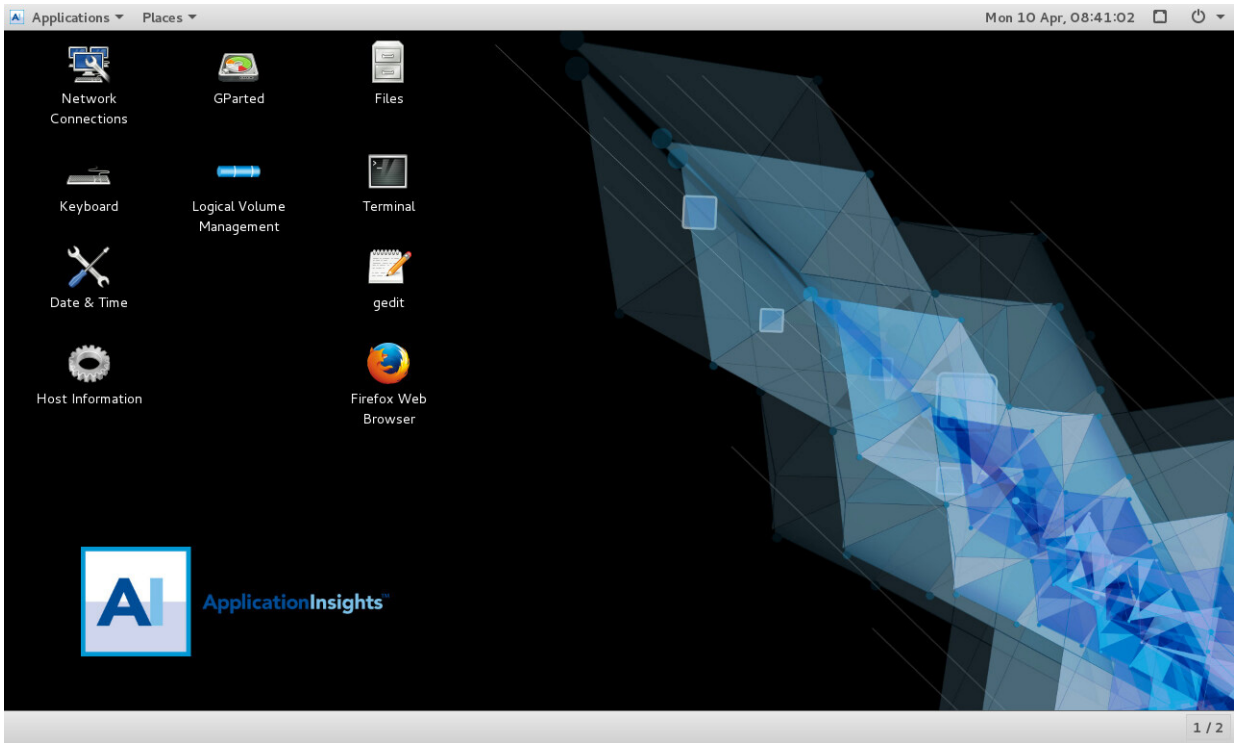


Figure 3: ApplicationInsights Desktop

The Applications menu provides access to all required applications:

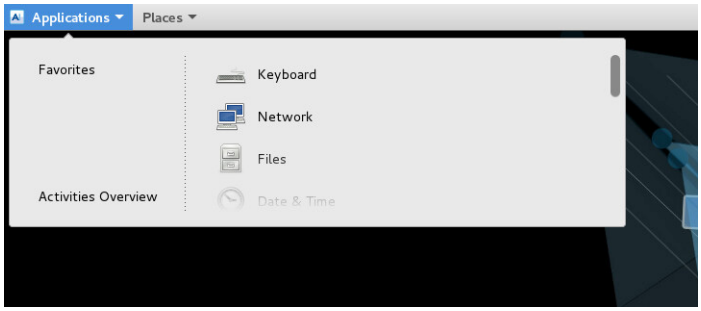


Figure 4: ApplicationInsights Applications Menu

You can access all required applicatoins by using the desktop icons, too.

To check an established internet connection, a **web browser** (Mozilla Firefox) is available on the panagenda ApplicationInsights appliance.

You can use the **terminal window** to check if your TCP/IP connection is established, using Linux *ping* and *ifconfig* command. For more information about *ping* and *ifconfig* commands, type *man ping* or *man ifconfig* in the terminal console window.

panagenda ApplicationInsights log files can be found within the /opt/panagenda/logs directory. The main log file (idna/idna.log) holds essential information about panagenda ApplicationInsights runtime behavior. Use the **Files** application to navigate to these log files.

To check the panagenda ApplicationInsights appliances system behavior, you can use the installed **system monitor**.

Network Settings:

To change the IP address and DNS configuration please click on the **Network** icon. Select the *Ethernet* connection and click on *Edit*:

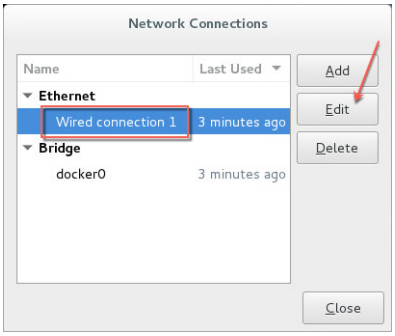


Figure 5: Network Settings

Go to the IPv4 Settings tab and select *Manual* from the *Method* drop down menu to configure the network settings as required:

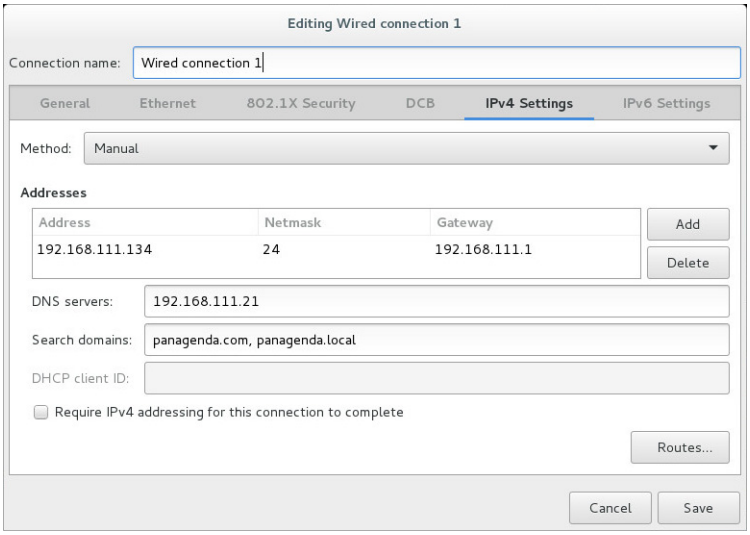


Figure 6: IPv4 Settings

TIP: If you configure "DNS Search domains", not full qualified names will also be resolved.

The virtual appliance MUST be able to resolve its own host name. Please verify that by opening a terminal window (click "Terminal" on the desktop) and using the ping command. It is recommended that both host/common name as well full qualified domain name are pingable. See "Network (Firewall/Ports):" on page 8 for incoming and outgoing network access requirements.

When changing the host name (default is "ApplicationInsights") in the **Host Information** application, please make sure to adapt the host alias properties for 127.0.1.1 in /etc/hosts. This can be done using the **gedit** application. It is recommended that both host name and full qualified domain name are entered here:

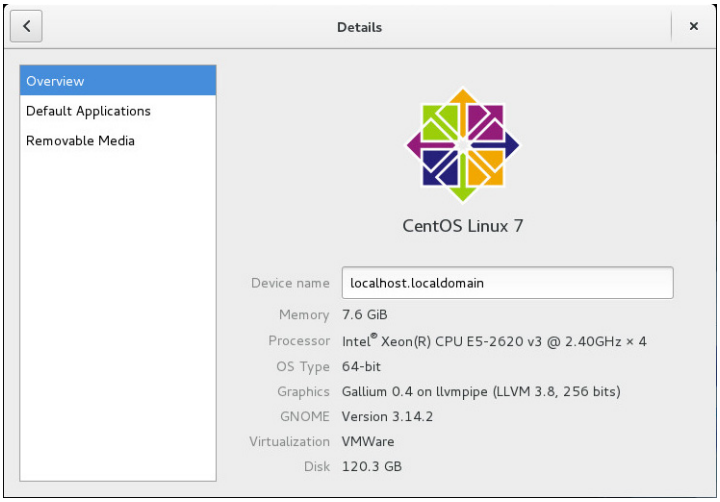


Figure 7: Host Information Application

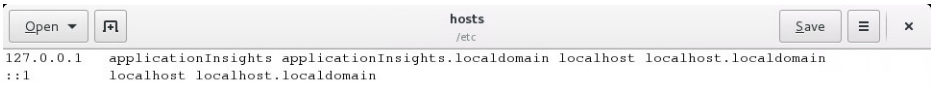


Figure 8: Edit /etc/hosts

Time Zone Settings:

Please check the time zone settings of the appliance, use the **Time and Date** application to adjust.

It is very important to adjust the appliance's time zone. Please reboot the appliance after changing the date/time settings as the web server and database system require a clean start with the new configuration.

Web Interface

Please enter **https://***<FQDN or IP>* in your browser to connect to the panagenda ApplicationInsights web interface. For further information about your ApplicationInsights appliance's IP address, please refer to "Welcome Screen and IP Address" on page 14 and for further information about its hostname (FQDN), please refer to "Network Settings:" on page 16.

panagenda ApplicationInsights uses HTTPS for secure communication between its appliance and its web interface, so you have to accept the security certificate to continue.

When you start ApplicationInsights for the first time, you will see the following screen:

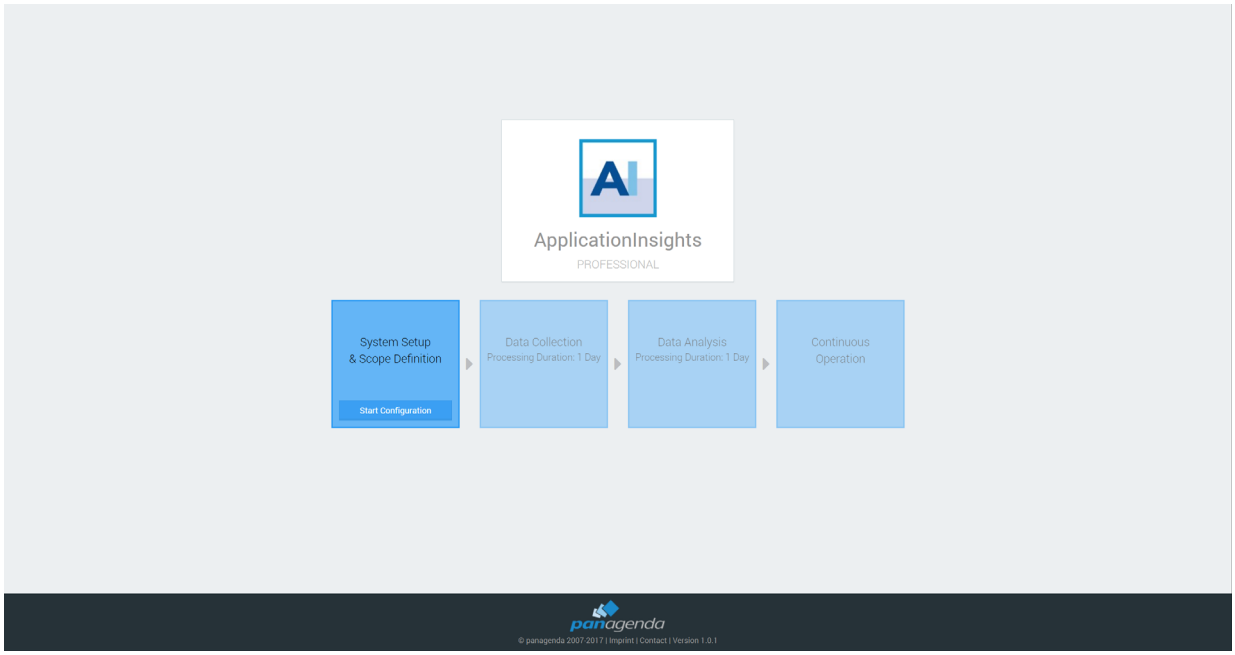


Figure 9: ApplicationInsights - First Access Web Interface

Please click on **Start Configuration** to open the ApplicationInsights configuration portal.

Login

By default, a user with administrative credentials is available to access the panagenda ApplicationInsights web interface.

Default login information:

User "config" with password "config"

Content Packages – Basic Configuration

The basic configuration in this section of the ApplicationInsights user interface includes:

1. uploading an appropriate IBM Notes User ID
2. setting up the relevant Domino servers

1. IBM Notes User ID File Upload

In the ApplicationInsights configuration portal, click on the *Setup User ID* button beside the User ID section, to open a dialog for uploading your ID file.

- Please ensure that the IBM Notes User ID meets the requirements (see "IBM Domino Notes:" on page 7)

To upload the new User ID file, please open the file selection dialog by clicking the *Browse* button. Select the desired IBM Notes User ID, enter the appropriate password and click on *Upload*. "Success" means that you uploaded a properly configured IBM Notes User ID:

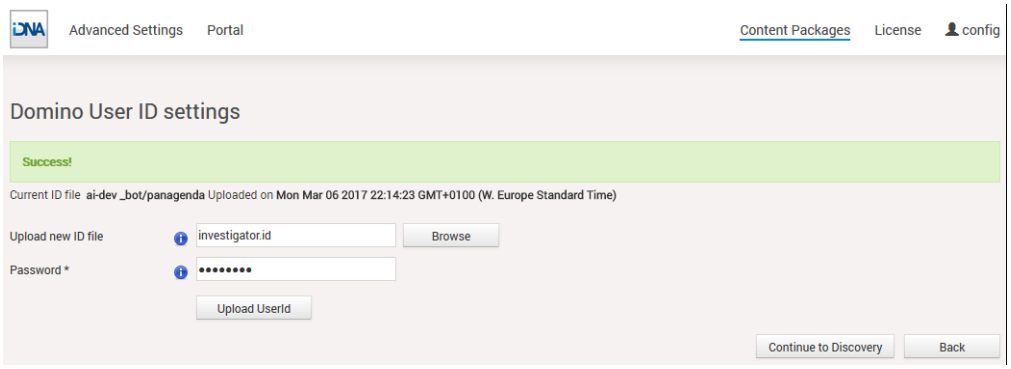


Figure 10: IBM Notes User ID File Upload

2. Domino Server Settings

Click the *Discovery* button in the in the ApplicationInsights configuration portal (https://<*FQDN or IP*>/idna/cfgc) to open the Domino Server Settings:

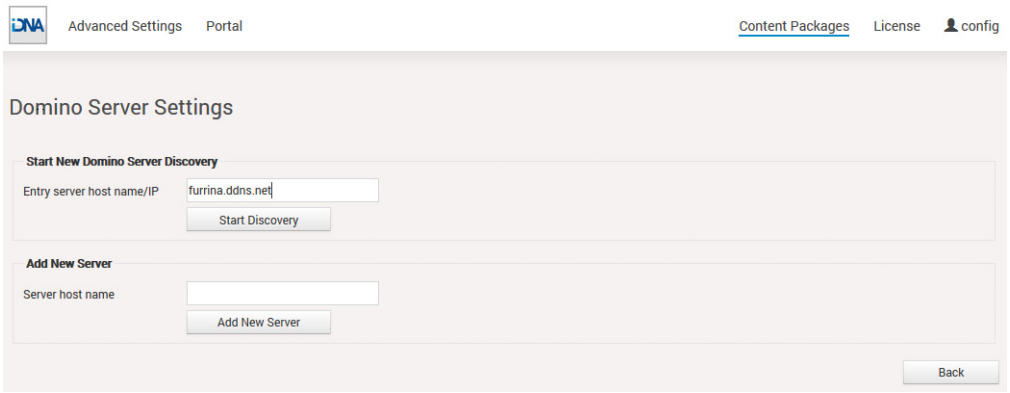


Figure 11: Domino Server Settings – Discovery Setup

There are two ways to set up your Domino servers for ApplicationInsights:

a *Start new Domino Server Discovery* – this option provides a comfortable way to add several servers to the ApplicationInsights analysis

b *Add new server* – this section offers the possibility to add (further) servers manually. Just enter the FQDN of the servers ApplicationInsights is supposed to analyze

Start new Domino Server Discovery

The Domino server discovery starts at the server that you enter in the *Entry server host name/ IP* field. This server's Domino Directory will be scanned for further server documents.

After entering the FQDN or IP of your desired entry server, you can start your Domino server discovery (by clicking on the *Start Discovery* button) which means that the ApplicationInsights Notes client tries to access the server and reads the other server names from the server documents in its Domino directory. You will get a notification in case the ApplicationInsights Notes ID doesn't have sufficient rights to access the defined entry server. Depending on your infrastructure and settings, the duration of the discovery can vary. When it is done, the results of the discovery are displayed:

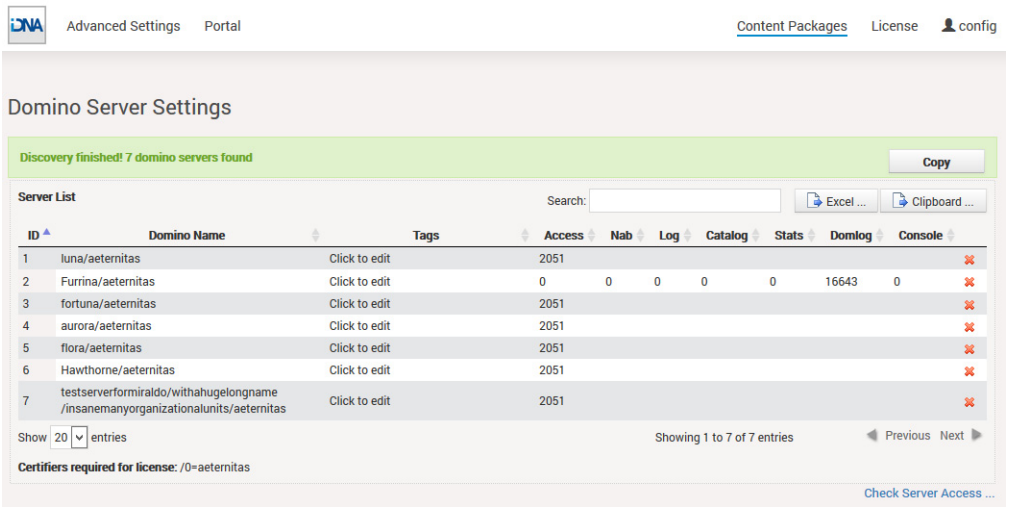


Figure 12: Domino Server Settings – Server List

In this list, all servers which have been found[1] will appear together with some information about the access status of:

- the server itself
- the log file
- the Domino Directory
- the console
- the statistics
- the domlog.nsf

If there are any access issues, they should be solved before configuring the content packages. Clicking on the red X deletes the respective server from the list. You can make use of this when you want to delete decommissioned servers that are still listed in the address book.

Please note that there is a list of all certifiers displayed, which have to be included in the license file for a successful measurement.

If there are servers which could not be found in the Domino Directory of the Discovery Server you can add to them by using the ***Add new Server*** option.

Check Server Access

Clicking on the link ***Check Server Access*** on the *Domino Server Settings Result* page leads to the following screen:

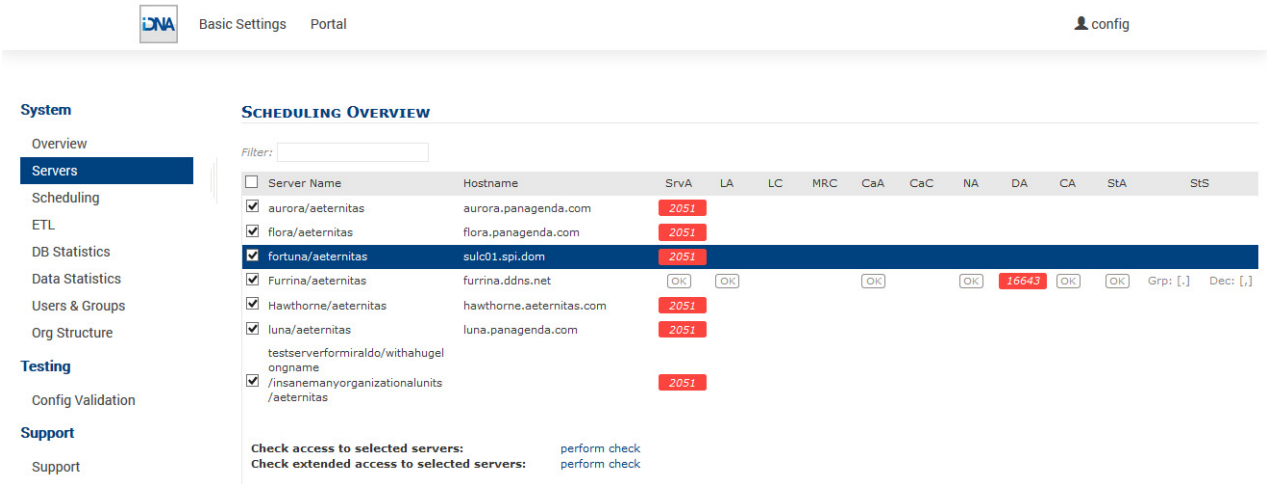


Figure 13: Check Server Access - Access Right Overview

1. in the directory of the entry server of the discovery

Please ensure that columns *SrV* (Server Access), *LA* (Log.nsf Access), *CaA* (Catalog.nsf Access), *NA* (Domino Directory Access), *StA* (Statlog.nsf access) and *CA* (Console Access) are showing "OK".

After fixing missing access rights for a particular server, select the server in first column and click on ***perform check*** in the line *Check access to selected servers*. This will repeat the initial access check which was done during Server Discovery (see "Start new Domino Server Discovery" on page 21).

If all access right requirements of all servers are fulfilled, please check all servers in the first column and run a ***perform check*** in the line *Check extended access to selected servers*. This will examine several entries in the servers *notes.ini* file via console command in order to verify configuration parameters and come back with this screen:

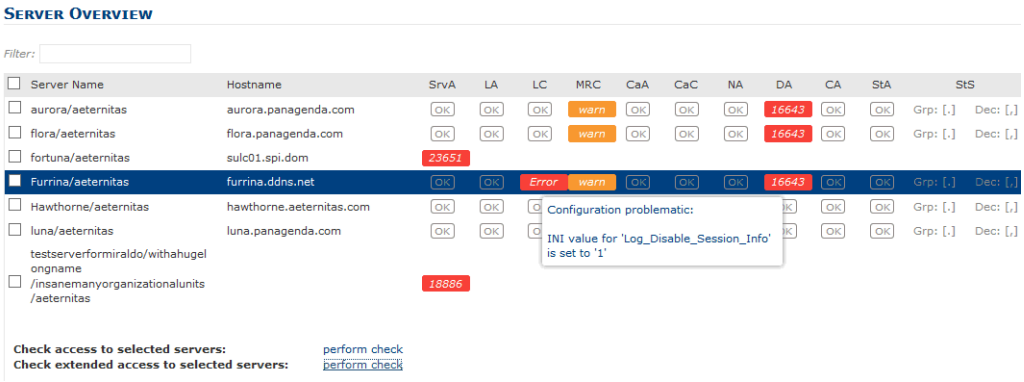


Figure 14: Check Server Access - Issues

Please ensure that all requirements for *LC* (Log configuration) and *CaC* (Catalog Configuration) are met by all servers. If there is an issue in one of those columns, hover over the entry and a pop up will display the issue found. Every time a found issue has been fixed on a server, please do a recheck **extended access** on that specific server. If the customer has scheduled Catalog and *Statlog* tasks via program document(s), it is OK for *CaC* (Catalog Config) to remain in warning state. It is always OK for *MRC* (Mail Routing Config) to remain in warning state, since mail routing information is not processed in ApplicationInsights.

License File Upload

Please go to **https://**<FQDN or IP>**/idna/cfgc#license** and upload your panagenda ApplicationInsights license file when you connect to the appliance for the first time.

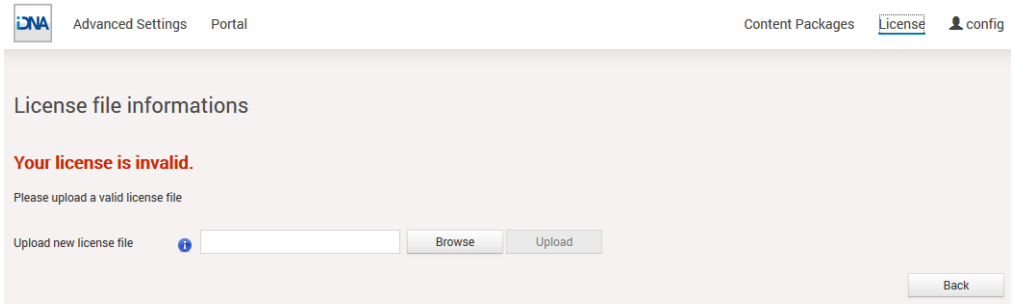


Figure 15: License File Dialog – No License Uploaded

Note: Servers discovered, which are not covered by the license, will be shown in the list of unlicensed servers.

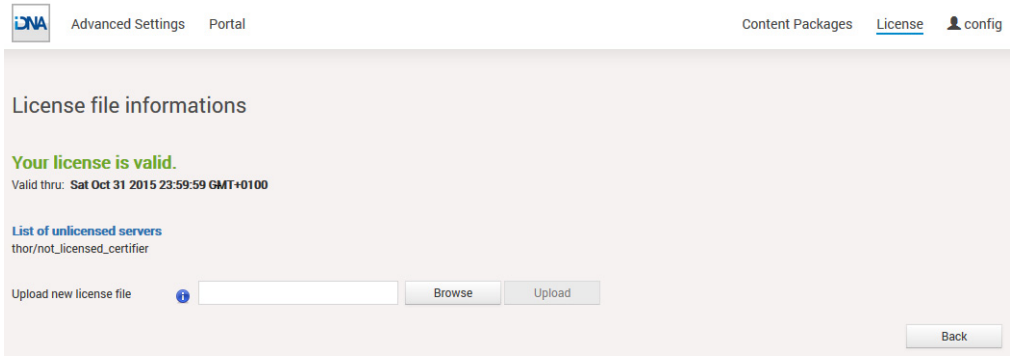


Figure 16: License File Dialog – Valid License

Content Packages – ApplicationInsights

ApplicationInsights contains the following Content Packages:

- **Domino Server Basics**
- **Database Catalog**
- **Session Activity**
- **Domino Web Log**
- **Directory/NAB Content**

With the exception of Directory/NAB and Domino Web Log content, all of them are configured as described in the following section. Directory/NAB and Domino Web Log configurations are explained in separate sections.

Configure Domino Server Basics/Database Catalog/Session Activity

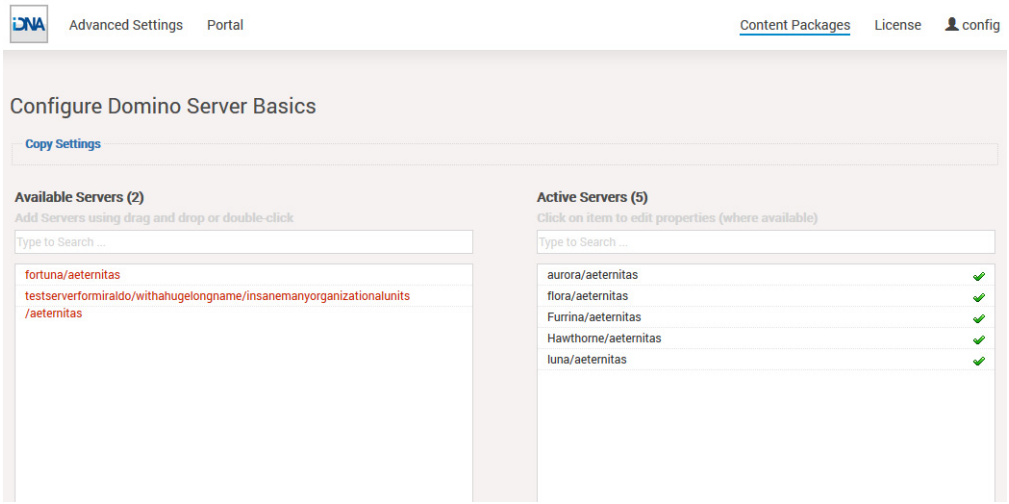


Figure 17: Configure Domino Server Basics/Database Catalog/Session Activity

To configure the Content Packages Domino Server Basics, Database Catalog, and Session Activity you only have to choose your desired servers from the list of *Available Servers*. To do so, please use drag and drop or double click on the respective servers. When you are facing a longer server list, you will also find a filter option in this configuration form as well as buttons to *Add selected* or to *Add all* servers.

From the moment you click on the *Save & Close* button, ApplicationInsights will start to measure your desired servers according to the Content Package you just configured.

Configure Directory/NAB Content

This content package collects all Person, Group and Mail-In documents from selected Domino directories.

Different from most other content packages, which collect information from multiple to all servers, usually only one server per Notes Domain is selected for this content package. Typical candidates are admin servers, hubs or dedicated directory servers.

There are two options when selecting which directories are collected:

1. All address books listed in Directory Assistance (DA) of this server
   This option is the default, but may lead to undesired results if address books are part of DA which hold external persons. Only address books should be included that contain the company's own Notes users.

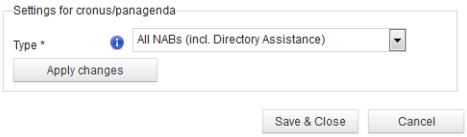


Figure 18: Directory/NAB - *Settings for...* Type

2. Comma separated list of databases
   Sometimes the better option is selecting address books manually via this option. Simply gathering "names.nsf" databases from desired Notes Domains will often provide everything that is needed.

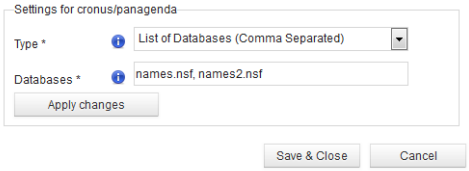
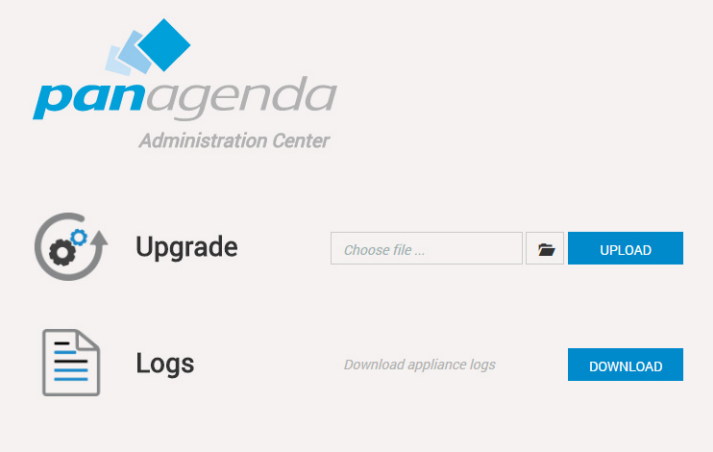


Figure 19: Directory/NAB - Settings for... Databases

ADDITIONAL INFORMATION

Appliance Upgrade

1. Install the new version via the URL **https://**<*FQDN or IP*>**/pac** or using the menu option **Install New Version …** in the configuration menu
2. Please click on the folder icon to select the ApplicationInsights upgrade package *ai-complete.debz* and
3. Click on the ***Upload*** button.



A message will appear that the upload is in progress or you will get an error message if something went wrong. When the installation is done, ApplicationInsights will restart automatically.

Download Log Files

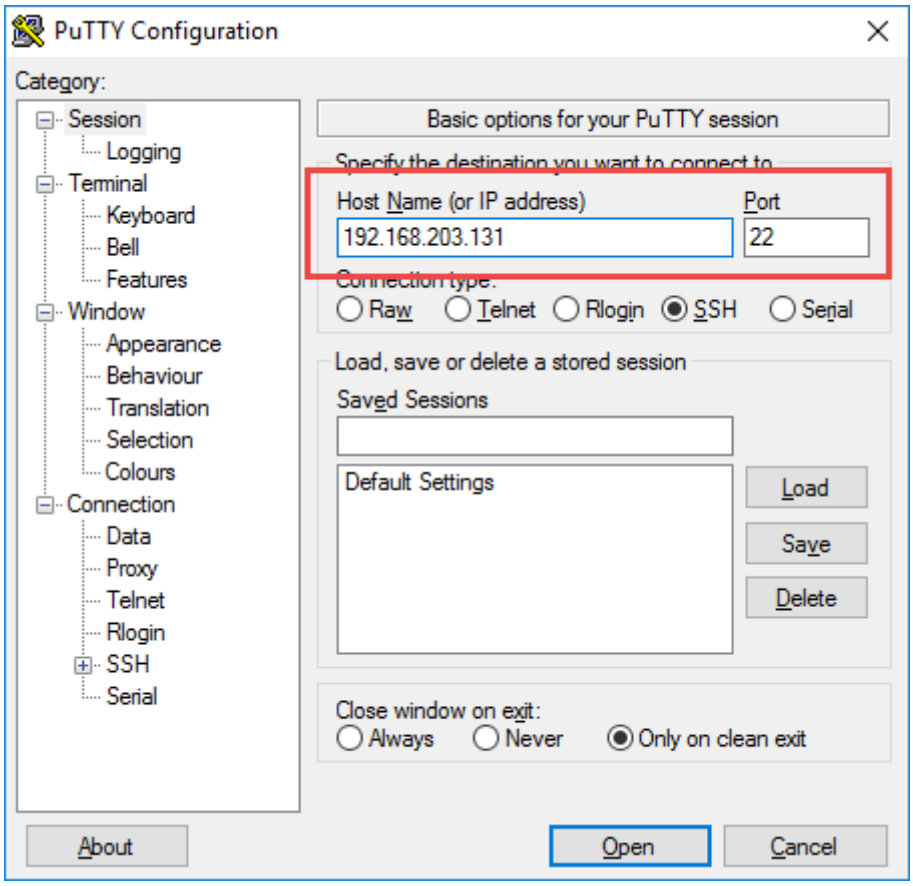
1. Log in to ApplicationInsights, click on the cogwheel icon (top-right corner) and select ***Download Logs...***
2. Please click the button Download next to "Download Appliance Logs"
3. Save the file to your computer

Please send this file with every support inquiry. These logs will greatly improve speed and quality of processing support tickets.

Remote Appliance Access (VNC)

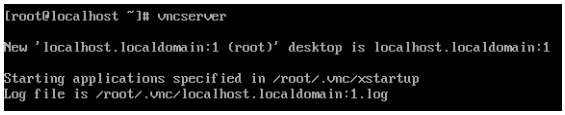
In order to enable access to the Linux GUI, a VNC server is pre-installed on the ApplicationInsights appliance. To start the VNC server, please follow these steps:

1 Start a SSH connection to the ApplicationInsights appliance. For this, a tool such as PuTTY is needed (http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html):

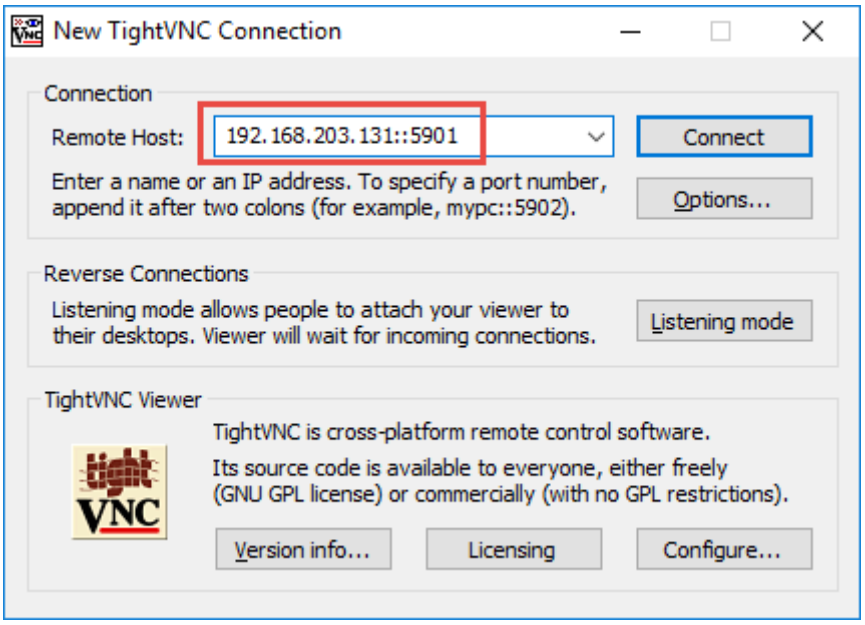


2 Log into the appliance with the user **root**:

3 To start the VNC server, enter the command **vncserver**:



Now you can access the appliance's Linux GUI using a VNC client, such as Tight VNC Client (http://www.tightvnc.com/download.php):



The default connection password is **config**. It can be changed by issuing the command **vncpasswd** in PuTTY.

The VNC server is merely a tool to help in exceptional situations where the VM console cannot be accessed otherwise. Due to security considerations it is purposely configured for manual startup only.

Enlarging ApplicationInsights Data Disk

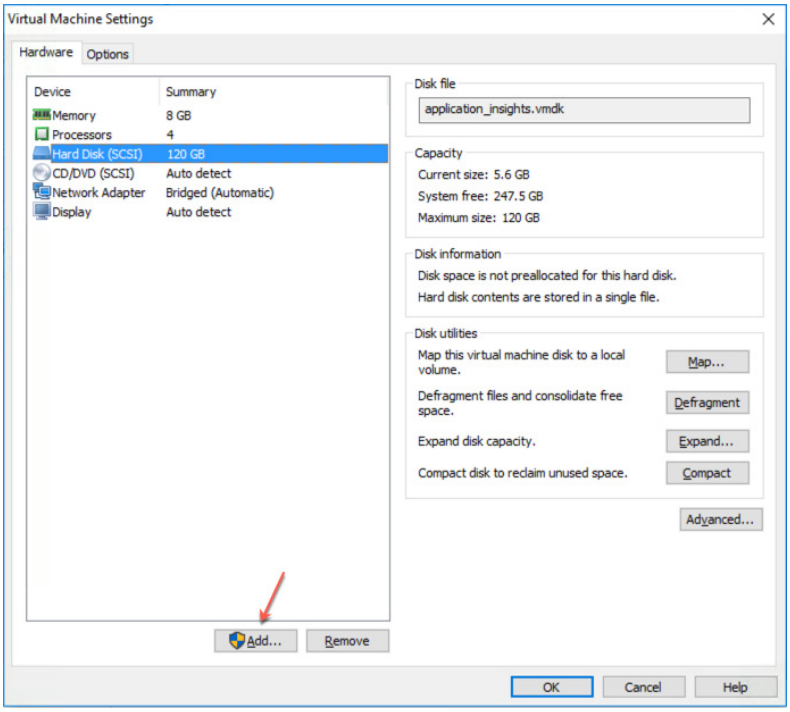
Depending on your environment you may need to enlarge the virtual disk on which ApplicationInsights stores its data on.

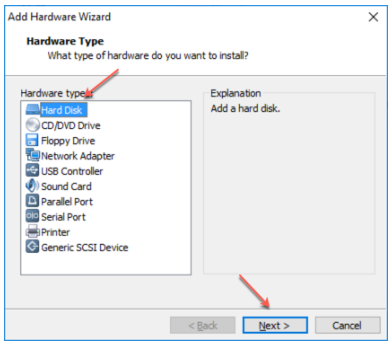
Please note that all virtual disks have to be located on the same physical storage.

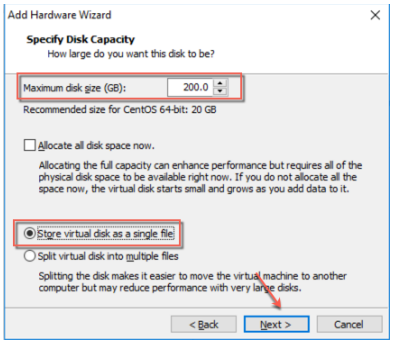
In the following you will find a description on how to enlarge disks:

Enlarging VMWare Disk

Enlarging the virtual disk is done using the VMWare host application. Here is are examples for VMWare Workstation and vSphere:





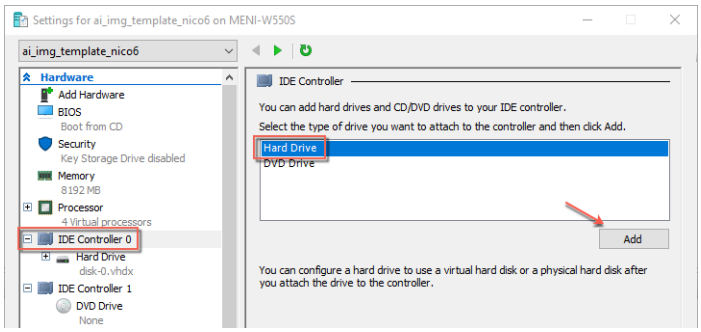


Please restart the virtual appliance after adding the new disk.

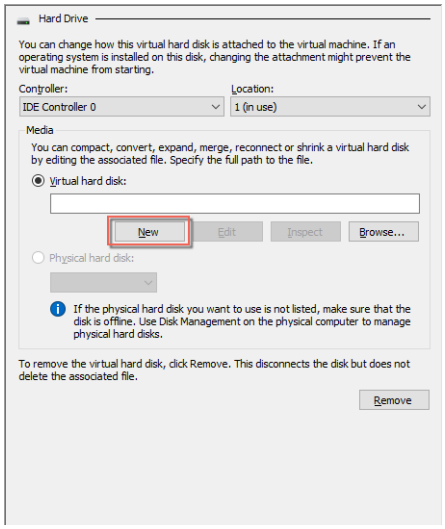
Enlarging Hyper-V Disk

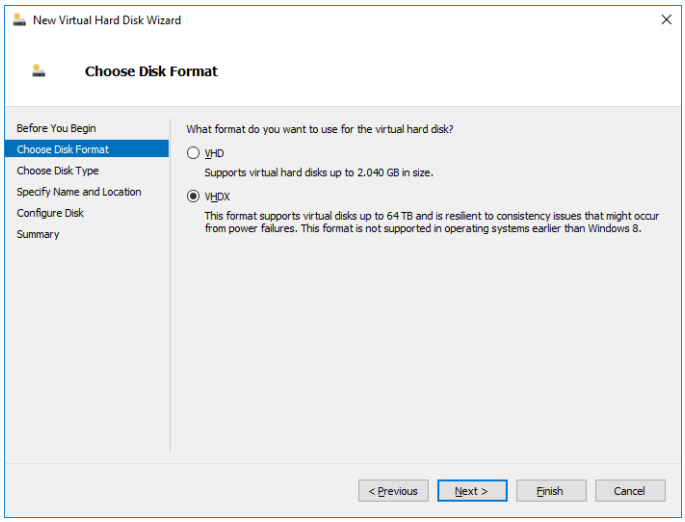
To enlarge the virtual disk, open the virtual machine properties and follow the steps below:

1 Navigate to *IDE Controller 0*, select *Hard drive* and click ***Add***:

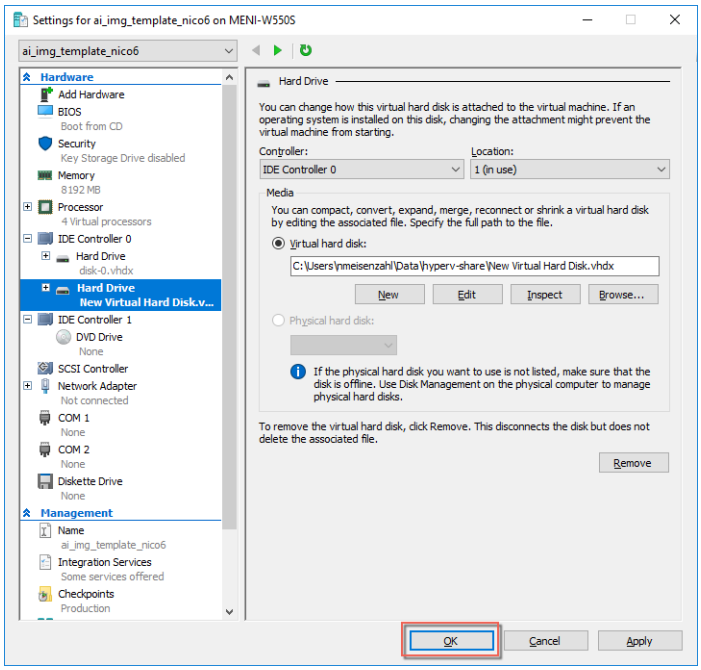


2 Select ***New*** and finish the wizard:





3 After finishing the wizard click ***Ok*** to exit the Settings:

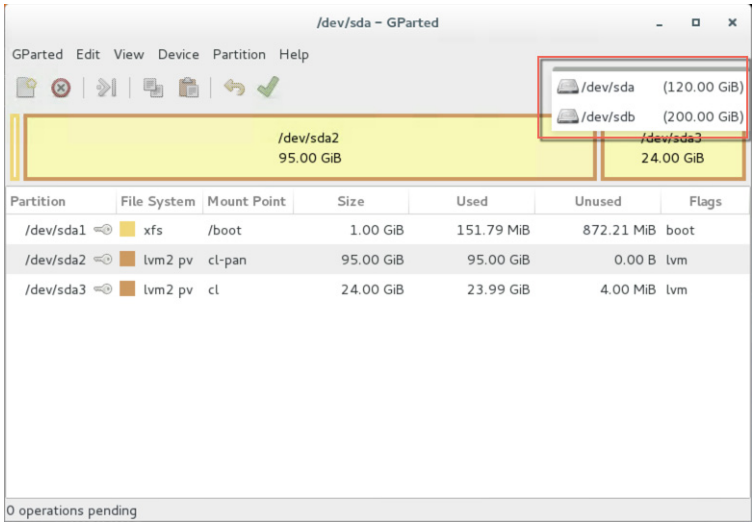


Please restart the virtual appliance after adding the new disk.

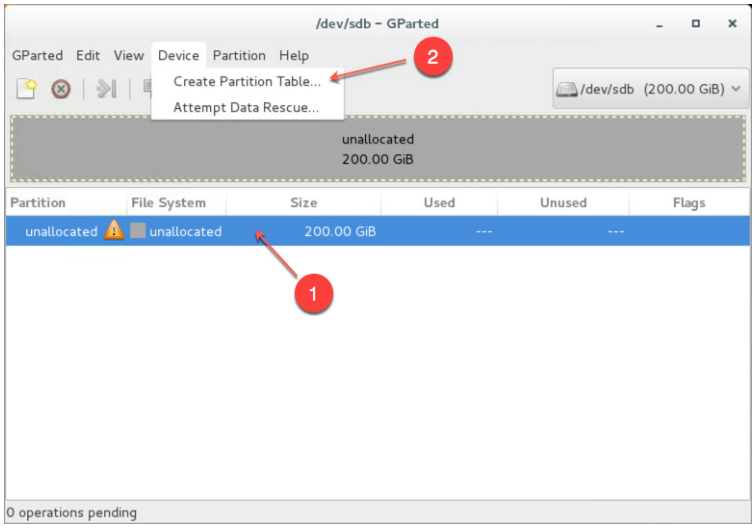
Enlarging the Partition in the ApplicationInsights Appliance

1 The easiest way to enlarge a partition in ApplicationInsights is to use the installed partition manager **GParted**. Please launch it using the Applications menu (you can also start GParted from the Terminal with "sudo gparted"):

2 Select the new physical disk:

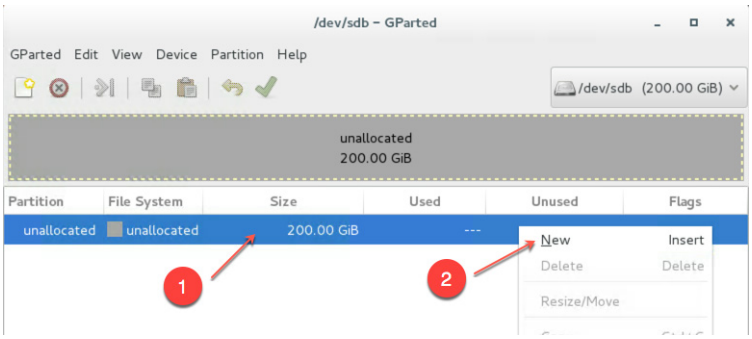


3 Select the unallocated space, open the *Device* menu and on click on ***Create Partition Table***:

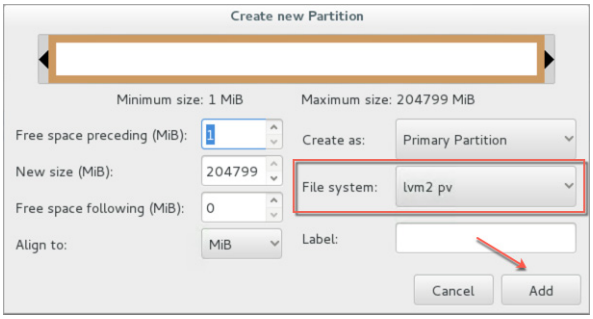


4 Click on *Apply* in the warning:

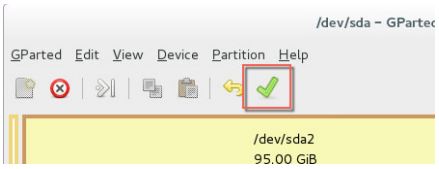
5 Select the new *unallocated* space, right-click and select *New*:



6 From the *Create as* drop down menu, select ***Primary Partition*** and chose ***lvm2 pv*** as *File system* (if needed, a *Label* can be defined):

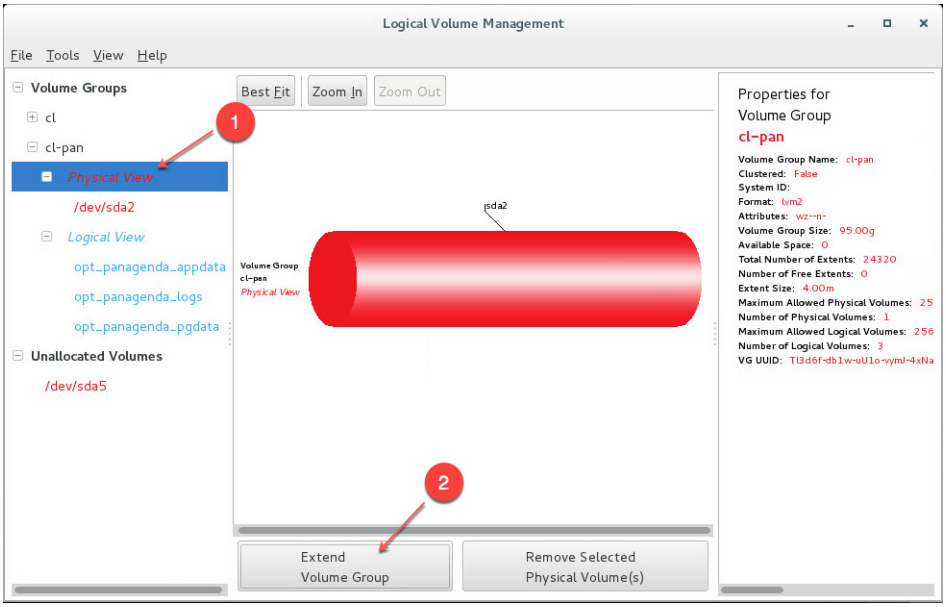


7 Save your changes by clicking the **apply button** - also on the popup message

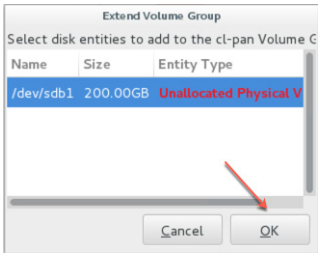


8 Start the **Logical Volumes Manager** from the Applications menu

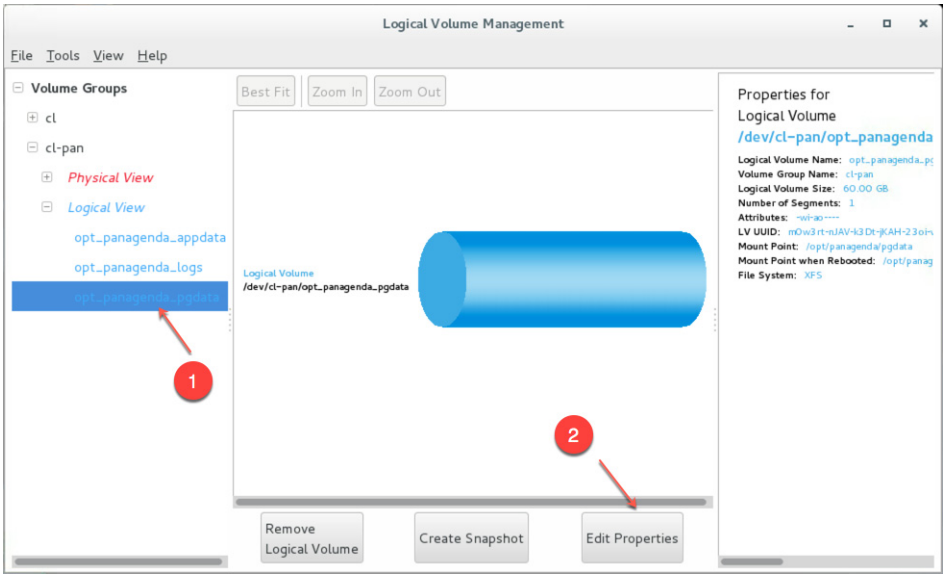
9 Open the *Logical View* on the left hand side, select *Physical View* and click ***Extend Volume Group***:



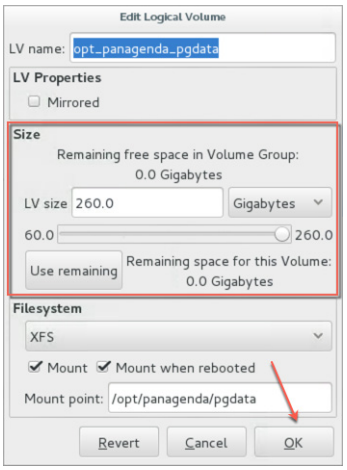
10 Select your new volume and click *OK*:



11 After this, select the logical volume ***opt_panagenda_pgdata***:



12 Resize the logical volume as needed:



Tip: You can repeat this enlargement whenever you need more space.

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NOTES