Nsys Installation and Configuration

Here you can find step by step instructions how to install and configure Nsys Platform.

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1.0 Overview

- Instructions how to install Nsys Platform manually on Ubuntu 16.04 LTS server can be found below.
- Instructions how to install Nsys Platform via **nsys-installer.sh** script on Unix/Linux can be found here.
- You can use Docker CLI to run images with Nsys Platform
    - Nsys Platform (Nsys Portal)
        - `$ docker run -it --rm -p 9060:9060 nsys/nsys`
    - Nsys Platform (Nsys Node)
        - `$ docker run -it --rm -p 9080:9080 nsys/nsys-node`

2.0 How to install Nsys

Console - Java 8 Installation

```
root@ubuntu:~# apt-get install openjdk-8-jdk
root@ubuntu:~# update-alternatives --display java
java - auto mode
  link best version is /usr/lib/jvm/java-8-openjdk-amd64/jre/bin/java
  link currently points to /usr/lib/jvm/java-8-openjdk-amd64/jre/bin/java
  link java is /usr/bin/java
  slave java.1.gz is /usr/share/man/man1/java.1.gz
/usr/lib/jvm/java-8-openjdk-amd64/jre/bin/java - priority 1081
  slave java.1.gz: /usr/lib/jvm/java-8-openjdk-amd64/jre/man/man1/java.1.gz
root@ubuntu:~# echo -e "\n\nJAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64" >> /etc/environment
root@ubuntu:~# export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64/
root@ubuntu:~# echo $JAVA_HOME
/usr/lib/jvm/java-8-openjdk-amd64/
root@ubuntu:~# java -version
openjdk version "1.8.0_91"
OpenJDK Runtime Environment (build 1.8.0_91-8u91-b14-0ubuntu4~16.04.1-b14)
OpenJDK 64-Bit Server VM (build 25.91-b14, mixed mode)
root@ubuntu:~#
```

Console - Nsys Installation

```
root@ubuntu:~# adduser --system --shell /bin/bash --gecos 'Nsys Platform Control' --group --disabled-password --
home /opt/nsys nsys
Adding system user `nsys' (UID 111) ...
Adding new group `nsys' (GID 120) ...
Adding new user `nsys' (UID 111) with group `nsys' ...
Creating home directory `/opt/nsys' ...
root@ubuntu:~# wget http://cloud.nsys.org/download/nsys-bundle.zip -P /tmp
root@ubuntu:~# cp /tmp/nsys-bundle.zip /opt/nsys
root@ubuntu:~# cd /opt/nsys
root@ubuntu:/opt/nsys# unzip nsys-bundle.zip
root@ubuntu:/opt/nsys# mkdir -p /var/nsys/application-data/
root@ubuntu:/opt/nsys# chown -R nsys:nsys /opt/nsys/
root@ubuntu:/opt/nsys# chown -R nsys:nsys /var/nsys/application-data/
root@ubuntu:/opt/nsys# chmod -R 755 /opt/nsys/bin/*.sh
root@ubuntu:/opt/nsys# chmod -R 755 /opt/nsys/portal/bin/*.sh
root@ubuntu:/opt/nsys# chmod -R 775 /opt/nsys/portal/webapps
root@ubuntu:/opt/nsys# rm nsys-bundle.zip
root@ubuntu:/opt/nsys# cd
root@ubuntu:~# nano /opt/nsys/bin/nsys-daemon.env.sh
root@ubuntu:~# nano /opt/nsys/bin/nsys-portal.env.sh
root@ubuntu:~# cp /opt/nsys/bin/nsys-daemon.sh /etc/init.d/nsys-daemon
root@ubuntu:~# cp /opt/nsys/bin/nsys-portal.sh /etc/init.d/nsys-portal
root@ubuntu:~# chmod a+x /etc/init.d/nsys-daemon
root@ubuntu:~# chmod a+x /etc/init.d/nsys-portal
root@ubuntu:~# update-rc.d nsys-daemon defaults
root@ubuntu:~# update-rc.d nsys-portal defaults
root@ubuntu:~# /etc/init.d/nsys-daemon start
Running application:    /opt/nsys/bin/nsys-daemon.jar
Command line args:
Using NSYS_BASEDIR:     /opt/nsys
Using NSYS_HOME:        /var/nsys/application-data/daemon
Using JAVA:             /usr/lib/jvm/java-8-openjdk-amd64/bin/java
Using JAVA_VERSION:     18 (17 -> 1.7.0, 18 -> 1.8.0, ...)
Using JAVA_OPTS:        -Xms128m -Xmx256m  -Dnsys.home=/var/nsys/application-data/daemon -Dnsys.basedir=/opt
/nsys -Dnsys.config=/opt/nsys/conf/nsys.cfg -Dnsys-boot.class.path=.|/opt/nsys/lib/hazelcast-3.6.3.jar|/opt/nsys
/lib/nsys-cloudlet.jar|/opt/nsys/lib/nsys-core.jar|/opt/nsys/lib/nsys-daemon-core.jar|/opt/nsys/lib/nsys-
firmware.jar|/opt/nsys/lib/nsys-plugins.jar|/opt/nsys/lib/nsys-portal.jar  -Djava.security.egd=file:/dev/.
/urandom -Djava.awt.headless=true -Dlog4j.debug=false -Dlog4j.configuration=file:/opt/nsys/conf/log4j.xml
Starting Nsys Daemon ...
Nsys Daemon started
root@ubuntu:~# /etc/init.d/nsys-portal start
Using NSYS_BASEDIR:     /opt/nsys
Using NSYS_HOME:        /var/nsys/application-data/portal
Using JAVA:             /usr/lib/jvm/java-8-openjdk-amd64/bin/java
Using JAVA_VERSION:     18 (17 -> 1.7.0, 18 -> 1.8.0, ...)
Using JAVA_OPTS:        -Xms128m -Xmx384m  -Dnsys.home=/var/nsys/application-data/portal -Dnsys.basedir=/opt
/nsys -Dnsys.config=/opt/nsys/conf/nsys-portal.cfg  -Dlog4j.debug=false -Dlog4j.configuration=file:/opt/nsys
/conf/log4j-portal.xml
Using CATALINA_OPTS:    -server -Xss64M -XX:+CMSClassUnloadingEnabled -XX:+UseConcMarkSweepGC -Djava.security.
egd=file:/dev/./urandom -Djava.awt.headless=true
Using CATALINA_BASE:    /opt/nsys/portal
Using CATALINA_HOME:    /opt/nsys/portal
Using CATALINA_TMPDIR:  /opt/nsys/portal/temp
Using JRE_HOME:         /usr/lib/jvm/java-8-openjdk-amd64
Using CLASSPATH:        /opt/nsys/portal/bin/bootstrap.jar:/opt/nsys/portal/bin/tomcat-juli.jar
Tomcat started.
root@ubuntu:~#
```

Edit /opt/nsys/bin/nsys-daemon.env.sh file:

```
#!/bin/bash

#
# One way to set the NSYS HOME path is here via this variable. Simply uncomment it and set a valid path like
# /var/nsys/application-data/daemon. You can of course set it outside in the command terminal, that will also
```

```
work.
#
NSYS_HOME="/var/nsys/application-data/daemon"

#
# One way to set the custom NSYS CONFIG is here via this variable. Simply uncomment it and set a valid path like
# /opt/nsys/conf/nsys.cfg. You can of course set it outside in the command terminal, that will also work.
#
NSYS_CONFIG="/opt/nsys/conf/nsys.cfg"

#
# One way to set the custom LOG4J CONFIG is here via this variable. Simply uncomment it and set a valid path
like
# /opt/nsys/conf/log4j.xml. You can of course set it outside in the command terminal, that will also work.
#
LOG4J_CONFIG="/opt/nsys/conf/log4j.xml"

#
# Occasionally support team may recommend that you set some specific JVM arguments.
# You can use this variable below to do that.
#
JVM_SUPPORT_RECOMMENDED_ARGS=""

#
# The following 2 settings control the minimum and maximum given to the Nsys Daemon Java virtual machine.
# In larger Nsys Platform instances, the maximum amount will need to be increased.
#
JVM_MINIMUM_MEMORY="128m"
JVM_MAXIMUM_MEMORY="256m"

if [ "x$NSYS_HOME" = "x" ]; then
    NSYS_HOME="${NSYS_BASEDIR}/application-data/daemon"
    echo "Variable NSYS_HOME is missing! Using default..." >&2
fi

if [ "x$NSYS_CONFIG" = "x" ]; then
    NSYS_CONFIG="${NSYS_BASEDIR}/conf/nsys.cfg"
    echo "Variable NSYS_CONFIG is missing! Using default..." >&2
fi

if [ "x$LOG4J_CONFIG" = "x" ]; then
    LOG4J_CONFIG="${NSYS_BASEDIR}/conf/log4j.xml"
    echo "Variable LOG4J_CONFIG is missing! Using default..." >&2
fi

#
# The following creates classpaths for Nsys-Boot class loader.
# http://doc.nsys.org/display/NSYS/Nsys+Boot
#

NSYS_CLASSPATH="."

for entry in "$NSYS_BASEDIR"/lib/*.jar
do
  NSYS_CLASSPATH="${NSYS_CLASSPATH}|${entry}"
done

#
# The following are the required arguments needed for Nsys Daemon.
#
JVM_REQUIRED_ARGS="-Dnsys.home=${NSYS_HOME} -Dnsys.basedir=${NSYS_BASEDIR} -Dnsys.config=${NSYS_CONFIG} -Dnsys-
boot.class.path=${NSYS_CLASSPATH}"
JVM_REQUIRED_ARGS="${JVM_REQUIRED_ARGS} -Dnsys.daemon.port=9080"

JAVA_OPTS="-Xms${JVM_MINIMUM_MEMORY} -Xmx${JVM_MAXIMUM_MEMORY} ${JAVA_OPTS} ${JVM_REQUIRED_ARGS} ${NSYS_OPTS}
${JVM_SUPPORT_RECOMMENDED_ARGS}"

# PermGen size needs to be increased if encountering OutOfMemoryError: PermGen problems.
# Specifying PermGen size is not valid on IBM JDKs.
JVM_MAX_PERM_SIZE=128m
```

```
if [ "$JAVA_VERSION" -lt 18 ]; then
    JAVA_OPTS="-XX:MaxPermSize=${JVM_MAX_PERM_SIZE} ${JAVA_OPTS}"
fi

JAVA_OPTS="${JAVA_OPTS} -Djava.security.egd=file:/dev/./urandom -Djava.awt.headless=true"
JAVA_OPTS="${JAVA_OPTS} -Djavax.servlet.request.encoding=UTF-8 -Dfile.encoding=UTF-8"

if [ "$LOG4J_CONFIG" != "" ]; then
    JAVA_OPTS="${JAVA_OPTS} -Dlog4j.debug=false -Dlog4j.configuration=file:${LOG4J_CONFIG}"
fi

export JAVA_OPTS
```

Edit /opt/nsys/bin/nsys-portal.env.sh file:

```
#!/bin/bash

#
# One way to set the NSYS HOME path is here via this variable. Simply uncomment it and set a valid
# path like /var/nsys/application-data/portal. You can of course set it outside in the command
# terminal, that will also work.
#
NSYS_HOME="/var/nsys/application-data/portal"

#
# One way to set the custom NSYS CONFIG is here via this variable. Simply uncomment it and set a valid path like
# /opt/nsys/conf/nsys-portal.cfg. You can of course set it outside in the command terminal, that will also work.
#
NSYS_CONFIG="/opt/nsys/conf/nsys-portal.cfg"

#
# One way to set the custom LOG4J CONFIG is here via this variable. Simply uncomment it and set a valid path
like
# /opt/nsys/conf/log4j-portal.xml. You can of course set it outside in the command terminal, that will also
work.
#
LOG4J_CONFIG="/opt/nsys/conf/log4j-portal.xml"

#
# Occasionally support team may recommend that you set some specific JVM arguments.
# You can use this variable below to do that.
#
JVM_SUPPORT_RECOMMENDED_ARGS=""

#
# The following 2 settings control the minimum and maximum given to the Nsys Portal Java virtual machine.
# In larger Nsys Platform instances, the maximum amount will need to be increased.
#
JVM_MINIMUM_MEMORY="128m"
JVM_MAXIMUM_MEMORY="384m"

if [ "x$NSYS_HOME" = "x" ]; then
    NSYS_HOME="${NSYS_BASEDIR}/application-data/portal"
    echo "Variable NSYS_HOME is missing! Using default..." >&2
fi

if [ "x$NSYS_CONFIG" = "x" ]; then
    NSYS_CONFIG="${NSYS_BASEDIR}/conf/nsys-portal.cfg"
    echo "Variable NSYS_CONFIG is missing! Using default..." >&2
fi

if [ "x$LOG4J_CONFIG" = "x" ]; then
    LOG4J_CONFIG="${NSYS_BASEDIR}/conf/log4j-portal.xml"
    echo "Variable LOG4J_CONFIG is missing! Using default..." >&2
fi

#
# The following are the required arguments needed for Nsys Portal.
#
```

```
JVM_REQUIRED_ARGS="-Dnsys.home=${NSYS_HOME} -Dnsys.basedir=${NSYS_BASEDIR} -Dnsys.config=${NSYS_CONFIG}"
JVM_REQUIRED_ARGS="${JVM_REQUIRED_ARGS} -Dnsys.portal.http.port=9060 -Dnsys.portal.https.port=9070"
JVM_REQUIRED_ARGS="${JVM_REQUIRED_ARGS} -Dnsys.portal.ajp.port=9050 -Dnsys.portal.rmi.port=9040"

JAVA_OPTS="-Xms${JVM_MINIMUM_MEMORY} -Xmx${JVM_MAXIMUM_MEMORY} ${JAVA_OPTS} ${JVM_REQUIRED_ARGS} ${NSYS_OPTS}
${JVM_SUPPORT_RECOMMENDED_ARGS}"

# PermGen size needs to be increased if encountering OutOfMemoryError: PermGen problems.
# Specifying PermGen size is not valid on IBM JDKs.
JVM_MAX_PERM_SIZE=256m

if [ "$JAVA_VERSION" -lt 18 ]; then
    JAVA_OPTS="-XX:MaxPermSize=${JVM_MAX_PERM_SIZE} ${JAVA_OPTS}"
fi

JAVA_OPTS="${JAVA_OPTS} -Djavax.servlet.request.encoding=UTF-8 -Dfile.encoding=UTF-8"

if [ "$LOG4J_CONFIG" != "" ]; then
    JAVA_OPTS="${JAVA_OPTS} -Dlog4j.debug=false -Dlog4j.configuration=file:${LOG4J_CONFIG}"
fi

export JAVA_OPTS
```

3.0 How to configure MySQL database

Console

```
root@ubuntu:~# mysql -u root -p
mysql> CREATE USER 'nsysuser'@'localhost' IDENTIFIED BY 'your_password';
mysql> CREATE DATABASE nsys DEFAULT CHARSET utf8;
mysql> GRANT ALL ON nsys.* TO nsysuser@'localhost';
mysql> quit
root@ubuntu:~# mv /opt/nsys/conf/database-portal.properties /opt/nsys/conf/database-portal.properties.original
root@ubuntu:~# cp /opt/nsys/conf/database.mysql.properties.dist /opt/nsys/conf/database-portal.properties
root@ubuntu:~# nano /opt/nsys/conf/database-portal.properties
root@ubuntu:~# /etc/init.d/nsys-portal restart
```

Edit /opt/nsys/conf/database-portal.properties file:

```
# This is a sample file for configuring Nsys Platform to use an external database.
# To make it effective, copy it to the "database.properties" file (Nsys Daemon) or
# "database-portal.properties" file (Nsys Portal) and modify the settings according
# to your environment.

# Database: MySQL

connectionDriver=com.mysql.jdbc.Driver
connectionDialect=org.hibernate.dialect.MySQLDialect
connectionUrl=jdbc:mysql://localhost:3306/nsys?useEncoding=true&amp;characterEncoding=UTF-8
connectionProperties.user=nsysuser
connectionProperties.password=your_password


# Additional configuration properties

hibernate.generate_statistics=false
hibernate.cache.use_structured_entries=true
hibernate.show_sql=false
hibernate.format_sql=true
hibernate.hbm2ddl.auto=update
hibernate.cache.provider_class=org.hibernate.cache.NoCacheProvider
hibernate.connection.autoReconnect=true
hibernate.connection.autoReconnectForPools=true
hibernate.connection.is-connection-validation-required=true
hibernate.c3p0.acquire_increment=3
hibernate.c3p0.idle_test_period=14400
hibernate.c3p0.timeout=25200
hibernate.c3p0.min_size=3
hibernate.c3p0.max_size=15
hibernate.c3p0.max_statements=0
hibernate.c3p0.preferredTestQuery=select 1;
```

4.0 How to configure PostgreSQL database

Console

```
root@ubuntu:~# apt-get update
root@ubuntu:~# apt-get upgrade
root@ubuntu:~# apt-get install postgresql
root@ubuntu:~# su - postgres
postgres@ubuntu:~$ createuser nsysuser
postgres@ubuntu:~$ createdb -E UNICODE nsys
postgres@ubuntu:~$ psql
psql (9.5.3)
Type "help" for help.

postgres=# alter user postgres with password 'your_password';
ALTER ROLE
postgres=# alter user nsysuser with password 'your_password';
ALTER ROLE
postgres=# grant all privileges on database nsys to nsysuser;
GRANT
postgres=# \q
postgres@ubuntu:~$ nano /etc/postgresql/9.5/main/postgresql.conf
postgres@ubuntu:~$ exit
logout
root@ubuntu:~# /etc/init.d/postgresql restart
[ ok ] Restarting postgresql (via systemctl): postgresql.service.
root@ubuntu:~# mv /opt/nsys/conf/database-portal.properties /opt/nsys/conf/database-portal.properties.original
root@ubuntu:~# cp /opt/nsys/conf/database.postgresql.properties.dist /opt/nsys/conf/database-portal.properties
root@ubuntu:~# nano /opt/nsys/conf/database-portal.properties
root@ubuntu:~# /etc/init.d/nsys-portal restart
```

Edit /etc/postgresql/9.5/main/postgresql.conf file:

```
...

#------------------------------------------------------------------------------
# CONNECTIONS AND AUTHENTICATION
#------------------------------------------------------------------------------

# - Connection Settings -

listen_addresses = 'localhost'          # what IP address(es) to listen on;

...

# - Security and Authentication -

password_encryption = on

...
```

Edit /opt/nsys/conf/database-portal.properties file:

```
# This is a sample file for configuring Nsys Platform to use an external database.
# To make it effective, copy it to the "database.properties" file (Nsys Daemon) or
# "database-portal.properties" file (Nsys Portal) and modify the settings according
# to your environment.

# Database: PostgreSQL

connectionDriver=org.postgresql.Driver
connectionDialect=org.hibernate.dialect.PostgreSQLDialect
connectionUrl=jdbc:postgresql://localhost:5432/nsys
connectionProperties.user=nsysuser
connectionProperties.password=your_password


# Additional configuration properties

hibernate.generate_statistics=false
hibernate.cache.use_structured_entries=true
hibernate.show_sql=false
hibernate.format_sql=true
hibernate.hbm2ddl.auto=update
hibernate.cache.provider_class=org.hibernate.cache.NoCacheProvider
hibernate.connection.autoReconnect=true
hibernate.connection.autoReconnectForPools=true
hibernate.connection.is-connection-validation-required=true
hibernate.c3p0.acquire_increment=1
hibernate.c3p0.idle_test_period=40
hibernate.c3p0.timeout=1800
hibernate.c3p0.min_size=5
hibernate.c3p0.max_size=20
hibernate.c3p0.max_statements=50
hibernate.c3p0.preferredTestQuery=select 1;
```