Rmenu Install Document for Jetson-nano

Rmenu 環境構築 Jetson-nano

Rmenu development term

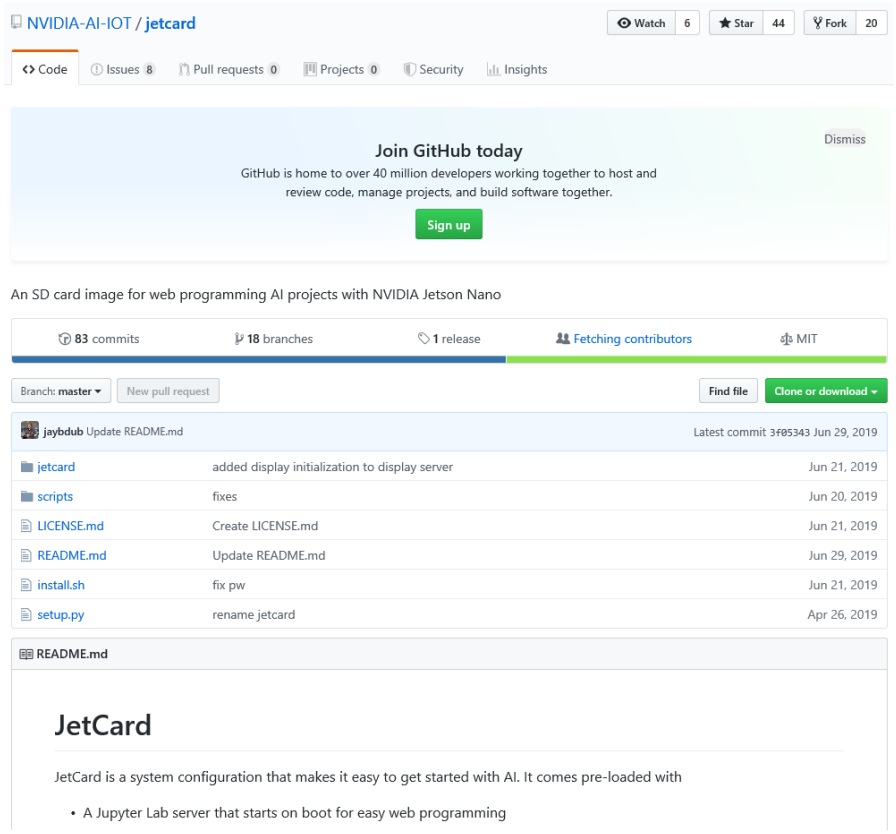
2017/11/04

目次

第１章　SD イメージ作成

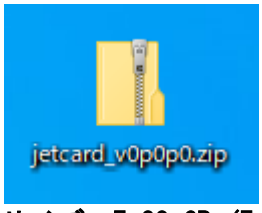
１．　jetcard を ダウンロード

NVIDIA-AI-IOT/jetcard　github リポジトリ
https://github.com/NVIDIA-AI-IOT/jetcard



JetCard image jetcard_v0p0p0.img の google Drive リンク
https://drive.google.com/open?id=1wXD1CwtxiH5Mz4uSmIZ76fd78zDQltW_

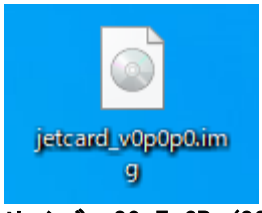
2019-11-04 現在　jetcard_v0p0p0.zip　をダウンロードしました。



サイズ　7.38 GB (7,933,853,292 バイト)

２．　img ファイルを取得します

ダウンロードしたファイルを解凍し、img ファイルを取得します。



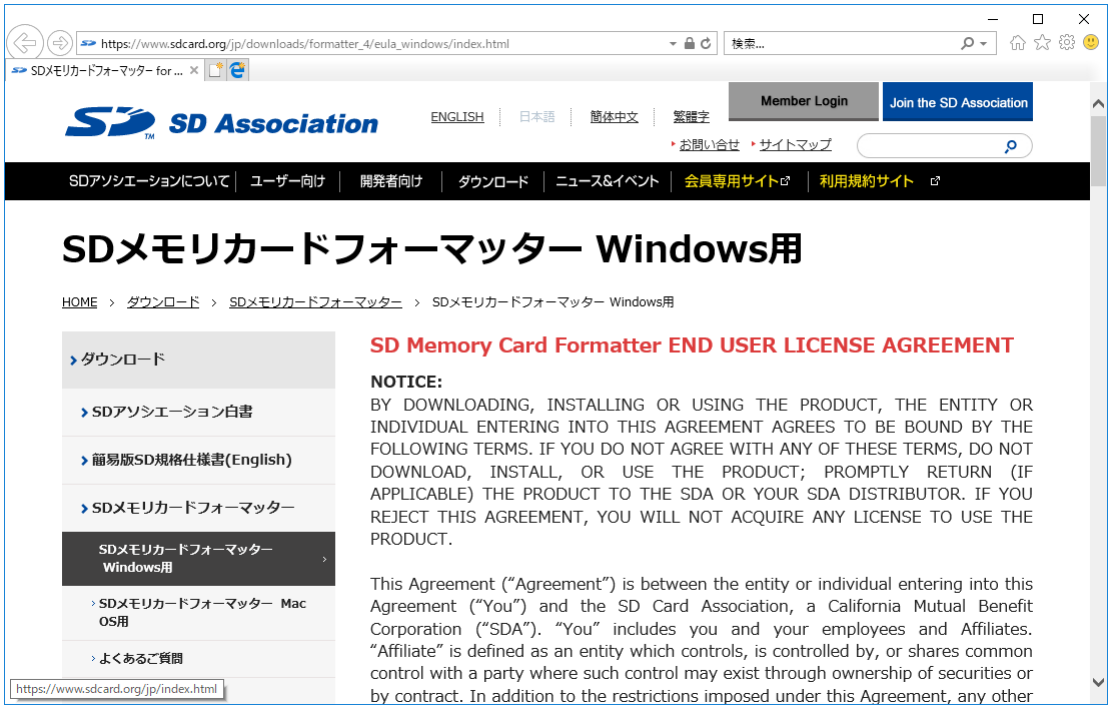
サイズ　20.7 GB (22,287,499,776 バイト)

３．　microSD カードに書き込み

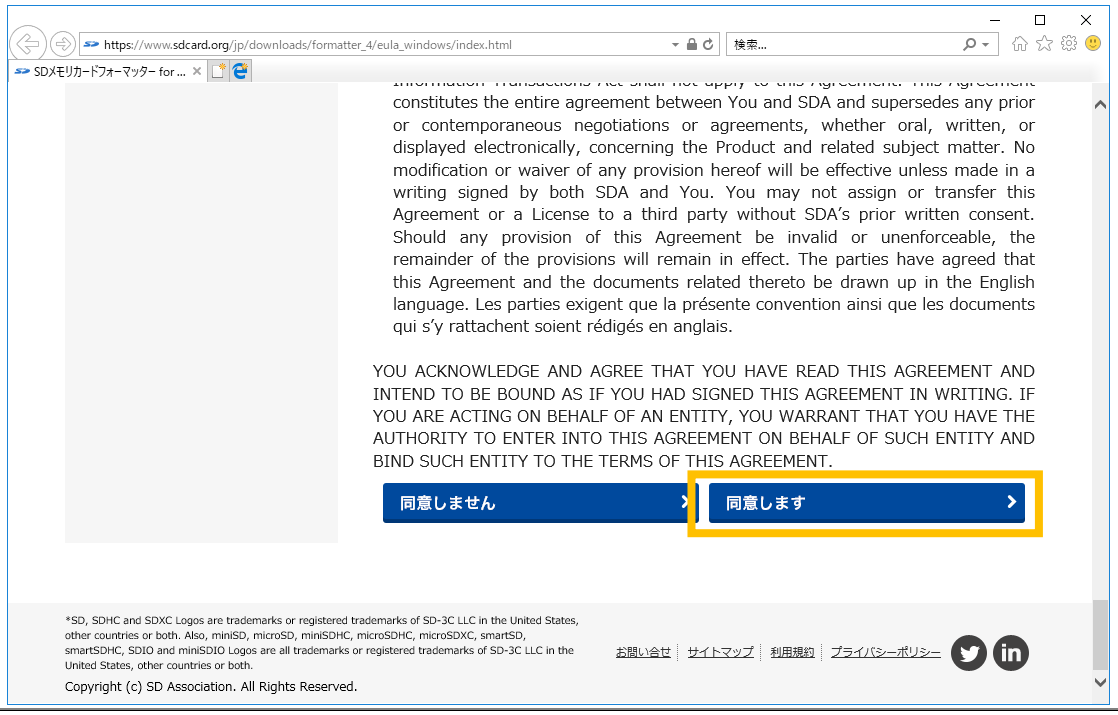
32GB 以上の MicroSD をご利用ください。

４．　SD メモリカードフォーマッターを取得しインストール

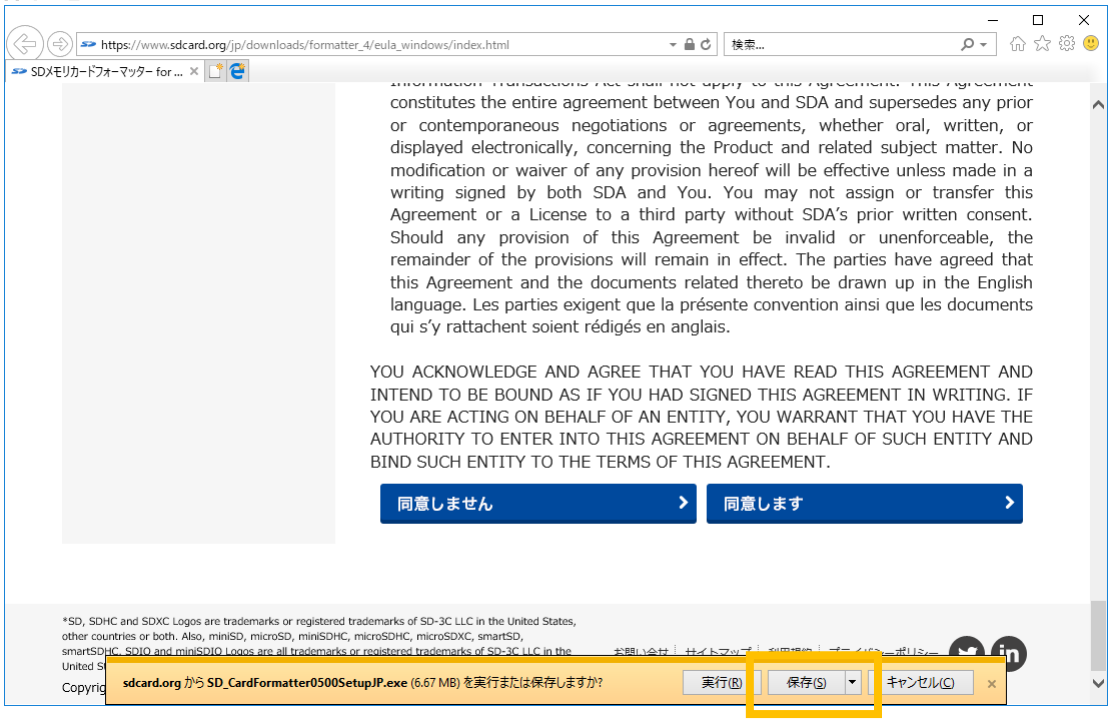
SD Card Formatter ダウンロードページ
https://www.sdcard.org/jp/downloads/formatter_4/eula_windows/index.html



最下部までスクロールする



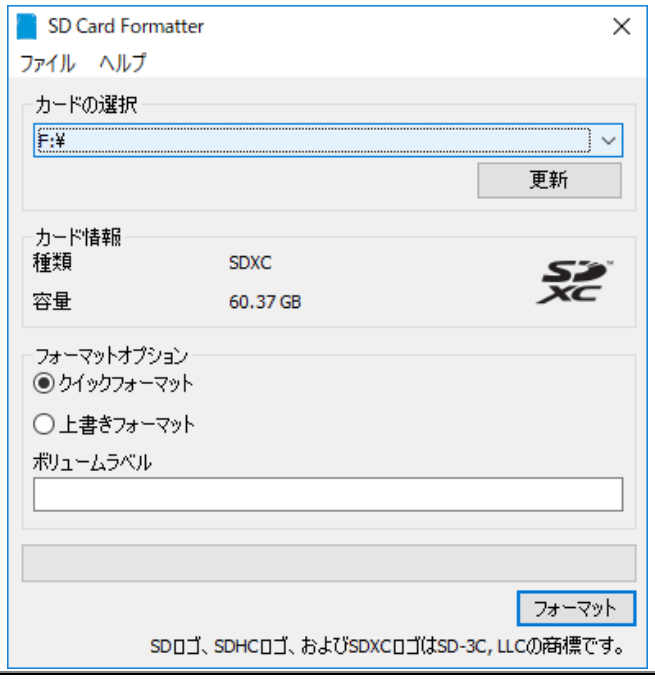
保存をクリック



ダウンロードされた、
SD_CardFormatter0500SetupJP.exe　を実行してインストールしてください。

５．　SD カードをフォーマットします

SD カードをクイックフォーマットしてください。

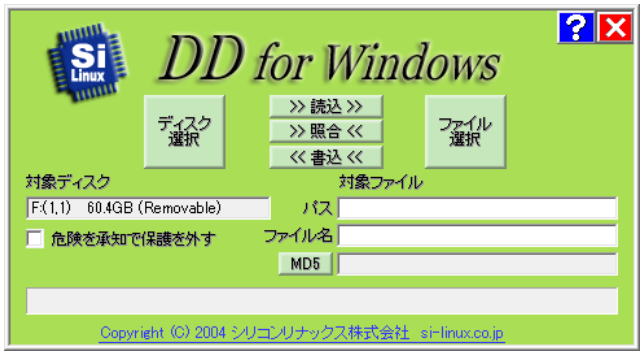


６．　img ファイルの書き込みプログラムのインストール

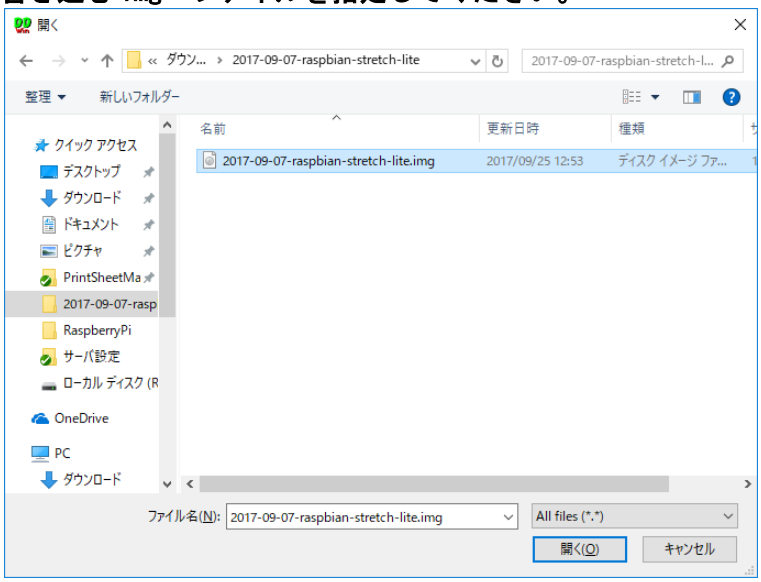
「DD for Windows - Tech Info」を取得してインストール指定ください。
http://www.si-linux.co.jp/techinfo/index.php?DD%20for%20Windows

７．　img ファイルの書き込み

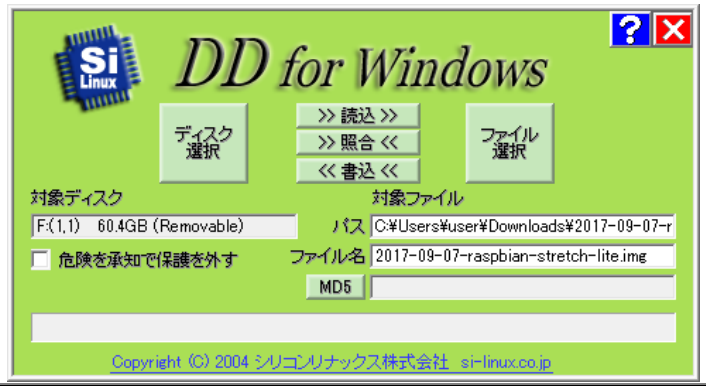
DDwin.exe は、「管理者として実行」してください。



書き込む img　ファイルを指定してください。



「書込」をクリック



８．　SD カードを取り付け、電源を入れる

```
Jetson nano に取り付けて電源を入れてください。
Jetson nano に LAN ケーブルを接続してください。
DHCP サーバーが存在するネットワーク内に接続してください。
```

９．　ルータのログを確認し付与された IP を特定する

```
2019/11/05 11:06:52: LAN1: PORT3 link up (1000BASE-T Full Duplex)
2019/11/05 11:06:54: [DHCPD] LAN1(port3) Allocates 192.168.31.34: 00:04:4b:xx:yy:zz
```

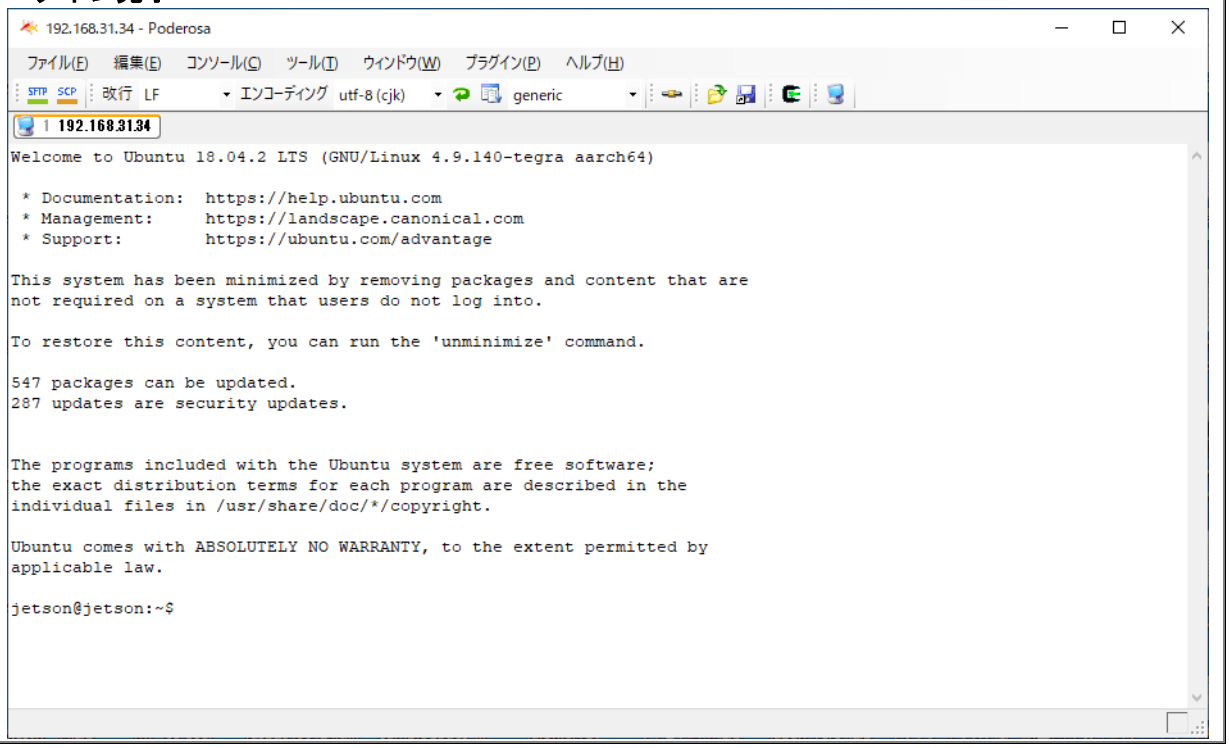
第２章　　最初のログイン

Jetson nano に付与された IP アドレスを調べます。
初期状態のログインパスワードは
ID:jetson、PW:jetson

１．　付与された IP アドレスへログイン

ルーターのログで DHCP で付与された IP アドレスをを確認し該当する IP へログインする。

192.168.31.34　へログインする
（IP アドレスはご自身が取得したアドレスに読み替えてください）
ログイン完了



Jetson Nano 冷却ファンの回転数の制御

Jetson Nano に冷却ファンを取り付けてもファンが回らない場合。
通常は冷却ファンの回転が停止しています。

```
# Jetson Nano 冷却ファンの状態を取得
cat /sys/devices/pwm-fan/target_pwm
0
# 0 なのでオフ

# Jetson Nano 冷却ファンの制御
# オフ
sudo sh -c 'echo 0 > /sys/devices/pwm-fan/target_pwm'

# 50%
sudo sh -c 'echo 128 > /sys/devices/pwm-fan/target_pwm'

# 100%
sudo sh -c 'echo 255 > /sys/devices/pwm-fan/target_pwm'
```

第３章　Linux 初期設定

１．　OS バージョン、ディスク容量を確認

初期状態のログインパスワードは
ID:jetson、PW:jetson

32GB の場合

```
jetson@jetson:~$ uname -a
Linux jetson 4.9.140-tegra #1 SMP PREEMPT Wed Mar 13 00:32:22 PDT 2019 aarch64
aarch64 aarch64 GNU/Linux
jetson@jetson:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        29G   19G  9.0G  67% /
devtmpfs        1.8G     0  1.8G   0% /dev
tmpfs           2.0G  4.0K  2.0G   1% /dev/shm
tmpfs           2.0G   35M  2.0G   2% /run
tmpfs           5.0M  4.0K  5.0M   1% /run/lock
tmpfs           2.0G     0  2.0G   0% /sys/fs/cgroup
tmpfs           397M  136K  397M   1% /run/user/1000
jetson@jetson:~$
```

64GB の場合

```
jetson@jetson:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        57G   18G   37G  33% /
devtmpfs        1.8G     0  1.8G   0% /dev
tmpfs           2.0G  4.0K  2.0G   1% /dev/shm
tmpfs           2.0G   36M  2.0G   2% /run
tmpfs           5.0M  4.0K  5.0M   1% /run/lock
tmpfs           2.0G     0  2.0G   0% /sys/fs/cgroup
tmpfs           397M  116K  397M   1% /run/user/1000
jetson@jetson:~$
```

２．　一旦再起動

初期起動直後は、apt update がエラーになる場合が多いです。
一旦　reboot　すると正常に更新できるようです。

```
jetson@jetson:~$ sudo reboot
```

３．　システムの更新

apt update

```
jetson@jetson:~$ sudo apt update
[sudo] password for jetson:
Get:1 file:/var/cuda-repo-10-0-local-10.0.166  InRelease
Ign:1 file:/var/cuda-repo-10-0-local-10.0.166  InRelease
Get:2 file:/var/visionworks-repo  InRelease
Ign:2 file:/var/visionworks-repo  InRelease
Get:3 file:/var/visionworks-sfm-repo  InRelease
Ign:3 file:/var/visionworks-sfm-repo  InRelease
Get:4 file:/var/visionworks-tracking-repo  InRelease
Ign:4 file:/var/visionworks-tracking-repo  InRelease
Get:5 file:/var/cuda-repo-10-0-local-10.0.166  Release [574 B]
Get:6 file:/var/visionworks-repo  Release [1,999 B]
```

```
Get:5 file:/var/cuda-repo-10-0-local-10.0.166  Release [574 B]
Get:7 file:/var/visionworks-sfm-repo  Release [2,003 B]
Get:8 file:/var/visionworks-tracking-repo  Release [2,008 B]
Get:6 file:/var/visionworks-repo  Release [1,999 B]
Get:7 file:/var/visionworks-sfm-repo  Release [2,003 B]
Get:8 file:/var/visionworks-tracking-repo  Release [2,008 B]
Hit:10 http://ports.ubuntu.com/ubuntu-ports bionic InRelease
Hit:13 http://ports.ubuntu.com/ubuntu-ports bionic-updates InRelease
Hit:15 http://ports.ubuntu.com/ubuntu-ports bionic-backports InRelease
Hit:16 http://ports.ubuntu.com/ubuntu-ports bionic-security InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
549 packages can be upgraded. Run 'apt list --upgradable' to see them.
jetson@jetson:~$
```

apt upgrade

```
jetson@jetson:~$ sudo apt upgrade
jetson@jetson:~$
```

apt dist-upgrade

```
jetson@jetson:~$ sudo apt dist-upgrade
jetson@jetson:~$
```

apt autoremove

```
jetson@jetson:~$ sudo apt autoremove
jetson@jetson:~$
```

４．　一般ユーザーrmenu_user 、postgres を作成する、

adduser　を使うこと　「useradd」を使うとはまる、環境変数が引き継がれないので、諸設定が必要になるうえエディタも使いにくい

rmenu_user 、postgres
セキュリティポリシーに基づいて任意のパスワードを設定します。

```
jetson@jetson:~$ sudo adduser rmenu_user
Adding user `rmenu_user' ...
Adding new group `rmenu_user' (1001) ...
Adding new user `rmenu_user' (1001) with group `rmenu_user' ...
Creating home directory `/home/rmenu_user' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for rmenu_user
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
Adding new user `rmenu_user' to extra groups ...
Adding user `rmenu_user' to group `audio' ...
Adding user `rmenu_user' to group `video' ...
Adding user `rmenu_user' to group `gdm' ...
jetson@jetson:~$

jetson@jetson:~$ sudo adduser postgres
Adding user `postgres' ...
Adding new group `postgres' (1002) ...
Adding new user `postgres' (1002) with group `postgres' ...
Creating home directory `/home/postgres' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for postgres
Enter the new value, or press ENTER for the default
        Full Name []:
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
Adding new user `postgres' to extra groups ...
Adding user `postgres' to group `audio' ...
Adding user `postgres' to group `video' ...
Adding user `postgres' to group `gdm' ...
jetson@jetson:~$
```

第４章　apt パッケージ管理

１．　readline-devel flex bison zlib-devel を追加

libreadline-dev

```
jetson@jetson:~$ sudo apt install libreadline-dev
```

flex、 bison

```
jetson@jetson:~$ sudo apt install flex bison
```

libxslt1-dev

```
jetson@jetson:~ $ sudo apt install libxslt1-dev
```

nkf

２．　日本語処理に必要な nkf コマンドをインストールする

```
jetson@jetson:~ $ sudo apt install nkf
```

tcsh

３．　tcsh をインストールする

```
jetson@jetson:~ $ sudo apt install tcsh
```

htop

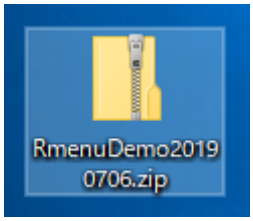
４．　htop をインストールする

```
jetson@jetson:~ $ sudo apt install htop
```

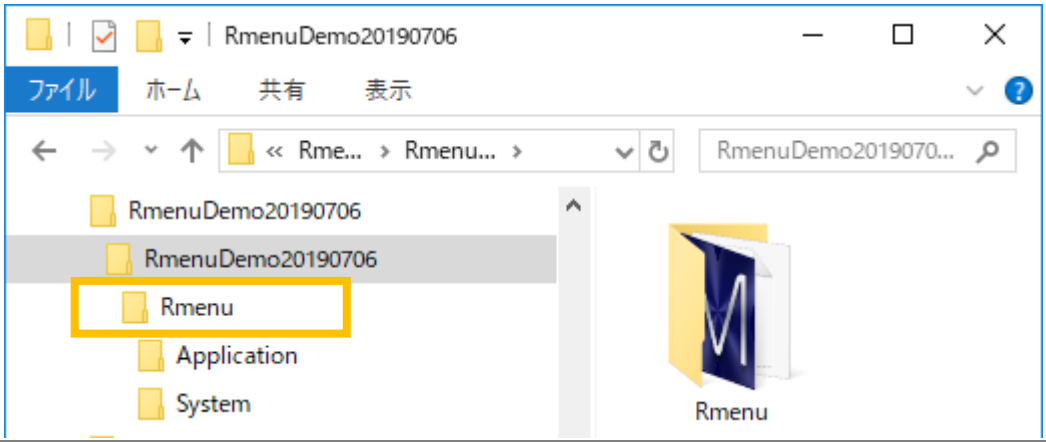
５．　Rmenu フォルダを jetson nano の rmenu_user ディレクトリに置く

Rmenu システムのファイル名は最新のものに読み替えてください。

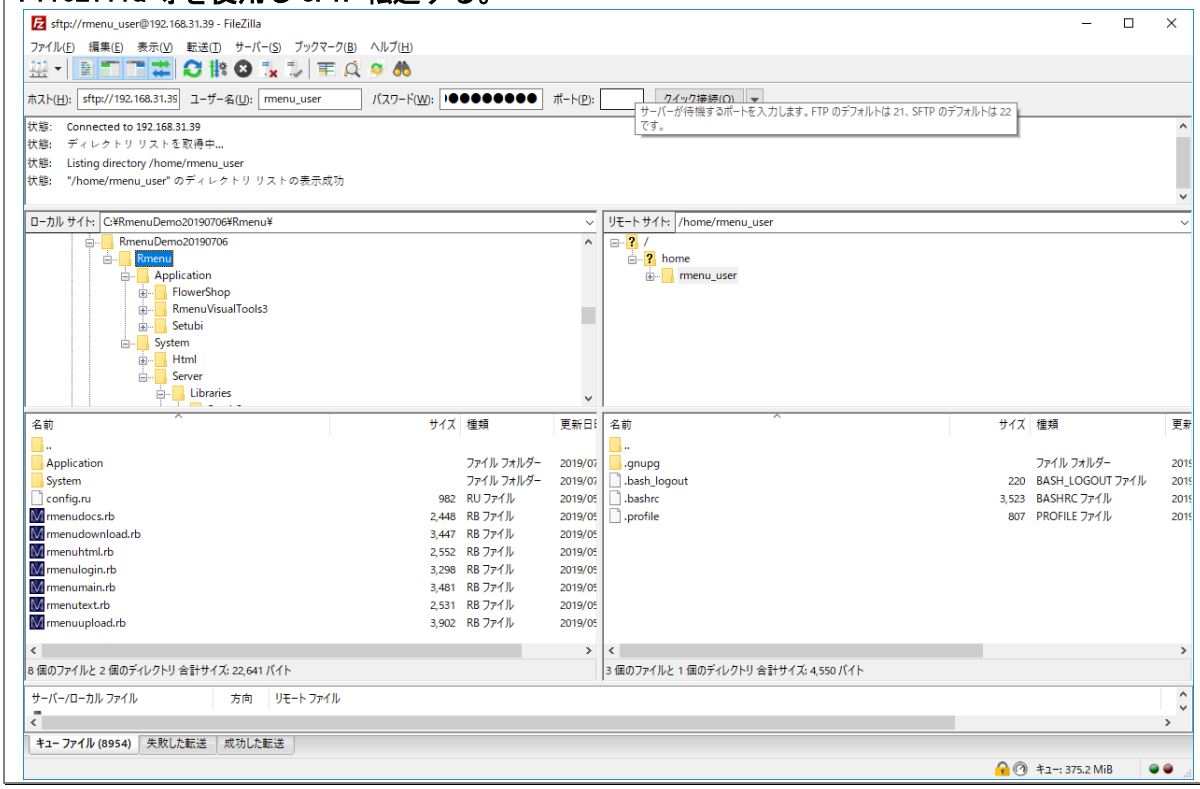
Rmenu システム一式　RmenuDemoYYYYMM.zip　を解凍し、



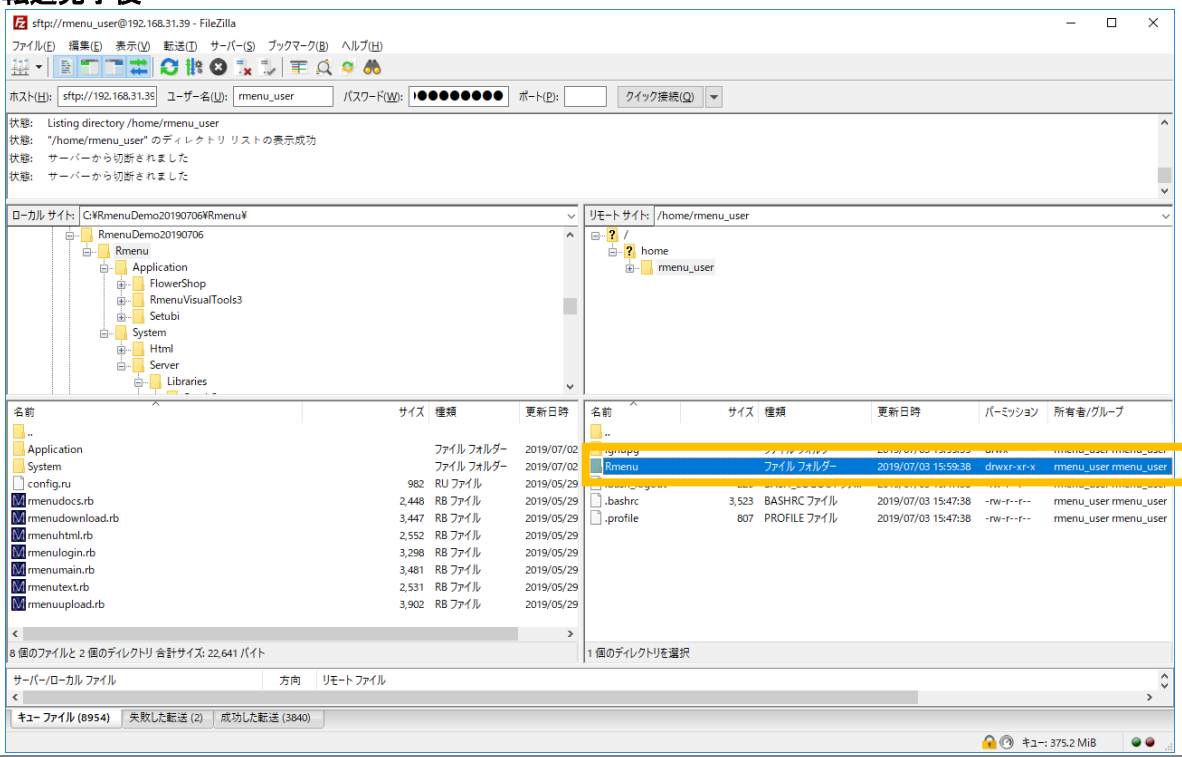
解凍状況



Rmenu　フォルダを　RaspberryPI の rmenu_user ディレクトリに転送してください。
FileZilla 等を使用し SFTP 転送する。



転送完了後



第５章　Apache2 の起動

１．　次の URL をブラウザで開く
http://192.168.31.34/

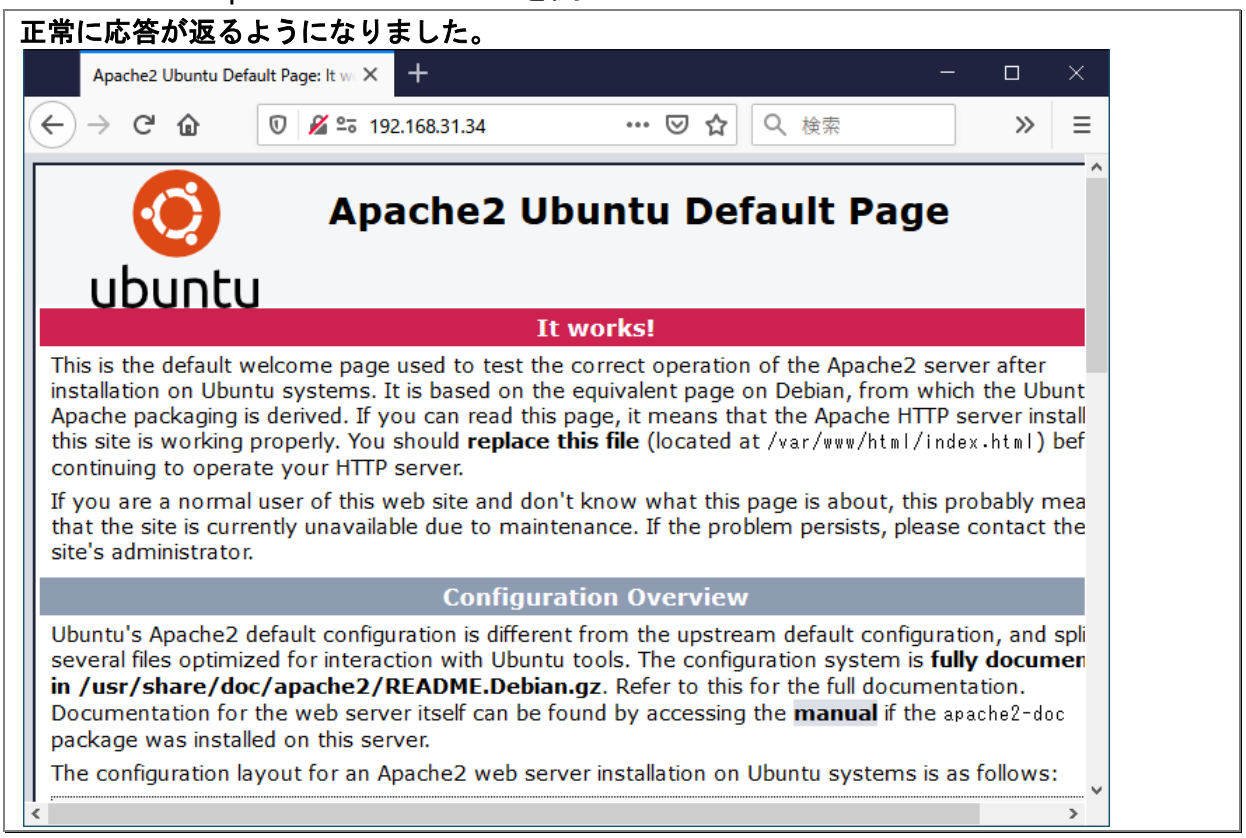
起動前の応答画面

２．　apache2 のインストール

```
jetson@jetson:~ $ sudo apt install apache2 apache2-dev
```

３．　http://192.168.31.34/　を開く

正常に応答が返るようになりました。



４．　アクセス権に www-data グループを追加

Rmenu ユーザディレクトリ　rmenu_user の所有権・パーミション設定

```
jetson@jetson:~$ cd /home/
jetson@jetson:/home$ ls -al
total 20
drwxr-xr-x  5 root       root       4096 Nov  3 22:48 .
drwxr-xr-x 22 root       root       4096 Jun 20 18:51 ..
drwxr-xr-x 20 jetson     jetson     4096 Nov  3 22:30 jetson
drwxr-xr-x  3 postgres   postgres   4096 Nov  3 22:47 postgres
drwxr-xr-x  3 rmenu_user rmenu_user 4096 Nov  3 22:48 rmenu_user
jetson@jetson:/home$ sudo chown -R rmenu_user:www-data rmenu_user
jetson@jetson:/home$ ls -al
total 20
drwxr-xr-x  5 root       root     4096 Nov  3 22:48 .
drwxr-xr-x 22 root       root     4096 Jun 20 18:51 ..
drwxr-xr-x 20 jetson     jetson   4096 Nov  3 22:30 jetson
drwxr-xr-x  3 postgres   postgres 4096 Nov  3 22:47 postgres
drwxr-xr-x  3 rmenu_user www-data 4096 Nov  3 22:48 rmenu_user
jetson@jetson:/home$
```

この時点で次の URL へのアクセス権限が付与される。
http://192.168.31.34/rmenu_user/Application/Setubi/Html/Apps/Login/index.html

第６章　PostgreSQL9.6.15 インストール

１．　postgresql-9.6.15.tar.gz ダウンロード

```
jetson@jetson:/home$ sudo wget -P /usr/local/src
https://ftp.postgresql.org/pub/source/v9.6.15/postgresql-9.6.15.tar.gz
--2019-11-04 19:17:55--  https://ftp.postgresql.org/pub/source/v9.6.15/postgresql-
9.6.15.tar.gz
Resolving ftp.postgresql.org (ftp.postgresql.org)...  204.145.124.244,
217.196.149.55,  72.32.157.246,  ...
Connecting to ftp.postgresql.org (ftp.postgresql.org)|204.145.124.244|:443...
connected.
HTTP request sent,  awaiting response...  200 OK
Length: 24438978 (23M) [application/x-gzip]
Saving to:  '/usr/local/src/postgresql-9.6.15.tar.gz'

postgresql-9.6.15.tar.gz      100%[=========================================>]
23.31M  4.24MB/s    in 6.4s

2019-11-04 19:18:03 (3.65 MB/s) -  '/usr/local/src/postgresql-9.6.15.tar.gz'  saved
[24438978/24438978]

jetson@jetson:/home$
```

２．　インストール先となるディレクトリを作成

```
jetson@jetson:/home$ sudo mkdir /usr/local/postgresql-9.6.15
```

３．　ディレクトリの所有者を PostgreSQL 管理ユーザーに設定

```
jetson@jetson:/home$ sudo chown postgres:postgres /usr/local/postgresql-9.6.15
```

４．　ソースファイルを保存したディレクトリに移動します

```
jetson@jetson:/home$ cd /usr/local/src
jetson@jetson:/usr/local/src$
```

５．　ダウンロードしたソースファイルを展開

```
jetson@jetson:/usr/local/src$ sudo tar xzf postgresql-9.6.15.tar.gz
jetson@jetson:/usr/local/src$
```

６．　PostgreSQL コンパイル

postgres ユーザに切り替え、作業ディレクトリへ移動

```
jetson@jetson:/usr/local/src$ sudo su - postgres
postgres@jetson:~$ cd /usr/local/src/postgresql-9.6.15
```

一覧確認　/usr/local/src/postgresql-9.6.15

```
postgres@jetson:/usr/local/src/postgresql-9.6.15$ ls -al
total 692
drwxrwxrwx  6 1107 1107   4096 Aug  5 14:32 .
drwxr-xr-x  3 root root   4096 Nov  3 23:05 ..
-rw-r--r--  1 1107 1107    420 Aug  5 14:18 aclocal.m4
drwxrwxrwx  2 1107 1107   4096 Aug  5 14:31 config
-rwxr-xr-x  1 1107 1107 483660 Aug  5 14:18 configure
-rw-r--r--  1 1107 1107  77846 Aug  5 14:18 configure.in
```

```
drwxrwxrwx 55 1107 1107   4096 Aug  5 14:31 contrib
-rw-r--r--  1 1107 1107   1192 Aug  5 14:18 COPYRIGHT
-rw-r--r--  1 1107 1107    738 Aug  5 14:18 .dir-locals.el
drwxrwxrwx  3 1107 1107   4096 Aug  5 14:31 doc
-rw-r--r--  1 1107 1107   1712 Aug  5 14:18 .gitattributes
-rw-r--r--  1 1107 1107    434 Aug  5 14:18 .gitignore
-rw-r--r--  1 1107 1107   3638 Aug  5 14:18 GNUmakefile.in
-rw-r--r--  1 1107 1107    284 Aug  5 14:18 HISTORY
-rw-r--r--  1 1107 1107  77427 Aug  5 14:32 INSTALL
-rw-r--r--  1 1107 1107   1665 Aug  5 14:18 Makefile
-rw-r--r--  1 1107 1107   1212 Aug  5 14:18 README
drwxrwxrwx 16 1107 1107   4096 Aug  5 14:32 src
postgres@jetson:/usr/local/src/postgresql-9.6.15$
```

configure

```
postgres@jetson:/usr/local/src/postgresql-9.6.15$
 ./configure --prefix=/usr/local/postgresql-9.6.15
checking build system type... armv6l-unknown-linux-gnueabihf
checking host system type... armv6l-unknown-linux-gnueabihf
checking which template to use... linux
checking whether to build with 64-bit integer date/time support... yes
checking whether NLS is wanted... no
checking for default port number... 5432
checking for block size... 8kB
checking for segment size... 1GB
checking for WAL block size... 8kB
checking for WAL segment size... 16MB
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether gcc supports -Wdeclaration-after-statement... yes
checking whether gcc supports -Wendif-labels... yes
checking whether gcc supports -Wmissing-format-attribute... yes
checking whether gcc supports -Wformat-security... yes
checking whether gcc supports -fno-strict-aliasing... yes
checking whether gcc supports -fwrapv... yes

途中省略

config.status: linking src/backend/port/dynloader/linux.c to
src/backend/port/dynloader.c
config.status: linking src/backend/port/sysv_sema.c to src/backend/port/pg_sema.c
config.status: linking src/backend/port/sysv_shmem.c to src/backend/port/pg_shmem.c
config.status: linking src/backend/port/dynloader/linux.h to
src/include/dynloader.h
config.status: linking src/include/port/linux.h to src/include/pg_config_os.h
config.status: linking src/makefiles/Makefile.linux to src/Makefile.port
postgres@jetson:/usr/local/src/postgresql-9.6.15$ config.status: linking
```

７．　make 実行

```
postgres@jetson:/usr/local/src/postgresql-9.6.15$ make

開始 2019-11-05 12:21
終了 2019-11-05 12:35

途中省略

make -C config all
make[1]: Entering directory '/usr/local/src/postgresql-9.6.15/config'
make[1]: Nothing to be done for 'all'.
make[1]: Leaving directory '/usr/local/src/postgresql-9.6.15/config'
All of PostgreSQL successfully made. Ready to install.
postgres@jetson:/usr/local/src/postgresql-9.6.15$
```

８．　インストール

```
postgres@jetson:/usr/local/src/postgresql-9.6.15$ make install

途中省略

make -C config install
make[1]: Entering directory '/usr/local/src/postgresql-9.6.15/config'
/bin/mkdir -p '/usr/local/postgresql-9.6.15/lib/pgxs/config'
/usr/bin/install -c -m 755 ./install-sh '/usr/local/postgresql-
9.6.15/lib/pgxs/config/install-sh'
/usr/bin/install -c -m 755 ./missing '/usr/local/postgresql-
9.6.15/lib/pgxs/config/missing'
make[1]: Leaving directory '/usr/local/src/postgresql-9.6.15/config'
PostgreSQL installation complete.
postgres@jetson:/usr/local/src/postgresql-9.6.15$
```

９．　シンボリックリンクを作成

```
postgres@jetson:/usr/local/src/postgresql-9.6.15$ exit
logout
jetson@jetson:/usr/local/src$ sudo ln -fns /usr/local/postgresql-9.6.15
/usr/local/pgsql
[sudo] password for jetson:
jetson@jetson:/usr/local/src$
```

１０．　環境変数の設定　.bash_profile に追加

```
jetson@jetson:/usr/local/src $ sudo vi /home/postgres/.bash_profile
export PATH=$PATH:/usr/local/pgsql/bin
export POSTGRES_HOME=/usr/local/pgsql
export PGLIB=$POSTGRES_HOME/lib
export PGDATA=$POSTGRES_HOME/data
export MANPATH="$MANPATH":$POSTGRES_HOME/man
export LD_LIBRARY_PATH="$LD_LIBRARY_PATH":"$PGLIB"
```

１１．　PostgreSQL ライブラリの登録

他のプログラムが PostgreSQL を利用できるように共有ライブラリに PostgreSQL のライブラリを登録します。
/etc/ld.so.conf を編集して以下の行を追加します

```
jetson@jetson:/usr/local/src $ sudo vi /etc/ld.so.conf
```

ld.so.conf の内容

```
include ld.so.conf.d/*.conf

/usr/local/pgsql/lib
```

以下のように ldconfig コマンドを実行して設定を有効にします

```
jetson@jetson:/usr/local/src $ sudo ldconfig
```

１２．　postgres ユーザで、データベースの初期化

```
jetson@jetson:/usr/local/src$ sudo su - postgres
postgres@jetson:~$ /usr/local/pgsql/bin/initdb -D /usr/local/pgsql/data
The files belonging to this database system will be owned by user "postgres".
This user must also own the server process.

The database cluster will be initialized with locale "en_US.UTF-8".
The default database encoding has accordingly been set to "UTF8".
The default text search configuration will be set to "english".

Data page checksums are disabled.

creating directory /usr/local/pgsql/data ... ok
creating subdirectories ... ok
selecting default max_connections ... 100
selecting default shared_buffers ... 128MB
selecting default timezone ... America/Los_Angeles
selecting dynamic shared memory implementation ... posix
creating configuration files ... ok
running bootstrap script ... ok
performing post-bootstrap initialization ... ok
syncing data to disk ... ok

WARNING: enabling "trust" authentication for local connections
You can change this by editing pg_hba.conf or using the option -A, or
--auth-local and --auth-host, the next time you run initdb.

Success. You can now start the database server using:
```

```
    /usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data -l logfile start

postgres@jetson:~$ exit
logout
```

１３．　PostgreSQL の自動起動スクリプト登録

```
jetson@jetson:/usr/local/src$ sudo vi /etc/systemd/system/postgresql.service
# It's not recommended to modify this file in-place, because it will be
# overwritten during package upgrades.  If you want to customize, the
# best way is to create a file "/etc/systemd/system/postgresql.service",
# containing
#   .include /lib/systemd/system/postgresql.service
#   ...make your changes here...
# For more info about custom unit files, see
#
http://fedoraproject.org/wiki/Systemd#How_do_I_customize_a_unit_file.2F_add_a_custo
m_unit_file.3F

# For example, if you want to change the server's port number to 5433,
# create a file named "/etc/systemd/system/postgresql.service" containing:
#   .include /lib/systemd/system/postgresql.service
#   [Service]
#   Environment=PGPORT=5433
# This will override the setting appearing below.

# Note: changing PGPORT or PGDATA will typically require adjusting SELinux
# configuration as well; see /usr/share/doc/postgresql-*/README.rpm-dist.

# Note: do not use a PGDATA pathname containing spaces, or you will
# break postgresql-setup.

# Note: in F-17 and beyond, /usr/lib/... is recommended in the .include line
# though /lib/... will still work.

[Unit]
Description=PostgreSQL database server
After=network.target

[Service]
Type=forking

User=postgres
Group=postgres

# Port number for server to listen on
Environment=PGPORT=5432

# Location of database directory
Environment=PGDATA=/usr/local/pgsql/data

# Where to send early-startup messages from the server (before the logging
# options of postgresql.conf take effect)
# This is normally controlled by the global default set by systemd
# StandardOutput=syslog
```

```
# Disable OOM kill on the postmaster
OOMScoreAdjust=-1000

#ExecStartPre=/usr/local/pgsql/bin/postgresql-check-db-dir ${PGDATA} <=このモジュールは存在しないのでコメント
ExecStart=/usr/local/pgsql/bin/pg_ctl start -D ${PGDATA} -s -o "-p ${PGPORT}" -w -t 300
ExecStop=/usr/local/pgsql/bin/pg_ctl stop -D ${PGDATA} -s -m fast
ExecReload=/usr/local/pgsql/bin/pg_ctl reload -D ${PGDATA} -s

# Give a reasonable amount of time for the server to start up/shut down
TimeoutSec=300

[Install]
WantedBy=multi-user.target
```

１４．　サービスを起動する場合は以下のように実行します。

```
jetson@jetson:/usr/local/src$ sudo systemctl start postgresql
jetson@jetson:/usr/local/src$
```

１５．　サービスの自動起動設定を行います。

```
jetson@jetson:/usr/local/src$ sudo systemctl enable postgresql
Created symlink /etc/systemd/system/multi-user.target.wants/postgresql.service →
/etc/systemd/system/postgresql.service.
jetson@jetson:/usr/local/src$
```

１６．　TCP 接続の設定

/usr/local/pgsql/data/pg_hba.conf ファイルで認証設定を行います。

```
jetson@jetson:/usr/local/src$ sudo vi /usr/local/pgsql/data/postgresql.conf
listen_addresses = '*'
```

アクセスを許可するには、次の行を加えます。

```
jetson@jetson:/usr/local/src$ sudo vi /usr/local/pgsql/data/pg_hba.conf
```

```
host    all    all    192.168.34.0/24    trust
#host    all    all    192.168.0.0/16    trust
```

jetson nano を再起動します。　再起動後 PostgreSQL が自動起動していることを確認

```
jetson@jetson:/usr/local/src$ sudo reboot
```

１７．　PostgreSQL のアンインストール

何らかの理由でアンインストールしたければ、make したディレクトリに行って
$ make uninstall を実行するだけです。

```
jetson@jetson:/usr/local/src $ sudo su - postgres
jetson@jetson:~$ cd /usr/local/src/postgresql-9.6.15
jetson@jetson:/usr/local/src/postgresql-9.6.15$ make uninstall
jetson@jetson:/usr/local/src/postgresql-9.6.15$ exit
jetson@jetson:/usr/local/src $
```

第７章　RVM および Ruby のインストール

１．　RVM のインストール、（マルチユーザ）root でインストール

curl ををインストール

```
jetson@jetson:~$ sudo apt install curl
[sudo] password for jetson:
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  libllvm6.0
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  curl
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 152 kB of archives.
After this operation, 384 kB of additional disk space will be used.
Get:1 http://ports.ubuntu.com/ubuntu-ports bionic-updates/main arm64 curl arm64
7.58.0-2ubuntu3.8 [152 kB]
Fetched 152 kB in 2s (85.8 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package curl.
(Reading database ... 139676 files and directories currently installed.)
Preparing to unpack .../curl_7.58.0-2ubuntu3.8_arm64.deb ...
Unpacking curl (7.58.0-2ubuntu3.8) ...
Setting up curl (7.58.0-2ubuntu3.8) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
jetson@jetson:~$
```

root で rvm をインストール　キーが無いのでインストールできない

```
jetson@jetson:~$ sudo su -
root@jetson:~# curl -L https://get.rvm.io | bash -s stable
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   194  100   194    0     0    242      0 --:--:-- --:--:-- --:--:--   242
100 24535  100 24535    0     0  23366      0  0:00:01  0:00:01 --:--:-- 23366
Downloading https://github.com/rvm/rvm/archive/1.29.9.tar.gz
Downloading https://github.com/rvm/rvm/releases/download/1.29.9/1.29.9.tar.gz.asc
gpg: keybox '/root/.gnupg/pubring.kbx' created
gpg: Signature made Wed 10 Jul 2019 01:31:02 AM PDT
gpg:                using RSA key 7D2BAF1CF37B13E2069D6956105BD0E739499BDB
gpg: Can't check signature: No public key
GPG signature verification failed for '/usr/local/rvm/archives/rvm-1.29.9.tgz' -
'https://github.com/rvm/rvm/releases/download/1.29.9/1.29.9.tar.gz.asc'! Try to
install GPG v2 and then fetch the public key:

    gpg --keyserver hkp://pool.sks-keyservers.net --recv-keys
409B6B1796C275462A1703113804BB82D39DC0E3 7D2BAF1CF37B13E2069D6956105BD0E739499BDB

or if it fails:

    command curl -sSL https://rvm.io/mpapis.asc | gpg --import -
    command curl -sSL https://rvm.io/pkuczynski.asc | gpg --import -
```

```
In case of further problems with validation please refer to
https://rvm.io/rvm/security
```

root で GPG signature を取得する

```
root@jetson:~# gpg --keyserver hkp://pool.sks-keyservers.net --recv-keys
409B6B1796C275462A1703113804BB82D39DC0E3 7D2BAF1CF37B13E2069D6956105BD0E739499BDB
gpg: key 105BD0E739499BDB: 8 signatures not checked due to missing keys
gpg: /root/.gnupg/trustdb.gpg: trustdb created
gpg: key 105BD0E739499BDB: public key "Piotr Kuczynski <piotr.kuczynski@gmail.com>"
imported
gpg: key 3804BB82D39DC0E3: 108 signatures not checked due to missing keys
gpg: key 3804BB82D39DC0E3: public key "Michal Papis (RVM signing)
<mpapis@gmail.com>" imported
gpg: no ultimately trusted keys found
gpg: Total number processed: 2
gpg:               imported: 2
root@jetson:~#
```

root で rvm をあらためてインストール、GPG signature を取得後、再実行

```
root@raspberrypi:~# curl -L https://get.rvm.io | bash -s stable
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   194  100   194    0     0    183      0  0:00:01  0:00:01 --:--:--   183
100 24090  100 24090    0     0  15349      0  0:00:01  0:00:01 --:--:-- 15349
Downloading https://github.com/rvm/rvm/archive/1.29.3.tar.gz
Downloading https://github.com/rvm/rvm/releases/download/1.29.3/1.29.3.tar.gz.asc

gpg: Signature made Wed 10 Jul 2019 01:31:02 AM PDT
gpg:                using RSA key 7D2BAF1CF37B13E2069D6956105BD0E739499BDB
gpg: Good signature from "Piotr Kuczynski <piotr.kuczynski@gmail.com>" [unknown]
gpg: WARNING: This key is not certified with a trusted signature!
gpg:          There is no indication that the signature belongs to the owner.
Primary key fingerprint: 7D2B AF1C F37B 13E2 069D  6956 105B D0E7 3949 9BDB
GPG verified '/usr/local/rvm/archives/rvm-1.29.9.tgz'
Creating group 'rvm'
Installing RVM to /usr/local/rvm/
Installation of RVM in /usr/local/rvm/ is almost complete:

  * First you need to add all users that will be using rvm to 'rvm' group,
    and logout - login again, anyone using rvm will be operating with `umask
u=rwx,g=rwx,o=rx`.

  * To start using RVM you need to run `source /etc/profile.d/rvm.sh`
    in all your open shell windows, in rare cases you need to reopen all shell
windows.
  * Please do NOT forget to add your users to the rvm group.
    The installer no longer auto-adds root or users to the rvm group. Admins must
do this.
    Also, please note that group memberships are ONLY evaluated at login time.
    This means that users must log out then back in before group membership takes
effect!
```

```
Thanks for installing RVM
Please consider donating to our open collective to help us maintain RVM.

    Donate: https://opencollective.com/rvm/donate


root@jetson:~#
```

２．　jetson ユーザで動作確認

```
root@jetson:~# exit
logout
jetson@jetson:~$ source /etc/profile.d/rvm.sh
jetson@jetson:~$ rvm -v
rvm 1.29.9 (latest) by Michal Papis, Piotr Kuczynski, Wayne E. Seguin
[https://rvm.io]
jetson@jetson:~$
```

３．　rvm の読込と rvm を最新バージョンに更新

```
jetson@jetson:~$ sudo su -
[sudo] password for jetson:
root@jetson:~# source /etc/profile.d/rvm.sh
root@jetson:~# rvm get head
Downloading https://get.rvm.io
Downloading https://raw.githubusercontent.com/rvm/rvm/master/binscripts/rvm-
installer.asc
Verifying /usr/local/rvm/archives/rvm-installer.asc
gpg: Signature made Tue 23 Jul 2019 02:59:45 PM PDT
gpg:                using RSA key 7D2BAF1CF37B13E2069D6956105BD0E739499BDB
gpg: Good signature from "Piotr Kuczynski <piotr.kuczynski@gmail.com>" [unknown]
gpg: WARNING: This key is not certified with a trusted signature!
gpg:          There is no indication that the signature belongs to the owner.
Primary key fingerprint: 7D2B AF1C F37B 13E2 069D  6956 105B D0E7 3949 9BDB
GPG verified '/usr/local/rvm/archives/rvm-installer'
Downloading https://github.com/rvm/rvm/archive/master.tar.gz
Upgrading the RVM installation in /usr/local/rvm/
Upgrade of RVM in /usr/local/rvm/ is complete.
  * Please do NOT forget to add your users to the rvm group.
    The installer no longer auto-adds root or users to the rvm group. Admins must
do this.
    Also, please note that group memberships are ONLY evaluated at login time.
    This means that users must log out then back in before group membership takes
effect!

Thanks for installing RVM
Please consider donating to our open collective to help us maintain RVM.

   Donate: https://opencollective.com/rvm/donate


RVM reloaded!
root@jetson:~#
```

４．　OS を再起動

```
root@jetson:~# reboot
```

５．　rvm を sudo を付けて（マルチユーザーとして）インストールする

rvm バージョン確認

```
jetson@jetson:~$ rvmsudo rvm -v
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
[sudo] password for jetson:
rvm 1.29.9-next (master) by Michal Papis, Piotr Kuczynski, Wayne E. Seguin
[https://rvm.io]
jetson@jetson:~$
```

インストール可能な ruby のバージョン等を確認する

```
jetson@jetson:~$ rvmsudo rvm list known
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
Warning, new version of rvm available '1.29.9', you are using older version
'1.29.9-next'.
You can disable this warning with:   echo rvm_autoupdate_flag=0 >> ~/.rvmrc
You can enable auto-update with:     echo rvm_autoupdate_flag=2 >> ~/.rvmrc
You can update manually with:        rvm get VERSION                    (e.g.
'rvm get stable')

# MRI Rubies
[ruby-]1.8.6[-p420]
[ruby-]1.8.7[-head] # security released on head
[ruby-]1.9.1[-p431]
[ruby-]1.9.2[-p330]
[ruby-]1.9.3[-p551]
[ruby-]2.0.0[-p648]
[ruby-]2.1[.10]
[ruby-]2.2[.10]
[ruby-]2.3[.8]
[ruby-]2.4[.9]
[ruby-]2.5[.7]
[ruby-]2.6[.5]
```

```
[ruby-]2.7[.0-preview2]
ruby-head

# for forks use: rvm install ruby-head-<name> --url
https://github.com/github/ruby.git --branch 2.2

# JRuby
jruby-1.6[.8]
jruby-1.7[.27]
jruby-9.1[.17.0]
jruby[-9.2.8.0]
jruby-head

# Rubinius
rbx-1[.4.3]
rbx-2.3[.0]
rbx-2.4[.1]
rbx-2[.5.8]
rbx-3[.107]
rbx-4[.6]
rbx-head

# TruffleRuby
truffleruby[-19.2.0.1]

# Opal
opal

# Minimalistic ruby implementation - ISO 30170:2012
mruby-1.0.0
mruby-1.1.0
mruby-1.2.0
mruby-1.3.0
mruby-1[.4.1]
mruby-2[.0.1]
mruby[-head]

# Ruby Enterprise Edition
ree-1.8.6
ree[-1.8.7][-2012.02]

# Topaz
topaz

# MagLev
maglev-1.0.0
maglev-1.1[RC1]
maglev[-1.2Alpha4]
maglev-head

# Mac OS X Snow Leopard Or Newer
macruby-0.10
macruby-0.11
macruby[-0.12]
macruby-nightly
```

```
macruby-head

# IronRuby
ironruby[-1.1.3]
ironruby-head
jetson@jetson:~$
```

６．　インストールに当たっての必要要件を確認する。

```
jetson@jetson:~$ rvmsudo rvm requirements
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
Checking requirements for ubuntu.
Installing requirements for ubuntu.
Updating system...
Installing required packages: gawk, libffi-dev, libgdbm-dev, libncurses5-dev,
libsqlite3-dev, libyaml-dev, sqlite3, libgmp-dev, libssl-dev.............
Requirements installation successful.
jetson@jetson:~$
```

７．　続いて該当バージョン（2.6.5）をインストール

```
jetson@jetson:~$ rvmsudo rvm install 2.6.5
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
Warning, new version of rvm available '1.29.9', you are using older version
'1.29.9-next'.
You can disable this warning with:   echo rvm_autoupdate_flag=0 >> ~/.rvmrc
You can enable auto-update with:     echo rvm_autoupdate_flag=2 >> ~/.rvmrc
You can update manually with:        rvm get VERSION                    (e.g.
'rvm get stable')

Searching for binary rubies, this might take some time.
Found remote file https://rubies.travis-ci.org/ubuntu/18.04/aarch64/ruby-
2.6.5.tar.bz2
Checking requirements for ubuntu.
```

```
Requirements installation successful.
ruby-2.6.5 - #configure
ruby-2.6.5 - #download
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0     0    0     0    0     0      0      0 --:--:--  0:00:01 --:--:--     0
100 18.5M  100 18.5M    0     0  3682k      0  0:00:05  0:00:05 --:--:-- 5952k
No checksum for downloaded archive, recording checksum in user configuration.
ruby-2.6.5 - #validate archive
ruby-2.6.5 - #extract
ruby-2.6.5 - #validate binary
ruby-2.6.5 - #setup
ruby-2.6.5 - #gemset created /usr/local/rvm/gems/ruby-2.6.5@global
ruby-2.6.5 - #importing gemset
/usr/local/rvm/gemsets/global.gems.................................
ruby-2.6.5 - #generating global wrappers.......
ruby-2.6.5 - #gemset created /usr/local/rvm/gems/ruby-2.6.5
ruby-2.6.5 - #importing gemsetfile /usr/local/rvm/gemsets/default.gems evaluated to
empty gem list
ruby-2.6.5 - #generating default wrappers.......
jetson@jetson:~$
```

８．　最後にパスを通して、また通常使用するバージョンを指定する

```
jetson@jetson:~ $ echo '[[ -s "/usr/local/rvm/scripts/rvm" ]] && .
"/usr/local/rvm/scripts/rvm" # Load RVM function' >> ~/.bash_profile
jetson@jetson:~$ rvm use 2.6.5 --default
Using /usr/local/rvm/gems/ruby-2.6.5
jetson@jetson:~$
```

９．　システム起動時の ruby デフォルトを 2.6.5 とする

```
jetson@jetson:~$ rvmsudo rvm alias create default ruby-2.6.5
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
[sudo] password for jetson:
Creating alias default for ruby-2.6.5....
jetson@jetson:~$
```

１０．　　install されている ruby の確認

```
jetson@jetson:~$ rvm list
=* ruby-2.6.5 [ aarch64 ]

# => - current
# =* - current && default
#  * - default

jetson@jetson:~$
```

１１．　関連モジュールのインストール手順

pg のインストール

```
jetson@jetson:~$ rvmsudo gem install pg -- --with-pg-config=/usr/local/postgresql-
9.6.15/bin/pg_config --no-document
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
Fetching pg-1.1.4.gem
Building native extensions with: '--with-pg-config=/usr/local/postgresql-
9.6.15/bin/pg_config --no-document'
This could take a while...
Successfully installed pg-1.1.4
Parsing documentation for pg-1.1.4
Installing ri documentation for pg-1.1.4
Done installing documentation for pg after 3 seconds
1 gem installed
```

dbi のインストール

```
jetson@jetson:~$ rvmsudo gem install dbi --no-document
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
Fetching deprecated-2.0.1.gem
Fetching dbi-0.4.5.gem
Successfully installed deprecated-2.0.1
Successfully installed dbi-0.4.5
2 gems installed
jetson@jetson:~$
```

sequel のインストール

```
jetson@jetson:~$ rvmsudo gem install sequel --no-document
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:
```

```
    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
Fetching sequel-5.26.0.gem
Successfully installed sequel-5.26.0
1 gem installed
jetson@jetson:~$
```

rack のインストール

```
jetson@jetson:~$ rvmsudo gem install rack --no-document
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
Fetching rack-2.0.7.gem
Successfully installed rack-2.0.7
1 gem installed
jetson@jetson:~$
```

prawn のインストール

```
jetson@jetson:~$ rvmsudo gem install prawn --version "=0.13.1" --no-document
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
Fetching afm-0.2.2.gem
Fetching hashery-2.1.2.gem
Fetching Ascii85-1.0.3.gem
Fetching prawn-0.13.1.gem
Fetching ruby-rc4-0.1.5.gem
Fetching ttfunk-1.0.3.gem
Fetching pdf-reader-1.4.1.gem
Successfully installed ruby-rc4-0.1.5
Successfully installed ttfunk-1.0.3
Successfully installed afm-0.2.2
Successfully installed hashery-2.1.2
Successfully installed Ascii85-1.0.3

  ***********************************************

  v1.0.0 of PDF::Reader introduced a new page-based API. There are extensive
  examples showing how to use it in the README and examples directory.

  For detailed documentation, check the rdocs for the PDF::Reader,
  PDF::Reader::Page and PDF::Reader::ObjectHash classes.

  The old API is marked as deprecated but will continue to work with no
  visible warnings for now.

  ***********************************************

Successfully installed pdf-reader-1.4.1

  ***********************************************


  A lot has changed recently in Prawn.

  Please read the changelog for details:

  https://github.com/prawnpdf/prawn/wiki/CHANGELOG


  ***********************************************

Successfully installed prawn-0.13.1
```

```
7 gems installed
jetson@jetson:~$
```

prawn-svg のインストール

```
jetson@jetson:~$ rvmsudo gem install prawn-svg --no-document
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
[sudo] password for jetson:
Fetching public_suffix-4.0.1.gem
Fetching addressable-2.7.0.gem
Fetching css_parser-1.7.0.gem
Fetching prawn-svg-0.29.1.gem
Successfully installed public_suffix-4.0.1
Successfully installed addressable-2.7.0
Successfully installed css_parser-1.7.0
Successfully installed prawn-svg-0.29.1
4 gems installed
jetson@jetson:~$
```

第８章　Passenger のインストール

１．　passenger のインストール手順

passenger のインストール

```
jetson@jetson:~$ rvmsudo gem install passenger --no-document
Warning: can not check `/etc/sudoers` for `secure_path`, falling back to call via
`/usr/bin/env`, this breaks rules from `/etc/sudoers`. Run:

    export rvmsudo_secure_path=1

to avoid the warning, put it in shell initialization file to make it persistent.

In case there is no `secure_path` in `/etc/sudoers`. Run:

    export rvmsudo_secure_path=0

to avoid the warning, put it in shell initialization file to make it persistent.
Fetching passenger-6.0.4.gem
Building native extensions.  This could take a while...
Successfully installed passenger-6.0.4
1 gem installed
jetson@jetson:~$
```

libcurl4-openssl-dev のインストール

```
jetson@jetson:~$ sudo apt install libcurl4-openssl-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  gyp libjs-async libjs-inherits libjs-node-uuid libjs-underscore libllvm6.0
libuv1-dev
  node-abbrev node-ansi node-ansi-color-table node-archy node-async node-balanced-
match
  node-block-stream node-brace-expansion node-builtin-modules node-combined-stream
  node-concat-map node-cookie-jar node-delayed-stream node-forever-agent node-form-
data
  node-fs.realpath node-fstream node-fstream-ignore node-github-url-from-git node-
glob
  node-graceful-fs node-hosted-git-info node-inflight node-inherits node-ini
  node-is-builtin-module node-isexe node-json-stringify-safe node-lockfile node-
lru-cache
  node-mime node-minimatch node-mkdirp node-mute-stream node-node-uuid node-nopt
  node-normalize-package-data node-npmlog node-once node-osenv node-path-is-
absolute
  node-pseudomap node-qs node-read node-read-package-json node-request node-retry
  node-rimraf node-semver node-sha node-slide node-spdx-correct
  node-spdx-expression-parse node-spdx-license-ids node-tar node-tunnel-agent
  node-underscore node-validate-npm-package-license node-which node-wrappy node-
yallist
Use 'sudo apt autoremove' to remove them.
Suggested packages:
  libcurl4-doc libidn11-dev libkrb5-dev librtmp-dev libssh2-1-dev
The following NEW packages will be installed:
  libcurl4-openssl-dev
```

```
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 269 kB of archives.
After this operation, 1,307 kB of additional disk space will be used.
Get:1 http://ports.ubuntu.com/ubuntu-ports bionic-updates/main arm64 libcurl4-
openssl-dev arm64 7.58.0-2ubuntu3.8 [269 kB]
Fetched 269 kB in 2s (147 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package libcurl4-openssl-dev:arm64.
(Reading database ... 136877 files and directories currently installed.)
Preparing to unpack .../libcurl4-openssl-dev_7.58.0-2ubuntu3.8_arm64.deb ...
Unpacking libcurl4-openssl-dev:arm64 (7.58.0-2ubuntu3.8) ...
Setting up libcurl4-openssl-dev:arm64 (7.58.0-2ubuntu3.8) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
jetson@jetson:~$
```

Passenger のインストール

```
jetson@jetson:~$ rvmsudo passenger-install-apache2-module --auto --languages ruby
jetson@jetson:~$
```

ビルドしたモジュールのパスをデフォルト値と差し替えます

```
jetson@jetson:~$ sudo vi /etc/apache2/mods-enabled/passenger.load
   LoadModule passenger_module /usr/local/rvm/gems/ruby-2.6.5/gems/passenger-
6.0.4/buildout/apache2/mod_passenger.so
```

ドキュメントルート配下にシンボリックリンクを置く

```
jetson@jetson:~$ sudo ln -s /home/rmenu_user/Rmenu/public /var/www/html/rmenu_user
```

apache の設定

```
jetson@jetson:~$ sudo vi /etc/apache2/sites-enabled/rmenu.conf
   <IfModule mod_passenger.c>
     PassengerRoot /usr/local/rvm/gems/ruby-2.6.5/gems/passenger-6.0.4
     PassengerDefaultRuby /usr/local/rvm/gems/ruby-2.6.5/wrappers/ruby
   </IfModule>

PassengerMaxPoolSize 20
PassengerMaxInstancesPerApp 4
PassengerPoolIdleTime 3600
PassengerHighPerformance on
PassengerStatThrottleRate 10
RailsSpawnMethod smart
RailsAppSpawnerIdleTime 86400
PassengerMaxPreloaderIdleTime 0

RackBaseURI /rmenu_user
```

２．　設定の確認

設定の確認

```
jetson@jetson:~$ sudo apachectl configtest
AH00558: apache2: Could not reliably determine the server's fully qualified domain
name, using 127.0.1.1. Set the 'ServerName' directive globally to suppress this
message
Syntax OK
jetson@jetson:~$
```

３．　passenger を起動

apache の設定　再読み込みと再起動。

```
jetson@jetson:~$ sudo /etc/init.d/apache2 reload
[ ok ] Reloading apache2 configuration (via systemctl): apache2.service.
jetson@jetson:~$ sudo /etc/init.d/apache2 restart
[ ok ] Restarting apache2 (via systemctl): apache2.service.
jetson@jetson:~$
```

第９章　サーバ電源投入時・Rmenu 起動スクリプトの自動化

１．　起動スクリプト

/etc/rc.d/rc.local　を追加

```
su - rmenu_user -c "cd Rmenu/System ; ./restart_server.tcsh"
```

```
jetson@jetson:~$ sudo vi /etc/rc.local
#!/bin/bash

sleep 10

sudo /usr/bin/jetson_clocks

sudo sh -c 'echo 255 > /sys/devices/pwm-fan/target_pwm'

sudo su - rmenu_user -c "cd Rmenu/System ; ./restart_server.tcsh"
```

第１０章 PostgreSQL データベースのリストア

１．　Rmenu アプリケーションのデータベースをリストア

各サンプルアプリケーションのデータベースが次のフォルダに用意されています。
C:¥RmenuDemo¥Rmenu¥Application¥Setubi¥バックアップ

PgAdmin 等を利用しリストアしてください。

データベース名は　全て半角・小文字で定義してください
flowershop
setubi
rmenuvisualtools3

第１１章 Rmenu Application のインストールと起動

１．　rmenu_user フォルダの所有グループ・パーミションを変更

〔ユーザ root で行います〕
/home/rmenu_user フォルダの所有グループを変更します user：rmenu_user

```
jetson@jetson:~$ cd /home/rmenu_user
jetson@jetson:/home/rmenu_user$ ls -al
total 52
drwxr-xr-x 6 rmenu_user www-data   4096 Nov  4 20:49 .
drwxr-xr-x 5 root       root       4096 Nov  4 18:58 ..
-rw-r--r-- 1 rmenu_user www-data    220 Nov  4 18:57 .bash_logout
-rw-r--r-- 1 rmenu_user www-data   3771 Nov  4 18:57 .bashrc
drwx------ 2 rmenu_user rmenu_user 4096 Nov  4 20:48 .cache
drwxr-xr-x 2 rmenu_user www-data   4096 Nov  4 18:57 Desktop
-rw-r--r-- 1 rmenu_user www-data   8980 Nov  4 18:57 examples.desktop
drwx------ 3 rmenu_user rmenu_user 4096 Nov  4 20:48 .gnupg
-rw-r--r-- 1 rmenu_user www-data    807 Nov  4 18:57 .profile
drwxrwxr-x 4 rmenu_user rmenu_user 4096 Nov  4 20:49 Rmenu
-rw-r--r-- 1 rmenu_user www-data   1757 Nov  4 18:57 .xsessionrc
jetson@jetson:/home/rmenu_user$ sudo chown -R rmenu_user:www-data /home/rmenu_user
jetson@jetson:/home/rmenu_user$ ls -al
total 52
drwxr-xr-x 6 rmenu_user www-data 4096 Nov  4 20:49 .
drwxr-xr-x 5 root       root     4096 Nov  4 18:58 ..
-rw-r--r-- 1 rmenu_user www-data  220 Nov  4 18:57 .bash_logout
-rw-r--r-- 1 rmenu_user www-data 3771 Nov  4 18:57 .bashrc
drwx------ 2 rmenu_user www-data 4096 Nov  4 20:48 .cache
drwxr-xr-x 2 rmenu_user www-data 4096 Nov  4 18:57 Desktop
-rw-r--r-- 1 rmenu_user www-data 8980 Nov  4 18:57 examples.desktop
drwx------ 3 rmenu_user www-data 4096 Nov  4 20:48 .gnupg
-rw-r--r-- 1 rmenu_user www-data  807 Nov  4 18:57 .profile
drwxrwxr-x 4 rmenu_user www-data 4096 Nov  4 20:49 Rmenu
-rw-r--r-- 1 rmenu_user www-data 1757 Nov  4 18:57 .xsessionrc
jetson@jetson:/home/rmenu_user$
```

/home/rmenu_user フォルダのパーミションを変更します

```
jetson@jetson:/home/rmenu_user$ sudo chmod -R g+wx /home/rmenu_user
jetson@jetson:/home/rmenu_user$ ls -al
total 52
drwxrwxr-x 6 rmenu_user www-data 4096 Nov  4 20:49 .
drwxr-xr-x 5 root       root     4096 Nov  4 18:58 ..
-rw-rwxr-- 1 rmenu_user www-data  220 Nov  4 18:57 .bash_logout
-rw-rwxr-- 1 rmenu_user www-data 3771 Nov  4 18:57 .bashrc
drwx-wx--- 2 rmenu_user www-data 4096 Nov  4 20:48 .cache
drwxrwxr-x 2 rmenu_user www-data 4096 Nov  4 18:57 Desktop
-rw-rwxr-- 1 rmenu_user www-data 8980 Nov  4 18:57 examples.desktop
drwx-wx--- 3 rmenu_user www-data 4096 Nov  4 20:48 .gnupg
-rw-rwxr-- 1 rmenu_user www-data  807 Nov  4 18:57 .profile
drwxrwxr-x 4 rmenu_user www-data 4096 Nov  4 20:49 Rmenu
-rw-rwxr-- 1 rmenu_user www-data 1757 Nov  4 18:57 .xsessionrc
jetson@jetson:/home/rmenu_user$
```

〔ユーザ rmenu_user で行います〕
/home/rmenu_user/Rmenu/System 実行権限を付与します

```
jetson@jetson:/home/rmenu_user$ sudo su - rmenu_user
rmenu_user@jetson:~$ ls -al
total 52
drwxrwxr-x 6 rmenu_user www-data 4096 Nov  4 20:49 .
drwxr-xr-x 5 root       root     4096 Nov  4 18:58 ..
-rw-rwxr-- 1 rmenu_user www-data  220 Nov  4 18:57 .bash_logout
-rw-rwxr-- 1 rmenu_user www-data 3771 Nov  4 18:57 .bashrc
drwx-wx--- 2 rmenu_user www-data 4096 Nov  4 20:48 .cache
drwxrwxr-x 2 rmenu_user www-data 4096 Nov  4 18:57 Desktop
-rw-rwxr-- 1 rmenu_user www-data 8980 Nov  4 18:57 examples.desktop
drwx-wx--- 3 rmenu_user www-data 4096 Nov  4 20:48 .gnupg
-rw-rwxr-- 1 rmenu_user www-data  807 Nov  4 18:57 .profile
drwxrwxr-x 4 rmenu_user www-data 4096 Nov  4 20:49 Rmenu
-rw-rwxr-- 1 rmenu_user www-data 1757 Nov  4 18:57 .xsessionrc
rmenu_user@jetson:~$ find . ¥( -name '*.sh' -o -name '*.tcsh' ¥) -exec chmod +x {}
¥;
rmenu_user@jetson:~$ ls -al Rmenu/System/
total 132
drwxrwxr-x 4 rmenu_user www-data 4096 Nov  4 20:49 .
drwxrwxr-x 4 rmenu_user www-data 4096 Nov  4 20:49 ..
drwxrwxr-x 8 rmenu_user www-data 4096 Nov  4 20:49 Html
-rw-rwxr-- 1 rmenu_user www-data  159 Nov  4 20:49 MainJsonEditor.bat
-rw-rwxr-- 1 rmenu_user www-data  105 Nov  4 20:49 no0_PumaStart.bat
-rw-rwxr-- 1 rmenu_user www-data   89 Nov  4 20:49 no0_Rackup.bat
-rw-rwxr-- 1 rmenu_user www-data  101 Nov  4 20:49 no0_ThinStart.bat
-rw-rwxr-- 1 rmenu_user www-data  155 Nov  4 20:49 no1_MainController.bat
-rwxrwxr-x 1 rmenu_user www-data 1081 Nov  4 20:49 no1_MainController.sh
-rw-rwxr-- 1 rmenu_user www-data  142 Nov  4 20:49 no2_MainModel.bat
-rwxrwxr-x 1 rmenu_user www-data  996 Nov  4 20:49 no2_MainModel.sh
-rw-rwxr-- 1 rmenu_user www-data  135 Nov  4 20:49 no3_MainView.bat
-rwxrwxr-x 1 rmenu_user www-data  995 Nov  4 20:49 no3_MainView.sh
-rw-rwxr-- 1 rmenu_user www-data  148 Nov  4 20:49 no4_PrintServer.bat
-rwxrwxr-x 1 rmenu_user www-data 1175 Nov  4 20:49 no4_PrintServer.sh
-rw-rwxr-- 1 rmenu_user www-data  147 Nov  4 20:49 nobat11_TupleSpace.bat
-rwxrwxr-x 1 rmenu_user www-data 1000 Nov  4 20:49 nobat11_TupleSpace.sh
-rw-rwxr-- 1 rmenu_user www-data  144 Nov  4 20:49 nobat12_TupleServer.bat
-rwxrwxr-x 1 rmenu_user www-data  888 Nov  4 20:49 nobat12_TupleServer.sh
-rw-rwxr-- 1 rmenu_user www-data  168 Nov  4 20:49 nobat13_TupleParallelServer.bat
-rwxrwxr-x 1 rmenu_user www-data  992 Nov  4 20:49 nobat13_TupleParallelServer.sh
-rw-rwxr-- 1 rmenu_user www-data  180 Nov  4 20:49 nobat14_TupleParallelClient.bat
-rwxrwxr-x 1 rmenu_user www-data  992 Nov  4 20:49 nobat14_TupleParallelClient.sh
-rw-rwxr-- 1 rmenu_user www-data  100 Nov  4 20:49 queue_pop_startup.bat
-rw-rwxr-- 1 rmenu_user www-data  102 Nov  4 20:49 queue_server_startup.bat
-rwxrwxr-x 1 rmenu_user www-data 1868 Nov  4 20:49 restart_server.tcsh
-rw-rwxr-- 1 rmenu_user www-data  128 Nov  4 20:49 rmenu_kill.bat
-rw-rwxr-- 1 rmenu_user www-data  126 Nov  4 20:49 rmenu-log-clear.bat
-rw-rwxr-- 1 rmenu_user www-data  370 Nov  4 20:49 rmenu_startupPuma.bat
-rw-rwxr-- 1 rmenu_user www-data  262 Nov  4 20:49 rmenu_startupThin.bat
-rw-rwxr-- 1 rmenu_user www-data  259 Nov  4 20:49 rmenu_startupWebrick.bat
drwxrwxr-x 4 rmenu_user www-data 4096 Nov  4 20:49 Server
-rw-rwxr-- 1 rmenu_user www-data  103 Nov  4 20:49 websoket_startup.bat
rmenu_user@jetson:~$
```

restart_server.tcsh　を起動する

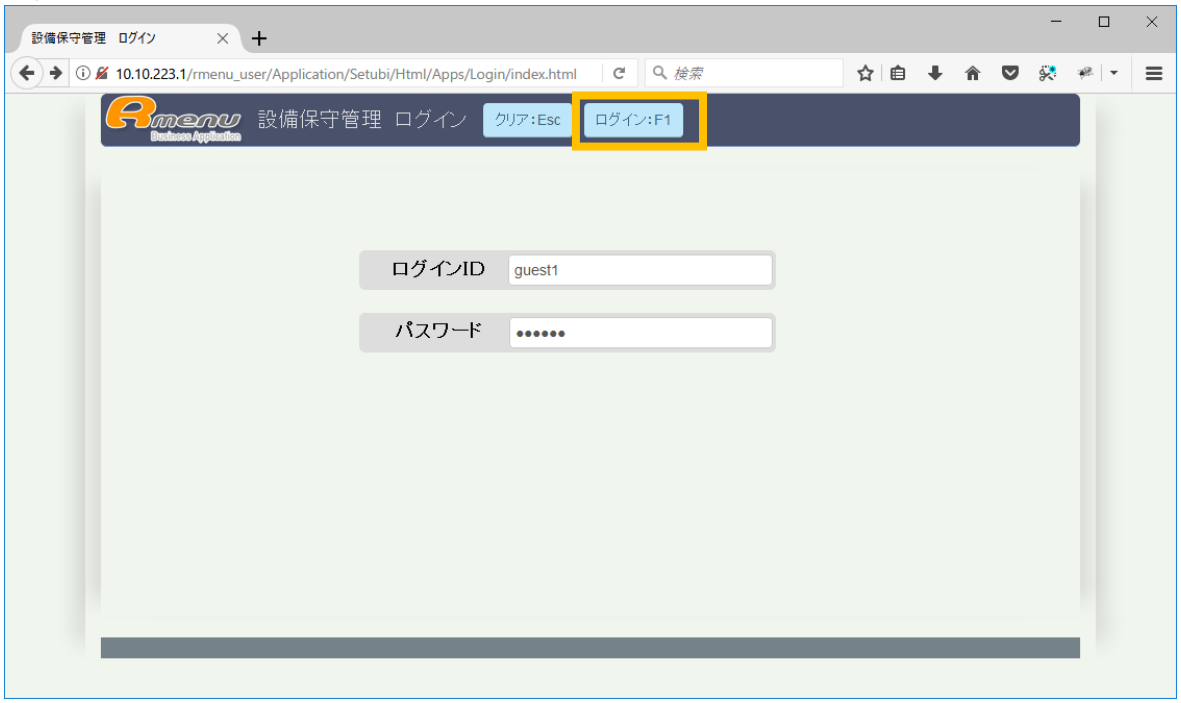
```
rmenu_user@jetson:~$ cd Rmenu/System
rmenu_user@jetson:~/Rmenu/System$ ./restart_server.tcsh
[1] 28342
カレントディレクトリ変更
/home/rmenu_user/Rmenu/System/Server/Libraries/Main
タプルスペースを起動する
URI:druby://localhost:12349
TapleSpace ready
[2] 28350
カレントディレクトリ変更
/home/rmenu_user/Rmenu/System/Server/Libraries/Main
タプルサーバを起動する
TapleServer ready
[3] 28359
カレントディレクトリ変更
/home/rmenu_user/Rmenu/System/Server/Libraries/Main
タプルクライアントを起動する
druby://localhost:12348
TupleParallelServer ready
[4] 28368
カレントディレクトリ変更
/home/rmenu_user/Rmenu/System/Server/Libraries/Main
タプルクライアントを起動する
TupleParallelClient ready
[5] 28377
カレントディレクトリ変更
/home/rmenu_user/Rmenu/System/Server/Libraries/Main
プリントサーバを起動する
[6] 28386
rmenu_user@jetson:~/Rmenu/System$ カレントディレクトリ変更
/home/rmenu_user/Rmenu/System/Server/Libraries/Main
メインコントローラを起動する
druby://localhost:12347
PrintServer ready
druby://localhost:12345
MainController ready

rmenu_user@jetson:~/Rmenu/System$
```

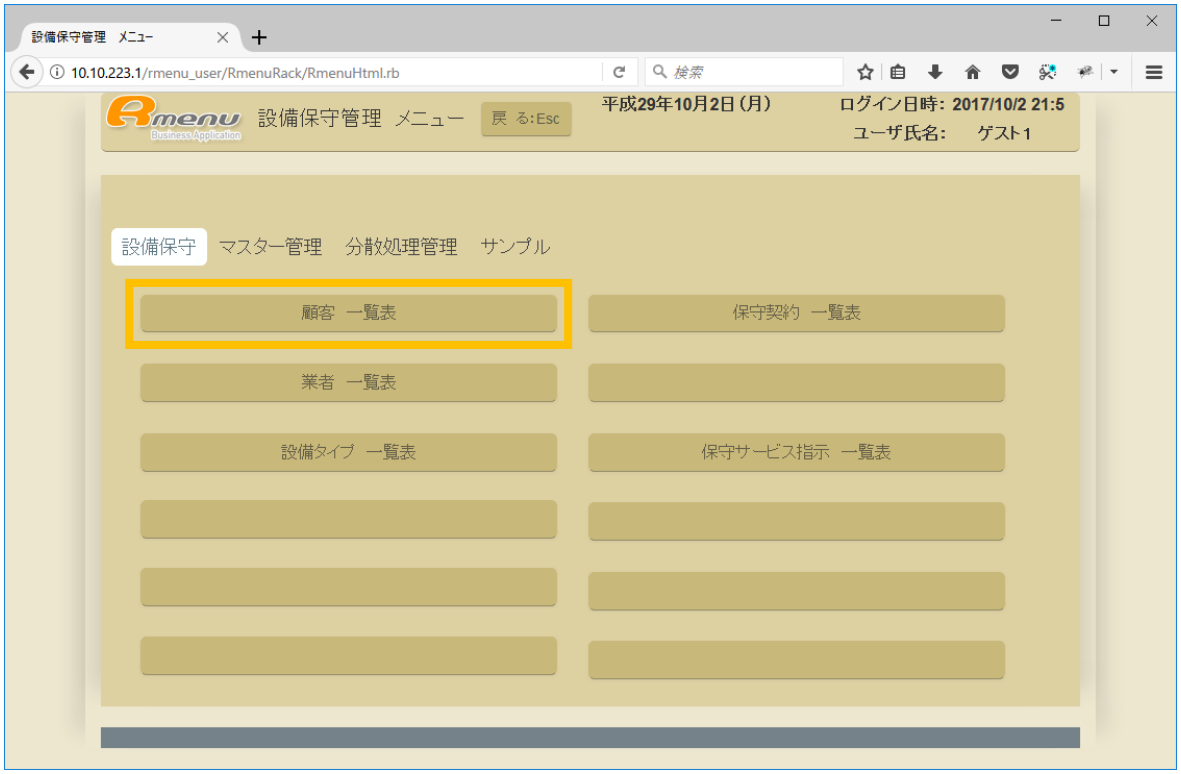
第１２章 Setubi Application 起動

Firefox で次の URL を開く
http://192.168.34.1/rmenu_user/Application/Setubi/Html/Apps/Login/index.html

id:guest1、pw:guest1
id:guest2、pw:guest2
ログイン

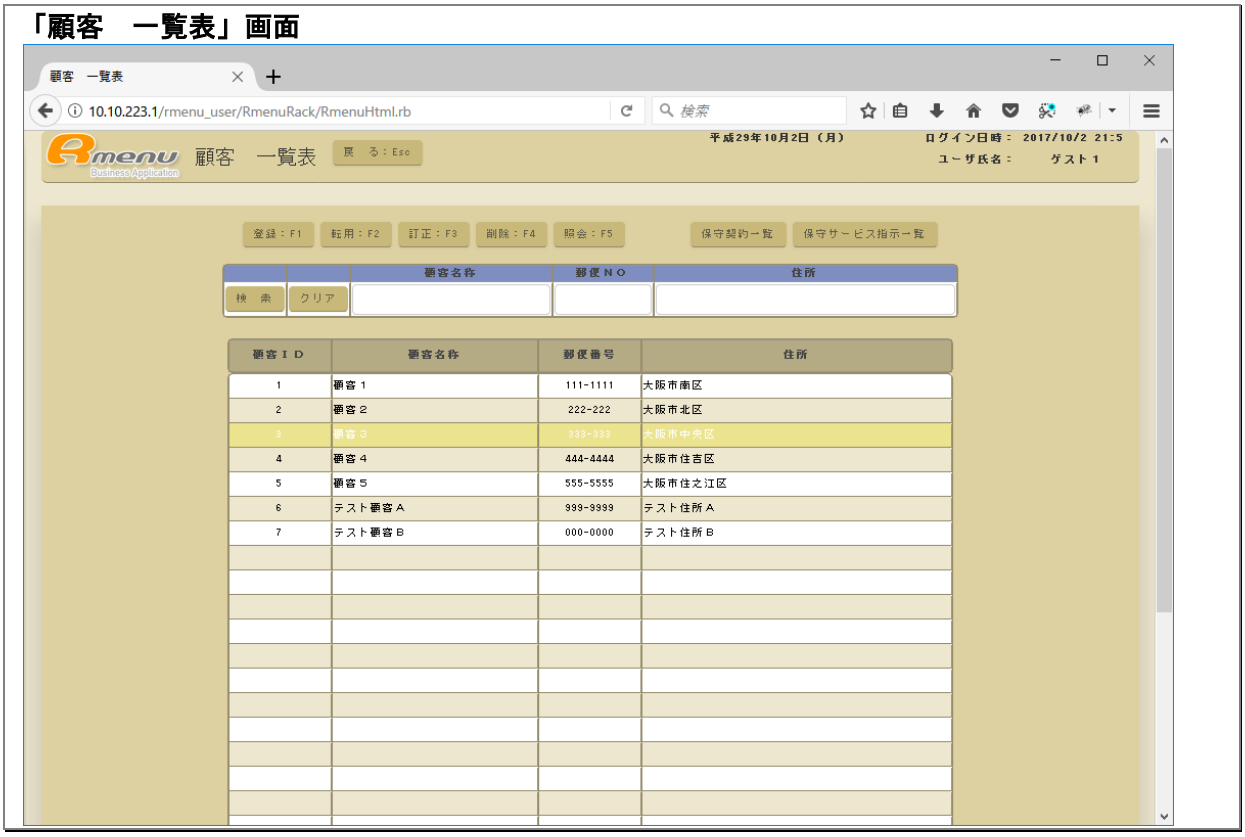


メニュー表示



「顧客　一覧表」　クリック

「顧客　一覧表」画面


顧客　一覧表
10.10.223.1/rmenu_user/RmenuRack/RmenuHtml.rb
顧客　一覧表
戻　る：Esc
平成29年10月2日（月）
ログイン日時：　2017/10/2 21:5
ユーザ氏名：　ゲスト１
登録：F1
転用：F2
訂正：F3
削除：F4
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保守契約一覧
保守サービス指示一覧
顧客名称
郵便ＮＯ
住所
検　索
クリア
顧客ＩＤ
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郵便番号
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1 顧客１ 111-1111 大阪市南区
2 顧客２ 222-222 大阪市北区
3 顧客３ 333-333 大阪市中央区
4 顧客４ 444-4444 大阪市住吉区
5 顧客５ 555-5555 大阪市住之江区
6 テスト顧客Ａ 999-9999 テスト住所Ａ
7 テスト顧客Ｂ 000-0000 テスト住所Ｂ