□ Rocky Linux 8 □□ Apache + MariaDB + PHP

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- □□□□□□
- □□ Apache □□□
- □□ PHP 8.1 □
- □□ MariaDB 10.11 □
- □□ phpMyAdmin 5.2 □□

安裝基本系統

Rocky Linux 8 系統安裝的部份，可以參考 Rocky Linux 8 基本安裝 文件，本文安裝的元件及版本列表如下：

MariaDB 10.x 系列



和 CentOS 7 系列的不同， Rocky Linux 8 預設就可以直接安裝 MariaDB 10
系列的版本，不需要再額外建立第三方 yum repo 設定檔， MariaDB 10 系列版本的效能改善明顯，並且支援
Galera Cluster 的叢集架構，非常高效。

Apache 2.4 系列



Rocky Linux 8 依舊採用 httpd 2.4 系列的版本，不過由於 CentOS 7 最新的版本僅到 2.4.6，而 Rocky Linux 已經支援到 2.4.37，這中間仍有不小差異， 2.4.6 更多著重在安全性及穩定性的更新，而 2.4.37 會提供更多功能及效能上的改進優勢。

PHP 8.x系列



比較讓我意外的是， Rocky Linux 8 預設採用的 PHP 版本仍是 7.2 系列，在此我們會以 PHP 8
來進行佈署示範，以 PHP 官方 提供的資訊來說， 7.2 版本已經在 2021 年 1 月停止維護， 7.4 版本即將在 2022 年 11 月停止維謢護，故目前建議可以考慮評估 8.0 或是之後的 8.1 版本。

phpMyAdmin 5.2 系列



目前在 Rocky Linux 8 上，暫時只能以 tarball 型態安裝 phpmyadmin (基本上我希望儘量都用 RPM 模式安裝，以減少更新的複雜度)，日後若有出 RPM 封裝的 Repo 的話，會再另行更新安裝方式。

□□ Apache □□□

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```
$ sudo yum install httpd mod_ssl
```

□□□□ SSL □□□□□□□□□□□□□

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□□□□□□□□□□□□□□0:30:31 □□□□□□□□□□2022□05□31□ (□□) 15□17□06□□
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□□:
 httpd                                          x86_64                            2.4.37-
47.module+el8.6.0+823+f143cee1.1
appstream                                1.4 M
 mod_ssl                                        x86_64
1:2.4.37-47.module+el8.6.0+823+f143cee1.1
appstream                                136 k
□□□□□□□□□:
 apr                                            x86_64                            1.6.3-
12.el8
appstream                                128 k
 apr-util                                       x86_64                            1.6.1-
6.el8.1
appstream                                104 k
 httpd-filesystem                               noarch                            2.4.37-
47.module+el8.6.0+823+f143cee1.1
appstream                                 40 k
```

```
 httpd-tools                                  x86_64                                2.4.37-
47.module+el8.6.0+823+f143cee1.1
appstream                                107 k
 mod_http2                                    x86_64                                1.15.7-
5.module+el8.6.0+823+f143cee1
appstream                                153 k
 rocky-logos-httpd                            noarch                                85.0-
4.el8
baseos                                    22 k
 sscg                                         x86_64                                2.3.3-
14.el8
appstream                                 48 k
□□□□□□□□□□:
 apr-util-bdb                                 x86_64                                1.6.1-
6.el8.1
appstream                                 23 k
 apr-util-openssl                             x86_64                                1.6.1-
6.el8.1
appstream                                 26 k
□□□□□□□□□□:
 httpd                                                                              2.4

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□□  11 □□□

□□□□□□□2.2 M
□□□□□□□5.7 M
□□□□□□ [y/N]□y
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```
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(1/11): apr-util-bdb-1.6.1-
6.el8.1.x86_64.rpm
                                                67 kB/s |  23 kB     00:00
(2/11): apr-util-openssl-1.6.1-
6.el8.1.x86_64.rpm
```

```
                                                207 kB/s |  26 kB     00:00
(3/11): apr-util-1.6.1-
6.el8.1.x86_64.rpm
                                                        186 kB/s | 104 kB     00:00
(4/11): apr-1.6.3-
12.el8.x86_64.rpm
                                                             215 kB/s | 128 kB     00:00
(5/11): httpd-filesystem-2.4.37-
47.module+el8.6.0+823+f143cee1.1.noarch.rpm
                                               308 kB/s |  40 kB     00:00
(6/11): mod_http2-1.15.7-
5.module+el8.6.0+823+f143cee1.x86_64.rpm
                                                       709 kB/s | 153 kB     00:00
(7/11): mod_ssl-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64.rpm
                                                         650 kB/s | 136 kB     00:00
(8/11): sscg-2.3.3-
14.el8.x86_64.rpm
                                                             443 kB/s |  48 kB     00:00
(9/11): rocky-logos-httpd-85.0-
4.el8.noarch.rpm
                                                100 kB/s |  22 kB     00:00
(10/11): httpd-tools-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64.rpm
                                                   104 kB/s | 107 kB     00:01
(11/11): httpd-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64.rpm
                                                         819 kB/s | 1.4 MB     00:01
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                                                                          696 kB/s | 2.2
MB     00:03
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12.el8.x86_64
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12.el8.x86_64
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  □□□□□   : apr-util-bdb-1.6.1-
6.el8.1.x86_64
                                                            2/11
  □□□□□   : apr-util-openssl-1.6.1-
6.el8.1.x86_64
                                                          3/11
  □□□□□   : apr-util-1.6.1-
6.el8.1.x86_64
                                                              4/11
  □□□□□□□ : apr-util-1.6.1-
6.el8.1.x86_64
                                                              4/11
  □□□□□□□ : httpd-filesystem-2.4.37-
47.module+el8.6.0+823+f143cee1.1.noarch
                                                          5/11
  □□□□□   : httpd-filesystem-2.4.37-
47.module+el8.6.0+823+f143cee1.1.noarch
                                                          5/11
  □□□□□   : httpd-tools-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64
                                                            6/11
  □□□□□   : rocky-logos-httpd-85.0-
4.el8.noarch
                                                          7/11
  □□□□□   : mod_http2-1.15.7-
5.module+el8.6.0+823+f143cee1.x86_64
                                                             8/11
  □□□□□   : httpd-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64
                                                               9/11

  □□□□□□ : httpd-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64
                                                                9/11
  □□□□□   : sscg-2.3.3-
14.el8.x86_64
                                                                10/11
  □□□□□   : mod_ssl-1:2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64
                                                            11/11
  □□□□□□ : httpd-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64
                                                                11/11
  □□□□□□ : mod_ssl-1:2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64
                                                            11/11
  □□   : apr-1.6.3-
12.el8.x86_64
                                                                1/11
  □□   : apr-util-1.6.1-
6.el8.1.x86_64
                                                              2/11
  □□   : apr-util-bdb-1.6.1-
6.el8.1.x86_64
                                                           3/11
  □□   : apr-util-openssl-1.6.1-
6.el8.1.x86_64
                                                         4/11
  □□   : httpd-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64
                                                                5/11
  □□   : httpd-filesystem-2.4.37-
47.module+el8.6.0+823+f143cee1.1.noarch
                                                         6/11
  □□   : httpd-tools-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64
                                                           7/11
  □□   : mod_http2-1.15.7-
5.module+el8.6.0+823+f143cee1.x86_64
                                                                8/11
  □□   : mod_ssl-1:2.4.37-

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47.module+el8.6.0+823+f143cee1.1.x86_64
                                                                                9/11
  □□        : sscg-2.3.3-
14.el8.x86_64
                                                                                     10/11
  □□        : rocky-logos-httpd-85.0-
4.el8.noarch
                                                                          11/11

□□□:
  apr-1.6.3-12.el8.x86_64                                                  apr-util-1.6.1-
6.el8.1.x86_64                                  apr-util-bdb-1.6.1-6.el8.1.x86_64
  apr-util-openssl-1.6.1-6.el8.1.x86_64                                    httpd-2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64           httpd-filesystem-2.4.37-
47.module+el8.6.0+823+f143cee1.1.noarch
  httpd-tools-2.4.37-47.module+el8.6.0+823+f143cee1.1.x86_64          mod_http2-1.15.7-
5.module+el8.6.0+823+f143cee1.x86_64          mod_ssl-1:2.4.37-
47.module+el8.6.0+823+f143cee1.1.x86_64
  rocky-logos-httpd-85.0-4.el8.noarch                                      sscg-2.3.3-14.el8.x86_64

□□□
```

2 □□□□ apache □□□

□□□□□□ apache □□□□□□□□□

```
$ sudo systemctl restart httpd
$ sudo systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service →
/usr/lib/systemd/system/httpd.service.
```

3 □□ apache □□□□□□

□□ netstat □□□□□□□□□□□ (□□□ 80□ 443 port □□□)□

```
$ sudo netstat -tlnp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program
name
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN      644/sshd
tcp6       0      0 :::80                   :::*                    LISTEN      2992/httpd
```

```
tcp6       0      0 :::22                   :::*                    LISTEN      644/sshd
tcp6       0      0 :::443                  :::*                    LISTEN      2992/httpd
```

□□ systemctl □□□□□□□□□□□□□□□□

```
$ systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2022-05-31 15:50:51 CST; 2min 11s ago
     Docs: man:httpd.service(8)
 Main PID: 2992 (httpd)
   Status: "Running, listening on: port 443, port 80"
    Tasks: 213 (limit: 11374)
   Memory: 26.5M
   CGroup: /system.slice/httpd.service
           ├─2992 /usr/sbin/httpd -DFOREGROUND
           ├─2993 /usr/sbin/httpd -DFOREGROUND
           ├─2994 /usr/sbin/httpd -DFOREGROUND
           ├─2995 /usr/sbin/httpd -DFOREGROUND
           └─2996 /usr/sbin/httpd -DFOREGROUND

 5□ 31 15:50:51 rockylinux.ossii.com.tw systemd[1]: Starting The Apache HTTP Server...
 5□ 31 15:50:51 rockylinux.ossii.com.tw systemd[1]: Started The Apache HTTP Server.
 5□ 31 15:50:51 rockylinux.ossii.com.tw httpd[2992]: Server configured, listening on: port
443, port 80
```

□□□□□□□ apache server □□□□□□□□

□□ PHP 8.1 □

1 □□ EPEL 8 □ remi □□ repo □□

□□ PHP 8.1 □□□□□□□□□□□□□□□□□□□□□□□□ EPEL 8 □ remi □□□□□□□□□□□□□□ PHP □□□ epel-release □□□□□□□□□□

```
$ sudo yum install epel-release
□□□□□□□□□□□□□□2:23:29 □□□□□□□□□□2022□05□31□ (□□) 13□39□24□□
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 epel-release
noarch                                          8-
13.el8
extras                                           23 k

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□□□□□□□23 k
□□□□□□□35 k
□□□□□□ [y/N]□ y
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□□□ y□□□□□□□□

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epel-release-8-
13.el8.noarch.rpm
                                                                  81 kB/s |  23 kB     00:00
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                                                                  29 kB/s |  23
kB     00:00
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  □□□□    : epel-release-8-
13.el8.noarch
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  □□□□□   : epel-release-8-
13.el8.noarch
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  □□        : epel-release-8-
13.el8.noarch
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  epel-release-8-13.el8.noarch

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□□□□□□□ remi □□□□□

```
$ sudo yum install http://rpms.remirepo.net/enterprise/remi-release-8.rpm
□□□□□□□□□□□□□0:50:52 □□□□□□□□□2022□05□31□ (□□) 15□14□36□□
remi-release-
```

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8.rpm
                                                                  45 kB/s |  29 kB     00:00
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 remi-release
noarch                                          8.6-
1.el8.remi
@commandline                                          29 k

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□□□□□□□□24 k
□□□□□□□ [y/N]□ y
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remi-release-
8.rpm
                                                                  45 kB/s |  29 kB     00:00
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 remi-release

noarch   8.6-

1.el8.remi

@commandline   29 k

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1.el8.remi.noarch

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1.el8.remi.noarch

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  remi-release-8.6-1.el8.remi.noarch

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2 □□□□□□□ PHP □□

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```
$ sudo yum remove php php-fpm php* -y
```

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□□:
 php                                     x86_64                            7.2.24-
1.module+el8.4.0+413+c9202dda
@appstream                          4.8 M
 php-cli                                 x86_64                            7.2.24-
1.module+el8.4.0+413+c9202dda
@appstream                          9.6 M
 php-common                              x86_64                            7.2.24-
1.module+el8.4.0+413+c9202dda
@appstream                          6.1 M
 php-fpm                                 x86_64                            7.2.24-
1.module+el8.4.0+413+c9202dda
@appstream                          4.9 M
□□□□□□□□□□□□□□□□□□□:
 nginx-filesystem                        noarch
1:1.14.1-9.module+el8.4.0+542+81547229
@appstream                            0

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  □□□□□□ : php-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64
                                                                    1/1
  □□   : php-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64
                                                                    1/5
  □□□□□□ : php-fpm-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64
                                                                2/5
  □□   : php-fpm-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64
                                                                2/5
  □□□□□□ : php-fpm-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64
                                                                2/5
  □□   : php-cli-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64
                                                                3/5
  □□   : nginx-filesystem-1:1.14.1-
9.module+el8.4.0+542+81547229.noarch
                                                            4/5
  □□□□□□ : nginx-filesystem-1:1.14.1-
9.module+el8.4.0+542+81547229.noarch
                                                            4/5
  □□   : php-common-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64
                                                                5/5
  □□□□□□ : php-common-7.2.24-

```
1.module+el8.4.0+413+c9202dda.x86_64                                                                5/5
  □□        : nginx-filesystem-1:1.14.1-
9.module+el8.4.0+542+81547229.noarch                                                                1/5
  □□        : php-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64                                                                2/5
  □□        : php-cli-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64                                                                3/5
  □□        : php-common-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64                                                                4/5
  □□        : php-fpm-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64                                                                5/5

□□□:
  nginx-filesystem-1:1.14.1-9.module+el8.4.0+542+81547229.noarch              php-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64                  php-cli-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64
  php-common-7.2.24-1.module+el8.4.0+413+c9202dda.x86_64                      php-fpm-7.2.24-
1.module+el8.4.0+413+c9202dda.x86_64

□□□
```

3 □□ PHP □□□□□□

□□□□□ yum repo □□□□□□□□

```
$ sudo yum update
□□□□□□□□□□□□□0:50:54 □□□□□□□□□2022□05□31□ (□□) 15□17□06□□
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```

```
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□□:
 epel-release
noarch                                          8-
15.el8
epel                                           23 k

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□□  1 □□□

□□□□□□□23 k
□□□□□□ [y/N]□ y
```

□□□□ y□□□□□□□□

```
□□□□□□□
epel-release-8-
15.el8.noarch.rpm
                                                                197 kB/s |  23 kB     00:00
------------------------------------------------------------------------------------------------
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□□

                                                                          24 kB/s |  23
kB     00:00
Extra Packages for Enterprise Linux 8 -
x86_64
                                        1.6 MB/s | 1.6 kB     00:00
□□ GPG □□ 0x2F86D6A1□
□□□□□□□□"Fedora EPEL (8) <epel@fedoraproject.org>"
□□                □94E2 79EB 8D8F 25B2 1810 ADF1 21EA 45AB 2F86 D6A1
□□                □/etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-8
□□□□□□ [y/N]□ y
```

如果是第一次從這個 repo 下載新的更新套件，系統會詢問你要不要信任這個來源，請按下「 y」鍵繼續。

```
密鑰匯入成功

執行處理事項檢查

處理事項檢查成功。

執行處理事項測試

處理事項測試成功。

執行處理事項

  準備

:


1/1

  執行小令稿   : epel-release-8-
15.el8.noarch
                                                                1/1

  正在升級     : epel-release-8-
15.el8.noarch
                                                                1/2

  清理         : epel-release-8-
13.el8.noarch
                                                                2/2

  執行小令稿   : epel-release-8-
13.el8.noarch
                                                                2/2

  核驗         : epel-release-8-
15.el8.noarch
                                                                1/2

  核驗         : epel-release-8-
13.el8.noarch
                                                                2/2


已升級:

  epel-release-8-15.el8.noarch


完成!
```

接下來請查詢 PHP 的 repo 來源版本清單，指令如下:

```
$ sudo yum module list php
```

結果如下，會發現有官方的和 Remi 的來源。

```
□□□□□□□□□□□□□1:02:16 □□□□□□□□□2022□05□31□ (□□) 15□17□06□□
Rocky Linux 8 - AppStream
Name                                    Stream
Profiles                                                Summary
php                                     7.2 [d][e]                                      common
[d], devel, minimal                                     PHP scripting language
php                                     7.3                                             common
[d], devel, minimal                                     PHP scripting language
php                                     7.4                                             common
[d], devel, minimal                                     PHP scripting language
php                                     8.0                                             common
[d], devel, minimal                                     PHP scripting language

Remi's Modular repository for Enterprise Linux 8 - x86_64
Name                                    Stream
Profiles                                                Summary
php                                     remi-7.2                                        common
[d], devel, minimal                                     PHP scripting language
php                                     remi-7.3                                        common
[d], devel, minimal                                     PHP scripting language
php                                     remi-7.4                                        common
[d], devel, minimal                                     PHP scripting language
php                                     remi-8.0                                        common
[d], devel, minimal                                     PHP scripting language
php                                     remi-8.1                                        common
[d], devel, minimal                                     PHP scripting language

□□□□□[d]□□□□[e]□□□□[x]□□□□[i]
```

□□□ PHP □□□□□□□□□□□□

```
$ sudo yum module reset php -y
□□□□□□□□□□□□□1:10:55 □□□□□□□□□2022□05□31□ (□□) 15□17□06□□
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 php

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```

□□□□□□□□□□ PHP □□□ 8.1 □□□□□□□□□□□□□

```
$ sudo yum module enable php:remi-8.1 -y
□□□□□□□□□□□□□□1:11:28 □□□□□□□□□□2022□05□31□ (□□) 15□17□06□□
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php
      remi-8.1

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□□□
```

□□□□ PHP □ repo □□□□□□□

```
$ sudo yum module list php
□□□□□□□□□□□□□1:12:52 □□□□□□□□□2022□05□31□ (□□) 15□17□06□□
Rocky Linux 8 - AppStream
Name                                    Stream
Profiles                                                    Summary
php                                     7.2 [d]                                         common
[d], devel, minimal                                     PHP scripting language
php                                     7.3                                             common
[d], devel, minimal                                     PHP scripting language
php                                     7.4                                             common
[d], devel, minimal                                     PHP scripting language
php                                     8.0                                             common
[d], devel, minimal                                     PHP scripting language

Remi's Modular repository for Enterprise Linux 8 - x86_64
Name                                    Stream
Profiles                                                    Summary
php                                     remi-7.2                                        common
[d], devel, minimal                                     PHP scripting language
php                                     remi-7.3                                        common
[d], devel, minimal                                     PHP scripting language
php                                     remi-7.4                                        common
[d], devel, minimal                                     PHP scripting language
php                                     remi-8.0                                        common
[d], devel, minimal                                     PHP scripting language
php                                     remi-8.1 [e]                                    common
[d], devel, minimal                                     PHP scripting language

□□□□□[d]□□□□[e]□□□□[x]□□□□[i]
```

8.1 □□□□□□□□ e□□

4 □□ PHP □□

□□□□

```
$ sudo yum install php-cli php-fpm php-curl php-mysqlnd php-gd php-opcache php-zip php-intl
php-common php-bcmath php-imap php-imagick php-xmlrpc php-json php-readline php-memcached php-
redis php-mbstring php-apcu php-xml php-dom php-redis php-memcached php-memcache php-process
php-sodium php-bcmath php-gmp -y
```

5 □□□□ apahce □□□

□□□□□□□□ apache server □□□□□□□□

```
$ sudo systemctl restart httpd
```

安裝 MariaDB 10.11 版

1 MariaDB 10.11 套件說明

根據 MariaDB 官方資訊所示，目前 10.11 為 LTS(Long Term Support) 版本，並支援到 2028 年 2 月，所以建議佈署該版本，而在 Rocky Linux 8 預設使用的是 10 .3 版本，安裝 MariaDB 10.11 相當容易，安裝指令如下所示。

10.11 (LTS)	1 year and 8 months ago (16 Feb 2023)	Ends in 3 years and 4 months (16 Feb 2028)	10.11.9 (08 Aug 2024)

2 切換 MariaDB 的來源套件庫

先查詢目前 MariaDB 的 repo 來源版本清單，指令如下:

```
$ sudo yum module list mariadb
```

結果如下，會發現有官方的來源。

```
上次中介資料過期檢查: 0:07:54 前，時間點為西元2024年10月17日 (週四) 14時59分33秒。
Rocky Linux 8 - AppStream
Name                    Stream                  Profiles
Summary
mariadb                 10.3 [d]                client, galera, server [d]
MariaDB Module
mariadb                 10.5                    client, galera, server [d]
MariaDB Module
mariadb                 10.11                   client, galera, server [d]
MariaDB Module

提示: 預設[d]、已啟用[e]、已停用[x]、已安裝[i]
```

先重設 MariaDB 的模組來源，指令如下:

```
$ sudo yum module reset mariadb -y
上次中介資料過期檢查: 0:22:23 前，時間點為西元2024年10月17日 (週四) 14時59分33秒。
依賴關係解析完畢。
無事可做。
```

```
完成!
```

接下來直接重新將 MariaDB 關聯到 10.11 的模組來源，指令如下:

```
$ sudo yum module enable mariadb:10.11 -y
上次中介資料過期檢查: 0:24:31 前，時間點為西元2024年10月17日 (週四) 14時59分33秒。
依賴關係解析完畢。
================================================================================
 軟體包                  架構                  版本                  軟體庫
                                大小
================================================================================
正在啟用模組串流:
 mariadb                                      10.11

處理事項摘要
================================================================================

完成!
```

再次查詢 MariaDB 的 repo 來源版本清單。

```
$ sudo yum module list mariadb
上次中介資料過期檢查: 0:25:55 前，時間點為西元2024年10月17日 (週四) 14時59分33秒。
Rocky Linux 8 - AppStream
Name                    Stream                  Profiles
Summary
mariadb                 10.3 [d]                client, galera, server [d]
MariaDB Module
mariadb                 10.5                    client, galera, server [d]
MariaDB Module
mariadb                 10.11 [e]               client, galera, server [d]
MariaDB Module

提示: 預設[d]、已啟用[e]、已停用[x]、已安裝[i]
```

10.11 的部份已經變成「 e」囉~

3 安裝 MariaDB 10.11 套件

□□□□□□□□□□

```
sudo yum install mariadb mariadb-server php-mysql -y
□□□□□□□□□□□□□0:30:01 □□□□□□□□□2024□10□17□ (□□) 14□59□33□□
□□□□□□□□□□
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 □□□                            □□         □□                                    □□□
           □□
================================================================================
========================
□□:
 mariadb                           x86_64       3:10.11.6-
1.module+el8.10.0+1674+fa55eae9        appstream       7.3 M
 mariadb-server                    x86_64       3:10.11.6-
1.module+el8.10.0+1674+fa55eae9        appstream        20 M
□□□□□□□□:
 mariadb-common                    x86_64       3:10.11.6-
1.module+el8.10.0+1674+fa55eae9        appstream        68 k
 mariadb-connector-c               x86_64       3.1.11-
2.el8_3                                  appstream       199 k
 mariadb-connector-c-config        noarch       3.1.11-
2.el8_3                                  appstream        14 k
 mariadb-errmsg                    x86_64       3:10.11.6-
1.module+el8.10.0+1674+fa55eae9        appstream       339 k
 mysql-selinux                     noarch       1.0.10-
1.el8                                    appstream        37 k
 perl-Carp                         noarch       1.42-
396.el8                                   baseos           29 k
 perl-DBD-MySQL                    x86_64       4.046-
3.module+el8.9.0+1501+450eec3b            appstream       155 k
 perl-DBI                          x86_64       1.641-
4.module+el8.9.0+1495+f278a004            appstream       739 k
 perl-Data-Dumper                  x86_64       2.167-
399.el8                                   baseos           57 k
 perl-Digest                       noarch       1.17-
395.el8                                    appstream        26 k
 perl-Digest-MD5                   x86_64       2.55-
396.el8                                    appstream        36 k
 perl-Encode                       x86_64       4:2.97-
```

```
3.el8                                    baseos          1.5 M
 perl-Errno                        x86_64       1.28-
422.el8                                   baseos           75 k
 perl-Exporter                     noarch       5.72-
396.el8                                   baseos           33 k
 perl-File-Path                    noarch       2.15-
2.el8                                     baseos           37 k
 perl-File-Temp                    noarch       0.230.600-
1.el8                                  baseos           62 k
 perl-Getopt-Long                  noarch       1:2.50-
4.el8                                    baseos           62 k
 perl-HTTP-Tiny                    noarch       0.074-
3.el8                                     baseos           58 k
 perl-IO                           x86_64       1.38-
422.el8                                   baseos          141 k
 perl-IO-Socket-IP                 noarch       0.39-
5.el8                                     appstream        46 k
 perl-IO-Socket-SSL                noarch       2.066-
4.module+el8.9.0+1517+e71a7a62            appstream       297 k
 perl-MIME-Base64                  x86_64       3.15-
396.el8                                   baseos           30 k
 perl-Math-BigInt                  noarch       1:1.9998.11-
7.el8                                  baseos          194 k
 perl-Math-Complex                 noarch       1.59-
422.el8                                   baseos          108 k
 perl-Mozilla-CA                   noarch       20160104-
7.module+el8.9.0+1521+0101edce         appstream        14 k
 perl-Net-SSLeay                   x86_64       1.88-
2.module+el8.9.0+1517+e71a7a62            appstream       378 k
 perl-PathTools                    x86_64       3.74-
1.el8                                     baseos           89 k
 perl-Pod-Escapes                  noarch       1:1.07-
395.el8                                   baseos           19 k
 perl-Pod-Perldoc                  noarch       3.28-
396.el8                                   baseos           85 k
 perl-Pod-Simple                   noarch       1:3.35-
395.el8                                   baseos          212 k
 perl-Pod-Usage                    noarch       4:1.69-
395.el8                                   baseos           33 k
 perl-Scalar-List-Utils            x86_64       3:1.49-
```

```
2.el8                                    baseos           67 k
 perl-Socket                      x86_64       4:2.027-
3.el8                                   baseos           58 k
 perl-Storable                    x86_64       1:3.11-
3.el8                                    baseos           97 k
 perl-Term-ANSIColor              noarch       4.06-
396.el8                                  baseos           45 k
 perl-Term-Cap                    noarch       1.17-
395.el8                                  baseos           22 k
 perl-Text-ParseWords             noarch       3.30-
395.el8                                  baseos           17 k
 perl-Text-Tabs+Wrap              noarch       2013.0523-
395.el8                                 baseos           23 k
 perl-Time-Local                  noarch       1:1.280-
1.el8                                   baseos           32 k
 perl-URI                         noarch       1.73-
3.el8                                    appstream       115 k
 perl-Unicode-Normalize           x86_64       1.25-
396.el8                                  baseos           81 k
 perl-constant                    noarch       1.33-
396.el8                                  baseos           24 k
 perl-interpreter                 x86_64       4:5.26.3-
422.el8                                 baseos          6.3 M
 perl-libnet                      noarch       3.11-
3.el8                                    appstream       120 k
 perl-libs                        x86_64       4:5.26.3-
422.el8                                 baseos          1.6 M
 perl-macros                      x86_64       4:5.26.3-
422.el8                                 baseos           71 k
 perl-parent                      noarch       1:0.237-
1.el8                                   baseos           19 k
 perl-podlators                   noarch       4.11-
1.el8                                    baseos          117 k
 perl-threads                     x86_64       1:2.21-
2.el8                                    baseos           60 k
 perl-threads-shared              x86_64       1.58-
2.el8                                    baseos           47 k
□□□□□□□□:
 mariadb-backup                   x86_64       3:10.11.6-
1.module+el8.10.0+1674+fa55eae9        appstream       7.3 M
```

```
 mariadb-gssapi-server            x86_64       3:10.11.6-
1.module+el8.10.0+1674+fa55eae9        appstream        56 k
 mariadb-server-utils             x86_64       3:10.11.6-
1.module+el8.10.0+1674+fa55eae9        appstream       1.4 M
□□□□□□□□□□:
 perl                                          5.26
 perl-DBD-MySQL                                4.046
 perl-DBI                                      1.641
 perl-IO-Socket-SSL                            2.066
 perl-libwww-perl                              6.34

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□□  55 □□□

□□□□□□□50 M
□□□□□□□243 M
□□□□□□□
(1/55): mariadb-common-10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64.rpm             188 kB/s
|  68 kB     00:00
(2/55): mariadb-connector-c-3.1.11-2.el8_3.x86_64.rpm                                 854 kB/s
| 199 kB     00:00
(3/55): mariadb-connector-c-config-3.1.11-2.el8_3.noarch.rpm                           56 kB/s
|  14 kB     00:00
(4/55): mariadb-errmsg-10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64.rpm             793 kB/s
| 339 kB     00:00
(5/55): mariadb-10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64.rpm                    4.3 MB/s
| 7.3 MB     00:01
(6/55): mariadb-gssapi-server-10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64.rpm      127 kB/s
|  56 kB     00:00
(7/55): mariadb-backup-10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64.rpm             3.7 MB/s
| 7.3 MB     00:01
(8/55): mysql-selinux-1.0.10-1.el8.noarch.rpm                                         374 kB/s
|  37 kB     00:00
(9/55): perl-DBD-MySQL-4.046-3.module+el8.9.0+1501+450eec3b.x86_64.rpm                1.4 MB/s
| 155 kB     00:00
(10/55): perl-DBI-1.641-4.module+el8.9.0+1495+f278a004.x86_64.rpm                     2.1 MB/s
| 739 kB     00:00
(11/55): perl-Digest-1.17-395.el8.noarch.rpm                                          318 kB/s
```

```
|  26 kB     00:00
(12/55): mariadb-server-utils-10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64.rpm      1.5 MB/s
| 1.4 MB     00:00
(13/55): perl-Digest-MD5-2.55-396.el8.x86_64.rpm                                     395 kB/s
|  36 kB     00:00
(14/55): perl-IO-Socket-IP-0.39-5.el8.noarch.rpm                                     446 kB/s
|  46 kB     00:00
(15/55): perl-IO-Socket-SSL-2.066-4.module+el8.9.0+1517+e71a7a62.noarch.rpm          2.2 MB/s
| 297 kB     00:00
(16/55): perl-Mozilla-CA-20160104-7.module+el8.9.0+1521+0101edce.noarch.rpm          143 kB/s
|  14 kB     00:00
(17/55): perl-Net-SSLeay-1.88-2.module+el8.9.0+1517+e71a7a62.x86_64.rpm              2.7 MB/s
| 378 kB     00:00
(18/55): perl-URI-1.73-3.el8.noarch.rpm                                              927 kB/s
| 115 kB     00:00
(19/55): perl-libnet-3.11-3.el8.noarch.rpm                                           1.2 MB/s
| 120 kB     00:00
(20/55): perl-Carp-1.42-396.el8.noarch.rpm                                            16 kB/s
|  29 kB     00:01
(21/55): mariadb-server-10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64.rpm           6.1 MB/s
|  20 MB     00:03
(22/55): perl-Data-Dumper-2.167-399.el8.x86_64.rpm                                    28 kB/s
|  57 kB     00:02
(23/55): perl-Exporter-5.72-396.el8.noarch.rpm                                        34 kB/s
|  33 kB     00:00
(24/55): perl-Errno-1.28-422.el8.x86_64.rpm                                           71 kB/s
|  75 kB     00:01
(25/55): perl-Encode-2.97-3.el8.x86_64.rpm                                           1.0 MB/s
| 1.5 MB     00:01
(26/55): perl-File-Temp-0.230.600-1.el8.noarch.rpm                                   108 kB/s
|  62 kB     00:00
(27/55): perl-Getopt-Long-2.50-4.el8.noarch.rpm                                      118 kB/s
|  62 kB     00:00
(28/55): perl-File-Path-2.15-2.el8.noarch.rpm                                         43 kB/s
|  37 kB     00:00
(29/55): perl-IO-1.38-422.el8.x86_64.rpm                                             237 kB/s
| 141 kB     00:00
(30/55): perl-MIME-Base64-3.15-396.el8.x86_64.rpm                                     62 kB/s
|  30 kB     00:00
(31/55): perl-HTTP-Tiny-0.074-3.el8.noarch.rpm                                        59 kB/s
```

```
|  58 kB     00:00
(32/55): perl-Math-Complex-1.59-422.el8.noarch.rpm                                212 kB/s
| 108 kB     00:00
(33/55): perl-Pod-Escapes-1.07-395.el8.noarch.rpm                                  44 kB/s
|  19 kB     00:00
(34/55): perl-PathTools-3.74-1.el8.x86_64.rpm                                     101 kB/s
|  89 kB     00:00
(35/55): perl-Math-BigInt-1.9998.11-7.el8.noarch.rpm                              130 kB/s
| 194 kB     00:01
(36/55): perl-Pod-Perldoc-3.28-396.el8.noarch.rpm                                 131 kB/s
|  85 kB     00:00
(37/55): perl-Pod-Simple-3.35-395.el8.noarch.rpm                                  339 kB/s
| 212 kB     00:00
(38/55): perl-Pod-Usage-1.69-395.el8.noarch.rpm                                    60 kB/s
|  33 kB     00:00
(39/55): perl-Socket-2.027-3.el8.x86_64.rpm                                        85 kB/s
|  58 kB     00:00
(40/55): perl-Storable-3.11-3.el8.x86_64.rpm                                      171 kB/s
|  97 kB     00:00
(41/55): perl-Scalar-List-Utils-1.49-2.el8.x86_64.rpm                              53 kB/s
|  67 kB     00:01
(42/55): perl-Term-ANSIColor-4.06-396.el8.noarch.rpm                               80 kB/s
|  45 kB     00:00
(43/55): perl-Term-Cap-1.17-395.el8.noarch.rpm                                     40 kB/s
|  22 kB     00:00
(44/55): perl-Text-ParseWords-3.30-395.el8.noarch.rpm                              36 kB/s
|  17 kB     00:00
(45/55): perl-Text-Tabs+Wrap-2013.0523-395.el8.noarch.rpm                          49 kB/s
|  23 kB     00:00
(46/55): perl-Time-Local-1.280-1.el8.noarch.rpm                                    64 kB/s
|  32 kB     00:00
(47/55): perl-Unicode-Normalize-1.25-396.el8.x86_64.rpm                           193 kB/s
|  81 kB     00:00
(48/55): perl-constant-1.33-396.el8.noarch.rpm                                     58 kB/s
|  24 kB     00:00
(49/55): perl-macros-5.26.3-422.el8.x86_64.rpm                                    121 kB/s
|  71 kB     00:00
(50/55): perl-libs-5.26.3-422.el8.x86_64.rpm                                      1.1 MB/s
| 1.6 MB     00:01
(51/55): perl-interpreter-5.26.3-422.el8.x86_64.rpm                               3.6 MB/s
```

```
| 6.3 MB     00:01
(52/55): perl-parent-0.237-1.el8.noarch.rpm                                    21 kB/s
|  19 kB     00:00
(53/55): perl-podlators-4.11-1.el8.noarch.rpm                                 173 kB/s
| 117 kB     00:00
(54/55): perl-threads-shared-1.58-2.el8.x86_64.rpm                             83 kB/s
|  47 kB     00:00
(55/55): perl-threads-2.21-2.el8.x86_64.rpm                                    70 kB/s
|  60 kB     00:00
--------------------------------------------------------------------------------
------------------------
□□                                                                  3.4 MB/s
|  50 MB     00:14
□□□□□□□□□
□□□□□□□□□□
□□□□□□□□□
□□□□□□□□□□
□□□□□□□
  □□
:
      1/1
  □□□□    : mariadb-connector-c-config-3.1.11-
2.el8_3.noarch                                          1/55
  □□□□    : mariadb-common-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                      2/55
  □□□□    : mariadb-errmsg-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                      3/55
  □□□□    : perl-Digest-1.17-
395.el8.noarch                                                  4/55
  □□□□    : perl-Digest-MD5-2.55-
396.el8.x86_64                                                 5/55
  □□□□    : perl-Data-Dumper-2.167-
399.el8.x86_64                                                6/55
  □□□□    : perl-libnet-3.11-
3.el8.noarch                                                    7/55
  □□□□    : perl-URI-1.73-
3.el8.noarch                                                   8/55
  □□□□    : perl-Pod-Escapes-1:1.07-
395.el8.noarch                                              9/55
  □□□□    : perl-Net-SSLeay-1.88-
```

```
2.module+el8.9.0+1517+e71a7a62.x86_64                                    10/55
  □□□□□    : perl-Mozilla-CA-20160104-
7.module+el8.9.0+1521+0101edce.noarch                                   11/55
  □□□□□    : perl-IO-Socket-IP-0.39-
5.el8.noarch                                                             12/55
  □□□□□    : perl-Time-Local-1:1.280-
1.el8.noarch                                                            13/55
  □□□□□    : perl-IO-Socket-SSL-2.066-
4.module+el8.9.0+1517+e71a7a62.noarch                                   14/55
  □□□□□    : perl-Term-ANSIColor-4.06-
396.el8.noarch                                                          15/55
  □□□□□    : perl-Term-Cap-1.17-
395.el8.noarch                                                             16/55
  □□□□□    : perl-File-Temp-0.230.600-
1.el8.noarch                                                            17/55
  □□□□□    : perl-Pod-Simple-1:3.35-
395.el8.noarch                                                           18/55
  □□□□□    : perl-HTTP-Tiny-0.074-
3.el8.noarch                                                               19/55
  □□□□□    : perl-podlators-4.11-
1.el8.noarch                                                               20/55
  □□□□□    : perl-Pod-Perldoc-3.28-
396.el8.noarch                                                           21/55
  □□□□□    : perl-Text-ParseWords-3.30-
395.el8.noarch                                                          22/55
  □□□□□    : perl-Pod-Usage-4:1.69-
395.el8.noarch                                                           23/55
  □□□□□    : perl-MIME-Base64-3.15-
396.el8.x86_64                                                           24/55
  □□□□□    : perl-Storable-1:3.11-
3.el8.x86_64                                                               25/55
  □□□□□    : perl-Getopt-Long-1:2.50-
4.el8.noarch                                                            26/55
  □□□□□    : perl-Errno-1.28-
422.el8.x86_64                                                                27/55
  □□□□□    : perl-Socket-4:2.027-
3.el8.x86_64                                                               28/55
  □□□□□    : perl-Encode-4:2.97-
3.el8.x86_64                                                               29/55
  □□□□□    : perl-Carp-1.42-
```

```
396.el8.noarch                                                    30/55
  □□□□□    : perl-Exporter-5.72-
396.el8.noarch                                                    31/55
  □□□□□    : perl-libs-4:5.26.3-
422.el8.x86_64                                                    32/55
  □□□□□    : perl-Scalar-List-Utils-3:1.49-
2.el8.x86_64                                                   33/55
  □□□□□    : perl-parent-1:0.237-
1.el8.noarch                                                      34/55
  □□□□□    : perl-macros-4:5.26.3-
422.el8.x86_64                                                    35/55
  □□□□□    : perl-Text-Tabs+Wrap-2013.0523-
395.el8.noarch                                                 36/55
  □□□□□    : perl-Unicode-Normalize-1.25-
396.el8.x86_64                                                   37/55
  □□□□□    : perl-File-Path-2.15-
2.el8.noarch                                                      38/55
  □□□□□    : perl-IO-1.38-
422.el8.x86_64                                                          39/55
  □□□□□    : perl-PathTools-3.74-
1.el8.x86_64                                                      40/55
  □□□□□    : perl-constant-1.33-
396.el8.noarch                                                    41/55
  □□□□□    : perl-threads-1:2.21-
2.el8.x86_64                                                      42/55
  □□□□□    : perl-threads-shared-1.58-
2.el8.x86_64                                                     43/55
  □□□□□    : perl-interpreter-4:5.26.3-
422.el8.x86_64                                                   44/55
  □□□□□    : perl-Math-Complex-1.59-
422.el8.noarch                                                     45/55
  □□□□□    : perl-Math-BigInt-1:1.9998.11-
7.el8.noarch                                                   46/55
  □□□□□    : perl-DBI-1.641-
4.module+el8.9.0+1495+f278a004.x86_64                                   47/55
  □□□□□□  : mysql-selinux-1.0.10-
1.el8.noarch                                                      48/55
  □□□□□    : mysql-selinux-1.0.10-
1.el8.noarch                                                      48/55
  □□□□□□  : mysql-selinux-1.0.10-
```

```
1.el8.noarch                                                                48/55
libsemanage.semanage_direct_install_info: Overriding mysql module at lower priority 100 with
module at priority 200.

  □□□□□    : perl-DBD-MySQL-4.046-
3.module+el8.9.0+1501+450eec3b.x86_64                                       49/55
  □□□□□    : mariadb-connector-c-3.1.11-
2.el8_3.x86_64                                                           50/55
  □□□□□    : mariadb-backup-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                     51/55
  □□□□□    : mariadb-gssapi-server-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                  52/55
  □□□□□    : mariadb-server-utils-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                   53/55
  □□□□□□   : mariadb-server-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                     54/55
  □□□□□    : mariadb-server-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                     54/55
  □□□□□□   : mariadb-server-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                     54/55
  □□□□□    : mariadb-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                        55/55
  □□□□□□   : mysql-selinux-1.0.10-
1.el8.noarch                                                                55/55
  □□□□□□   : mariadb-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                        55/55
  □□         : mariadb-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                         1/55
  □□         : mariadb-backup-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                       2/55
  □□         : mariadb-common-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                       3/55
  □□         : mariadb-connector-c-3.1.11-
2.el8_3.x86_64                                                           4/55
  □□         : mariadb-connector-c-config-3.1.11-
2.el8_3.noarch                                                        5/55
  □□         : mariadb-errmsg-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                       6/55
  □□         : mariadb-gssapi-server-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                     7/55
```

```
  □□        : mariadb-server-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                  8/55
  □□        : mariadb-server-utils-3:10.11.6-
1.module+el8.10.0+1674+fa55eae9.x86_64                                 9/55
  □□        : mysql-selinux-1.0.10-
1.el8.noarch                                                             10/55
  □□        : perl-DBD-MySQL-4.046-
3.module+el8.9.0+1501+450eec3b.x86_64                                    11/55
  □□        : perl-DBI-1.641-
4.module+el8.9.0+1495+f278a004.x86_64                                        12/55
  □□        : perl-Digest-1.17-
395.el8.noarch                                                           13/55
  □□        : perl-Digest-MD5-2.55-
396.el8.x86_64                                                           14/55
  □□        : perl-IO-Socket-IP-0.39-
5.el8.noarch                                                            15/55
  □□        : perl-IO-Socket-SSL-2.066-
4.module+el8.9.0+1517+e71a7a62.noarch                                  16/55
  □□        : perl-Mozilla-CA-20160104-
7.module+el8.9.0+1521+0101edce.noarch                                  17/55
  □□        : perl-Net-SSLeay-1.88-
2.module+el8.9.0+1517+e71a7a62.x86_64                                    18/55
  □□        : perl-URI-1.73-
3.el8.noarch                                                                19/55
  □□        : perl-libnet-3.11-
3.el8.noarch                                                             20/55
  □□        : perl-Carp-1.42-
396.el8.noarch                                                             21/55
  □□        : perl-Data-Dumper-2.167-
399.el8.x86_64                                                          22/55
  □□        : perl-Encode-4:2.97-
3.el8.x86_64                                                               23/55
  □□        : perl-Errno-1.28-
422.el8.x86_64                                                             24/55
  □□        : perl-Exporter-5.72-
396.el8.noarch                                                           25/55
  □□        : perl-File-Path-2.15-
2.el8.noarch                                                             26/55
  □□        : perl-File-Temp-0.230.600-
1.el8.noarch                                                           27/55
```

```
  □□        : perl-Getopt-Long-1:2.50-
4.el8.noarch                                                  28/55
  □□        : perl-HTTP-Tiny-0.074-
3.el8.noarch                                                    29/55
  □□        : perl-IO-1.38-
422.el8.x86_64                                                          30/55
  □□        : perl-MIME-Base64-3.15-
396.el8.x86_64                                                  31/55
  □□        : perl-Math-BigInt-1:1.9998.11-
7.el8.noarch                                                32/55
  □□        : perl-Math-Complex-1.59-
422.el8.noarch                                                 33/55
  □□        : perl-PathTools-3.74-
1.el8.x86_64                                                    34/55
  □□        : perl-Pod-Escapes-1:1.07-
395.el8.noarch                                                35/55
  □□        : perl-Pod-Perldoc-3.28-
396.el8.noarch                                                  36/55
  □□        : perl-Pod-Simple-1:3.35-
395.el8.noarch                                                 37/55
  □□        : perl-Pod-Usage-4:1.69-
395.el8.noarch                                                  38/55
  □□        : perl-Scalar-List-Utils-3:1.49-
2.el8.x86_64                                                39/55
  □□        : perl-Socket-4:2.027-
3.el8.x86_64                                                    40/55
  □□        : perl-Storable-1:3.11-
3.el8.x86_64                                                    41/55
  □□        : perl-Term-ANSIColor-4.06-
396.el8.noarch                                               42/55
  □□        : perl-Term-Cap-1.17-
395.el8.noarch                                                    43/55
  □□        : perl-Text-ParseWords-3.30-
395.el8.noarch                                               44/55
  □□        : perl-Text-Tabs+Wrap-2013.0523-
395.el8.noarch                                                45/55
  □□        : perl-Time-Local-1:1.280-
1.el8.noarch                                                   46/55
  □□        : perl-Unicode-Normalize-1.25-
396.el8.x86_64                                                 47/55
```

```
  □□        : perl-constant-1.33-
396.el8.noarch                                                  48/55
  □□        : perl-interpreter-4:5.26.3-
422.el8.x86_64                                                49/55
  □□        : perl-libs-4:5.26.3-
422.el8.x86_64                                                  50/55
  □□        : perl-macros-4:5.26.3-
422.el8.x86_64                                                51/55
  □□        : perl-parent-1:0.237-
1.el8.noarch                                                    52/55
  □□        : perl-podlators-4.11-
1.el8.noarch                                                    53/55
  □□        : perl-threads-1:2.21-
2.el8.x86_64                                                    54/55
  □□        : perl-threads-shared-1.58-
2.el8.x86_64                                                  55/55

□□□:
  mariadb-3:10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64
  mariadb-backup-3:10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64
  mariadb-common-3:10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64
  mariadb-connector-c-3.1.11-2.el8_3.x86_64
  mariadb-connector-c-config-3.1.11-2.el8_3.noarch
  mariadb-errmsg-3:10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64
  mariadb-gssapi-server-3:10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64
  mariadb-server-3:10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64
  mariadb-server-utils-3:10.11.6-1.module+el8.10.0+1674+fa55eae9.x86_64
  mysql-selinux-1.0.10-1.el8.noarch
  perl-Carp-1.42-396.el8.noarch
  perl-DBD-MySQL-4.046-3.module+el8.9.0+1501+450eec3b.x86_64
  perl-DBI-1.641-4.module+el8.9.0+1495+f278a004.x86_64
  perl-Data-Dumper-2.167-399.el8.x86_64
  perl-Digest-1.17-395.el8.noarch
  perl-Digest-MD5-2.55-396.el8.x86_64
  perl-Encode-4:2.97-3.el8.x86_64
  perl-Errno-1.28-422.el8.x86_64
  perl-Exporter-5.72-396.el8.noarch
  perl-File-Path-2.15-2.el8.noarch
  perl-File-Temp-0.230.600-1.el8.noarch
  perl-Getopt-Long-1:2.50-4.el8.noarch
```

```
perl-HTTP-Tiny-0.074-3.el8.noarch
perl-IO-1.38-422.el8.x86_64
perl-IO-Socket-IP-0.39-5.el8.noarch
perl-IO-Socket-SSL-2.066-4.module+el8.9.0+1517+e71a7a62.noarch
perl-MIME-Base64-3.15-396.el8.x86_64
perl-Math-BigInt-1:1.9998.11-7.el8.noarch
perl-Math-Complex-1.59-422.el8.noarch
perl-Mozilla-CA-20160104-7.module+el8.9.0+1521+0101edce.noarch
perl-Net-SSLeay-1.88-2.module+el8.9.0+1517+e71a7a62.x86_64
perl-PathTools-3.74-1.el8.x86_64
perl-Pod-Escapes-1:1.07-395.el8.noarch
perl-Pod-Perldoc-3.28-396.el8.noarch
perl-Pod-Simple-1:3.35-395.el8.noarch
perl-Pod-Usage-4:1.69-395.el8.noarch
perl-Scalar-List-Utils-3:1.49-2.el8.x86_64
perl-Socket-4:2.027-3.el8.x86_64
perl-Storable-1:3.11-3.el8.x86_64
perl-Term-ANSIColor-4.06-396.el8.noarch
perl-Term-Cap-1.17-395.el8.noarch
perl-Text-ParseWords-3.30-395.el8.noarch
perl-Text-Tabs+Wrap-2013.0523-395.el8.noarch
perl-Time-Local-1:1.280-1.el8.noarch
perl-URI-1.73-3.el8.noarch
perl-Unicode-Normalize-1.25-396.el8.x86_64
perl-constant-1.33-396.el8.noarch
perl-interpreter-4:5.26.3-422.el8.x86_64
perl-libnet-3.11-3.el8.noarch
perl-libs-4:5.26.3-422.el8.x86_64
perl-macros-4:5.26.3-422.el8.x86_64
perl-parent-1:0.237-1.el8.noarch
perl-podlators-4.11-1.el8.noarch
perl-threads-1:2.21-2.el8.x86_64
perl-threads-shared-1.58-2.el8.x86_64
```

□□□

□□□□□

4 □□ MariaDB □□□□□□

□□□□□□□□□□

```
$ sudo systemctl restart mariadb
$ sudo systemctl enable mariadb
Created symlink /etc/systemd/system/mysql.service → /usr/lib/systemd/system/mariadb.service.
Created symlink /etc/systemd/system/mysqld.service → /usr/lib/systemd/system/mariadb.service.
Created symlink /etc/systemd/system/multi-user.target.wants/mariadb.service →
/usr/lib/systemd/system/mariadb.service.
```

5 □□□ MariaDB □□□□□

□□□□□□□□

```
$ sudo mysql_secure_installation
```

□□□□□□□□□□□□□□□□□□□□□□ root □□□□□□□□□□□□□□□□□□□□□□ Enter □□□□

```
NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB
      SERVERS IN PRODUCTION USE!  PLEASE READ EACH STEP CAREFULLY!

In order to log into MariaDB to secure it, we'll need the current
password for the root user.  If you've just installed MariaDB, and
you haven't set the root password yet, the password will be blank,
so you should just press enter here.

Enter current password for root (enter for none):□□□ Enter □
```

□□□□□ root □□□□□ Y □□□□□□□□

```
OK, successfully used password, moving on...

Setting the root password ensures that nobody can log into the MariaDB
root user without the proper authorisation.

Set root password? [Y/n] Y
New password:
Re-enter new password:
Password updated successfully!
Reloading privilege tables..
 ... Success!
```

□□□□□ anonymous users □□□□□□ Y □□□

```
By default, a MariaDB installation has an anonymous user, allowing anyone
to log into MariaDB without having to have a user account created for
them.  This is intended only for testing, and to make the installation
go a bit smoother.  You should remove them before moving into a
production environment.

Remove anonymous users? [Y/n]
 ... Success!
```

□□□□□ root □□□□□□□□□□□ Y □□□

```
Normally, root should only be allowed to connect from 'localhost'.  This
ensures that someone cannot guess at the root password from the network.

Disallow root login remotely? [Y/n]
 ... Success!
```

□□□□□□□□□□□□ Y □□□

```
By default, MariaDB comes with a database named 'test' that anyone can
access.  This is also intended only for testing, and should be removed
before moving into a production environment.

Remove test database and access to it? [Y/n]
 - Dropping test database...
 ... Success!
 - Removing privileges on test database...
 ... Success!
```

□□□ Reload □□□□□ Y □□□

```
Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.

Reload privilege tables now? [Y/n] Y
 ... Success!

Cleaning up...

All done!  If you've completed all of the above steps, your MariaDB
```

```
installation should now be secure.


Thanks for using MariaDB!
```

□□ MariaDB □□□□□□□□

6 □□ MariaDB □□□□□□ (UTF8mb4)

□□ /etc/my.conf.d/ □□□□□□□□□□□□□□□□□□

```
sudo vim /etc/my.cnf.d/default-character.cnf
```

□□□□□

> [client]
> default-character-set = utf8mb4
>
> [mysqld]
> character-set-server = utf8mb4
> collation-server = utf8mb4_unicode_ci

7 □□□□ MariaDB □□

```
$ sudo systemctl restart mariadb
```

8 □□ MariaDB □□□□

□□ netstat □□□□□□□□□□ (□□□ 3306 port □□□)□

```
$ sudo netstat -tlnp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program
name
tcp        0      0 0.0.0.0:3306            0.0.0.0:*               LISTEN      12169/mysqld
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN      608/sshd
tcp6       0      0 :::3306                 :::*                    LISTEN      12169/mysqld
tcp6       0      0 :::80                   :::*                    LISTEN      6998/httpd
tcp6       0      0 :::22                   :::*                    LISTEN      608/sshd
```

□□ systemctl □□□□□□□□□□□□□□□

```
$ sudo systemctl status mariadb
● mariadb.service - MariaDB 10.11 database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; vendor preset: disabled)
   Active: active (running) since Thu 2024-10-17 15:53:01 CST; 9s ago
     Docs: man:mysqld(8)
           https://mariadb.com/kb/en/library/systemd/
  Process: 12181 ExecStartPost=/usr/libexec/mysql-check-upgrade (code=exited,
status=0/SUCCESS)
  Process: 12131 ExecStartPre=/usr/libexec/mysql-prepare-db-dir mariadb.service (code=exited,
status=0/SUCCESS)
  Process: 12105 ExecStartPre=/usr/libexec/mysql-check-socket (code=exited, status=0/SUCCESS)
 Main PID: 12169 (mysqld)
   Status: "Taking your SQL requests now..."
    Tasks: 12 (limit: 11167)
   Memory: 176.7M
   CGroup: /system.slice/mariadb.service
           └─12169 /usr/libexec/mysqld --basedir=/usr

10□ 17 15:53:00 ossiidemo.ossii.com.tw systemd[1]: mariadb.service: Succeeded.
10□ 17 15:53:00 ossiidemo.ossii.com.tw systemd[1]: Stopped MariaDB 10.11 database server.
10□ 17 15:53:00 ossiidemo.ossii.com.tw systemd[1]: Starting MariaDB 10.11 database server...
10□ 17 15:53:01 ossiidemo.ossii.com.tw mysql-prepare-db-dir[12131]: Database MariaDB is
probably initialized in /var>
10□ 17 15:53:01 ossiidemo.ossii.com.tw mysql-prepare-db-dir[12131]: If this is not the case,
make sure the /var/lib/>
10□ 17 15:53:01 ossiidemo.ossii.com.tw systemd[1]: Started MariaDB 10.11 database server.
lines 1-21/21 (END)
```

安裝 phpMyAdmin 5.2 版本

[補充] 一鍵安裝 phpMyAdmin 5.2 版本

指令如下:

```
$ sudo dnf --enablerepo=remi install phpMyAdmin
```

會直接安裝最新的 5.2.0 版本，完成後可以跳到第 7 項繼續設定。

1 確認官方最新的版本

請先到 phpMyAdmin 官方下載網站 確認新的版本，本文所使用最新的版本為 5.2.0 的 all-languages 版本。

2 設定環境變數並下載檔案

確認好 phpMyAdmin 下載版本後，利用設定環境變數的方式，讓後面的指令操作比較簡單，利用一般用戶設定即可，指令如下:

```
$ export VER="5.2.0"
```

下載指令如下。

```
$ cd /tmp
$ curl -o phpMyAdmin-${VER}-all-languages.tar.gz
https://files.phpmyadmin.net/phpMyAdmin/${VER}/phpMyAdmin-${VER}-all-languages.tar.gz
```

3 解壓縮 phpMyAdmin

```
$ tar zxvf phpMyAdmin-${VER}-all-languages.tar.gz
```

4 將檔案置於正式目錄並移除壓縮檔

```
$ rm phpMyAdmin-*-languages.tar.gz
$ sudo mv phpMyAdmin-* /usr/share/phpMyAdmin
```

5 建立及設定 phpMyAdmin 相關目錄

```
$ sudo mkdir -p /var/lib/phpmyadmin/tmp
$ sudo chown -R apache:apache /var/lib/phpmyadmin
```

6 建立 phpMyAdmin 相關設定文件

```
$ sudo cp /usr/share/phpMyAdmin/config.sample.inc.php /usr/share/phpMyAdmin/config.inc.php
```

如果是利用 dnf 指令安裝的話，可以跳過這個步驟。

7 調整設定文件內容

先用 openssl 產生一組隨機的 32 個字元長密碼，指令如下:

```
$ openssl rand -hex 16
```

把字串複製起來，並利用 vim 指令編輯設定文件的內容，指令如下:

```
$ sudo vim /usr/share/phpMyAdmin/config.inc.php
```

如果是利用 dnf 指令安裝的話，請到以下的路徑編輯設定檔:

```
$ sudo vim /etc/phpMyAdmin/config.inc.php
```

找到以下 2 項設定，第 1 個請把剛剛的字串給貼上去，大概在第 16 行，第 2 個請依照內容直接加在第 17 行位置，內容如下所示:

```
$cfg['blowfish_secret'] = '□□□□□□ 32 □□□□□□□□□□';
$cfg['TempDir'] = '/var/lib/phpmyadmin/tmp';
```

□□□□□□ dnf □□□□□□□□□□□□□□

```
$cfg['blowfish_secret'] = '□□□□□□ 32 □□□□□□□□□□';
$cfg['TempDir'] = '/var/lib/phpMyAdmin/temp';
```

□□□□□□

8 □□ apache □□□

□□ vim □□□□ apache □□ phpMyAdmin □□□□ (□□□ dnf □□□□□□□□□□□□)□□□□□□

```
$ sudo vim /etc/httpd/conf.d/phpMyAdmin.conf
```

□□□□ (□□□)□□□□□□

```
# Apache configuration for phpMyAdmin
Alias /phpMyAdmin /usr/share/phpMyAdmin/
Alias /phpmyadmin /usr/share/phpMyAdmin/

<Directory /usr/share/phpMyAdmin/>
 AddDefaultCharset UTF-8
 <IfModule mod_authz_core.c>
 # Apache 2.4
 Require all granted
 </IfModule>
</Directory>
<Directory /usr/share/phpMyAdmin/libraries/>
 Require all denied
</Directory>
<Directory /usr/share/phpMyAdmin/templates/>
 Require all denied
</Directory>
<Directory /usr/share/phpMyAdmin/setup/lib/>
 Require all denied
</Directory>
<Directory /usr/share/phpMyAdmin/setup/frames/>
 Require all denied
</Directory>
```



存檔後離開，測試一下設定是否正確，指令如下:

```
$ sudo apachectl configtest
Syntax OK
```

重新啟動 apache 伺服器服務。

```
$ sudo systemctl restart httpd
```

9 設定 SELinux

如果有啟用 SELinux 安全模組的話 (本文預設是 enforcing 模式)，請設定允許 apache 在 phpmyadmin 的目錄中提供連結資訊，不然就會出現拒絕存取的畫面，設定指令如下:

```
$ sudo semanage fcontext -a -t httpd_sys_content_t "/usr/share/phpmyadmin(/.*)?"
```

如果出現沒有 semanage 找不到指令的訊息，請安裝 policycoreutils-python-utils 套件，指令如下:

```
$ sudo yum install policycoreutils-python-utils -y
$ sudo firewall-cmd --add-service=http --permanent
```

10 登入 phpMyAdmin Web 界面

登入的位置為: http://yourip/phpmyadmin，畫面如下:

請輸入剛剛設定的 MariaDB Root 密碼即可登入管理畫面，如下圖所示。



11 □□□□

□□ phpMyAdmin □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□ IP □□□□□□□□□□□ apache □□□□□□□□□□□□□□□□□□

```
sudo vim /etc/httpd/conf.d/phpmyadmin.conf
```

□□□□□□□□□□□□□□□ IP □□□□□□□□□□□□

> <IfModule mod_authz_core.c>
> # Apache 2.4
> **Require ip 10.0.0.5 192.168.0.0/24**
> </IfModule>

□□□□□□□ apache □□□□

```
$ sudo systemctl restart httpd
```

□□□□□□□ IP □□□□□□□□□□□□□□□□

Forbidden

You don't have permission to access this resource.