



System Requirements

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SYSTEM REQUIREMENTS

1.1 Server

All required components have to be installed and configured at the agreed time of installation of CRM+. Before the installation, the server is checked. If this is not faultless, the installation will not be carried out and a new appointment must be agreed.

Furthermore, we point out that the provided system requirements are subject to change at any time with the further development of CRM+.

Platform	Options
Operating System	Debian 11 (bullseye) amd64 (w/o GUI)
Database	MariaDB 10.5.x
Webserver	Apache 2.4.x with mod_php
PHP Runtime	8.1.x

Warning: There is no guarantee for a proper functioning on other distributions.

1.1.1 Hardware requirements

componente	description
processor	min. Quad core processor 2.0 GHz (recommend 3.6 GHz or higher)
RAM	min. 8 GB RAM (recommend 16GB)
hard disk	at least 100 GB for CRM+ (including file upload)

1.1.2 Software requirements

package	description
git	2.30.x or higher
curl	7.26.x or higher
tmux	Terminal multiplexer for the command line. Protection for session timeout and aborts.

Additionally Recommended Packages

package	description
lynis	System Check Tool (providing suggestions about configuration errors, vulnerabilities, etc.). Call via: <code>lynis -c</code>
etckeeper	Keep track of /etc in a repository. Optional configure git: <code>git -C /etc config --global user.name <your-name></code> <code>git -C /etc config --global user.email <your-email></code>
unattended-upgrades	Automatically install security updates. For reconfiguration call the following command and submit with <yes> <code>dpkg-reconfigure -p low unattended-upgrades</code>

1.1.3 Required Access for InHouse

VPN

If a VPN is used, the VPN must be an OpenVPN compatible one.

Server

Server	Access for administration of CRM+ (Installation & Updates)
Database	Access for administration of the CRM+ database (installation & updates)
HTTP	Access to CRM+ via browser (HTTPS recommended)

Note: These additions do not have to be permanently available as they are only needed for installation or maintenance of CRM+.

The accesses can be locked after completion of the maintenance work With "InHouse SSA" no accesses are needed! The following ports are required for installation in / out:

- SSH: communicated personally
- Git: communicated personally
- Composer: 4680
- Web: 443

Hint: InHouse SSA = InHouse Single-Side-Access

Communication with the delivery server takes place exclusively via ssh with a key pair (private / public key). Please create a key pair for a user with whom you will work.

Example (for root):

```
# Create SSH keypair
$ ssh-keygen -t ED25519 -C "inhouse@<Projectname>"
```

following you will find 2 files under:

```
# In the home directory
$ ~/.ssh/id_ed25519
$ ~/.ssh/id_ed25519.pub
```

Please send us the file "id_ed25519.pub!"

1.2 Web browser

Chrome	Firefox	Safari	Edge
current - 3 versions	current - 3 versions	current - 2 versions	current - 3 versions

Note: Explanation: current - 3 versions means that the mentioned browser in the latest version, as well as in the three previous versions are supported.

If e.g. a browser is available in the latest version 24, versions 24.x, 23.x, 22.x and 21.x are supported.

INSTALLATION

2.1 Server

2.1.1 Apt

In `/etc/apt/sources.list` add `contrib non-free` after `main` to the sources.

Example:

```
...  
deb http://deb.debian.org/debian bullseye main contrib non-free  
...
```

2.1.2 Mandatory Packages

- curl
- fontconfig
- ftp
- git
- libxext6
- libxrender1
- sshpass
- tmux
- ttf-mscorefonts-installer
- unzip
- zip

Update server via package manager and install mandatory packages:

```
$ apt update && apt upgrade  
  
$ apt install curl fontconfig ftp git \  
libxext6 libxrender1 sshpass tmux ttf-mscorefonts-installer \  
unzip zip
```

Optional Packages

- etckeeper
- lynis
- unattended-upgrades

2.1.3 Time Synchronization via systemd

Ensure that `ntp` is not installed and restart the `timesyncd` service by typing `systemctl restart systemd-timesyncd.service`.

The `timesyncd` service is configured in `/etc/systemd/timesyncd.conf`. View <https://dyn.manpages.debian.org/buster/systemd/timesyncd.conf.5.en.html> for full configuration.

Time synchronization via `ntp` is checked by typing `timedatectl status`.

If synchronization via `ntp` is not active, enable it by typing `timedatectl set-ntp true`.

After configuring and restarting the service, check if it is “active (running)” by typing `systemctl status systemd-timesyncd.service`.

2.1.4 Apache

Install apache webserver:

```
$ apt install apache2
```

2.1.5 PHP

Warning: Please use the [Sury](#) repository to installing the PHP packages.
View their [README.txt](#) to add the required repository to debian sources.

After adding the sury repository pin the php version with apt-pinning:

Create the file `/etc/apt/preferences.d/sury` with following content:

```
Package: php5.6*, php7.0*, php7.1*, php7.2*, php7.3*, php7.4*, php8.0*, php8.2*
Pin: release *
Pin-Priority: -1
```

After adding the apt configuration install the php packages:

```
$ apt install libapache2-mod-php8.1 php-common php8.1 php8.1-bcmath \
php8.1-bz2 php8.1-cli php8.1-common php8.1-curl php8.1-gd php8.1-igbinary \
php8.1-imap php8.1-intl php8.1-ldap php8.1-mailparse \
php8.1-mbstring php8.1-mysql php8.1-openssl php8.1-readline php8.1-soap \
php8.1-ssh2 php8.1-tidy php8.1-xml php8.1-xmlrpc php8.1-zip
```

2.1.6 MariaDB

Install mariadb-server and client:

```
$ apt install mariadb-client mariadb-server
```

2.2 APACHE: Configuration

2.2.1 APACHE Module (active)

Enable module by typing `a2enmod <module_name>`.

alias	Maps URLs to filesystem locations
deflate	Gzip-compression (CSS / JS / usw.)
expires	Browser Cache
filter	Compression
headers	Control and modify HTTP request and response headers
rewrite	Rewriting URLs by Rules
ssl	Protect access to your CRM+ installation via SSL certificate

```
a2enmod alias deflate expires filter headers rewrite ssl
```

Note: Ideally, only certificates are used that have been signed by public and trusted certification authorities. If selfsigned certificates are used, please contact us first.

2.2.2 APACHE Module (deactivate (optional / recommend))

Disable module by typing `a2dismod <module_name>`.

autoindex	Security: prevents directories from being listed
status	Security: prevents the display of information from the Apache web server in the browser
cgi	Security: prevents the execution of CGI scripts

```
a2dismod -f autoindex status cgi
```

2.2.3 APACHE Configuration (available sites)

AllowOverride	allows the overwriting of file and directory rights by the supplied .htaccess
---------------	---

Example site configuration could look like this:


```
<IfModule mod_ssl.c>
  <VirtualHost *:443>
    ServerName "<domain>"

    DocumentRoot "/var/www/vhosts/<domain>/crm/"

    SSLCertificateFile /etc/ssl/...
    SSLCertificateKeyFile /etc/ssl/...

    Timeout 600

    <Directory /var/www/vhosts/<domain>/crm>
      SSLRequireSSL
      Options -Includes -ExecCGI
    </Directory>

    <Directory /var/www/vhosts/<domain>/crm>
      Options +FollowSymLinks
      AllowOverride All
      Order allow,deny
      allow from all
    </Directory>
  </VirtualHost>
</IfModule>

<VirtualHost *:80>
  ServerName "<domain>"
  Redirect permanent / https://<domain>/
</VirtualHost>
```

2.2.4 APACHE Configuration (optional)

Create the file `/etc/apache2/conf-available/optional.conf` with following content, after creating the file enable the module by typing `a2enconf optional`.

```
# Security: disables page tracking
TraceEnable Off

# Security: disables the server signature in the footer of an error page
ServerSignature Off

# Security: Restriction of the returned header so that no version number is displayed.
ServerTokens Prod
```

2.3 PHP: Configuration

2.3.1 PHP basic packages

Installed by default, but please check if it exists by typing `php -m | grep -i <module_name>`:

iconv, ftp, json, xml, simplexml, spl, mbstring, bcmath, zip, zlib, pcre, dom, session, date, hash, filter

2.3.2 Additional Required Packages

libapache2-mod-php8.1	Apache Webserver PHP Modul
php-common	Common files for PHP packages
php8.1	PHP base package
php8.1-bcmath	e.g. Faktura
php8.1-bz2	bzip2 module for PHP
php8.1-cli	e.g. Cronjobs, Series letters
php8.1-common	PHP Utilities
php8.1-curl	e.g. for Exchange Connector connection
php8.1-gd	e.g. Project management for chart generation
php8.1-igbinary	PHP serializer
php8.1-imap	e.g. E-Mail Manager, Mail Scanner
php8.1-intl	Internationalization functions (for translation of CRM+ and PDF templates Plus)
php8.1-ldap	e.g. Authentication via an MS Active Directory system
php8.1-mailparse	e.g. for Exchange Connector synchronization of SMIME attachments
php8.1-mbstring	Support of human speech and character encoding
php8.1-mysql	Database layer to connect CRM+ to the database.
php8.1-opcache	increases the PHP performance
php8.1-readline	Interface to the GNU readline library
php8.1-soap	e.g. Exchange Connector, customer portal
php8.1-ssh2	e.g. SFTP Backup
php8.1-tidy	For filtering dangerous HTML content
php8.1-xmlrpc	e.g. PBX connection
php8.1-xml	e.g. Datev
php8.1-zip	e.g. Datev

2.3.3 Optional Packages

php8.1-redis	Caching (also needs php-igbinary and redis-server)
--------------	--

2.3.4 Required PHP Functions

must not be listed in “disable_functions”

popen, escapeshellcmd, ini_restore, get_loaded_extensions, chmod, mkdir, rmdir, syslog, copy, unlink, rename, exec, shell_exec

2.3.5 PHP Apache / CLI Configuration

PHP Apache / Command Line Interface (CLI) Configuration

Create the file /etc/php/8.1/mods-available/custom-php.ini with following content, after creating the file enable the module by typing `phpenmod custom-php`.

```
; Custom configuration for php8.1 module
; priority=30

[Custom PHP Configuration]
; Enable / disable showing PHP is available on the server
expose_php = Off

; Maximum execution time of each script, in seconds
max_execution_time = 600

; Maximum amount of time each script may spend parsing request data
max_input_time = 300

; How many GET/POST/COOKIE input variables may be accepted
max_input_vars = 10000

; Maximum amount of memory a script may consume
memory_limit = 1024M

; Error reporting
error_reporting = E_ALL & ~(E_NOTICE | E_DEPRECATED | E_STRICT)

; Enable / disable displaying errors on screen
display_errors = Off

; Enable / disable logging errors
log_errors = On

; Output buffering
output_buffering = On

; Date time zone
date.timezone = 'Europe/Berlin'

; Allow access to session ID cookie only when protocol is HTTPS
session.cookie_secure = 1

; Allow access to session ID cookie only via HTTP/HTTPS
```

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```
session.cookie_httponly = 1

; Maximum session life time in seconds (Garbage Collector)
session.gc_maxlifetime = 7200

; Internal/script encoding
mbstring.internal_encoding = UTF-8

; PHP's default character set is set to UTF-8.
default_charset = UTF-8

; PCRE library backtracking limit.
pcre.backtrack_limit = 5000000

; Enable / disable file uploads
file_uploads = On

; Maximum allowed size for uploaded files.
upload_max_filesize = 2M

; Maximum size of POST data that PHP will accept.
; Its value may be 0 to disable the limit. It is ignored if POST data reading
; is disabled through enable_post_data_reading.
post_max_size = 8M

; Max. Total size of files that can be uploaded.
max_file_uploads = 20
```

Note: For uploading files, set the following parameters according to your own needs.

2.3.6 Cache Configuration

Create the file `/etc/php/8.1/mods-available/custom-opcache.ini` with following content, after creating the file enable the module by typing `phpenmod custom-opcache`.

```
; configuration for php ZendOpcache module
; priority=05
zend_extension=opcache.so

; Enable / Disable OPcache for Apache
opcache.enable = 1

; Enable / Disable OPcache for CLI
opcache.enable_cli = 1

; The size of the shared memory storage used by OPcache, in megabytes (recommend 1024M)
opcache.memory_consumption = 512M

; The amount of memory used to store interned strings, in megabytes.
```

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```
opcache.interned_strings_buffer = 16

; The maximum number of keys (and therefore scripts) in the OPcache hash table.
; ~5500x30 (find . -type f -print | grep php | wc -l) (max. 1.000.000)
opcache.max_accelerated_files = 10007

; The maximum percentage of wasted memory that is allowed before a restart is scheduled.
opcache.max_wasted_percentage = 5

; If enabled, OPcache will check for updated scripts every opcache.revalidate_freq
↪ seconds.
opcache.validate_timestamps = 0
```

Note: Please note that only one cacher may be installed / activated, otherwise complications and thus negative effects may occur.

2.4 SourceGuardian Loader: Installation

Is responsible for the decryption and thus the runnability of CRM+. Available at:

Linux (x86-64) https://www.sourceguardian.com/loaders/download/loaders.linux-x86_64.tar.gz

```
wget --user-agent="Chrome/51.0.2704.103" https://www.sourceguardian.com/loaders/download/
↪ loaders.linux-x86_64.tar.gz
```

If the download link does not work anymore, you will also find the available packages via the main domain: <https://www.sourceguardian.com/loaders.html>

Unzip the downloaded package to `/opt/thirdparty/sourceguardian`.

Create the file `/etc/php/8.1/mods-available/custom-sourceguardian.ini` with following content, after creating the file enable the module by typing `phpenmod custom-sourceguardian`.

```
; Custom configuration for PHP8.1 module
; priority=00

zend_extension = /opt/thirdparty/sourceguardian/ixed.8.1.lin
```

Verify SourceGuardian was successful installed by typing `php -v` and check for the SourceGuardian section.

Please note that always install the right version of the PHP SourceGuardian Loader according to the existing PHP version.

Note: Currently, you need to have installed the version 14.0 or newer.

2.5 MariaDB: Configuration

- The SQL_MODE can **NOT** have the value STRICT_TRANS_TABLE.
Show enabled sql modes via `mysql -uroot -p -e "SELECT @@GLOBAL.sql_mode;"`.
- InnoDB must be available (deactivate `--skip-innodb` if necessary)
- `time_zone` Must be available and configured (important for the time zones and the calendar).
More information can be found under:
<https://mariadb.com/kb/en/time-zones/>
https://mariadb.com/kb/en/mysql_tzinfo_to_sql/
Example for correct installation:
`$ mysql_tzinfo_to_sql /usr/share/zoneinfo | mariadb -uroot -p mysql`
- `max-allowed-packet` should be 256M (recommend 512M) including the newer COMPRESSED and DYNAMIC row formats.
- The collation should be `utf8mb4`.

Create an additional config file for MariaDB in `/etc/mysql/mariadb.conf.d/custom-mariadb.cnf` which could look like this:

```
[client]
default-character-set = utf8mb4

[mysqldump]
max_allowed_packet = 256M

[server]

[mysqld]
default_storage_engine = InnoDB
sql_mode = "ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_
↔SUBSTITUTION"
max_allowed_packet = 256M
character-set-server = utf8mb4
collation-server = utf8mb4_general_ci
```

After adding the configuration restart the MariaDB service by typing `systemctl restart mariadb.service`.

2.6 Additional Packages via Composer

To ensure full functionality of the CRM+ system, additional packages must be loaded via Composer. The execution will be described in detail in the installation instructions you received.

2.7 CRM+ Functionalities

2.7.1 Exchange Connector

Required packages	
php8.1-curl	e.g. for Exchange Connector connection

- Exchange as of version 2013
- Exchange EWS (Exchange Web Services) must be enabled
- On the Exchange Server side, the WWW Publishing service must be enabled
- Firewall Configuration: Exchange & CRM Server must be able to establish new connections in both directions and communicate with each other

Note:

- The Exchange server should be synchronized via systemd-timesyncd. If the CRM and Exchange servers are out of sync, there can be significant issues.
- All servers involved in the encrypted communication must support at least TLS 1.2. The recommended reference is the Mozilla Intermediate recommended configuration, see https://wiki.mozilla.org/Security/Server_Side_TLS
- If the CRM is operated with a self-signed certificate, it must be known to the Exchange server. Self-signed certificates from the Exchange server are not supported.
- If your Exchange Server is hosted and administered by a third party, please contact us first. Please understand that we can not provide assistance with non-standard configurations.

2.7.2 PDF Templates

Required packages	
libxext6 libxrender1	e.g. Generation of PDF exports
ttf-mscorefonts-installer fontconfig	These two packages are needed to generate PDF exports from CRM+, so that the fonts used can be displayed correctly or series exports can be combined into one package (form letters).

In order to use the PDF Template Generator integrated in CRM+ to export PDF documents, you must download the WKHTML packages suitable for your server from our website and make them available on your server for CRM+.

component	git clone command
WKHTML 64bit	git clone git@deploy.brainformatik.net:thirdparty/wkhtml-x64.git /opt/thirdparty/wkhtml

The checkout of the required package can be carried out with the supplied SSH key pair.

Installation: Get the right package for your server (32 or 64bit). After the checkout of the repository you will get a new directory "wkhtml" containing the following files:

1. wkhtmltoimage: for the Power Point export in module reports.
2. wkhtmltopdf: for the general PDF export in the CRM+.
3. local.conf: improves the typeface of the exported PDF documents.
4. README.md: Installation instructions

To make the files available for CRM+, there are two possibilities:

1. Copy the directory "wkhtml" directly to CRM+ into the subdirectory "crm/bin/"
2. Drop the directory "wkhtml" in a request folder (for example, "/opt/thirdparty/wkhtml") and then link this directory in the CRM+ directory under "crm/bin/" (e. g. In -s /opt/thirdparty/wkhtml /var/www/vhosts/<domain>/crm/bin/)

In both cases, you must ensure that the file references to the files in the directory are 755 and assigned to the same web user or webgroup (e.g., www-data).

The two files `wkhtmltoimage` and `wkhtmltopdf` must be executable.

The offered packages are tested versions of WKHTML 0.10.0 rc2. Newer versions, but untested, can be found at <http://wkhtmltopdf.org/downloads.html>. Please note that we are currently unable to guarantee functionality for these versions.

2.7.3 SFTP Backup

Required packages	
ftp php8.1-ssh2 sshpas	These packages are needed to use the SFTP Backup feature of CRM+. Possible is only SFTP.

QUICK INSTALLATION

3.1 Overview

Note: The Ansible Playbook also works for **>= Ubuntu 20.04.2 LTS!**

Warning: The following configurations and URLs are only for example.
The required data will be supplied on request.

Clone the Ansible Playbook as a repository from our deployment git repository. Afterwards, you will install the necessary programs for CRM+.

3.2 SSH Configuration

Do following command **as root**:

```
$ vim ~/.ssh/config
```

Paste following content into it:

```
Host [deploy.host.url]
  Hostname [deploy.host.url]
  Port [deploy.host.port]
  User git
  IdentityFile ~/.ssh/id_ed25519
```

Please send us the file "id_ed25519.pub" to get the required access.

3.3 Installation

First, we have to install ansible:

See following links for your distribution:

Debian:

https://docs.ansible.com/ansible/latest/installation_guide/intro_installation.html#installing-ansible-on-debian

Ubuntu:

https://docs.ansible.com/ansible/latest/installation_guide/intro_installation.html#installing-ansible-on-ubuntu

With this done, clone the repository with following command:

```
$ git clone git@[deploy.host.url]:crm-tools/ih-server-installation.git
/opt/ih-server-installation
```

Now, run following command:

```
$ ansible-playbook /opt/ih-server-installation/server_install.yaml
```

That's it! You installed all necessary system requirements and now can clone the CRM+ repository and configure your Apache2 vHost.

3.4 CRM+ Installation

Clone the CRM in the desired location.

Git clone command is only example (communicated personally)

```
$ git clone git@deployment-server:crm-application.git /var/www/vhosts/your-domain.
example.com/crm
```

Install the CRM+ application

```
$ bash /var/www/vhosts/your-domain.example.com/crm/bin/install.sh install
```

Note: See `bash /var/www/vhosts/your-domain.example.com/crm/bin/install.sh install --help` for custom settings like database name.

DOCKER INSTALLATION

4.1 Overview

Warning: The following configurations and URLs are only for example.
The required data will be supplied on request.

Clone the docker compose configuration as a repository from our deployment git repository.

4.2 SSH Configuration

Do following command **as root**:

```
$ vim ~/.ssh/config
```

Paste following content into it:

```
Host [deploy.host.url]
  Hostname [deploy.host.url]
  Port [deploy.host.port]
  User git
  IdentityFile ~/.ssh/id_ed25519
```

Please send us the file "id_ed25519.pub" to get the required access.

4.3 Installation

First, we have to install docker:

See following links for your distribution:
<https://docs.docker.com/engine/install/>

With this done, clone the repository with following command:

```
$ git clone git@[deploy.host.url]:docker/ih-crm-plus.git
/opt/bf/ih-crm-plus
```

Now, go to `/opt/bf/ih-crm-plus` and create necessary directories and files:

```
$ cd /opt/bf/ih-crm-plus
cp env.sample .env
mkdir volumes/storage volumes/config
```

Prepare docker network for crmplus:

```
$ docker network create crmplus-net
```

Note: Before cloning the docker images you have to create an access token with scope `api` in our deployment system.

After you received your username and access token you can login in docker deployment.

```
$ docker login [deploy.host.url]
```

4.4 Configuration

Configure environment for docker and CRM+ application in `.env`: - set compose profile (productive initialises reverse proxy) - Set your default admin password with `CRM_ADMIN_PASSWORD` (only on first install). - Optional: set database name, mysql user and custom passwords

4.4.1 Configure SSL Certificates

Required `DOMAIN_NAME` configured in `.env`

SSL Certificates via file

Copy configuration for SSL certificates:

```
$ cp volumes/traefik/config.yml.sample volumes/traefik/config.yml
```

Place your SSL certificates in `volumes/traefik/ssl/`.

Now configure `certFile` and `KeyFile` in `volumes/traefik/config.yml`

Example:

```
# DOMAIN_NAME=crm.example.com

tls:
  certificates:
    - certFile: /etc/traefik/ssl/crm.example.com.cert # e.g fullchain.pem for LE
      ↪ certificates
      keyFile: /etc/traefik/ssl/crm.example.com.key # e.g key.pem for LE certificates
```

Note: The reverse proxy automatically uses the right certificate for the configured domain.

SSL Certificates via Lets Encrypt

Create and set rights on `acme.json`:

```
$ touch volumes/traefik/acme.json
  chmod 0600 volumes/traefik/acme.json
```

Edit traefik config in `volumes/traefik/traefik.yml` uncomment `certificatesResolvers` section and set your e-mail used for lets encrypt certificates:

```
certificatesResolvers:
  letsencrypt:
    acme:
      email: your-email@example.com # place your e mail used for lets encrypt
```

Uncomment `certresolver` line in `docker-compose.yml`.

Note: The reverse proxy automatically requests the right certificate for the configured domain.

4.4.2 Configure Reverse Proxy

Must set following header:

- Host
- X-Forwarded-Proto
- X-Forwarded-For
- X-Real-IP

Example for nginx:

```
proxy_set_header Host $host;
proxy_set_header X-Real-IP $remote_addr;
proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
proxy_set_header X-Forwarded-Proto $scheme;
```

4.5 Run

After full configuration start the containers with:

```
$ docker compose up -d
```

Note: On the first install `docker compose` will pull the containers and then install the CRM+ application. After an estimated time of 5 minutes the CRM+ is installed and now can be reached under your configured domain.

Warning: The reverse proxy will only accept and pass request to CRM+ if it was accessed by the configured domain.

PHP UPGRADE TO 8.1

5.1 Update Packages

Warning: Please use the [Sury](#) repository to install the PHP packages.
View their [README.txt](#) to add the required repository to debian sources.

Update the apt pinning configuration `/etc/apt/preferences.d/sury` with following content:

```
Package: php5.6*, php7.0*, php7.1*, php7.2*, php7.3*, php7.4*, php8.0*, php8.2*
Pin: release *
Pin-Priority: -1
```

Now install the new php8.1 packages apt configuration install the php packages:

```
$ apt install libapache2-mod-php8.1 php-common php8.1 php8.1-bcmath \
  php8.1-bz2 php8.1-cli php8.1-common php8.1-curl php8.1-gd php8.1-igbinary \
  php8.1-imap php8.1-intl php8.1-ldap php8.1-mailparse \
  php8.1-mbstring php8.1-mysql php8.1-opcache php8.1-readline php8.1-soap \
  php8.1-ssh2 php8.1-tidy php8.1-xml php8.1-xmlrpc php8.1-zip
```

5.2 Update Configurations

5.2.1 PHP8.1

Copy php and opcache configuration from `/etc/php/7.4/mods-available/` to `/etc/php/8.1/mods-available/`. The files typically called `custom-php.ini` and `custom-opcache.ini`.

After copying the configurations must be enabled again by typing `phpenmod custom-php` and `phpenmod custom-opcache`.

For full configuration see: [PHP: Configuration](#)

Disable default opcache configuration by typing `phpdismod opcache`.

5.2.2 Apache

Disable old php7.4 module, enable new php8.1 module and restart apache service.

```
a2dismod php7.4 && a2enmod php8.1

systemctl restart apache2.service
```

Verify php was successfully upgraded by typing `php -v` and check the output. The output should look like:

```
PHP 8.1.18 (cli) (built: Apr 14 2023 04:39:46) (NTS)
Copyright (c) The PHP Group
Zend Engine v4.1.18, Copyright (c) Zend Technologies
    with SourceGuardian v14.0.2, Copyright (c) 2000-2023, by SourceGuardian Ltd.
    with Zend OPcache v8.1.18, Copyright (c), by Zend Technologies
```

5.3 SourceGuardian Loader

Install SourceGuardian it will be used in the future instead of ionCube Loader.

Is responsible for the decryption and thus the runnability of CRM+. Available at:

Linux (x86-64) https://www.sourceguardian.com/loaders/download/loaders.linux-x86_64.tar.gz

```
wget --user-agent="Chrome/51.0.2704.103" https://www.sourceguardian.com/loaders/download/
↳ loaders.linux-x86_64.tar.gz
```

If the download link does not work anymore, you will also find the available packages via the main domain: <https://www.sourceguardian.com/loaders.html>

Unzip the downloaded package to `/opt/thirdparty/sourceguardian`.

Create the file `/etc/php/8.1/mods-available/custom-sourceguardian.ini` with following content, after creating the file enable the module by typing `phpenmod custom-sourceguardian`.

```
; Custom configuration for php8.1 module
; priority=00

zend_extension = /opt/thirdparty/sourceguardian/ixed.8.1.lin
```

Verify SourceGuardian was successful installed by typing `php -v` and check for the SourceGuardian section. For full configuration see: [SourceGuardian Loader: Installation](#)

5.4 Cleanup PHP7.4 Packages

After successful installation the php7.4 packages can be purged.

```
apt remove --purge $(dpkg -l | grep php7.4 | awk '{ print $2 }')  
apt autoremove  
apt autoclean
```

UPGRADE SOURCEGUARDIAN LOADER

Note: The ionCube loader is not required anymore. It can be deleted from your server.

For full configuration see: [SourceGuardian Loader: Installation](#)

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Note: The ionCube loader is not required anymore. It can be deleted from your server.

7.1 Page “CRM+ Functionalities”

Remove `ghostscript` from required packages for PDF templates.

7.2 Page “MariaDB: Configuration”

With MariaDB 10.5, the parameter `innodb_file_format` has been removed.

You need to update your configuration file and remove this parameter.

7.3 Page “PHP: Configuration”

- Update to `php8.1`
- Remove the `php-json` package as it is now included in the base package.

7.4 Page “PHP Upgrade to 8.1”

- Update the upgrade guide from `php7.4` to `php8.1`.
- Remove the `php-json` package as it is now included in the base package.

7.5 Page “Server”

- Update package list to Debian 11
- Replace php7.4 by php8.1
- Remove the ghostscript package as it is not needed anymore.

7.6 Page “Upgrade SourceGuardian Loader”

This page has been added to the documentation.

After the upgrade process, please make sure that you have installed the version 14.0 or newer.