Garoon 5.5 Installation Guide

Second Edition, Fourth Revision

Cybozu, Inc.

Preface

This guide describes instructions for installation of Garoon 5.5.0 and the default configuration after installation. This guide also explains how to upgrade Garoon to version 5.5.0.

Typographic Conventions Used in This Guide

This guide uses the following conventions:

Convention	Meaning
Caution	Describes cautions that are important to note.
Note	Describes actions that require attention, or limitations.
Tip	Provides supplementary information about operations, describes other ways to operate Garoon, or offers a helpful hint.
" "	Indicates buttons, links, or tabs on screens.
See "Section title" on page ###.	Indicates a cross reference link to the detailed information.

Product Names and Their Abbreviations and Product Names Used in This Guide

This guide uses the following abbreviated names:

Abbreviation	Product Name
Garoon	Garoon 5.5.0
Full text search server	Full text search server 2.0

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Contents

Chapter 1　　Before Setting Up

1.1　　Points to Be Checked before Setting Up

This section explains system requirements as well as the ports that are used by Garoon. Make sure that you read through this section before you install or upgrade Garoon.

1.1.1　System Requirements

The system requirements Garoon are as follows (as of November 2020).

Note

• Services and products that are no longer supported by their vendors are not included in the list.

Supported Operating Systems

OS	Version
Windows (64bit)	Windows Server 2019 Standard Edition Windows Server 2019 Datacenter Windows Server 2016 Standard Edition Windows Server 2016 Datacenter
Linux (64bit)	Red Hat Enterprise Linux 8 Red Hat Enterprise Linux 7

Supported Web Server Services

OS	Web Server Services
Windows (64bit)	Internet Information Service (IIS) 10.0
Linux (64bit)	Apache 2.4.x

Supported Web Browsers

OS	Web Browsers
Windows	Internet Explorer 11 (modern UI and desktop versions) Latest version of Microsoft Edge Latest version of Mozilla Firefox Latest version of Google Chrome
Mac	Latest version of Safari Latest version of Mozilla Firefox
iOS	iOS 13 Safari iOS 12 Safari
Android	Latest version of Chrome for Android

Tip

- Garoon also can run in a virtual environment. Note that some virtual environments can degrade performance depending on your operating environment.

- Garoon 5.0 and subsequent versions do not support the server-distributed deployment (deploying Web server and database server separately on different servers).

- For the latest system requirements and limitations, see the following Japanese page on our website:
  https://garoon.cybozu.co.jp/product/environment/

- Please use Windows Server in full installation mode (GUI enabled). Server OS in Server Core mode is not supported.

- Despite description given above, only the latest two generations of iOS version are supported.

- If you want to use the full text search server with Garoon version 5.5, please user the full text search server version 2.0.3 or later.
  The following table describes the supported combinations of Garoon versions and Full text search server versions:

Garoon version	Supported Full text search server version
Garoon version 4.6.x, 4.10.x, 5.0.x, 5.5.x	2.0.3
Garoon version 4.2.x	2.0.1, 2.0.2, 2.0.3
Garoon version 4.0.x	2.0.1, 2.0.2, 2.0.3

Mail Servers

To use the e-mail client feature, a separate mail server is also required. Garoon supports the following mail servers:

Protocol

Garoon currently supports IMAP4 and IMAP4S for receiving e-mails only.

- SMTP

- SMTPS

- POP3

- POP3S

- IMAP4

- IMAP4S

Authentication Method

- APOP

- POP before SMTP

- SMTP Authentication

- Advanced authorization (OAuth 2.0) for Gmail and Exchange Online:
  Available in Garoon version 5.5.1 or later.
  After you configure an e-mail server with specifying the OAuth client in System Administration, users can use the advanced authorization (OAuth 2.0) to send/receive emails by performing the authorization in their "E-mail account details" screen.

Encryption Protocol

• SSL

• TLS

1.1.2 Ports Used by Garoon

This section describes ports used by Garoon. When a firewall is deployed, you must open only necessary ports for protocols you are using.
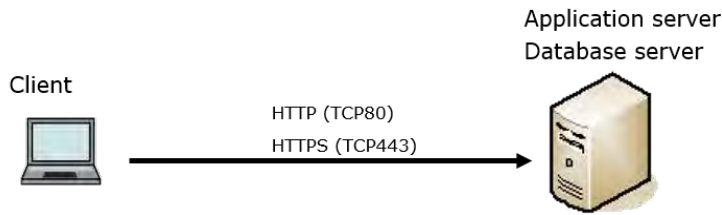
Communication Between Clients and the Application Server

protocol	Port Number Commonly Used
HTTP	TCP80
HTTPS	TCP443

Tip

- TCP port 3770 must be closed. The port is used for communication with MySQL, but it should not be accessed from outside the server machine. Note that you should not disclose the port numbers to others.

Features that Require Internet Access

To use Cybozu Online Service (weather forecasts and Rokuyo), Garoon must be able to access the Internet. Please note that Cybozu Online Service is provided only in Japanese.

1.1.3 Required Settings for Servers Using IPv6 Communication

To run Garoon on a server using IPv6 for communication, you must edit the MySQL configuration file (my.ini or my.cnf). The following steps assume that MySQL bundled in the installer has been installed:

For Windows

Steps:

1. **Log in to the server machine as a user who has Administrator rights.**

2. **Open "services" from the Administrative Tools of Windows.**

3. **Select "Cybozu_Scheduling_Service_cbgrn", and click "Stop Service".**

4. **Select "Cybozu_Database_Engine_5_0", and click "Stop Service".**

5. **Open the my.ini file.**
The my.ini file exists in the following directory, if you installed MySQL bundled in the installer:

• C:¥Program Files¥Cybozu¥mysql-5.0¥etc¥my.ini

6. **Add "bind-address=::" to the [mysqld] section.**

Before changing:

```
#UNCOMMENT_ONPRE_LIN user          = %HTTPD_USER%
skip-name-resolve
port                               = 3770
#socket                            = C:/Program Files/Cybozu/mysql-5.0/data/mysql.sock
(Omitted)
```

After changing:

```
#UNCOMMENT_ONPRE_LIN user          = %HTTPD_USER%
skip-name-resolve
port                               = 3770
#socket                            = C:/Program Files/Cybozu/mysql-5.0/data/mysql.sock
bind-address=::
(Omitted)
```

7. **Open "services" from the Administrative Tools of Windows.**

8. **Select "Cybozu_Database_Engine_5_0", and click "Start Service".**

9. **Select "Cybozu_Scheduling_Service_cbgrn", and click "Start Service".**

For Linux

Steps:

1. **Log in to the server machine as a root user.**

2. **Stop the scheduling service.**

```
[root@garoon admin]# /etc/init.d/cyss_cbgrn stop
```

3. **Stop the MySQL service.**

```
[root@garoon admin]# /etc/init.d/cyde_5_0 stop
```

4. **Open the my.ini file.**

The my.ini file exists in the following directory if you installed MySQL bundled in the installer:

• /usr/local/cybozu/mysql-5.0/etc/my.ini

5. **In the [mysqld] section, include the statement "bind-address=::".**

Before changing:

```
[mysqld]
user          = apache
skip-name-resolve
port                               = 3770
socket                             = /usr/local/cybozu/mysql-5.0/data/mysql.sock
(Omitted)
```

After changing:

```
[mysqld]
user          = apache
skip-name-resolve
port                        = 3770
socket                        = /usr/local/cybozu/mysql-5.0/data/mysql.sock
bind-address=::
(Omitted)
```

6. **Start the MySQL service.**

```
[root@garoon admin]# /etc/init.d/cyde_5_0 start
```

7. **Start the scheduling service.**

```
[root@garoon admin]# /etc/init.d/cyss_cbgrn start
```

Chapter 2   Installing

Installing a new Garoon.

| Tip |

• To enable Garoon to connect to an LDAP server over SSL, additional configurations are required. For the instructions, see the following page on our website:
https://jp.cybozu.help/en/settings/garoon4/sslsetup.html

2.1   Preparing for Installation

This section describes preliminary tasks to be performed before you can install Garoon. The tasks include preparing information necessary for installation and installing a Web server service.

2.1.1 Preparing Information Necessary for Installation

The following information is required for installing Garoon:

Item	Description
Installer	You can download the latest installer from the following Japanese page: https://garoon.cybozu.co.jp/support/user_package/servicepack/
Administrator password (for Windows) or root password (for Linux)	The password of the user account that is used to manage Garoon. This password is required for initializing Garoon.
System administrator information	The information of the system administrator of Garoon. • User name • Login name • password

Customer information	The information of the customer who will use Garoon. The following information must be available:
	• Company name
	• Pronunciation of company name
	  If you want to change the logo displayed on screens, prepare one of the following:
	    • Image file
	    • URL pointing to the image file's location

Database administrator password	The password of the user account (cbroot) that is used to manage MySQL. You must keep this password strictly confidential.
database user password	The password of the user account that is used to connect to MySQL. You must keep this password strictly confidential.
Installation identifier	A string that identifies a Garoon installation. The following characters can be used: • Lowercase alphabetical characters (a–z) • Uppercase alphabetical characters (A–Z) • Underscores (_)

Item	Description
	• Numbers (0–9) Tip: • The default value is "cbgrn". • An identifier cannot start with a number. • The maximum length is 10 characters. • If you already have a different Cybozu product installed, the new installation identifier must be different from any other identifiers that are currently used for Cybozu products.
CGI directory	A directory to be used for storing CGI programs and configuration files for Garoon. The default directory is as follows: • On Windows: C:\Inetpub\scripts • On Linux: /var/www/cgi-bin Tip: For Windows, the CGI directory must be configured as a virtual directory before you can install Garoon. For information on how to create a virtual directory, see the following page on our website: https://jp.cybozu.help/en/settings/browser/webalias.html
Document root directory	A directory to be used for storing HTML files and image files for Garoon. The default directory is as follows: • On Windows: C:\Inetpub\wwwroot • On Linux: /var/www/html

2.1.2 (For Both Operating Systems) Installing a Web Server Service

Install a Web server service on the serve machine, and configure the Web server to enable CGI programs.

If you plan to use an existing installation of a Web server service, additional configurations may be required for running Garoon, such as granting permissions and setting virtual directories.

You must refer to the following page to configure required settings, regardless of whether you plan to install a new Web server service or use an existing installation.

https://jp.cybozu.help/en/settings/browser.html

After a Web server service is installed, ensure that the Web server service is running.

> **Tip**

• For information on virtual directory, see the following page on our website:
  https://jp.cybozu.help/en/settings/browser/webalias.html

• On Linux, configure Apache to run in prefork mode.

2.1.3 (For Both Operating Systems: Only When Using an Existing MySQL Installation) Changing MySQL Settings

MySQL is bundled in the Garoon installer. We recommend that you set up Garoon by using the bundled MySQL. However, you can use the existing MySQL installation.

The only supported version of MySQL is 5.7.30, which is the same version of MySQL bundled in the Garoon installer.

To use an existing MySQL installation, the following steps are required:

Editing the MySQL Configuration File (my.ini or my.cnf) Before You Install Garoon

Before you install Garoon, edit the my.ini file or my.cnf file to include the values described below.

Steps:

1. Stop the MySQL service.

2. Move to the directory where the configuration file exists.

- Example of its directory on Windows: C:\ProgramData\MySQL\MySQL Server 5.7\my.ini
- Example of its directory on Linux: /usr/my.cnf

3. Open the configuration file in a text editor. Include the following values and save the file:

- For Windows (my.ini)

  Before changing:
  ```
  sql_mode=NO_ENGINE_SUBSTITUTION,STRICT_TRANS_TABLES
  ```

  After changing:
  ```
  sql_mode=NO_ENGINE_SUBSTITUTION
  ```

- For Linux (my.cnf)
  Before changing:
  ```
  sql_mode=NO_ENGINE_SUBSTITUTION,STRICT_TRANS_TABLES
  ```

  After changing:
  ```
  sql_mode=NO_ENGINE_SUBSTITUTION

  character-set-server = utf8mb4
  collation-server = utf8mb4_general_ci
  skip-character-set-client-handshake

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

4. Start the MySQL service.

Entering the Connection Information of MySQL While Installing Garoon

While installing Garoon, select the "Use MySQL already installed on the server" option and enter the following information about the existing MySQL installation:

- The directory where MySQL is installed
- The port number of MySQL
- The MySQL root password

Restarting the MySQL Service After Garoon Is Installed

After the installation of Garoon is completed, you must restart the MySQL service.

Contacting Cybozu About Setting Up the Full Text Search Server

When you use an existing MySQL installation, you must configure special settings for the Full text search server. For more information on the procedure, please contact us.
When you install MySQL bundled in the installer, you can use the regular steps to set up the Full text search server.

2.1.4 (Only for Windows) Configuring a Virtual Directory

A virtual directory maps a URL that users enter on the Web browser to a specific directory on the server. The CGI directory of the Web server must be configured as a virtual directory before you can install Garoon.
For information on virtual directory, see the following page on our website:
https://jp.cybozu.help/en/settings/browser/webalias.html

2.1.5 (Only for Linux) Disabling KeepAlive in Apache

The default configuration of Apache2.4 (bundled in Red Hat Enterprise Linux 7 and 8) has KeepAlive enabled. To disable KeepAlive, specify the statement "KeepAlive Off" in the configuration file.

Steps:

1. Edit httpd.conf to disable KeepAlive.

Before changing:

```
    :
User apache
Group apache
```

After changing:

```
    :
User apache
Group apache
KeepAlive Off
```

2. After you edit the configuration file, restart the Web server service on the server machine.

```
[root@garoon admin]# systemctl restart httpd.service
```

> **Tip**

- When you choose to enable KeepAlive, you should adjust the KeepAliveTimeout value for your environment. The greater the value of KeepAliveTimeout, the more likely Garoon is to respond slowly when Garoon handles many requests.

2.1.6 (Only for Linux) Disabling Transparent Huge Pages (THP)

THP should be disabled. When THP is enabled, the performance of Garoon version 4.10 or later can be degraded.

Steps:

1. **Check that THP is disabled.**

> [root@garoon admin]# cat /sys/kernel/mm/transparent_hugepage/enabled

If "never" is surrounded by [ ], the THP function is disabled.
Example:

> always madvise [never]

If "[always] madvise never" or "always [madvise] never" is displayed, The THP function is enabled. Proceed to step 2.
If the THP function is disabled, proceed to step 3.

2. **THP should be disabled.**

> [root@garoon admin]# echo never > /sys/kernel/mm/transparent_hugepage/enabled

3. **Edit /etc/rc.d/rc.local to include the following statement so that THP can stay disabled after a restart:**
File to be changed: /etc/rc.d/rc.local

Before changing:

>   :
> touch /var/local/subsys/local

After changing:

>   :
> touch /var/local/subsys/local
> **echo never > /sys/kernel/mm/transparent_hugepage/enabled**

4. **Set the Execute permission on /etc/rc.d/rc.local.**

> # chmod u+x /etc/rc.d/rc.local

2.1.7 (Only for Linux) Disabling SELinux

For Linux, you must disable SELinux. Garoon does not work properly when SELinux is enabled.

- To check whether SELinux is enabled:
  Execute the following command:

```
[root@garoon admin]# getenforce
```

One of the following values is returned:

- Enforcing: Indicates that SELinux is enabled.
- Permissive: Indicates that SELinux is in debugging mode (where access control is not enforced but log entries are generated in the same way as when SELinux is enabled).
- Disabled: Indicates that SELinux is disabled.

- To disable SELinux:
When SELinux is enabled, open the SELinux configuration file (/etc/sysconfig/selinux) to change the value of "SELINUX". To apply the change, you must restart the operating system.
Before changing:

```
      :
   SELINUX=enforcing
```

After changing:

```
      :
   SELINUX=disabled
```
Restart the operating system.

2.1.8　(Only for Linux) Installing Libraries Required for Garoon

For Linux, ensure that the libraries required for running Garoon are installed.

For details on libraries used by Garoon, see the following page:

https://jp.cybozu.help/en/settings/garoon4/linux_library_gr5.html

2.2　Installing on Windows

This section describes how to install Garoon on Windows.

For example, the steps below are based on the following operation environment:

- OS: Windows Server 2016
- Web server service: IIS 10.0
- CGI directory of the Web server: C:¥inetpub¥scripts
- Document root directory of the Web server: C:¥inetpub¥wwwroot
- MySQL: Using MySQL bundled in the Garoon installer

Caution

- Do not install a new version of Garoon on a server machine where an older version of Garoon is already installed. Installing different versions of Garoon on one server machine causes the older version to fail.

Note

- You must exit all Windows programs before you start the installation.

- You must keep the database administrator password and database user password strictly confidential. If you lose the password, you will not be able to reset the password or migrate Garoon to another server machine.

- Do not operate more than one Garoon installation on one server machine.

- Installing Garoon also installs the Visual C++ redistributable packages for Visual Studio 2013 and 2015. Do not delete the package.

Steps:

1. **Log in to the server machine that you want to install Garoon on as a user who has Administrator rights on a local server.**

2. **Place the installer in any folder, such as "C:\Temp".**

3. **Start the installer and click "Next".**
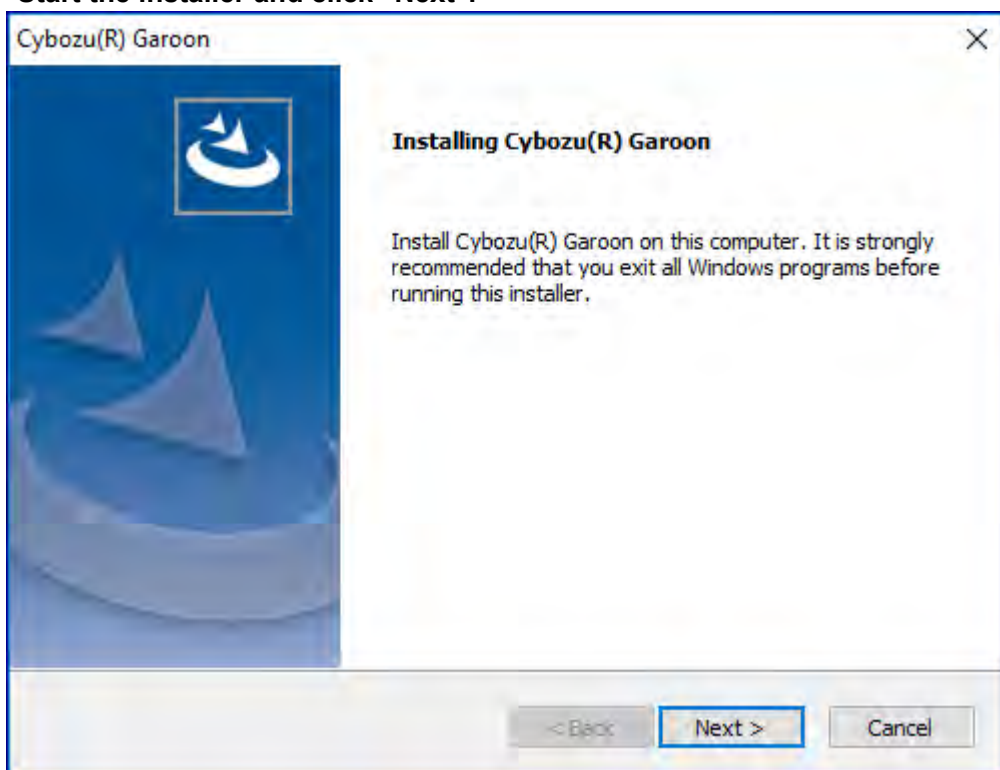
4. **Read the Software License Agreement carefully. If you agree with it, select "I agree to the Software License Agreement" and click "Next".**
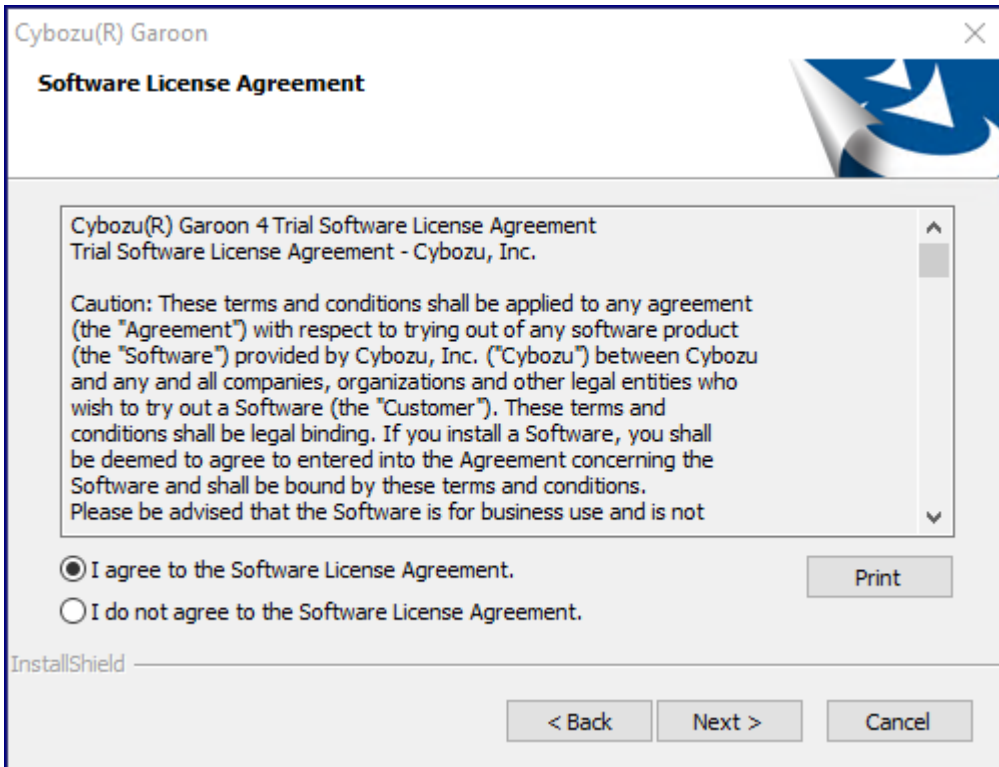
5. **Select "Install the bundled MySQL Community Server (GPL) automatically (Recommended)" and click "Next".**
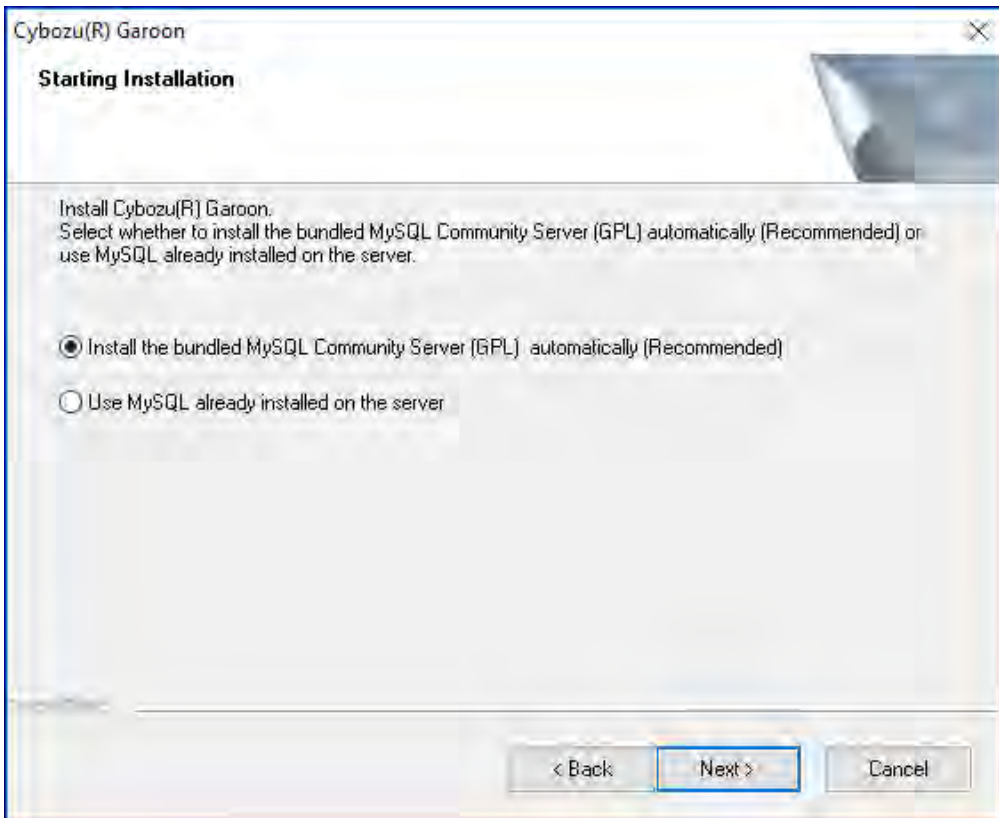
6. **Confirm the Cybozu application directory and click "Next".**

If you want to change the Cybozu application directory, click "Browse" and select another directory.
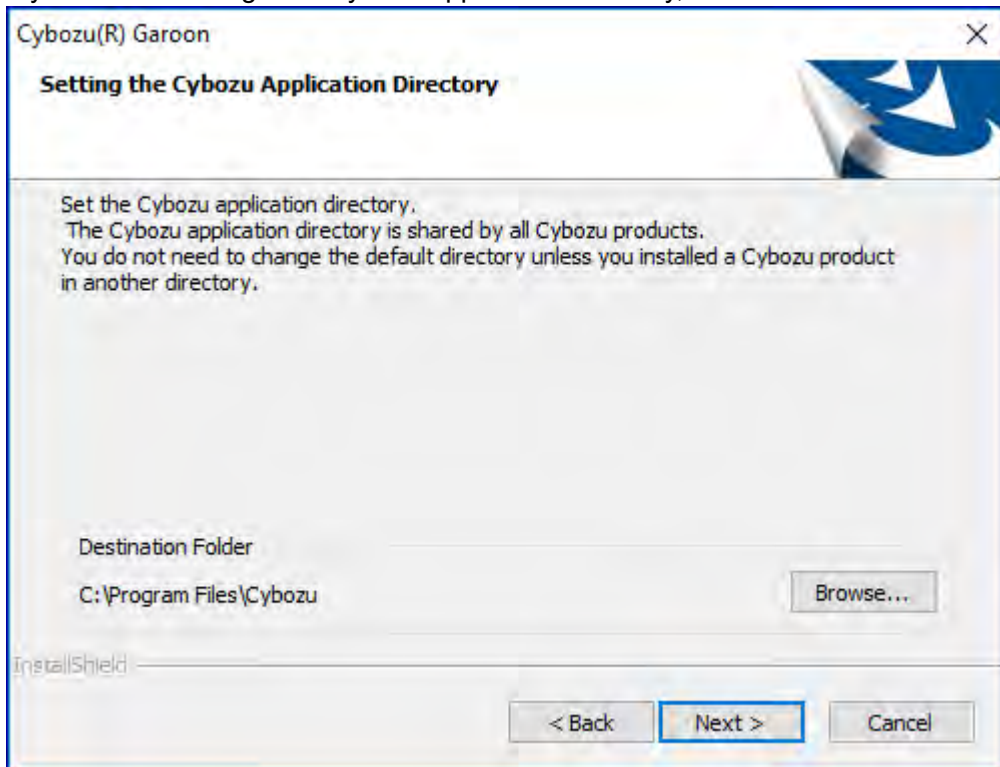
7. **Enter the database administrator password and click "Next".**
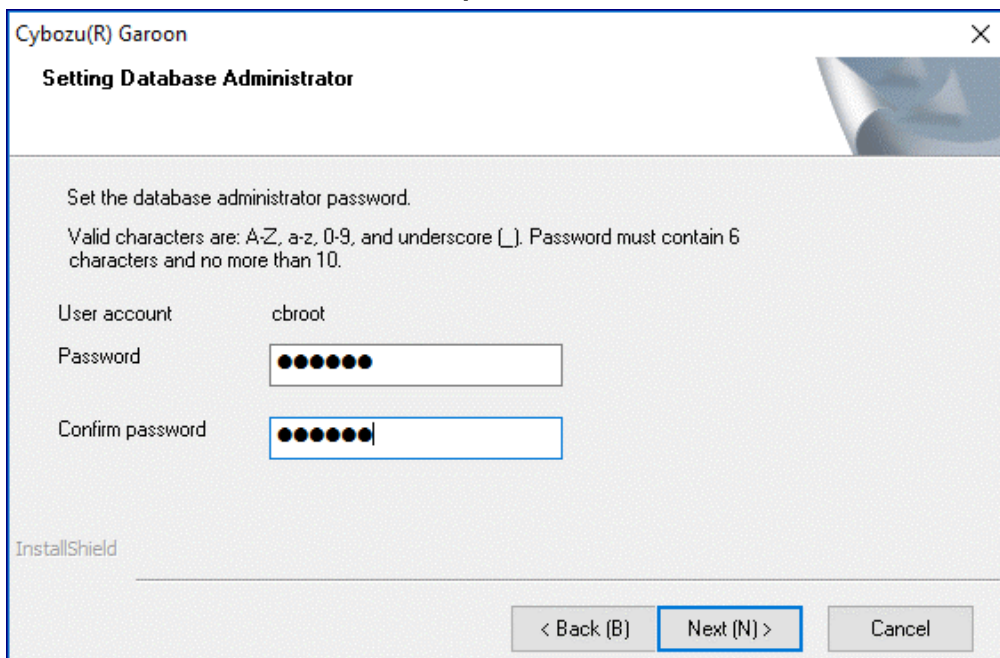
8. **Enter an installation identifier and click "Next".**

• The initial setting is "cbgrn". If you want to change the setting, type any installation identifier and press the Enter key.

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- If IIS is not running, you will get a "Failed to detect a web server" error message, and the installer stops.

Cybozu(R) Garoon

Setting an Installation Identifier

Enter the installation identifier.
Valid characters are: A-Z, a-z, 0-9, and underscore (_). The first character must not be numeric.
The installation identifier must be up to 10 characters.

Name: cbgrn

InstallShield

< Back   Next >   Cancel
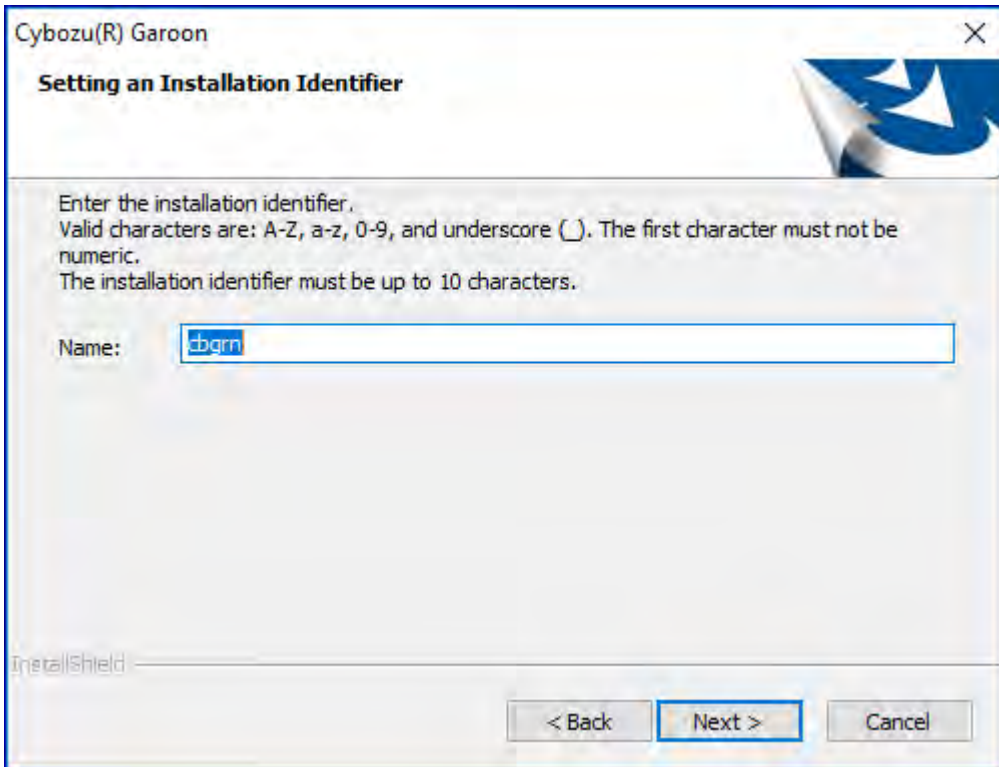
9. **Confirm the CGI directory of the Web server and click "Next".**

If you want to change the CGI directory, click "Browse" and select another directory.

Cybozu(R) Garoon

Setting the Web Server CGI Directory

Set the web server CGI directory.
The executable file is stored in the directory \"cbgrn\" that is created under the specified directory.

Destination Folder

C:\Inetpub\scripts   Browse...

InstallShield

< Back   Next >   Cancel
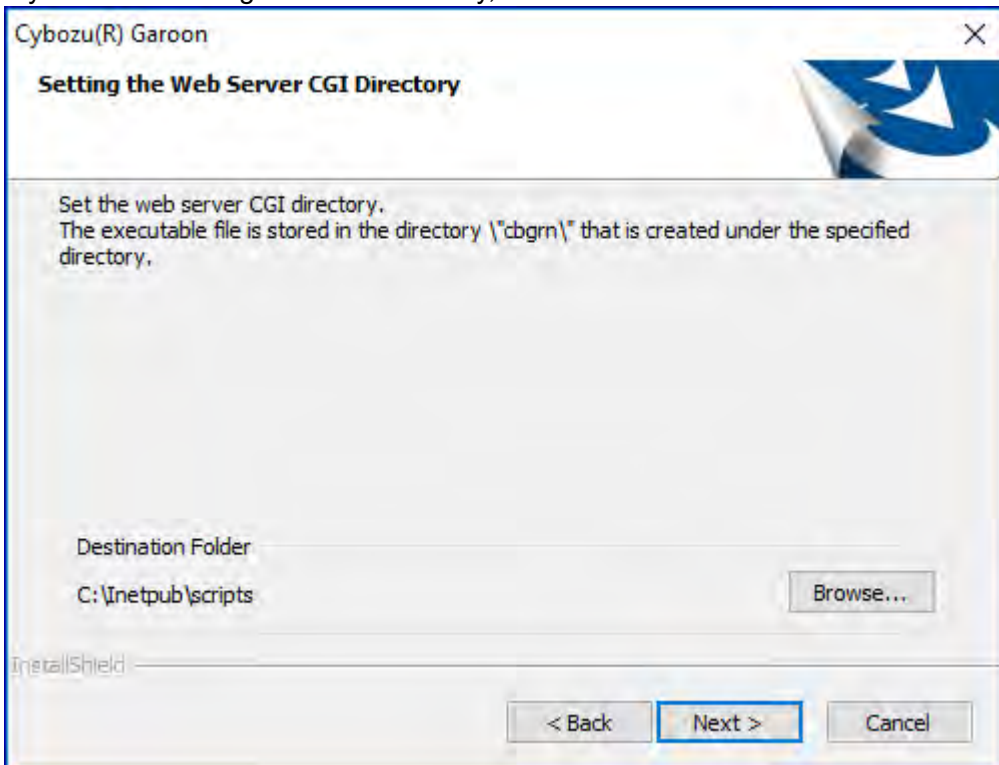
10. **Confirm the document root directory of the Web server and click "Next".**

If you want to change the document root directory, click "Browse" and select another directory.
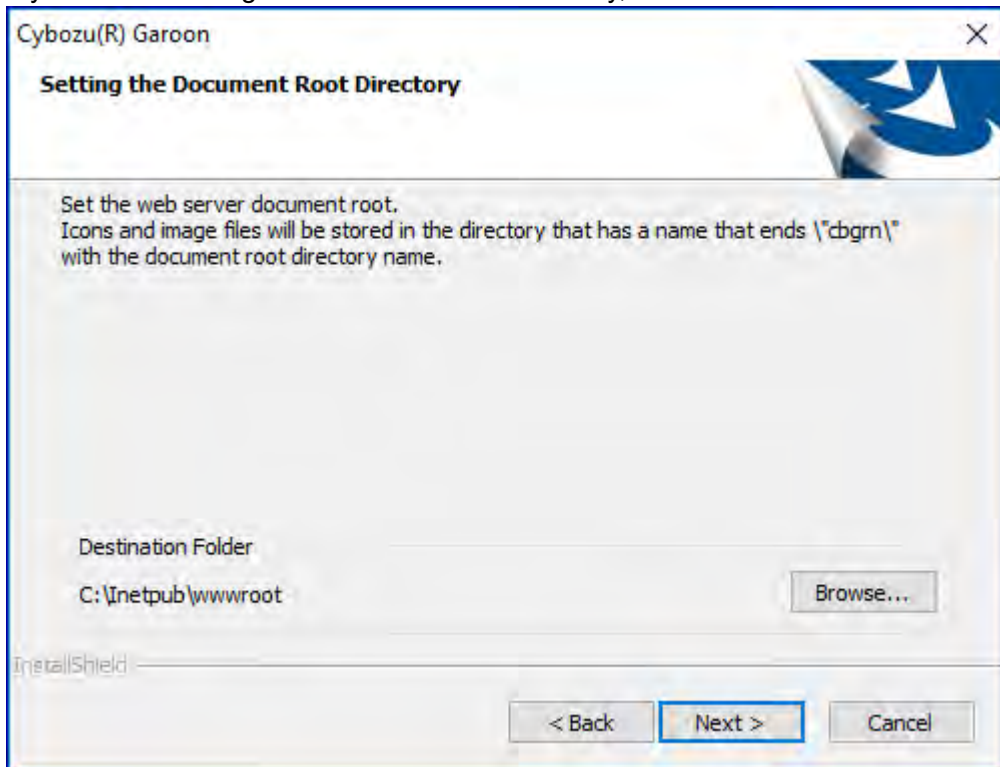
11. **Verify the displayed settings and click "Install".**

The installation starts.
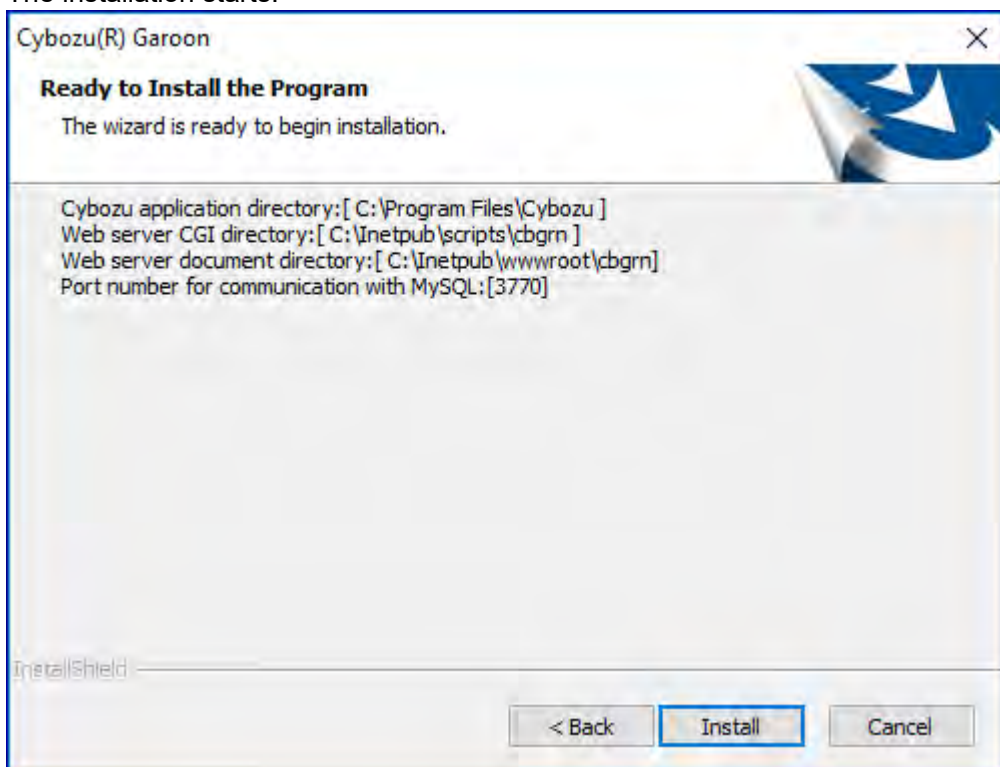
12. **Click "Finish" on the "InstallShield Wizard Complete" screen.**

The installer exits.
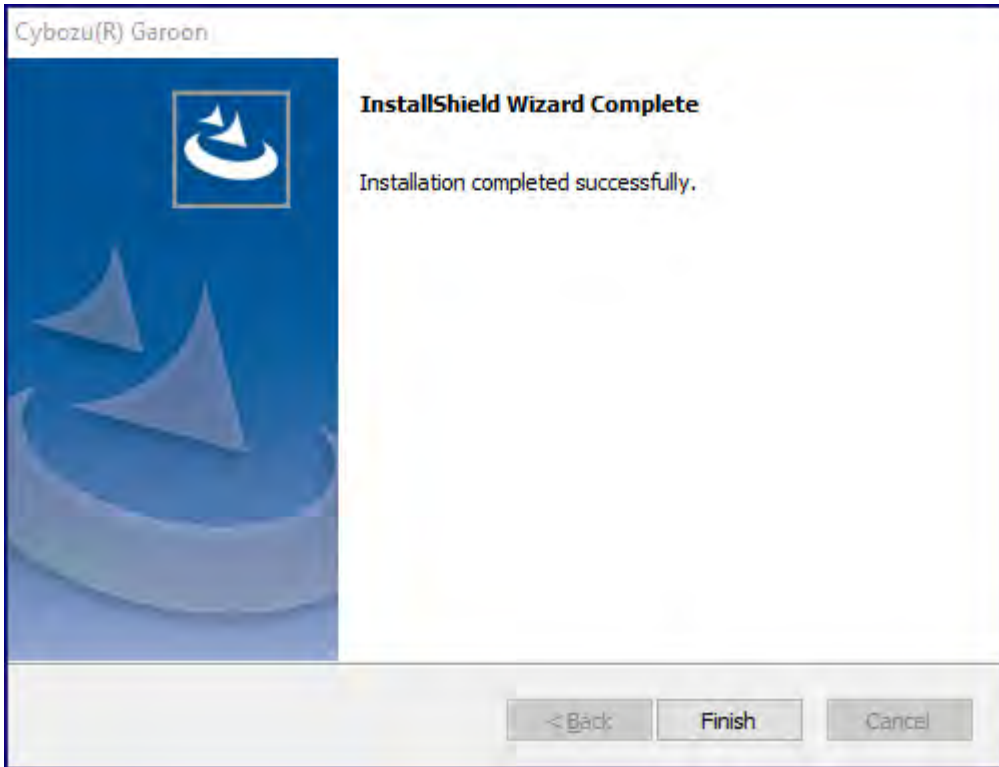
13. **When the Command Prompt window appears, initialize Garoon.**

See "2.2.1 Initializing Garoon on Windows" on page 23.
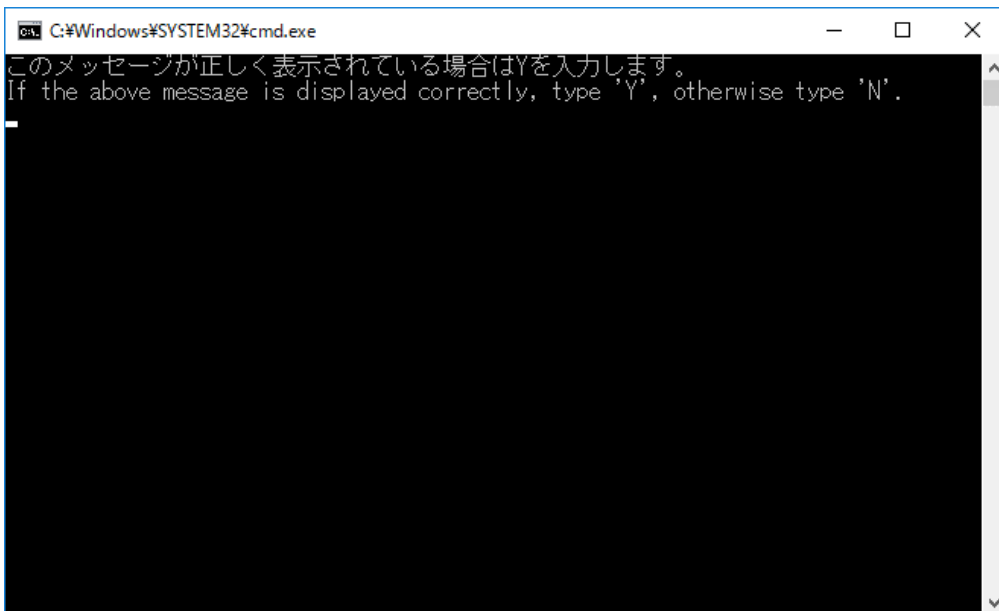
Tip

- The installation log file for Garoon and MySQL is saved in the following directory if you installed Garoon with the default settings:
  C:¥WINDOWS¥SysWOW64¥_cb_installer.log

2.2.1 Initializing Garoon on Windows

The initialization involves setting passwords for the Administrator of Garoon and the database user.

To initialize Garoon, use Command Prompt to run initialize.bat.

- If you cancel the initialization process while it is in progress, Garoon may become unusable.
  If you cancel the initialization process midway, roll back Garoon to its pre-initialization state, and start the initialization process again from the beginning.

- To delete standard data and sample data, you must initialize Garoon. The initialization of Garoon also deletes other data.

Steps:

1. Stop the scheduling service.

On Windows, select "Administrative Tools" > "Services" to stop the following service:

Cybozu_Scheduling_Service_cbgrn

Replace "cbgrn" with your installation identifier.

2. Go to the initialize directory.

- This step can be skipped if you proceed to initialization after Garoon is installed. Proceed to step 4.

- Execute the following command:

```
cd CGI directory\installation identifier\initialize
```

Example:

```
cd C:\inetpub\scripts\cbgrn\initialize
```

3. Type the following command and press the Enter key:

- For example, you can use the following command when you installed MySQL bundled in the Garoon installer:

```
initialize.bat ja "C:\Program Files\Cybozu\mysql-5.0" cybozu
```

- About initialize.bat
  Syntax:

```
initialize.bat language "path to the MySQL directory" database administrator password
```

Parameters:

| language	Specify one of the following:
	ja: Japanese. The time zone is "Asia/Tokyo".
	en: English. The time zone is "Europe/London".
	zh: Chinese. The time zone is "Asia/Shanghai".
path to the MySQL directory	If you installed MySQL bundled in the Garoon installer, the directory path is as follows:
	C:\Program Files\Cybozu\mysql-5.0
	If MySQL was already installed on the server, specify the MySQL installation directory.

4. Check the displayed information, type 'Y' or 'N', and press the Enter key.

When you type 'Y', you will see Japanese messages for step 5 and beyond. When you type 'N', you will see English messages for step 5 and beyond. The following procedure assumes that you type 'Y':

> このメッセージが正しく表示されている場合は Y を入力します。
> If the above message is displayed correctly, type 'Y', otherwise type 'N'.

5. **Type the database user password and press the Enter key.**

> Initializing Garoon.
>
> Set a password for the database user.
> Valid characters are: a–z, A–Z, 0–9, and underscore (_).
> Passwords must be 6 to 10 characters.

6. **Type the Administrator password and press the Enter key.**

> Set a password for "Administrator".

- Passwords must be 6 to 10 characters long.

- Passwords can contain the following characters.

  - a-z

  - A-Z

  - 0-9

  - _

- The following characters are not acceptable: less than sign (<), greater than sign (>), vertical bar (|), and ampersand (&). In some environments, other symbols are also unacceptable.

- If you want to use symbols in your password, initialize Garoon and then use "System Administration" to change the password. For details on how to change the password, refer to the Administrator Help on the following page.
  https://jp.cybozu.help/g5/en/admin/system/users/user/user_modify.html

7. **Select which data sets you want to install, and press the Enter key.**

You can select which data to install only if you typed 'Y' in step 4 and the display language is Japanese. This message does not appear if you typed 'N' in step 4.

> Select the data that you want to install on Garoon. Select "Nothing" to install no data.
> 1: Standard data
>   Installs standard data, including Japanese holidays and request forms.
> 2: Nothing
> [1|2]:

In the standard data, holidays, samples of workflow request form, and other information are registered. It is recommended that you install standard data if you plan to create users from scratch in Garoon.

You can also install standard data at a later time. For details on how to install the data, refer to the following page of "Administration Help".

https://jp.cybozu.help/g5/en/admin/maintenance/command/initialization.html

8. **Check the displayed information, type "yes", and press the Enter key.**

The initialization will start.

> Summary of initialize configuration
>
> Database administrator password: "cybozu"

```
Database user password: "cybozu"
"Administrator" password: "cybozu"
Data to be installed: [Your selection in step 7]

Are you sure you want to initialize Garoon with the above settings? Are you sure?
[yes or no]
```

To cancel the initialization, type "no" and press the Enter key.

```
Initialization is aborted.
To initialize again, execute the following command:

CD "C:\inetpub\scripts\cbgrn\initialize\"
initialize.bat ja "C:\Program Files\Cybozu\mysql-5.0" ［CBROOT_PASSWORD］
```

9. **Confirm that the initialization is completed successfully.**

```
The installation has completed successfully.
Start a web browser and access the URL below:

http://FQDN or IP address of the server/virtual path to the CGI directory/cbgrn/grn.exe

Example) http://webserver.cybozu.co.jp/scripts/cbgrn/grn.exe
Example) http://10.10.203.55/scripts/cbgrn/grn.exe
```

10. **Start the scheduling service.**
On Windows, select "Administrative Tools" > "Services" to start the following service:
Cybozu_Scheduling_Service_cbgrn
Replace "cbgrn" with your installation identifier.

11. **Change the handler mapping in IIS.**
See "2.2.2 Changing IIS Settings" on page 25.

2.2.2 Changing IIS Settings

Once the installation of Garoon is complete, change the IIS settings and edit the handler mapping.

Steps:

1. **Start Server Manager.**

2. **Start IIS Manager.**
Select "Tools" > "Internet Information Services (IIS) Manager".

3. **From the "Connections" pane, select "computer name" > "Sites" > "Default Web Site" > "scripts".**
If "scripts" does not appear under "Default Web Site", check the virtual directory settings.
The CGI directory of the Web server, which was specified during Garoon installation, must be configured as a virtual directory.
For information on how to create a virtual directory, see the following page on our website:
https://jp.cybozu.help/en/settings/browser/webalias.html
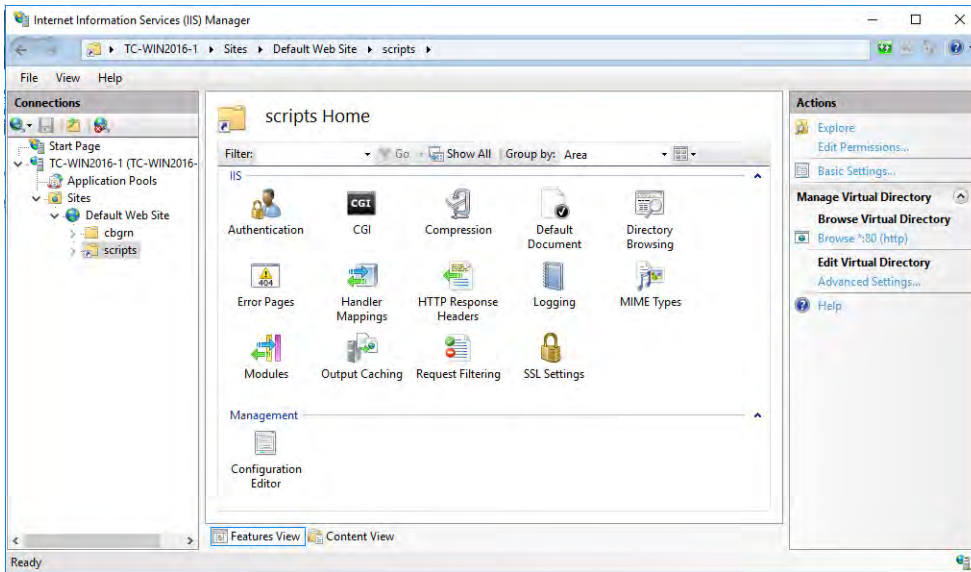
4. On the "Features View" tab, double-click "Handler Mappings" in "scripts".

5. Right-click "CGI-exe" and click "Edit".
When other exe files in the same virtual directory also use "scripts", you must set a handler mapping for each exe file.
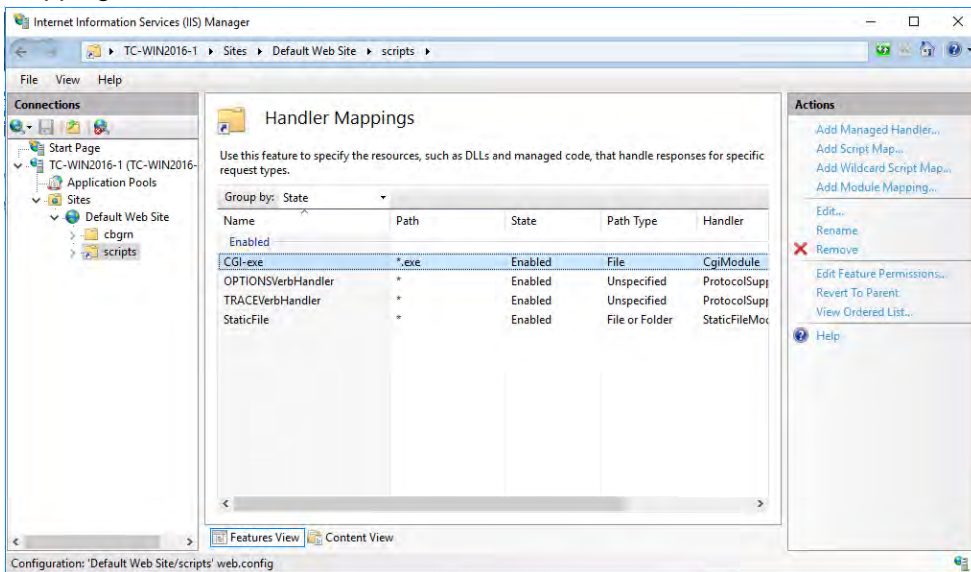
6. On the "Edit Module Map" dialog box, in the "Executable" field, enter the path and name of the file "grn.exe". Click "OK".
Example: C:\inetpub\scripts\cbgrn\grn.exe

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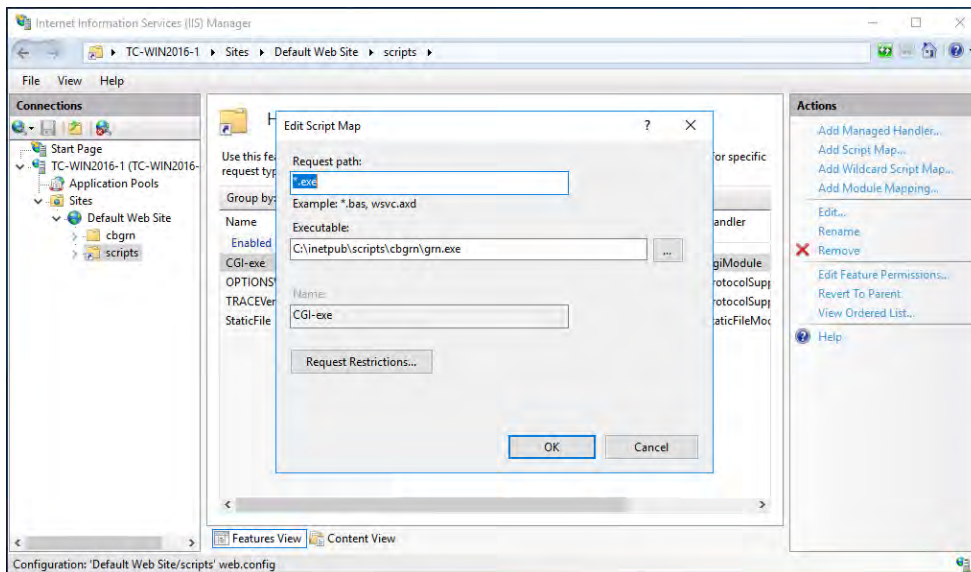
7. **When you are asked "Do you want to allow this ISAPI extension?" click "Yes".**
When the ISAPI extension is allowed, the Garoon program runs on the IIS process.
If the state of "CGI-exe" is "Disabled", right-click "CGI-exe" to select "Edit Feature Permissions".
Check the permissions. Select the "Execute" check box, if it is not selected. Click "OK" to apply your change.

8. **Access the Garoon URL to check that the login screen appears.**

9. **Configure Garoon's initial settings.**
See "2.4 Post-Installation Tasks" on page 33.

Tip

• If you access the Garoon URL but the screen is not displayed properly, check the following points:

• IUSR of IIS can access the document root directory.

• The Web server has virtual directories configured properly.
For information on how to create a virtual directory, see the following page on our website:
https://jp.cybozu.help/en/settings/browser/webalias.html

• The firewall is configured correctly.

• If an error occurs when users attempt to attach files on Garoon, see the following Japanese page:
https://jp.cybozu.help/ja/trouble/access_05.html

• If any of the following problems occur, you must change the settings appropriately:

• An error (HTTP 404) occurs when users attempt to open or download a file.
For details, see the following Japanese FAQ:
https://faq.cybozu.info/alphascope/cybozu/web/garoon5/Detail.aspx?id=1131

2.3 Installing on Linux

This section describes how to install Garoon on Linux.
For example, the steps below are based on the following operation environment:

- OS：Red Hat Enterprise Linux 8
- Web server service: Apache 2.4.37
- CGI directory of the Web server: /var/www/cgi-bin
- Document root directory of the Web server: /var/www/html
- MySQL: Using MySQL bundled in the Garoon installer

Caution

- Before you start installing Garoon, ensure that the libraries required for running Garoon are installed. See "(Only for Linux) Installing Libraries Required for Garoon" on page 16.

- Do not install a new version of Garoon on a server machine where an older version of Garoon is already installed. Installing different versions of Garoon on one server machine causes the older version to fail.

Note

- You must keep the database administrator password and database user password strictly confidential. If you lose the password, you will not be able to reset the password or migrate Garoon to another server machine.

- Do not operate more than one Garoon installation on one server machine.

- Before you start installing Garoon, ensure that the Web server service is running.

Steps:

1. **Log in to the server machine as a root user.**

2. **Check httpd.conf to ensure that KeepAlive is disabled.**
For details on how to check or edit KeepAlive settings, see the following section:
See "2.1.5 (Only for Linux) Disabling KeepAlive in Apache" on page 14.

> **Tip**
>
> - When you choose to enable KeepAlive, you should adjust the KeepAliveTimeout value for your environment. The greater the value of KeepAliveTimeout, the more likely Garoon is to respond slowly when Garoon handles many requests.

3. **Check that THP is disabled.**

```
[root@garoon admin]# cat /sys/kernel/mm/transparent_hugepage/enabled
```

If "never" is surrounded by [ ], the THP function is disabled.
Example:

```
always madvise [never]
```

If "[always] madvise never" or "always [madvise] never" is displayed, The THP function is enabled.
Disable THP, if it is enabled. For details, see the following section:
"2.1.6 (Only for Linux) Disabling Transparent Huge Pages (THP)" on page 15

4. **Move to the directory where the installer exists.**

5. **Execute the installer.**

```
[root@garoon admin]# sh grn-5.5.0-linux-x64.bin
```

6. Check the displayed information, type 'Y' or 'N', and press the Enter key.

When you type 'Y', you will see Japanese messages for step 7 and beyond. When you type 'N', you will see English messages for step 7 and beyond. The following procedure assumes that you type 'Y':

```
ガルーンのインストールを開始します。 このメッセージが正しく表示されている場合は Y を入力します。
Installing starts. If the above message is displayed correctly, type 'Y', otherwise type 'N'.
```

7. Read the Software License Agreement carefully. If you agree with it, type "yes" and press the Enter key.

To scroll the window, press the Space or Enter key.

8. Type an installation identifier and press the Enter key.

The initial setting is "cbgrn". If you want to change the setting, type any installation identifier and press the Enter key.

The installation identifier that you enter here will be included in the URL to access Garoon.

```
Enter the installation identifier.

Valid characters are: a–z, A–Z, 0–9, and underscore (_). An identifier cannot start with a number.
The installation identifier must be up to 10 characters.
[cbgrn]:
```

9. Select which MySQL installation to use. Select '1' and press the Enter key.

```
Select whether to install the bundled MySQL Community Server (GPL) automatically (Recommended),
or to use MySQL already installed on the server.
1. Install the bundled MySQL Community Server (GPL) automatically
2. Use MySQL already installed on the server
[1|2]:
```

10. Confirm the installation directory for Garoon programs and data, and then press the Enter key.

If you want to change the installation directory, type the absolute path of another directory, and then press the Enter key.

```
Specify a directory for program files.
Check available free disk space. The data size may become large.
[/usr/local/cybozu]
```

11. Type the database administrator password and press the Enter key.

```
Enter a password for the database administrator (cbroot).
Valid characters are: a–z, A–Z, 0–9, and underscore (_).
Passwords must be 6 to 10 characters.

Enter Password:
```

12. Type the database user password and press the Enter key.

```
Enter a password for the database user.
Valid characters are: a–z, A–Z, 0–9, and underscore (_).
Passwords must be 6 to 10 characters.

Enter Password:
```

13. **Type the Administrator password and press the Enter key.**

> Enter a password for "Administrator".
> Enter Password:

- Passwords must be 6 to 10 characters long.

- Passwords can contain the following characters.

  - a-z

  - A-Z

  - 0-9

  - _

- Passwords cannot contain less than sign (<), greater than sign (>), vertical bar (|), and ampersand (&) characters. In some environments, other special characters may also be unacceptable.

14. **Confirm the CGI directory of the Web server and press the Enter key.**

If you want to change the CGI directory, type the absolute path of another directory, and then press the Enter key.

> Set the CGI directory.
> The installation directory is set to "CGI directory/cbgrn".
> Example: /var/www/cgi-bin/cbgrn
> [/var/www/cgi-bin]

15. **Confirm the document root directory of the Web server and press the Enter key.**

If you want to change the document root directory, type the absolute path of another directory, and then press the Enter key.

> Specify the document root directory.
> The installation directory is set to "document root directory/cbgrn".
> Example: /var/www/html/cbgrn
> [/var/www/html]

16. **Confirm name of the Run As user of the Web server and press the Enter key.**

When you want a different Run As user, type the name of the user and press the Enter key.

> Enter the Web server Run As user name.
> [apache]:

When "nobody" is displayed, it indicates that the Web server service is not running. Press Ctrl + C to suspend the installation. Start the Web server service, and then execute the installer again.

17. **Select which data sets you want to install, and press the Enter key.**

You can select which data sets to install only if you typed 'Y' in step 6 and the display language is Japanese. This message does not appear if you typed 'N' in step 6.

> Select the data that you want to install on Garoon. Select "Nothing" to install no data.
> 1. Standard
>   Installs standard data, including Japanese holidays and request forms.
> 2: Nothing
> [1|2]:

In the standard data, holidays, samples of workflow request form, and other information are registered. It is recommended that you install standard data if you plan to create users from scratch in Garoon.

You can also install standard data at a later time. For details on how to install the data, see the following page:

See "2.3.1 Initializing Garoon on Linux" on page 32.

18. **Check the displayed information. If it is correct, type "yes", and then press the Enter key.**

The installation will start.

```
Summary of install configuration
Installation directory for program files:          /usr/local/cybozu
Database administrator:                            cbroot
Database administrator password:                   cybozu
"Administrator" password:                          cybozu
Database user password:              cybozu
Data to be installed                               Standard data
Installation identifier:                           cbgrn
Web server user name:                apache
CGI installation directory:                        /var/www/cgi-bin/cbgrn
Installation directory for image files:                /var/www/html/cbgrn
Port number for communicating with MySQL:              3770
Installation script for scheduling service:        /etc/rc.d/init.d/cyss_cbgrn
Uninstallation script for Cybozu products:                     /var/www/cgi-
bin/cbgrn/uninstall_cbgrn
Installation script for MySQL:                         /etc/rc.d/init.d/cyde_5_0
Uninstallation script for MySQL:                       /usr/local/cybozu/mysql-5.0/uninstal
l_cyde_5_0

Are you sure you want to install the product with the above settings? Are you sure?
[yes or no]:
```

19. **Confirm that the installation is completed successfully.**

```
Installing MySQL...
Installing CGI...
installing DB Script....
Installing Cybozu Scheduling Service...
Installing Web files...
Copying license files...
Installing uninstall scripts...
DataBase Initialization...
done.

The installation has completed successfully.
Start a web browser and access the URL below:

http://FQDN or IP address of the server/virtual path to the CGI directory/cbgrn/grn.cgi

Example) http://webserver.cybozu.co.jp/cgi-bin/cbgrn/grn.cgi
Example) http://10.10.203.55/cgi-bin/cbgrn/grn.cgi
```

The message below may appear during the installation process, but the installation is completed successfully. No action required.

Warning: Using a password on the command line interface can be insecure.

20. **Configure Garoon's initial settings.**

See "2.4 Post-Installation Tasks" on page 33.

Tip

- For Garoon version 3.5.0 and later, Garoon is initialized during the installation process. Therefore, it is not necessary for you to initialize Garoon before you can start using Garoon.
  After you start using Garoon, you can initialize Garoon if you want to delete data that you entered for trial use.
  See "2.3.1 Initializing Garoon on Linux" on page 32.

- If you access the Garoon URL but the screen is not displayed properly, check the following points:

  - The Run As user of the Web server ("apache" in the example above) has the Read permission on the document root directory of the Web server.

  - The Web server has virtual directories configured properly.
    For information on how to create a virtual directory, see the following page on our website:
    https://jp.cybozu.help/en/settings/browser/webalias.html

  - SELinux is disabled.

  - The firewall is configured correctly.

- The installation logs for Garoon and MySQL are saved in the following directories:

  - Installation log for Garoon: directory where the installer was executed/install.log

  - Installation log for MySQL: directory where the installer was executed/install_cyde.log

2.3.1   Initializing Garoon on Linux

You can initialize Garoon when you want to delete sample data or data that you entered for trial use.
The initialization involves setting passwords for the Administrator of Garoon and the database user.

Note

- If you cancel the initialization process while it is in progress, Garoon may become unusable. If you cancel the initialization process midway, roll back Garoon to its pre-initialization state, and start the initialization process again from the beginning.

Steps:

1. **Start a command-line console, and stop the scheduling service.**

```
[root@garoon admin]# /etc/init.d/cyss_cbgrn stop
```

2. **Move to the following directory:**

```
CGI directory/installation identifier
```

Example:

```
cd /var/www/cgi-bin/cbgrn
```

3. **Type the following command and press the Enter key:**

- Example

```
./grn.cgi -C -q code/command/grn_initialize.csp db_admin_password='cybozu' db_user_password='cybozu' garoon_admin_password='cybozu' default_timezone='Asia/Tokyo' default_locale='ja' init_data='1'
```

- Parameters

db_admin_password	Specify the database administrator password.
db_user_password	Specify the database user password.

garoon_admin_password	Specify the Administrator password.
default_timezone	Specify the time zone information. ja: Japanese en: English zh: Chinese
init_data	Specify whether to install any data. • 1: Installs standard data. • 0: Installs no data. In the standard data, holidays, samples of workflow request form, and other information are registered.

4. **Type 'y' and press the Enter key.**

> Do you really initialize Garoon? (y/[n]):

To cancel the initialization, type 'n' and press the Enter key.

5. **Confirm that the initialization is completed successfully.**

> Done in 18 minutes 18 seconds.

6. **Start the scheduling service.**

> [root@garoon admin]# /etc/init.d/cyss_cbgrn start

2.4　Post-Installation Tasks

After Garoon is installed and initialized, perform additional tasks such as checking the log file and configuring settings on Garoon for starting its operation.

2.4.1　Checking the Log File

You can view the grn_initialize.log file to check whether the initialization completed successfully. The grn_initialize.log file is stored in the following directory if Garoon was installed in the default installation directory:

• Windows: C:\inetpub\scripts\cbgrn

• Linux: /var/www/cgi-bin\cbgrn

Example of grn_initialize.log (on Windows)

> 2020-09-02 15:56:28 Writing to log file: C:\inetpub\scripts\cbgrn\grn_initialize.log
> 2020-09-02 15:56:28 Garoon: Version 5.5.0
> 2020-09-02 15:56:28 Operating System: Windows NT TC-WIN2016-2 10.0 build 14393 (Windows Server 2016) AMD64
> 2020-09-02 15:56:28 Command Line Parameters: db_admin_password='cybozu'
> db_user_password='cybozu' garoon_admin_password='cybozu' default_timezone='Asia/Tokyo'
> default_locale='ja' force_initialize='yes' init_data='1'
> 2020-09-02 15:56:28 Starting
> 2020-09-02 15:56:41 Done in 13 seconds. ────────────────────────── a)

a): After the initialization is completed, this line indicates how much time the process took.

2.4.2 Changing MySQL Settings

When your server machine has 8 GB or more memory installed, change the mysqld settings. To change the mysqld settings, edit the MySQL configuration file (my.ini or my.cnf).

Steps:

1. **Stop the Web server service.**

2. **Stop Garoon services.**
See "5.2 Stopping Services" on page 49.

3. **Back up the MySQL configuration file.**
- If you installed MySQL bundled in the Garoon installer and installed Garoon in the default installation directory, the configuration file exists in the following directory:
    - Windows: C:¥Program Files¥Cybozu¥mysql-5.0¥etc¥my.ini
    - Linux: usr/local/cybozu/mysql-5.0/etc/my.ini
- If you use your existing MySQL installation, rather than installing MySQL along with Garoon, back up the configuration file of the existing MySQL installation.
    - Example of its directory on Windows: C:\ProgramData\MySQL\MySQL Server 5.7\my.ini
    - Example of its directory on Linux: /usr/my.cnf

4. **Edit the configuration file to change the setting values.**
See "Recommended Values in the Configuration File (my.ini or my.cnf)" on page 34.

5. **Start Garoon services.**
See "5.1 Starting Services" on page 49.

6. **Start the Web server service.**

Recommended Values in the Configuration File (my.ini or my.cnf)

Recommended values vary depending on the amount of memory installed on the server machine where MySQL is running. Leave the default value except the item "innodb_buffer_pool_size" and "max_connections".

If the Amount of Installed Memory Is 80 GB or Less:

Item \ Amount of installed memory		8GB	16GB	24GB	48GB	80GB
Amount of memory consumed by Garoon		5.2GB	12GB	18GB	36GB	60GB
Recommended value	innodb_buffer_pool_size	4600M	11200M	17100M	34600M	57700M
	max_connections	50	50	50	50	100

If the Amount of Installed Memory Is 128 GB or More:

Item / Amount of installed memory		128GB	154GB	180GB	206GB	232GB	256GB
Amount of memory consumed by Garoon		96GB	115.5GB	135GB	154.5GB	174GB	192GB
Recommended value	innodb_buffer_pool_size	92800M	111400M	130500M	149100M	168100M	185300M
	max_connections	100	150	150	200	200	250

2.4.3 Configure the necessary Garoon settings for installation

Register customer information and system administrator, and configure the necessary Garoon settings before you can start its operation. For details, see the Japanese Startup Guide.

https://jp.cybozu.help/g5/en/intro.html

Chapter 3   Upgrade

Direct upgrade to Garoon version 5.5 is supported only from versions Garoon 5.0.x.

If you are using Garoon version 5.0 or earlier, upgrade it to version 5.0 first, then upgrade to 5.5.

> **Tip**
>
> - The upgrade may take a long time depending on the amount of data, usage conditions, and the performance of the server running Garoon. It is recommended to check the time required for the upgrade in the test environment before upgrading the production environment.
>   Refer to the following page for the approximate time required for upgrading.
>   https://faq.cybozu.info/alphascope/cybozu/web/garoon5/Detail.aspx?id=2367 (only in Japanese)
>
> - If you have any questions, consult our official partners or your vendor.
>   https://topics.cybozu.co.jp/products/partner/
>
> - With Garoon version 4.0.0 or later, you cannot use Cybozu Garoon 3 Reminder. After you upgrade Garoon to version 4.0.0 or later, you must use Cybozu Desktop 2.
>
> - If the Full text search server is currently being used, it must be upgraded to version 2.0.3 or later when Garoon is upgraded to version 5.5. The following table describes the supported combinations of Garoon versions and Full text search server versions:

Garoon version	Supported Full text search server version
Garoon version 4.6.x, 4.10.x, 5.0.x	2.0.3
Garoon version 4.2.x	2.0.1, 2.0.2, 2.0.3
Garoon version 4.0.x	2.0.1, 2.0.2, 2.0.3

> - The following power up kit series cannot be used with Garoon version 5.0.0 or later.
>   - Power Up Kit Series Workflow Paper Layout for Garoon
>   - Power Up Kit Series Workflow External Database Connector for Garoon
>   - Power Up Kit Series Multi-Company for Garoon

3.1   Preparing for Upgrading

To upgrade Garoon, the following preparation steps are required:

Checking Upgrade Requirements

- If you are using Power Up Kit Series Group Mail, you must follow different steps to upgrade Garoon. For details on how to upgrade, consult our official partners or your vendor.
  https://topics.cybozu.co.jp/products/partner/

Backing Up the Current Garoon Instance

Before you upgrade Garoon, you must back up the data for your current instance. For details on how to back up, refer to "Backup and Restoration" in the "Administrator Help" for the version you are currently using.

https://jp.cybozu.help/g5/en/admin/maintenance/backup_restore.html

Ensuring that You Know the Database Administrator Password

You must know the database administrator password that was set when the current version of Garoon was installed.

Changing IIS Settings

For Windows, you might want to use a different version of IIS after you upgrade Garoon. In such a case, you must configure the settings for the new version of IIS. For details, see the following section: See "2.2.2 Changing IIS Settings" on page 25.

Checking Libraries

For Linux, ensure that the libraries required for running Garoon are installed. For details on libraries used by Garoon, see the following page:

https://jp.cybozu.help/en/settings/garoon4/linux_library_gr5.html

Stopping the Full Text Search Server

When using the Full text search server, stop Solr and Worker on the server machine where the Full text search server is deployed. To stop the services, execute the following commands in the order in which they are listed:

For Windows:

```
net stop Cybozu_SearchServer_Solr
net stop Cybozu_SearchServer_Worker
```

On Linux

```
[root@garoon admin] # /etc/init.d/cbss_solr stop
[root@garoon admin] # /etc/init.d/cbss_worker stop
```

For details on how to stop the services, see the following Japanese guide:

Full Text Search Server Guide

https://jp.cybozu.help/g5/ja/pdf.html#pdf_index_04

3.2   Upgrading on Windows

This section describes how to upgrade Garoon, based on the following assumptions:

• OS: Windows Server 2016

• Web server service: IIS 10.0

• CGI directory of the Web server: C:¥inetpub¥scripts

• Document root directory of the Web server: C:¥inetpub¥wwwroot

• Installation identifier: cbgrn

• MySQL: Installing MySQL bundled in the Garoon installer

Note

- Do not terminate the upgrade process when the process is in progress.
- Installing Garoon also installs the Visual C++ redistributable packages for Visual Studio 2013 and 2015. Do not delete the package.

Steps:

1. **Log in to the server machine where Garoon is installed as a user who has local Administrator rights on a destination server.**

2. **Stop the Web server service.**

3. **On Windows, from Administrative Tools, open "Services".**

4. **Select "Cybozu_Scheduling_Service_cbgrn" and click "Stop Service".**

5. **If the following services are running, click [Stop Service] to stop them.**
- DHCP Client
- Windows Event Log

If the above services are running, upgrading Garoon may fail.

6. **Check that the status of Cybozu_Database_Engine_5_0 is "Running", and then close the "Services" window.**

If Cybozu_Database_Engine_5_0 is not running, click "Start Service" and close the "Services" window. If you leave the window open and start the upgrade process, the process may fail.

7. **Launch the installer for Garoon version 5.5.0 and click "Next".**

8. **Enter the database administrator password and click "Next".**
The installation starts.

9. **On the "Upgrade complete" screen, click "Finish".**

10. **On Windows, from Administrative Tools, open "Services".**

11. **Select "Cybozu_Scheduling_Service_cbgrn" and click "Start Service".**

12. **If you stopped the following services at step 5, click [Start Service] to start them.**
- DHCP Client
- Windows Event Log

13. **Start the Web server service.**

Tip

- When you upgrade Garoon, log files are generated in the following locations:
    - Installation log for MySQL: C:¥WINDOWS¥SysWow64¥_cb_installer.log
    - Upgrade log: C:¥inetpub¥scripts¥cbgrn¥versionup_###.log
      The placeholder "###" represents a three-digit number.
    - MySQL errors: C:¥ProgramFiles¥Cybozu¥mysql-5.0¥data¥error.log

- The message below appears during the upgrade process, but the process is completed successfully. No action required.

    - Warning: Using a password on the command line interface can be insecure.

3.3   Upgrading on Linux

This section describes how to upgrade Garoon, based on the following assumptions:

- OS：Red Hat Enterprise Linux 7

- Web server service: Apache 2.4.37

- CGI directory of the Web server: /var/www/cgi-bin

- Document root directory of the Web server: /var/www/html

- Installation identifier: cbgrn

- MySQL: Installing MySQL bundled in the Garoon installer

> **Note**

- Before you start an upgrade, ensure that the libraries required for running Garoon are installed. See "(Only for Linux) Installing Libraries Required for Garoon" on page 16.

- The installer must be in a directory for which the Run As user of the Web server service has Execute and Write permissions. The Run As user must have Execute and Write permissions on all parent directories of the directory that contains the installer.

- Do not terminate the upgrade process when the process is in progress.

Steps:

1. **Log in to the server machine as a root user.**

2. **Stop the Web server service on the server machine.**
```
[root@garoon admin]# systemctl stop httpd.service
```

3. **Stop the scheduling service.**
```
[root@garoon admin]# /etc/init.d/cyss_cbgrn stop
```

4. **Check the status of the MySQL service.**
```
[root@garoon admin]# /etc/init.d/cyde_5_0 status
```
Start the MySQL service if it is not running.
```
[root@garoon admin]# /etc/init.d/cyde_5_0 start
```

5. **Check httpd.conf to ensure that KeepAlive is disabled.**
For details on how to check or edit KeepAlive settings, see the following section:
See "2.1.5 (Only for Linux) Disabling KeepAlive in Apache" on page 14.

> **Tip**

- When you choose to enable KeepAlive, you should adjust the KeepAliveTimeout value for your environment. The greater the value of KeepAliveTimeout, the more likely Garoon is to respond slowly when Garoon handles many requests.

6. **Check that THP is disabled.**

```
[root@garoon admin]# cat /sys/kernel/mm/transparent_hugepage/enabled
```

If "never" is surrounded by [ ], the THP function is disabled.

Example:

```
always madvise [never]
```

If "[always] madvise never" or "always [madvise] never" is displayed, The THP function is enabled.

Disable THP, if it is enabled. For details, see the following section:

"2.1.6 (Only for Linux) Disabling Transparent Huge Pages (THP)" on page 15

7. **Move to the directory where the installer exists.**

8. **Execute the installer.**

```
[root@garoon admin]# sh grn-5.5.0-linux-x64.bin
```

9. **Check the displayed information, type 'Y', and then press the Enter key.**

```
Garoon のインストールを開始します。このメッセージが正しく表示されている場合は Y を入力します。
Installing starts. If the above message is displayed correctly, type 'Y', otherwise type 'N'.
```

10. **If you agree with the Software License Agreement, type "yes" and press the Enter key.**

To scroll the window, press the Space or Enter key.

If you do not agree with the Software License Agreement, type "no" and press the Enter key. The upgrade process will stop.

11. **Select the upgrade option. Type '1' and press the Enter key.**

```
Garoon is already installed.
1: Upgrade
2: Partial Uninstallation (Customizable resource files and database files remain undeleted.)
3: Complete Uninstallation (Completely remove all features and components.)
[1|2|3]:
```

12. **Confirm the directory where program files will be installed. Type the database administrator password and press the Enter key.**

```
Cybozu program files will be installed in the directory "/usr/local/cybozu".

Enter a password for the database administrator (cbroot).
Valid characters are: a–z, A–Z, 0–9, and underscore (_).
Passwords must be 6 to 10 characters.

Enter Password:
```

13. **Check the displayed information. If it is correct, type "yes", and then press the Enter key.**

The installation will start.

To cancel the installation, type "no" and press the Enter key.

```
Summary of install configuration

Installation directory for program files:        /usr/local/cybozu
Database administrator:                          cbroot
```

```
database administrator password                    cybozu
Installation identifier:                           cbgrn
Web server user name:                   apache
CGI installation directory:                        /var/www/cgi-bin/cbgrn
Installation directory for image files:                /var/www/html/cbgrn
Port number for communicating with MySQL:          3770
Installation script for scheduling service:        /etc/rc.d/init.d/cyss_cbgrn
Uninstallation script for Cybozu products:                 /var/www/cgi-
bin/cbgrn/uninstall_cbgrn
Installation script for MySQL:                     /etc/rc.d/init.d/cyde_5_0
Uninstallation script for MySQL:                   /usr/local/cybozu/mysql-
5.0/uninstall_cyde_5_0


Are you sure you want to install the product with the above settings? Are you sure?
[yes or no]:
```

14. Confirm that the upgrade has completed successfully.

```
Upgrade completed successfully.
Installing Cybozu Scheduling Service...
Installing Web files...
Copying license files...
Installing uninstall scripts...

The installation has completed successfully.
Start a web browser and access the URL below:

http://FQDN or IP address of the server/virtual path to the CGI directory/cbgrn/grn.cgi

Example) http://webserver.cybozu.co.jp/cgi-bin/cbgrn/grn.cgi
Example) http://10.10.203.55/cgi-bin/cbgrn/grn.cgi
```

15. Start the scheduling service.

```
[root@garoon admin]# /etc/init.d/cyss_cbgrn start
```

16. Check that the scheduling service is running.

```
[root@garoon admin]# /etc/init.d/cyss_cbgrn status
```

When the scheduling service is running, this command returns the process ID of the running process.

Example of a returned process ID:

```
sched(31622) is running...
```

17. Start the Web server service on the server machine.

```
[root@garoon admin]# systemctl start httpd.service
```

18. Check that the Web server service is running on the server machine.

```
[root@garoon admin]# systemctl status httpd.service
```

When the Web server service is running, this command returns the process ID of the running process.

Example of a returned process ID:

```
httpd (pid   11772) is running...
```

> **Tip**
> - When you upgrade Garoon, log files are generated. The log files exist in the following directories:
>   - Installation log for Garoon: directory where the installer was executed/install.log
>   - Installation log for MySQL: directory where the installer was executed/install_cyde.log
> - The message below appears during the upgrade process, but the process is completed successfully. No action required.
>   - Warning: Using a password on the command line interface can be insecure.

3.4 Post-Upgrade Necessary Tasks

Perform the following tasks if required:

Checking the Log File

Open the log files to check whether files were updated successfully.
The log files contain the following results:

- Report on the MySQL update process
- Report on the updated Garoon data
- Report on the update program execution

If you installed MySQL bundled in the Garoon installer and installed Garoon in the default installation directory, log entries are generated in the following files. The placeholder "###" represents a three-digit number.

For Windows:

- Report on the update program execution: C:¥inetpub¥scripts¥cbgrn¥versionup_###.log
- MySQL errors: C:¥ProgramFiles¥Cybozu¥mysql-5.0¥data¥error.log

For Linux:

- Installation log for Garoon: directory where the installer was executed/install.log
- Installation log for MySQL: directory where the installer was executed/install_cyde.log
- Report on the update program execution: /var/www/cgi-bin/cbgrn/versionup_###.log
- MySQL errors: /usr/local/cybozu/mysql-5.0/data/error.log

The Format of versionup_###.log

The following is an example of the log file generated on Windows:

```
[Tue, 1 Sep 2020 15:59:51 +0900] DB root password corrected!
[Tue, 1 Sep 2020 15:59:51 +0900] start upgrading mysqldb
(Omitted)
20200901 16:00:10 [INFO] Started grn5_0_0_remote_main.
20200901 16:00:10 [INFO] Start update garoon.ini.
20200901 16:00:10 [INFO] Start set System version.
20200901 16:00:10 [INFO] End set System version.
20200901 16:00:10 [INFO] End update garoon.ini.
20200901 16:00:10 [INFO] Start update 11space.ini.
20200901 16:00:10 [INFO] End update 11space.ini.
20200901 16:00:10 [INFO] Start update my.ini.
20200901 16:00:10 [INFO] Start update log_timestamps.
20200901 16:00:10 [INFO] End update log_timestamps.
20200901 16:00:10 [INFO] End update my.ini.
20200901 16:00:10 [INFO] Finished grn5_0_0_remote_main.
20200901 16:00:10 [INFO] Finished updating.                                          — a)

[Tue, 1 Sep 2020 16:00:10 +0900] 20200901 16:00:10 [INFO] Started updating after installation.
20200901 16:00:10 [INFO] Remove all files of smarty cache directory.                 — b)
20200901 16:00:10 [INFO] Remove all the session data.
20200901 16:00:10 [INFO] Finished updating after installation.

[Tue, 1 Sep 2020 16:00:10 +0900] start removing versionup scripts
[Tue, 1 Sep 2020 16:00:10 +0900] end removing versionup scripts
```

a): Report on the updated Garoon data

b): Report on the update program execution

Note

- If you find a message with a state other than "INFO" or "OK", you must take appropriate action according to the message. If the cause of the error is unknown, consult our official partners or your vendor. https://topics.cybozu.co.jp/products/partner/

Confirm error.log

Check if error.log (MySQL error log) contains any errors or warnings. If it contains any errors or warnings, restart MySQL after the upgrade. If no errors or warnings are reported to error.log when you restart, the upgrade is completed successfully.

Although the upgrade has completed successfully, the following warnings are continuously reported not only immediately after the upgrade, but also after restarting MySQL.

```
[Warning] 'NO_AUTO_CREATE_USER' sql mode was not set.
[Warning] ' (Strings) ' entry ' (Strings) ' ignored in --skip-name-resolve mode.
```

Checking Settings Required for Connecting to LDAP over SSL

To enable Garoon to connect to an LDAP server over SSL, additional configurations are required. For detailed instructions, see the following page on our website:

https://jp.cybozu.help/en/settings/garoon4/sslsetup.html

Registering Your License

When you upgrade Garoon from version 4.10.x or earlier, you must register a license for version 5.5.0. Garoon runs in trial mode until you register the license. If the license is not registered within 60 days after the upgrade, Garoon applications will be no longer accessible.

Steps:

1. **Log in to Garoon with a system administrator account.**

2. **On the "System administration" screen, click "Basic system administration" > "License" > "Manage licenses".**

3. **Click "Register license".**

4. **Enter your license key and click "Register".**

5. **Check that the license information is correct and click "Register".**

Receiving Weather Information

Weather information is unavailable temporarily immediately after an upgrade. Although weather information is received automatically every six hours, this means that weather information can be unavailable for up to about six hours.
To receive weather information immediately after an upgrade, you must receive it manually.

1. **Log in to Garoon with a system administrator account.**

2. **On the "System administration" screen, click "Application settings" > "Cybozu Online Service" > "Receive event data".**

3. **Select the check box for weather information, and click "Receive".**

Starting the Full Text Search Server

When the Full text search server is used, start Solr and Worker on the server machine where the Full text search server is deployed.
To start the services, execute the following commands in the order in which they are listed:
For Windows:

```
net start Cybozu_SearchServer_Solr
net start Cybozu_SearchServer_Worker
```

On Linux

```
/etc/init.d/cbss_worker start
/etc/init.d/cbss_solr start
```

For details on how to start the services, see the following Japanese guide:

Full Text Search Server Guide

https://jp.cybozu.help/g5/ja/pdf.html#pdf_index_04

Updating Indexes on the Full Text Search Server

When the Full text search server is used, you must update indexes on the Full text search server. With updated indexes, the message search time can be decreased when users store a large number of messages.

You can update indexes not only during the upgrade but also after the upgraded Garoon instance goes into usage. The index update process can be executed during business hours because the process does not cause a heavy load on Garoon nor block users from searching.

For Windows OS:

1. **Log in to server machine as a user who has local Administrator rights.**

2. **Start Command Prompt and move to the following directory:**

CGI directory/installation identifier

Example:

cd C:\inetpub\scripts\cbgrn

3. **Type the following command and press the Enter key:**

.\grn.exe -C -q code\command\fts\update_index.csp exec

When "Finish indexing of message data." appears and you can search messages in Garoon, the index update process is completed.

For Linux:

1. **Log in to the server machine as a root user.**

2. **Move to the following directory:**

CGI directory/installation identifier

Example:

cd /var/www/cgi-bin/cbgrn

3. **Type the following command and press the Enter key:**

./grn.cgi -C -q code/command/fts/update_index.csp exec

When "Finish indexing of message data." appears and you can search messages in Garoon, the index update process is completed.

Delete unnecessary data on Workflow

If you have used the Workflow feature on Garoon before the upgrade, you may need to delete unnecessary data. By deleting unnecessary data, you can reduce data volume and expect the performance improvement.

We provide tools to delete unnecessary data. For details on how to run the tool, refer to the following page:

https://kb.cybozu.support/article/36326/ (Available only in Japanese)

Confirm Whether Some Images in Bulletin Board Are Missing or Not

If you have used the following versions of Garoon before the upgrade, some images posted in Bulletin Board may be missing.

• Version 5.0.0, 5.0.1, or 5.0.2 (without applying patches)

These losses may be caused while using the versions of Garoon mentioned above. This issue is not caused by the upgrade.

Garoon version 5.5 includes the tool to output the list of missing images. Run the tool and confirm whether some images are missing or not.

For details on the issue and how to run the tool, refer to the following page in the Cybozu Knowledge Base site.

https://kb.cybozu.support/article/36725/ (Available only in Japanese)

3.5   Recovering from an Upgrade Failure

If an upgrade to version Garoon 5.5.0 failed, use the steps below to restore the previous version of Garoon.

Steps:

1.   Back up upgrade log files.
Back up log files that were generated when the upgrade failed. The log files are required for troubleshooting the failure. For details on the log files to be backed up, see the following section:
See "Checking the Log File" on page 42.

2.   Uninstall Garoon.
Select "Complete uninstallation" for the uninstallation option.
See "Chapter 4 " on page 47.

3.   Install the previous version of Garoon as a new instance.
If any Service Pack was applied to the previous Garoon instance, apply the same Service Pack to the new instance.
For details on how to install Garoon version 5.0.0, please refer to the Installation Guide.
https://jp.cybozu.help/g5/en/pdf.html#pdf_index_01

4.   Restore backed up Garoon data.
Restore the backed up data of the previous Garoon instance to the new Garoon instance that you installed in step 3.
For details on how to restore data, refer to the Administrator Help.
https://jp.cybozu.help/g5/en/admin/maintenance/backup_restore.html

Tip

• You can restore Garoon only by following the steps described above.

• You can download the version 5.0.0 installer from the archive library. For the user name and password required to access the archive library, refer to "archive library" in our online support.
Log in to Garoon as a user who has Administrator rights to access the online support. Next, click the Administrator Menu icon in the Header, and then click "Support". When the "Support" screen is displayed, follow the instructions on the screen to proceed.

Chapter 4　　Uninstalling

This chapter describes how to uninstall Garoon.

4.1　　Uninstalling on Windows

This section describes how to uninstall Garoon on Windows.
The steps below assume that you installed MySQL bundled in the Garoon installer and set the installation identifier to "cbgrn".

Note

• Follow the steps described below to uninstall Garoon completely. Otherwise, some files may remain on the server machine.

• When the Full text search server is used, firstly you must uninstall the Full text search server and then uninstall Garoon if the following conditions are true. If you start with uninstalling Garoon, the Full text search server might fail to be uninstalled.

　　• The Full text search server and Garoon are installed in the same directory on the same server.

　　• You plan to use "Complete Uninstallation" to uninstall Garoon.

Under the conditions listed above, if you start with uninstalling Garoon and the Full text search server fails to be uninstalled, please contact us.

Steps:

1. **Log in to the server machine that you want to install Garoon on as a user who has local Administrator rights.**

2. **On Windows, from Control Panel, open "Programs and Features".**

3. **On the "Programs and Features" screen, right-click "Cybozu(R) Garoon 5.5.0 (cbgrn)" and click "Uninstall".**
The uninstaller starts.

4. **Select "Complete Uninstallation" and click "Next".**
The uninstallation process starts.
To cancel the uninstallation, click "Cancel".

5. **When the "Maintenance complete" screen appears, click "Finish".**
After the uninstallation is completed, a dialog box for selecting whether to restart the computer may be displayed. If you want to continue with uninstalling MySQL, select "No, I will restart my computer later".

6. **On the "Programs and Features" window, right-click "MySQL Community Server (GPL)" and click "Uninstall".**
The uninstaller starts.

7. **Select "Complete Uninstallation" and click "Next".**

The uninstallation process starts.

To cancel the uninstallation, click "Cancel".

8. **Restart the server machine.**

> **Tip**

- If you are using an existing MySQL installation instead of installing MySQL bundled in the Garoon installer, the Garoon uninstallation process does not uninstall the existing MySQL installation. If you want, you can uninstall the existing MySQL installation manually after you uninstall Garoon.

4.2   Uninstalling on Linux

This section describes how to uninstall Garoon on Linux.

> **Note**

- Follow the steps described below to uninstall Garoon completely. Otherwise, some files may remain on the server machine.

Steps:

1. **Log in to the server machine as a root user.**

2. **Move to the directory where the installer exists.**

3. **Execute the installer.**

```
[root@garoon admin]# sh grn-5.5.0-linux-x64.bin
```

4. **Check the displayed information, type 'Y', and then press the Enter key.**

```
ガルーンのインストールを開始します。このメッセージが正しく表示されている場合は Y を入力します。
Installing starts. If the above message is displayed correctly, type 'Y', otherwise type 'N'.
```

5. **Read the Software License Agreement carefully. If you agree with it, type "yes" and press the Enter key.**

To scroll the window, press the Space or Enter key.

If you do not agree with the Software License Agreement, type "no" and press the Enter key. The installer exits.

6. **Type '3' to uninstall Garoon completely, and then press the Enter key.**

Type '2' when you want to keep resources such as configuration files and the database files.

7. **Type '3' to uninstall MySQL completely, and then press the Enter key.**

> **Tip**

- If you are using an existing MySQL installation instead of installing MySQL bundled in the Garoon installer, the Garoon uninstallation process does not uninstall the existing MySQL installation. If you want, you can uninstall the existing MySQL installation manually after you uninstall Garoon.

Chapter 5　　Starting and Stopping Services

This chapter describes how to start and stop the scheduling service and the MySQL service.
The steps below assume that you installed MySQL that is bundled in the Garoon installer and set the installation identifier to "cbgrn".

5.1　　Starting Services

Start the MySQL service first, and then the scheduling service.

For Windows

Steps:

1. **On Windows, from Administrative Tools, open "Services".**

2. **Select "Cybozu_Database_Engine_5_0" and click "Start Service".**
   When you use an existing MySQL installation, rather than installing MySQL bundled in the Garoon installer, start the service of the existing MySQL installation.

3. **Select "Cybozu_Scheduling_Service_cbgrn" and click "Start Service".**

For Linux

Steps:

1. **Start the MySQL service.**
   ```
   [root@garoon admin]# /etc/init.d/cyde_5_0 start
   ```
   When you use an existing MySQL installation, rather than installing MySQL bundled in the Garoon installer, start the service of the existing MySQL installation.

2. **Start the scheduling service.**
   ```
   [root@garoon admin]# /etc/init.d/cyss_cbgrn start
   ```

5.2　　Stopping Services

Stop the scheduling service first, and then the MySQL service.

For Windows

Steps:

1. **On Windows, from Administrative Tools, open "Services".**

2. **Select "Cybozu_Scheduling_Service_cbgrn" and click "Stop Service".**

3. **Select "Cybozu_Database_Engine_5_0" and click "Stop Service".**
When you use an existing MySQL installation, rather than installing MySQL bundled in the Garoon installer, stop the service of the existing MySQL installation.

For Linux

Steps:

1. **Stop the scheduling service.**
```
[root@garoon admin]# /etc/init.d/cyss_cbgrn stop
```

2. **Stop the MySQL service.**
```
[root@garoon admin]# /etc/init.d/cyde_5_0 stop
```
When you use an existing MySQL installation, rather than installing MySQL bundled in the Garoon installer, stop the service of the existing MySQL installation.

Appendix A Organization of Files

This appendix describes how Garoon files are organized. The description assumes that the installation identifier is "cbgrn". The installed files are categorized into the following four groups:

• CGI application files

• MySQL

• Full text search server

• Image file

Appendix A.1   Organization of Files on Windows

CGI application files

The CGI application of Garoon is installed in the CGI directory that you specified during installation. The various files of the CGI application are stored in a subdirectory of the CGI directory that is named with your installation identifier.

• Example of the CGI directory: C:¥inetpub¥scripts

A bold name indicates a directory and normal name indicates a file.

```
C:\inetpub\scripts        CGI directory
   └cbgrn                 installation identifier
      ├code               Garoon programs
      │  ├command
      │  ├doc_root
      │  ├include
      │  ├pear
      │  ├plugin
      │  ├sched
      │  ├smarty
      │  └vendor
      ├db
      ├extensions         Necessary PHP extension files
      ├grn                Necessary configuration files for Garoon
      ├help
      ├initialize
      ├locale             Garoon language resources
      ├logs
      ├page               Garoon template files
      ├sessiondata        PHP session data
      ├smarty
      │  ├cashed          Cache data of the smarty library
      │  └compiled        Compiled templates of the smarty library
      ├tmp                Temporary files created by PHP scripts
      ├upload_temp        PHP temporary uploaded files
      │
      ├cacert.pem
      ├common.ini
```

```
├\db_error.log
├\garoon.ini
├\garoon_lwc.ini
├\garoon_policy.ini
├\grn.exe
├\grn_initialize.log
├\icudt66.dll
├\icuin66.dll
├\icuio66.dll
├\icuuc66.dll
├\libcrypto-1_1-x64.dll
├\libmariadbl.dll
├\libsasl.dll
├\libssh2.dll
├\libssl-1_1-x64.dll
├\LICENSE_en.txt
├\LICENSE_ja.txt
├\LICENSE_zh.txt
├\logger.ini
├\lwc.ini
├\nghttp2.dll
├\php.ini
├\php7.dll
├\sched.exe
├\sched.ini
├\sched.log
├\state.ini
└\system_admin.ini
```

MySQL

MySQL files are stored in the installation directory that you specified during installation.

• Example of the installation directory: C:¥Program Files¥Cybozu

A bold name indicates a directory and normal name indicates a file.

```
C:\Program Files\Cybozu installation directory
   └\mysql-5.0                    MySQL files
      ├¥bin
      │   ├¥my_print_defaults.exe
      │   ├¥mysql.exe
      │   ├¥mysql_upgrade.exe
      │   ├¥mysqladmin.exe
      │   ├¥mysqlbinlog.exe
      │   ├¥mysqlcheck.exe
      │   ├¥mysqld.exe
      │   ├¥mysqldump.exe
      │   └¥mysqlimport.exe
      │
      ├¥data                      MySQL data and logs
      │   ├¥cb_cbgrn
      │   ├¥cb_slash
      │   ├¥mysql
      │   ├¥performance_schema
      │   ├¥sys
      │   ├¥auto.cnf
      │   ├¥error.log
```

```
        |    ├\ib_buffer_pool
        |    ├¥ib_logfile0
        |    ├¥ib_logfile1
        |    ├¥ib_logfile2
        |    ├¥ibdata1
        |    ├\ibtmp1
        |    ├¥mysql.pid
        |    ├private_key.pem
        |    ├public_key.pem
        |    └¥slow.log
        |
        ├\etc
        |    ├¥Samples
        |    ├¥my.ini
        |    └¥worker.ini
        |
        ├\files                    Attachments in Garoon
        |    └¥cbgrn
        ├¥lib
        ├¥share
        |    ├¥charsets
        |    └¥english
        └\tmp
```
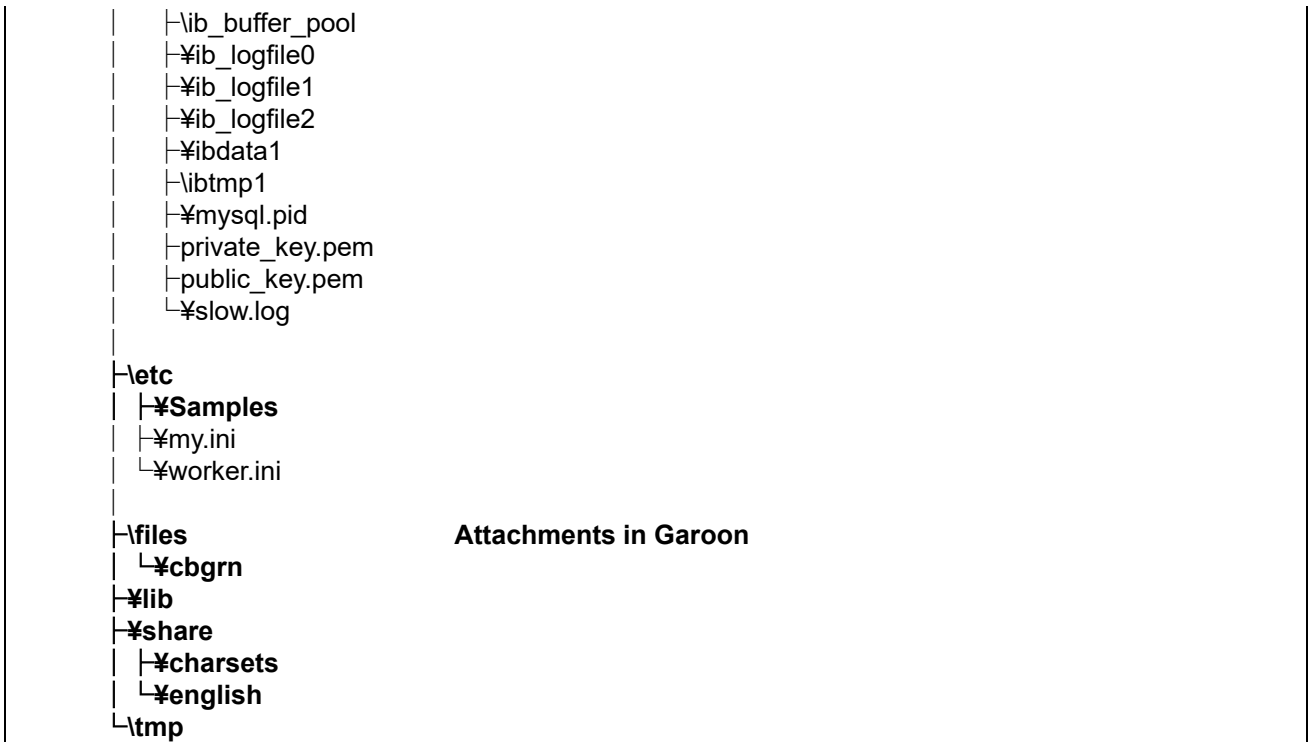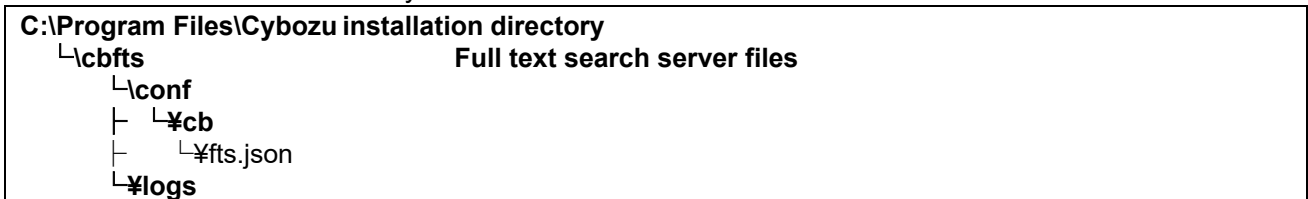
Full text search server

The Full text search server files are stored in the installation directory that you specified during installation.

• Example of the installation directory: C:¥Program Files¥Cybozu

A bold name indicates a directory and normal name indicates a file.

```
C:\Program Files\Cybozu installation directory
    └\cbfts                      Full text search server files
        └\conf
        ├   └¥cb
        ├       └¥fts.json
        └¥logs
```

Tip

• The Garoon installation process deploys Full text search server files but they are limited to files that are required for Garoon to connect the Full text search server. The Full text search server program is not installed.
When the Full text search server program is installed, many directories and files that are not listed above are deployed.

Image file

Image files are stored in a subdirectory named with your installation identifier.

• Example of the document root directory: C:¥inetpub¥wwwroot

A bold name indicates a directory and normal name indicates a file.

```
C:¥inetpub¥wwwroot              Document root directory
    └\cbgrn                     installation identifier
```

```
├─¥3rd_party_license        Third party license information
├─\api                      Files used by related products
├─\fw                       Framework image files, and so on
├─\grn                      Garoon image files, and so on
│    ├─¥common
│    ├─¥html
│    └─¥image
│         ├─¥cybozu
│         └─¥oauth
├─\js                       Garoon Help files
└─¥tinymce                  Image files for rich text format, and so on
```

Appendix A.2   Organization of Files on Linux

CGI application files

The CGI application of Garoon is installed in the CGI directory that you specified during installation. The various files of the CGI application are stored in a subdirectory of the CGI directory that is named with your installation identifier.

• Example of the CGI directory: /var/www/cgi-bin

A bold name indicates a directory and normal name indicates a file.

```
/var/www/cgi-bin           CGI directory
  └─/cbgrn                 installation identifier
      ├─/code              Garoon programs
      │    ├─/command
      │    ├─/doc_root
      │    ├─/include
      │    ├─/pear
      │    ├─/plugin
      │    ├─/sched
      │    ├─/smarty
      │    └─/vendor
      │
      ├─/data
      ├─/db
      ├─/extensions        Necessary PHP extension files
      ├─/grn               Necessary configuration files for Garoon
      ├─/locale            Garoon language resources
      ├─/logs
      ├─/page              Garoon template files
      ├─/sessiondata       PHP session data
      ├─/smarty
      │    ├─/cached       Cache data of the smarty library
      │    └─/compiled     Compiled templates of the smarty library
      │
      ├─/tmp               Temporary files created by PHP scripts
      ├─/upload_tmp        PHP temporary uploaded files
      ├─/common.ini
      ├─/cyss_cbgrn.pid
      ├─/db_error.log
```

```
├/garoon.ini
├/garoon_lwc.ini
├/garoon_policy.ini
├/grn.cgi
├/grn.exe
├/grn_initialize.log
├libmariadb.so
├libmariadb.so.3
├/LICENSE_en.txt
├/LICENSE_ja.txt
├/LICENSE_zh.txt
├/logger.ini
├/lwc.ini
├/php.ini
├/sched
├/sched.ini
├/sched.log
├/script.log
├/state.ini
├/system_admin.ini
└/uninstall_cbgrn
```

MySQL

MySQL files are stored in the installation directory that you specified during installation.
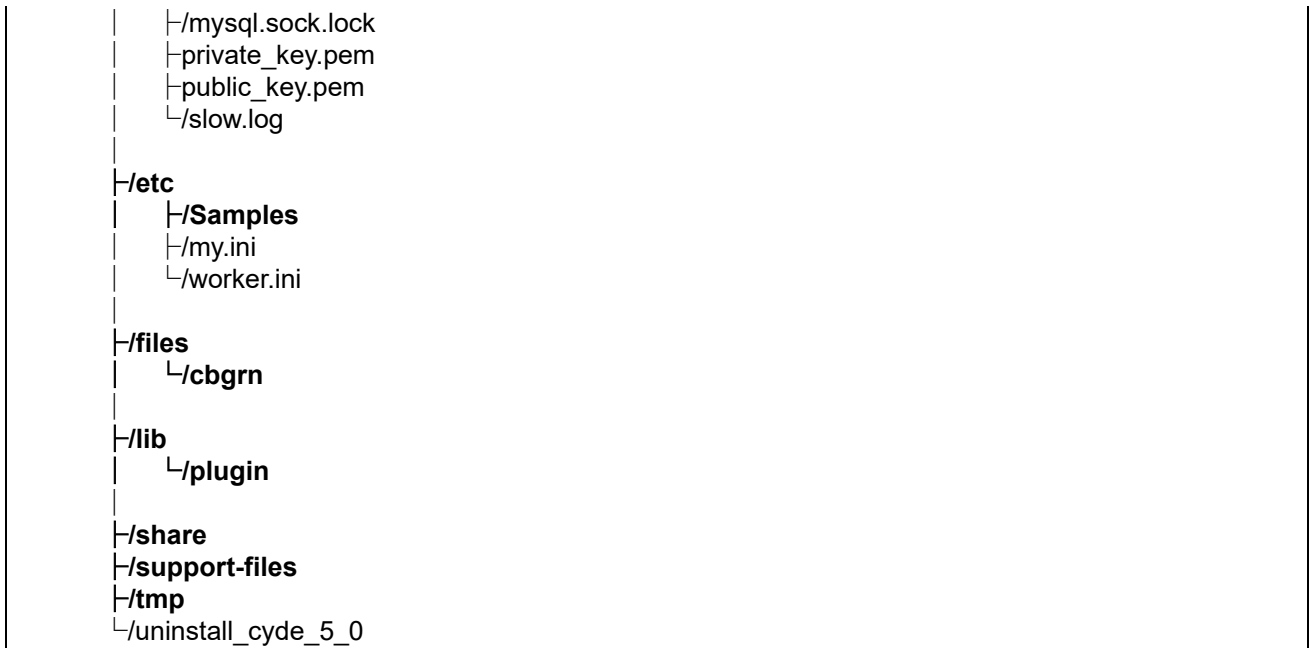
• Example of the installation directory: /usr/local/cybozu

A bold name indicates a directory and normal name indicates a file.

```
/usr/local/cybozu              MySQL files
  ├/mysql-5.0
    ├/bin
    │    ├/my_print_defaults
    │    ├/mysql
    │    ├/mysql_upgrade
    │    ├/mysqladmin
    │    ├/mysqlbinlog
    │    ├/mysqlcheck
    │    ├/mysqld
    │    ├/mysqld_safe
    │    ├/mysqldump
    │    ├/mysqlimport
    │
    ├/data
    │    ├/cb_cbgrn
    │    ├/cb_slash
    │    ├/mysql
    │    ├/performance_schema
    │    ├/sys
    │    ├/auto.cnf
    │    ├/error.log
    │    ├/ib_logfile0
    │    ├/ib_logfile1
    │    ├/ib_logfile2
    │    ├/ibdata1
    │    ├/ibtmp1
    │    ├/mysql.sock
```

```
    │       ├/mysql.sock.lock
    │       ├private_key.pem
    │       ├public_key.pem
    │       └/slow.log
    │
    ├/etc
    │       ├/Samples
    │       ├/my.ini
    │       └/worker.ini
    │
    ├/files
    │       └/cbgrn
    │
    ├/lib
    │       └/plugin
    │
    ├/share
    ├/support-files
    ├/tmp
    └/uninstall_cyde_5_0
```
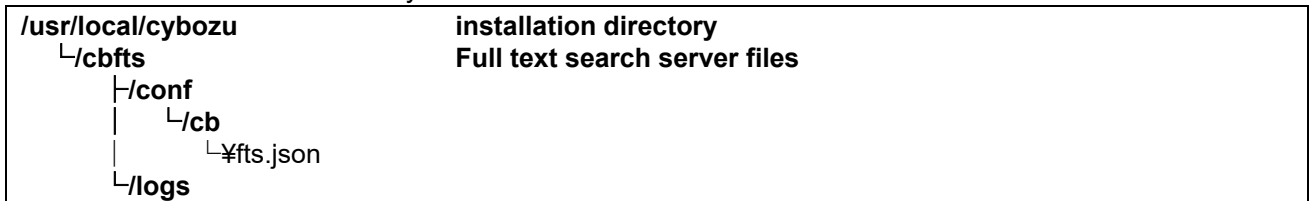
Full text search server

The Full text search server files are stored in the installation directory that you specified during installation.

• Example of the installation directory: /usr/local/cybozu

A bold name indicates a directory and normal name indicates a file.

```
/usr/local/cybozu              installation directory
    └/cbfts                    Full text search server files
        ├/conf
        │    └/cb
        │        └¥fts.json
        └/logs
```
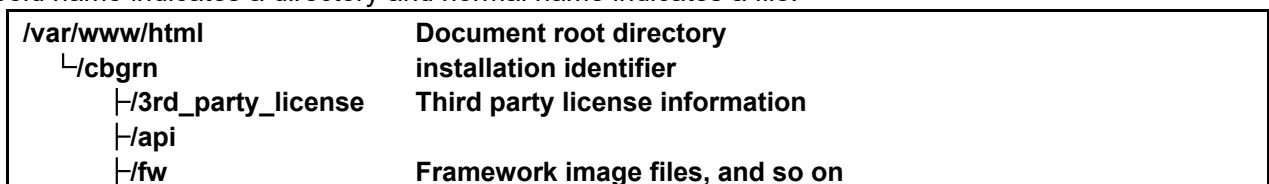
> **Tip**

• The Garoon installation process deploys Full text search server files but they are limited to files that are required for Garoon to connect the Full text search server. The Full text search server program is not installed.
When the Full text search server program is installed, many directories and files that are not listed above are deployed.

Image file

Image files are stored in a subdirectory named with your installation identifier.

• Example of the document root directory: /var/www/html

A bold name indicates a directory and normal name indicates a file.

```
/var/www/html                  Document root directory
    └/cbgrn                    installation identifier
        ├/3rd_party_license    Third party license information
        ├/api
        ├/fw                   Framework image files, and so on
```

```
        ├/grn                    Garoon image files, and so on
        │    ├/common
        │    ├/html
        │    └/image
        │         ├/cybozu
        │         └/oauth
        ├js                      Files such as JavaScript files for displaying screens
        └/tiny_mce               Image files for rich text format, and so on
```

Start-Up Script Files

The start-up script files are installed in the start-up script directory.

• Example of the start-up script directory: /etc/rc.d/init.d

```
MySQL service start-up script            :/etc/rc.d/init.d/cyde_5_0
Scheduling service start-up script: /etc/rc.d/init.d/cyss_cbgrn
```