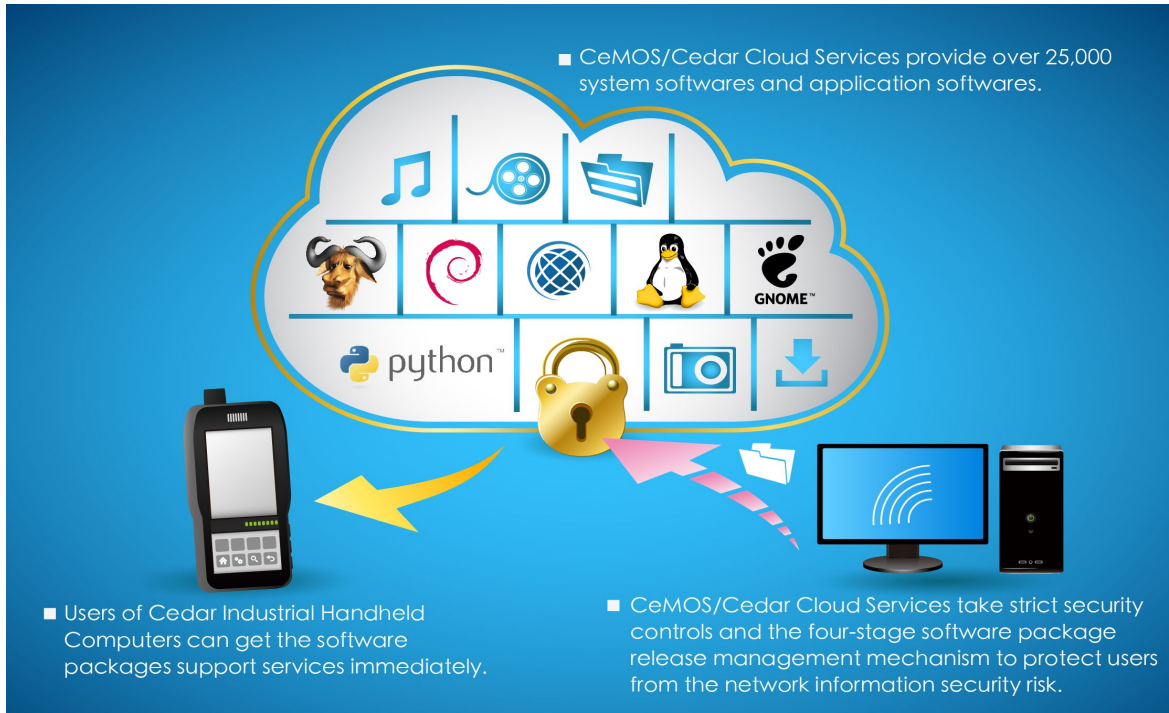


## CD180 CeMOS/Cedar Software Package Management and Release Management Cloud Services



CD180 CeMOS/Cedar Software Package Management and Release Management Cloud Services (hereinafter referred to as CeMOS/Cedar Cloud Services) is the essence of Cedar Industrial Handheld Computers, they provide over 25,000 software packages that are required by Cedar Industrial Handheld Computers, for system installation, software updates and adding new softwares. Users can link to the CeMOS/Cedar Cloud Server anytime anywhere to get the software packages support services immediately. Users do not have to worry about the problem of the network information security, because CeMOS/Cedar Cloud Services take strict security controls and the four-stage software package release management mechanism to ensure the security and reliability of the software packages. CeMOS/Cedar Cloud Services furthermore offer user-friendly interfaces for browsing, searching, downloading, installing, updating and removing the software packages, which enhances the effectiveness.

CeMOS/Cedar Cloud Services are parts of the four main parts of Cedar Industrial Handheld Computer System Development Platform, and the other parts are Cedar Industrial Handheld Computer Development Kit, Cedar Industrial Handheld Computer PC Emulator, and CeMOS/Cedar Industrial Handheld Computer Operating System. The purpose of Cedar Industrial Handheld Computer System Development Platform is to help developing, testing and validating the customized Cedar Industrial Handheld Computer quickly.

## Product Features

- Over 25,000 Software Packages

CeMOS/Cedar Cloud Server provides over 25,000 software packages for users to download and install. These software packages include system softwares and application softwares. CeMOS/Cedar Cloud Services also offer software update service to the users after the purchase of Cedar Industrial Handheld Computer, adding value to the product continuously. The number of the software packages and the functions of each software package in the CeMOS/Cedar Cloud Server will be increased continuously and frequently to satisfy the users' needs.

- Mechanism of Security Control

CeMOS/Cedar Cloud Services take strict security control mechanism, to protect users from the network information security risk. CeMOS/Cedar Cloud Services authenticate the identity of developers, verify the uploaded software packages are clean and original, make sure that users connect to the correct server, and verify the software packages downloaded and the one uploaded are identical.

- Four-Stage Software Release Management (Experimental Stage, Unstable Stage, Testing Stage, and Stable Stage)

The software release management of CeMOS/Cedar Cloud Services, ensure that the software packages downloaded by the users have passed functionality test, performance test, dependency test, compatibility test, and reliability test. Therefore the utilization of Cedar Industrial Handheld Computers is stable and reliable.

- Cloud Service

Whenever the users have new needs for the Cedar Industrial Handheld Computer, they can connect the Cedar Industrial Handheld Computer to the CeMOS/Cedar Cloud Server anytime anywhere, to get the required support service.

- Software Package Management

CeMOS/Cedar Software Package Management offers user-friendly interfaces to browse, search, download, install, update and remove the software packages, enabling the users to utilize the software and hardware resources of Cedar Industrial Handheld Computers more effectively.

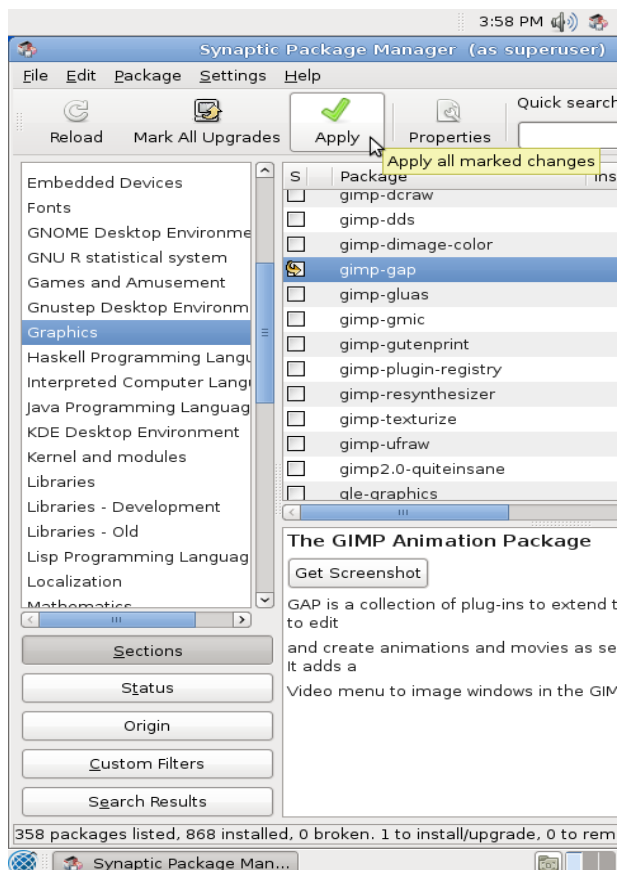
## Product Descriptions

- Software Packages Browsing, Searching, Downloading, Installing, Updating and Removing

CeMOS/Cedar Cloud Services provide the software packages needed by the Cedar Industrial Handheld Computers. Users can browse, search, download, install, update and remove the software packages through two ways as listed below:

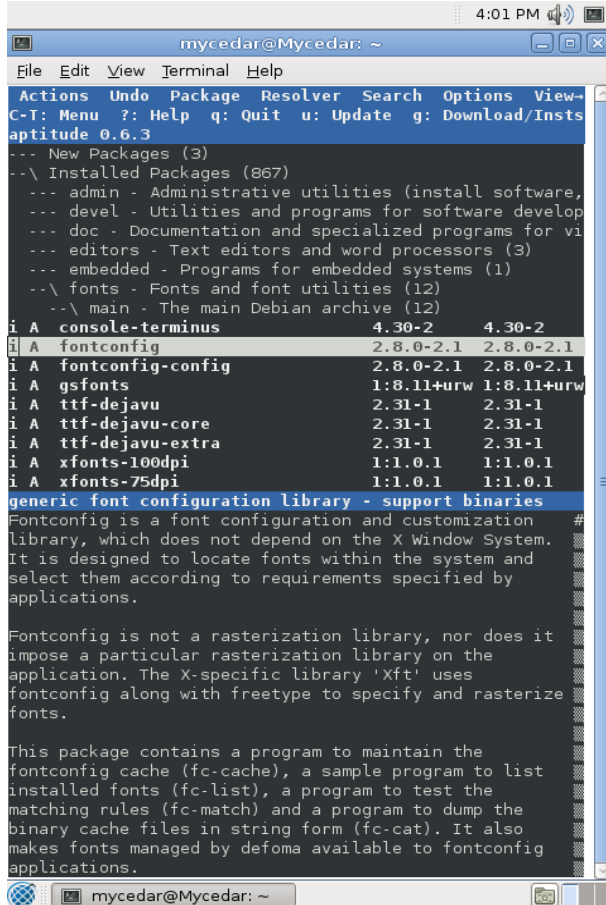
- Manage Software Packages by Graphical User Interface

CeMOS/Cedar Industrial Handheld Computer Operating System supports CeMOS/Cedar Cloud Services, therefore users can utilize the graphical user interfaced GNOME Synaptic Package Manager in the CeMOS/Cedar Industrial Handheld Computer Operating System, managing software packages with graphical user interface. After the Cedar Industrial Handheld Computer is connected to the Internet, the Synaptic Package Manager will compare the version number of the installed software packages and the ones in the Cloud Server automatically, downloading and installing the newer software packages if users permit. During the installation process, please keep the connection with the CeMOS/Cedar Cloud Server alive.



## ■ Manage Software Packages in the Command Mode by Console

Users can also manage the software packages in the command mode. All users need to do is open the console and enter the “aptitude” command, and users can browse, search, download, install, update, and remove software packages.



```

mycedar@Mycedar: ~
File Edit View Terminal Help
Actions Undo Package Resolver Search Options View-
C-T: Menu ?: Help q: Quit u: Update g: Download/Insts
aptitude 0.6.3
--- New Packages (3)
--\ Installed Packages (867)
--- admin - Administrative utilities (install software,
--- devel - Utilities and programs for software develop
--- doc - Documentation and specialized programs for vi
--- editors - Text editors and word processors (3)
--- embedded - Programs for embedded systems (1)
--\ fonts - Fonts and font utilities (12)
--\ main - The main Debian archive (12)
i A console-terminus 4.30-2 4.30-2
i A fontconfig 2.8.0-2.1 2.8.0-2.1
i A fontconfig-config 2.8.0-2.1 2.8.0-2.1
i A gsfonts 1:8.11+urw 1:8.11+urw
i A ttf-dejavu 2.31-1 2.31-1
i A ttf-dejavu-core 2.31-1 2.31-1
i A ttf-dejavu-extra 2.31-1 2.31-1
i A xfonts-100dpi 1:1.0.1 1:1.0.1
i A xfonts-75dpi 1:1.0.1 1:1.0.1
generic font configuration library - support binaries
Fontconfig is a font configuration and customization #
library, which does not depend on the X Window System.
It is designed to locate fonts within the system and
select them according to requirements specified by
applications.

Fontconfig is not a rasterization library, nor does it
impose a particular rasterization library on the
application. The X-specific library 'Xft' uses
fontconfig along with freetype to specify and rasterize
fonts.

This package contains a program to maintain the
fontconfig cache (fc-cache), a sample program to list
installed fonts (fc-list), a program to test the
matching rules (fc-match) and a program to dump the
binary cache files in string form (fc-cat). It also
makes fonts managed by defoma available to fontconfig
applications.

```

## ■ CeMOS/Cedar Cloud Server Security Control Mechanism

To prevent the CeMOS/Cedar Cloud Server from malicious intrusion, malwares and spreading computer virus to users, CeMOS/Cedar Cloud Server adopts strict security control mechanism. CeMOS/Cedar Cloud Services utilize Gnu Privacy Guard (GnuPG) encryption/decryption technology, MD5, SHA1 and SHA256 code verification technology. Even slight changes made in any files can cause a totally different hash code. That helps maintaining the safety of all the software packages in the CeMOS/Cedar Cloud Server, protecting users from exposing to any possible network information security risk.

- In the process of developer uploading a software package, the developer encrypts the software package's control file with his/her private key firstly; the CeMOS/Cedar Cloud Server has the public keys of all the authenticated developers, after CeMOS/Cedar Cloud Server has verified the control file with the developer's public

key successfully, CeMOS/Cedar Cloud Server checks each file in the software package with the respective MD5, SHA1, or SHA256 hash codes retrieved from the control file. After the CeMOS/Cedar Cloud Server has confirmed the uploaded software package as clean and original, the software package is saved to the CeMOS/Cedar Cloud Server. These steps guarantee the safety of the software packages in the CeMOS/Cedar Cloud Server.

- CeMOS/Cedar Cloud Server uses the private key representing the CES release manager to encrypt the release file, and the CES release manager publishes the corresponding public key to the users of CeMOS/Cedar Cloud Server. The users download the release file from the CeMOS/Cedar Cloud Server, and use the public key to decrypt the release file. The next step, the users verify the release file, finding out the location and the hash codes of the software package catalog file from the release file. After downloading the software package catalog file and verifying it, users can further access the location and hash codes of the software package; then downloading the software package and verifying it, now the users can install the software package.

```

Origin: CeMOS
Label: Cedar
Suite: stable
Codename: cedar3
Version: 3.0
Date: Tue, 15 Jan 2013 05:35:57 UTC
Architectures: i386 armel armhf
Components: main contrib non-free ces
Description: Centrium Embedded Mobile Operating System, Cedar 3.0 distribution.
MD5Sum:
90aa012acbcc5eaa825d670ac17e02d7 29627413 main/binary-i386/Packages
37bc51d688def5d86c118c21d6a6e51a 8341106 main/binary-i386/Packages.gz
73b5174e911f9c4ad0e36f88392996c5 170 main/binary-i386/Release
SHA1:
66d012ae1844051bdc70c20557e89824e3d06a11 29627413 main/binary-i386/Packages
c243c4134bbc8c5af9bcd145708214dcc92a0484 8341106 main/binary-i386/Packages.gz
9b330e7340ea275600f640585f80c3ebcc7949a0 170 main/binary-i386/Release
SHA256:
21a2712ab8795b9f847e8066ae85a779fd00cd817365cfe75f50ad47cbba7773a7 29627413 main/binary-i386/Packages
e01e2de3e54d8b2beaaac5dba30bc11b4e22c6df805aba876ee79c3040977f68 8341106 main/binary-i386/Packages.gz
12a5a6cd7978a0db2c9e261f9168e3f0ee8c061794768fb15658e5ad799e1119 170 main/binary-i386/Release

```

The release file downloaded from the CeMOS/Cedar Cloud Server, containing the location and hash codes of the software package catalog files.

```

-----BEGIN PGP SIGNATURE-----
Version: GnuPG v1.4.10 (GNU/Linux)

iQEcBAABAgAGBQJQ90q9AAoJEA8pdXX/cfVuBboH/3BDmqLIydhvb7Cj4Er+KSyE
XAowK0bc0yQrK/tMfgFOARwBSAGTavLpIb8NoLYxoXZtN3zRk1AeBccZzrZ303Z/
Z7Q+jUweXyVUPYYATIcxjuz3J3e18Xw3xLhxASwAuna2Ln4NMOXwQnnjP1tL8pA9
9pe3WnqCiSPdLHev7x201xD8VUe/wTDEwWiq2CQRrKwx/AaLDKpjOn23eMovSub
Q89Hp+n7x8uZ6E8hQMCRZ4cdXB5N3muo9Lcd5YpNSrGL/bHJsveXpwVVCV/Us1TLR
ndYcCDV4tULbm3CbiSc8xu19M0ob40IUP3or4xuGR6UN/Lt9c1Y86uXC0pxvNIg=
=08yX
-----END PGP SIGNATURE-----

```

The GnuPG signature of the release file.

```

Package: udhpcp
Source: busybox
Version: 1:1.17.1-8cdr1
Architecture: all
Maintainer: Jia-Bin Huang <jb@ces.com.tw>
Installed-Size: 60
Depends: busybox (>= 1:1.17.1-8cdr1) | busybox-static (>= 1:1.17.1-8cdr1)
Priority: optional
Section: net

Filename: pool/main/b/busybox/udhpcp_1.17.1-8cdr1_all.deb
Size: 17209
SHA256: a258dfd1da1cc9c7e4110b8373378375028674d9242002692d1130410aad8aae
SHA1: 2c8aed0dc156276b2eaf89438b18804c073da241
MD5sum: affa5ee967187d92ba5a95a57da4bfd8
Description: Provides the busybox DHCP client implementation
 Busybox contains a very small yet fully function RFC compliant DHCP
 client formerly known as udhpcp.

 This package contains the glue to use the busybox udhpcp as DHCP
 client in the system by providing the appropriate symbolic links and
 scripts.

Package: udhcpd
Source: busybox
Version: 1:1.17.1-8cdr1
Architecture: all
Maintainer: Jia-Bin Huang <jb@ces.com.tw>
Installed-Size: 108
Depends: busybox (>= 1:1.17.1-8cdr1) | busybox-static (>= 1:1.17.1-8cdr1)
Provides: dhcpd
Priority: optional
Section: net

Filename: pool/main/b/busybox/udhcpd_1.17.1-8cdr1_all.deb
Size: 10897
SHA256: c363c045f2b8ad04eb5b093f9ee3fef44f4b07cd68e79e68d6045e79e347843d
SHA1: 32ff03f48039d052e8344bcc09b6167c7977c850
MD5sum: d333b0ab1a5bd75f9cf913bffe4800
Description: Provides the busybox DHCP server implementation
 Busybox contains a very small yet fully function RFC compliant DHCP
 server formerly known as udhcpd.

```

The software package catalog file contains the location and hash codes of the software packages. After downloading the software package and verifying the file, users can install the software package.

- The Categories of the Software Packages in the CeMOS/Cedar Cloud Server

The updates and expansion of the Cedar Industrial Handheld Computer come from the software packages in the CeMOS/Cedar Cloud Server, therefore the contents of the software packages in the CeMOS/Cedar Cloud Server are the essence of the Cedar Industrial Handheld Computers.

There are over 25,000 software packages in the CeMOS/Cedar Cloud Server, including not only system softwares but also application softwares. System softwares are, for example, kernels, administration utilities, communication programs, X window system softwares, shells, desktop environments, etc. Application softwares are, for example, graphics packages, text editors, programming languages, libraries, libraries for development, database, font packages, audio and video packages, language packages, science softwares, mathematics softwares, etc. Detailed documentation of each software package is also provided for users' reference. With rapid advancement of computer technology, we will continue dedicating ourselves to developing and expanding the software packages in the CeMOS/Cedar Cloud Server, and providing ongoing value-added services for the users of Cedar Handheld Computers.

## ■ CeMOS/Cedar Cloud Server Software Package Release Management

CeMOS/Cedar Cloud Server provides over 25,000 software packages for the users of Cedar Industrial Handheld Computers to download. While installing the Cedar Industrial Handheld Computer for the first time, the installation program of CeMOS/Cedar Industrial Handheld Computer Operating System will download and install the required software packages from the CeMOS/Cedar Cloud Server automatically, including the necessary system software packages such as the kernel, operating system, X window system, and desktop environment. After system software packages are installed, users can download and install additional software packages from the CeMOS/Cedar Cloud Server via Synaptic Package Manager or the “aptitude” command.

To ensure each of the software packages of the Cedar Industrial Handheld Computer is able to work stably without compatibility problems and dependency problems, any possible combinations of the 25,000 software packages in the CeMOS/Cedar Cloud Server must undergo rigorous functionality, performance, dependency and compatibility testing before the official release of a stable version of the software packages.

Each software package in the CeMOS/Cedar Cloud Server may retain one to four different versions, which are belong to the experimental suite, the unstable suite, the testing suite, or the stable suite respectively. The experimental suite focuses on the functionality and performance testing, and the unstable suite focuses on the compatibility testing. The testing suite focuses on the reliability testing, and the stable suite focuses on the stable release. Each of the software packages released by the CeMOS/Cedar Cloud Server must go through the experimental stage, the unstable stage, the testing stage, stage by stage, finally come to the stable stage, and released officially.

## Ordering Information

- CeMOS/Cedar Cloud Services are included in Cedar Industrial Handheld Computer System Development Platform. You don't need to order extra CeMOS/Cedar Cloud Services, since Cedar Industrial Handheld Computer System Development Platform itself contains CeMOS/Cedar Cloud Services.
- CD310 Cedar Industrial Handheld Computer System Development Platform includes:
  1. CD310-1 Cedar Industrial Handheld Computer Development Kit
  2. CD310-2 Cedar Industrial Handheld Computer PC Emulator
  3. CD110 CeMOS/Cedar Industrial Handheld Computer Operating System
  4. CD180 CeMOS/Cedar Software Package Management and Release Management Cloud Services

P/N:900-1005-20



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