FortiAP 222B

QuickStart Guide

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Table of Contents

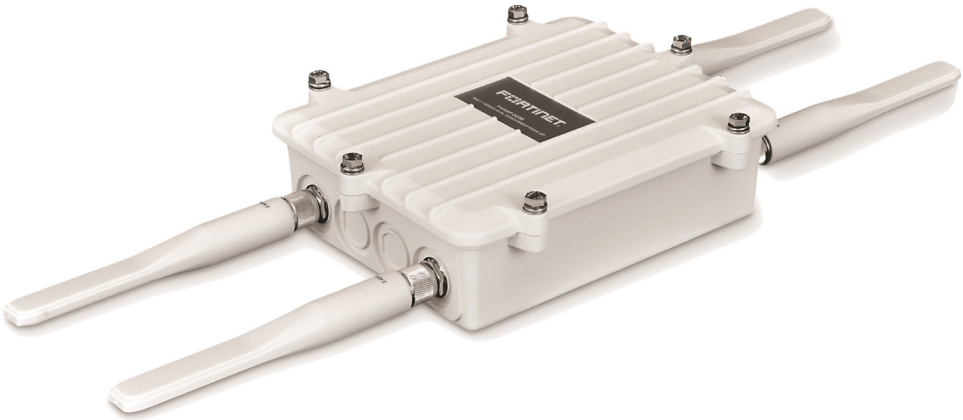
Package Contents	1
Connecting the FortiAP Unit	2
Configuring the FortiAP Unit	3
Technical Specifications	5
Cautions and Warnings	6
Documentation and Links	9
Register Your Product	10
Product License Agreement	11

Package Contents

Thank you for purchasing the FortiAP 222B. The FortiAP 222B offers you unmatched performance, flexibility, and security for your wireless network. The appliance combines high performance hardware with multi-band wireless support, weatherproofing, 802.3af Power over Ethernet, and provides simplified protection for your network with Fortinet's unmatched depth and breadth of security services.

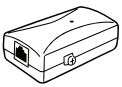
Your box contains the following:

- FortiAP-222B
- Mounting Hardware
- 2x 2.4GHz Wireless Antenna (N-type connector)
- 2x 5GHz Wireless Antenna (N-type connector)
- Power over Ethernet Adapter
- Weatherproof connector
- QuickStart and Installation Guides

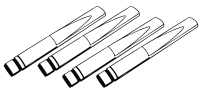


Grounding Cable & Power Adapter

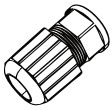
PoE Adapter



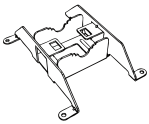
2 x 5 GHz Antenna
2 x 2.4 GHz Antenna



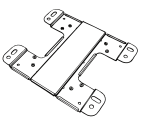
Weatherproof Connector



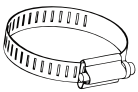
Pole-Mount Bracket



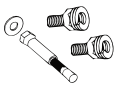
Wall-Mount Base



Pole Strap

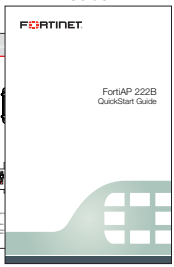


Mounting Screws & Bolts

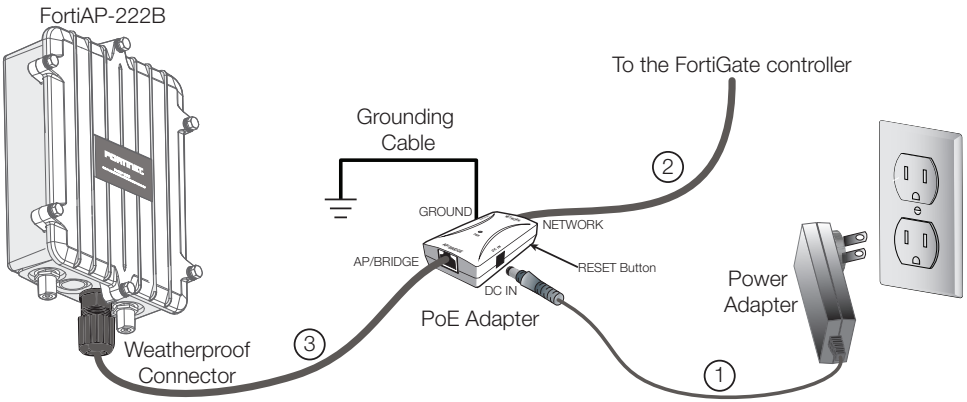


Install Guide

QuickStart Guide



Connecting the FortiAP Unit



Using the provided mounting brackets, attach the FortiAP unit to a wall or pole, as described in the *FortiAP-222B Hardware Installation Guide*. The PoE adapter unit is not weatherproof and must be mounted indoors. Adequate grounding must be provided to the FortiAP unit and the PoE adaper, compliance with your local electrical code or regulations. Grounding lugs are provided for this purpose.

Connect the FortiAP unit as follows:

1. Connect your region-specific AC plug adapter to the AC Adapter by inserting the round disk into the Adapter and rotating clockwise until you hear the disk lock in place.
2. Insert the DC plug of the power adapter into the DC IN port on the PoE adapter. Plug the AC Adapter into a wall outlet or power strip. The PWR LED will light up.
3. Connect one end of a cross-over Ethernet cable into the Network port on the PoE adapter. Connect the other end to the FortiGate controller or router.
4. Using the supplied weatherproof connector, connect one end of a weather-proof straight-through Ethernet cable to the PoE port on the bottom of the FortiAP unit, following the procedure in the *FortiAP-222B Install Guide*. Insert the other end of the Ethernet cable into the AP/Bridge port on the PoE adapter.

Note: The FortiAP 222B is certified for use with only the included antennas or with the FortiAP Antenna-336R.

Configuring the FortiAP Unit

The FortiAP unit is designed to require no configuration in most networks. Zero Configuration mode works if the unit is directly connected to the FortiGate or FortiWifi performing the Wireless LAN Controller (WLC) functions, or on the same layer-2 network and subnet as the FortiGate or FortiWifi unit.

If the FortiAP wireless controller's IP address cannot be determined using Zero Configuration mode, or if the network uses static IP addresses, it can be configured to use a static IP address.

To enable the FortiAP using Zero Configuration:

1. After connecting the FortiAP unit as described in the previous chapter, the unit goes through its boot procedure and requests an IP address from the DHCP server.
2. If the IP address is retrieved successfully, the FortiAP enters discovery mode to locate a FortiGate or FortiWifi wireless controller. The discovery modes are:
   - Broadcast
   - Multicast
   - DHCP option 138
3. Verify that the FortiAP has successfully connected to the controller.
   In the FortiGate Web-based Manager, go to *WiFi Controller* > *Managed Access Points* > *Managed FortiAP*. A successfully discovered unit displays an orange circle with a question mark.
4. Select the access point and click *Edit*.
5. In the *State* field, select *Authorize*.
6. In the *AP Profile* field, select *Change*, then select a profile from the list and click *OK*.

To enable the FortiAP with a static IP address:

1. Connect the FortiAP device to a separate private switch or hub, or directly connect it to your management computer via a cross-over cable.
2. Configure the management computer to be on the same subnet as the internal interface of the FortiAP unit:
   a. Browse to the *Network and Sharing Center* > *Change Adapter Settings* > *Local Area Connection Properties* > *Internet Protocol Version 4 (TCP/IPv4) Properties*.
   b. Change the IP address of the management computer to 192.168.1.3 and the netmask to 255.255.255.0.
3. Use a Telnet apllication to connect to IP address 192.168.1.2.
4. Type `admin` in the *Name* field, leave the *Password* field blank, and press *Enter*.

5. Configure a static IP address for the FortiAP unit and netmask & gateway information for your network, using the following commands:

```
cfg -a ADDR_MODE=STATIC
cfg -a AP_IPADDR=xxx.xxx.xxx.xx
cfg -a AP_NETMASK=255.255.255.0
cfg -a IPGW=yyy.yyy.yyy.yyy
cfg -a AC_IPADDR_1=zzz.zzz.zzz.zzz
```

   where xxx is the IP address of the FortiAP unit, yyy is the Gateway IP address and zzz is the IP address of the FortiGate Wireless Controller.
6. Save the configuration by typing the following command:

```
cfg -c
```

7. Unplug the FortiAP unit and plug it back in order for the configuration to take effect.
8. Move the FortiAP to the intended deployment location and connect the Ethernet cable as described in the Connecting Your FortiAP Unit section.
9. Log in to the FortiGate controller Web-based Manager, and go to *WiFi Controller* > *Managed Access Points* > *Managed FortiAP*. A successfully discovered unit displays an orange circle with a question mark in the *Status* column.
10. Select the access point and click *Edit*.
11. In the *State* field, select *Authorize*.
12. In the *Edit FortiAP* dialog box, select *Enable Wireless Radio*. Leave the remaining settings at their default values. The configuration is downloaded from the FortiGate unit to the FortiAP device.

Resetting the FortiAP unit:

Following an upgrade, some old configuration items from a previous firmware version or wrong configuration might remain in the configuration file. This may cause the unit to display unexpected behavior. Resetting the unit to factory default settings can correct this issue and will not change the firmware version.

The FortiAP unit can be reset to factory default settings in two ways: using the CLI, or using the hardware reset button.

To reset the unit using the CLI:

1. Connect to the unit using steps 1 through 4 of the enabling the FortiAP unit using the CLI.
2. Enter the following command:

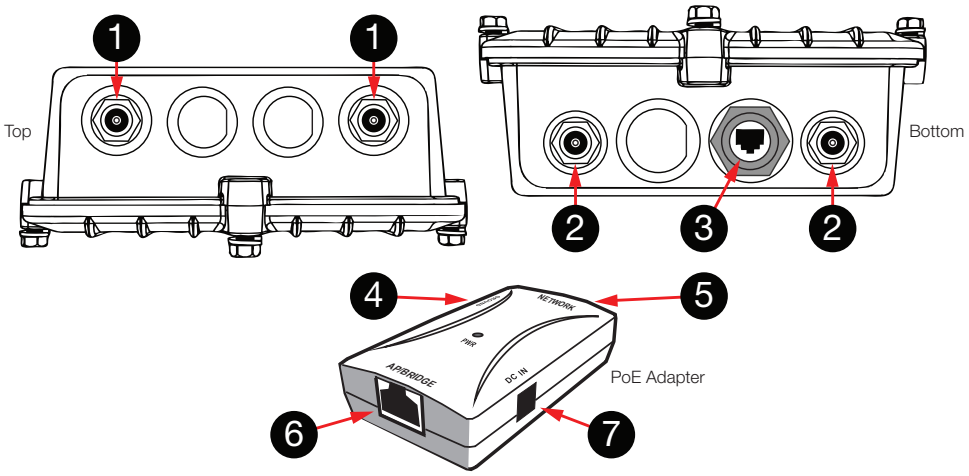
```
cfg -x
```

To reset the unit using the hardware reset button:

1. Locate the hardware reset button on the side of the PoE adapter.
2. Using an appropriate implement, press and hold the reset button for 5 seconds. The unit will reboot to factory default settings.

For more information, see the *Deploying Wireless Networks Guide*, available on Fortinet's technical documentation website, http://docs.fortinet.com.

Technical Specifications



#	Interface	Type	Description
1	WLAN 1	N-type	Two 802.11a/n (5 GHz) antenna mounts.
2	WLAN 2	N-type	Two 802.11b/g/n (2.4 GHz) antenna mounts.
3	PoE Port	RJ-45	Gigabit Ethernet 48V PoE input from adapter via weatherproof Ethernet cable. Use with a weatherproof connector.
4	Ground	Copper	Electrical ground connection for PoE Adapter.
5	Network	RJ-45	Connection to your network.
6	AP/Bridge	RJ-45	PoE output. Provides 48V of DC power and network connectivity to the AP.
7	DC in		Provides power to PoE Adapter. 100-240V AC, 50-60Hz, 1.5A max

Hardware	Description
Dimensions	LxWxD: 10in x 8in x 3in (245mm x 200mm x 75mm)
Housing	Weatherproof enclosure
Mount	Wall or pole.
Frequency Bands (GHz)	802.11a/n: 5.15-5.35, 5.47-5.72, 5.725-5.825 802.11b/g/n: 2.400-2.484
Antenna Type	N-type connector

Note: The availability of some specific channels and/or operational frequency bands are country-specific and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

Cautions and Warnings

Please review the following cautions and warnings.

Environmental and mounting specifications

Operating temperature: -20 - 60°C (-4 - 140°F)

Storage temperature: -20 - 60°C (-4 - 140°F)

Humidity: 0 to 100%

Operating Altitude: <2250m (7400ft)

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Federal Communication Commission (FCC) – USA

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received; including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 21cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Caution: Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

Industry Canada Equipment Standard for Digital Equipment (ICES) – Canada

CAN ICES-3 (B) / NMB-3 (B)

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 21cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 21 cm de distance entre la source de rayonnement et votre corps.

Caution: The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems. High-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Avertissement: Les dispositifs fonctionnant dans la bande 5 150-5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux. De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5 250-5 350 MHz et 5 650-5 850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

This device has been designed to operate with an antenna having a maximum gain of 5dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Ce dispositif a été conçu pour fonctionner avec une antenne ayant un gain maximal de dBi 5. Une antenne à gain plus élevé est strictement interdite par les règlements d'Industrie Canada. L'impédance d'antenne requise est de 50 ohms.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peutfonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pourl'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectriqueà l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que lapuissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire àl'établissement d'une communication satisfaisante.

European Conformity (CE) - EU

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

National Communications Commission (NCC) – Taiwan

NCC警語

根據NCC低功率電波輻射性電機管理辦法規定：

第十二條

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率，加大功率或變更原設計之特性及功能。

第十四條

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。

低功率射頻電機需忍受合法通信工業、科學及醫療用電波輻射性電機設備之干擾。

Grounding

Ensure your Fortinet product is connected and properly grounded to a lightning and surge protector. WAN or LAN connections that enter the premises from outside the building should be connected to an Ethernet CAT5 (10/100 Mb/s) surge protector.

Shielded Twisted Pair (STP) Ethernet cables should be used whenever possible rather than Unshielded Twisted Pair (UTP).

Do not connect or disconnect cables during lightning activity to avoid damage to your Fortinet product or personal injury.

Electrostatic discharge (ESD) can damage Fortinet equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist strap and attaching it to an available ESD connector or other bare metal object.

Adequate grounding must be provided to the FortiAP unit and the PoE adapter. Grounding lugs are provided on both units for this purpose. Consult a certified electrician to ensure that all grounding and cabling is installed in compliance with the local electrical code.

Caution: For devices that contain a battery there is a risk of explosion if battery is replaced by an incorrect type. Recycle used batteries according to your local regulations.

警告

本電池如果更換不正確會有爆炸的危險

請依製造商說明書處理用過之電池

Caution: This equipment is to be connected only to PoE networks without routing to the outside plant.

Documentation and Links

The following Fortinet web pages provide information and resources for your Fortinet product:

1. **Customer Service & Support:** https://support.fortinet.com
   On this page you can create a support account with Fortinet, register and manage your products, download updates, firmware images and release notes, and create technical support tickets.
2. **Technical Documentation:** http://docs.fortinet.com
   This page provides the most up-to-date versions of Fortinet publications for the entire family of Fortinet products.
3. **Knowledge Base:** http://kb.fortinet.com
   This page provides Fortinet technical documentation, such as troubleshooting, how-to articles, example configurations , FAQs, technical notes, and more.
4. **Technical Discussion Forums:** https://support.fortinet.com/forum
   This page allows you to communicate with other customers and Fortinet partners about Fortinet products, services, and configuration issues in a forum environment.
5. **Training Services:** http://training.fortinet.com
   This page provides course descriptions, availability, schedules, and locations of training programs in your area.
6. **FortiGuard Threat Research and Response:** http://www.fortiguard.com
   This page provides up-to-date information on vulnerabilities and threats, and includes a virus scanner, Internet Protocol (IP) signature look-up, web filtering tools, and related information.

Tools and Documentation CD

The tools and documents on this CD are current as of shipping time.

Comments on Technical Documentation

Please send comments or information about any errors or omissions in this or any Fortinet technical documents to techdoc@fortinet.com.

Register Your Product

If you did not register your Fortinet product using the FortiExplorer wizard, please register your product now.

Register

Register your Fortinet product in order to receive:

• Technical Support • New product features • Protection from new threats

Enregistrer

Vous devez enregistrer le produit pour recevoir:

• Support technique • Nouvelles fonctionnalitées du produit • Protection contre de nouvelles menaces

Registra

La reistrazione ti permette di usufruire di:

• Supporto Tecnico • Nuove funzionalita • Proteezione dalle ultime minaccce

Registrar

Debe registrar el producto para recibir:

• Apoyo técnico • Nuevas funcionalidades del producto • Protección contra ataques

登録のお願い

本日、フォーティネット製品の登録をしてください。

登録すると次のメリットがあります。
テクニカルサポート・新機能の追加・新しい脅威への防御

请马上注册

您的飞塔产品

您在注册以后才能得到技术支持、新产品特点信息、最新威胁防护

Web: https://support.fortinet.com/
Toll free: 1 866 648 4638
Phone: 1 408 486 7899
Fax: 1 408 235 7737
Email: register@fortinet.com

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not.

Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.) Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for your own use and reverse engineering for debugging such modifications. You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable. It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

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