

Red-M 1000AP access point

getting started guide

Before starting, read the License and Warranty agreement included in the packaging as this becomes legally binding on you as soon as you install or use this product.

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Introduction

Red-M™ 1000AP™ access points are designed to work with Genos™ software, which runs on the Red-M 3000AS™ access server or a Linux server. 1000AP access points enhance your Bluetooth™ infrastructure by letting more users connect over a wider area.

1000APs have a Bluetooth range of up to 100 meters (for high-powered devices) or around 15 meters (for low-powered devices). Range often varies with both the connecting device and the surrounding environment.

Installation

There are two installation options: 'star-wiring' or 'daisy-chaining'. Connect 1000APs to your LAN using Category 5 Ethernet cables with standard RJ-45 connectors. There should be no more than 100 meters of cabling between two 1000APs or between a 1000AP and the Ethernet port to which it is connected. This is an Ethernet limitation. For more information about cabling, see *Connecting the cables* on page 9.

 **Note:** When configuring a 1000AP on your management PC, this guide refers to Genos software version 2.0 and above. If you have BIAS version 1.3 or earlier installed on your 3000AS, upgrade to the latest version of Genos available from the Red-M website (www.red-m.com).

 **Note:** Some jurisdictions require special wiring if installing cables into a ceiling cavity. They may also have special conditions about installing products on a ceiling or installing the supplied power adapter. If in doubt, contact your local authority.

Before you start

Before you start, you need:

- Either a configured Red-M 3000AS access server or a Linux server with Genos installed
- Category 5 Ethernet cables with RJ-45 connectors
- The DC 12v power adapter (included)
- If mounting on a ceiling or wall:
 - Two screws
 - A mounting bracket (included)
 - A screwdriver
- An Ethernet hub or switch (if installing in a 'star-wire' configuration).



Note: The mounting bracket may already be fitted to the 1000AP during packaging. You may want to remove the bracket to use the 1000AP on a desktop.



Note: If you use the star-wire configuration from the *Access Point* port of a 3000AS, and connect to a switch or hub's standard ports, you will need an Ethernet crossover cable.

Mounting the 1000AP

The 1000AP has a mounting bracket that can be attached to a ceiling or wall using appropriate screws and suitable fastenings. We recommend mounting on a ceiling, since 1000APs provide superior Bluetooth coverage in a horizontal position.

Each 1000AP must be connected to its supplied power adapter, so take this into account when mounting in a wall cavity or ceiling. For optimum Bluetooth performance, install the 1000AP(s) in direct line-of-sight with the devices that will use the 1000AP (ideally not behind wall partitions or around corners).

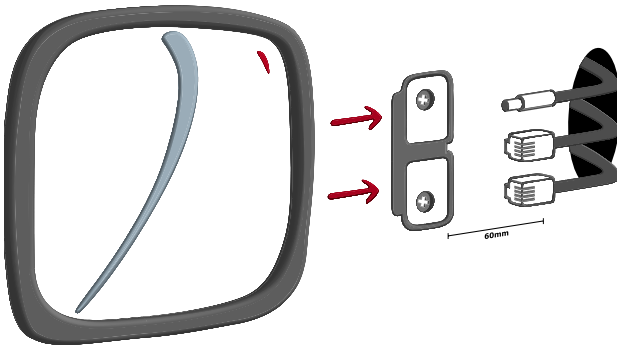


Figure 1: Mounting the 1000AP to a ceiling or wall

To mount on a ceiling or wall:

1. Select a location on a ceiling or wall to mount the 1000AP (we recommend mounting on a ceiling).
2. Ensure the ceiling or wall can support the 1000AP's weight (around 250 g or 8.5 oz). If in doubt, consult a licensed installer.
3. Install the Category 5 Ethernet cable according to whether you decided to 'star-wire' or 'daisy-chain' the 1000AP's cabling (see *Connecting the cables* on page 9). Ensure these and the power cable emerge at the correct point (see *Figure 1* on page 7).
4. Use the mounting bracket as a template to mark out drill positions.
5. Drill two holes (43 mm apart) using a 5.5 mm drill bit. Ensure the two holes are vertically aligned if mounting on a wall. The holes must be 75 mm from the cabling hole in the wall or ceiling to ensure a flush fitting (60 mm from the mounting bracket's edge).
6. Insert suitable fastenings into the holes (e.g. wall plugs).
7. Position the mounting bracket over the two holes and insert the appropriate screws.
8. Connect the cables from the hole in the ceiling/wall to the 1000AP.
9. Slide the 1000AP over the mounting bracket until it fits into the groove. Continue sliding until it locks into place.

Connecting the cables

Cabling depends on whether you decide to 'star-wire' or 'daisy-chain' the 1000AP(s), and to which Genos server you connect. You must use the power adapter provided to connect power to each 1000AP.

Star-wiring from a 3000AS

Star-wiring means using an Ethernet switch or hub to connect 1000APs to the Genos server as shown in *Figure 2* below.

Star-wiring is recommended if you plan to install more than two 1000APs. Star-wiring uses the 1000AP's *IN* port to connect the cable from the switch or hub, which is connected to your Genos server.

Note: When connecting the 3000AS to a switch or hub's uplink port, you can use a standard Ethernet cable. To connect from the *Access Point* port to a switch/hub's standard ports, you must use an Ethernet crossover cable. Do not use a 10Mbps-only hub for connecting 1000APs.

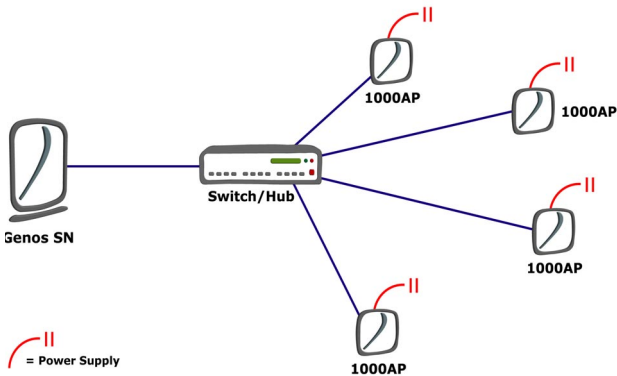


Figure 2: Star-wire installation

1. Connect a Category 5 Ethernet cable from the 3000AS's blue *Access Point* port or purple *Office Lan* port to the switch or hub. Ensure there is no more than 100 meters between the 3000AS and the switch or hub.
2. Connect Category 5 Ethernet cables from the 1000AP's IN port to a spare port on the switch or hub. There should not be more than 100 meters between a 1000AP and the switch or hub.



Note: If you use the blue *Access Point* port and do not connect to the switch/hub's uplink port, you must use an Ethernet crossover cable.

Star-wiring from a Linux server

1. Connect a Category 5 Ethernet cable from your Linux server's Ethernet port to the switch or hub. Ensure there is no more than 100 meters between any two devices.
2. Connect Ethernet cables from the 1000AP's *IN* port to a spare port on the switch or hub. There should not be more than 100 meters between a 1000AP and the switch or hub.

Daisy-chaining

Daisy-chaining means installing two 1000APs in a continuous fashion, with one joining the next. See *Figure 3* below.

Daisy-chaining uses both the 1000AP's *IN* and *OUT* ports.



Note: No more than two 1000APs should be connected using a daisy-chain configuration.

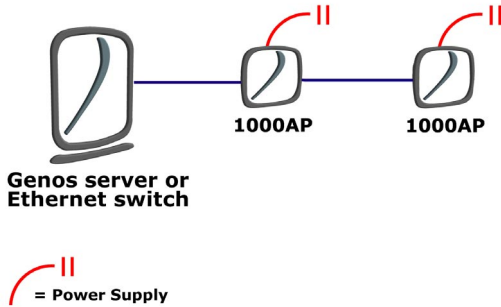


Figure 3: Daisy-chain installation

1. Connect a Category 5 Ethernet cable (with RJ-45 connectors) to the 1000AP's *IN* port.
2. Connect the other end of the cable to the 3000AS's blue *Access Point* port or purple *Office LAN* port, or to a Linux server's Ethernet port, or to an Ethernet switch. (If you are using an Ethernet switch, connect its uplink port to a Genos server using Category 5 Ethernet cable.)
3. Connect the first 1000AP's *OUT* port to the second 1000AP's *IN* port. Ensure there is no more than 100 meters between any two devices.



Caution: Do not, under any circumstances, connect a 1000AP's *OUT* port to the LAN. The *OUT* port of the second 1000AP should be empty and its *IN* port should be connected to the first 1000AP's *OUT* port.



Caution: Do not use an Ethernet hub in a daisy-chain configuration.

Using more complicated networks

Using routers

This guide is mainly concerned with connecting 1000APs directly to a 3000AS. You can also manage 1000APs over a routed network. When connected via a routed network the 1000APs will not be auto-discovered, instead you must add each 1000AP manually using the *AP List* dialog of the management interface.

Multiple Genos servers



Caution: Do not run more than one Genos server on a network.

Connecting power

1000APs are supplied with a power adapter that must be fitted to the *DC 12v* power port. The power adapter cable is two meters long, so it may have to be fitted in the wall or ceiling cavity when you mount the 1000AP (depending on building configuration).

1. Connect the loose power cable to the country-specific mains power lead.
2. Connect the mains power lead to an electricity supply.
3. Insert the other end of the cable into the 1000AP's *DC 12v* power port. The 1000AP's LED indicator will light and display the LED boot sequence (see *Reading the LED* on page 15).
4. The 1000AP is now ready to use. You can configure the 1000AP's software features through the Genos management interface (see *Configuring 1000APs* on page 13 for more information).

Configuring 1000APs

1000APs automatically appear in the Genos management interface when they are installed, connected and powered-up. 1000APs are displayed in the *AP List* dialog. By default, they are listed by their name and serial number, which is printed on the base of the unit.

1000APs are automatically enabled through the management interface. Therefore, you do not need to do anything to use 1000APs, however, you may want to change the default settings. You can configure 1000APs when their LED is steady red.

To edit the 1000AP's configuration

1. Log on to the management interface as an administrator from a management PC.
2. The *AP List* dialog displays with all connected access points. If a 1000AP is missing from this list, wait a few minutes and check the unit: its LED may be flashing red to indicate that it has not connected properly, or it may be steady orange to indicate a fault. (See *Reading the LED* on page 15 for more information.)
3. Click on a 1000AP's name or hardware address to open the *AP Stats* dialog, which shows information about that unit.
4. Click on *AP Record* to open the *Bluetooth AP Edit* dialog. In this dialog, you can rename the 1000AP, assign it to a group, enable or disable 1000AP aeriels, enter Security settings and set available Bluetooth Services.



Tip: You can click a 1000AP's record icon  in the *AP List* to directly access a *Bluetooth AP Edit* dialog.

Using Identify mode

Identify mode makes the 1000AP's LED flash red and orange so you can identify which 1000AP corresponds to which entry in the management interface. This is especially useful when you need to find a 1000AP amongst many installed in a building.

Identify mode is also useful when identifying errors from the management interface and discovering which users are connected to a 1000AP.

To enable Identify mode:

1. In the *AP List* dialog, click on the checkbox (or boxes) to select the 1000APs you want to identify.
2. Choose *Start identifying selected APs* from the *Select action* drop-down list to enable Identify mode.
3. To end Identify mode, choose *End identifying selected APs* from the *Select action* drop-down menu.

Reading the LED

The 1000AP has a two-color LED indicator to show its status and locate it when in Identify mode (see *Using Identify mode*).

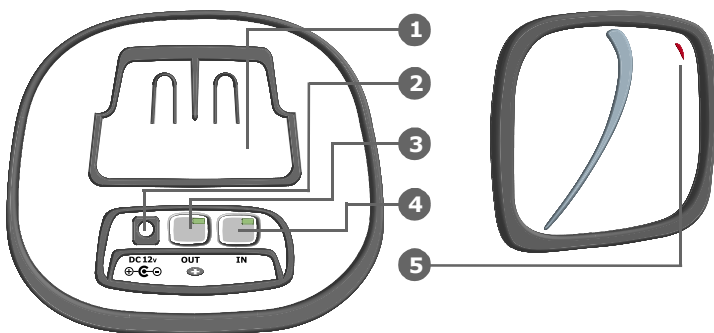
LED startup sequence

1. When power is connected, the LED is orange for about a second to indicate that power is on.
2. The LED flashes orange for a few seconds to indicate that the 1000AP is starting up and conducting self-tests. If any startup tests fail, the LED changes to steady orange to indicate a fatal error.
3. The LED illuminates steady red after startup to indicate normal operation.
4. If the 1000AP has passed its startup tests but cannot either connect to Genos or obtain an IP address from a DHCP server, the LED flashes red.
5. If there is a fatal error at any time, the LED illuminates steady orange. If it remains in this state for more than a second, try disconnecting and reconnecting power to the 1000AP, otherwise return the unit to Red-M.

LED indicator status chart

Status	Meaning
Steady red	Normal operation
Steady orange	Fault mode
Flashing orange	Startup and self-testing
Flashing red	Cannot locate a Genos server or obtain an IP address. It may not be connected properly or the Genos server may not be switched on
Rapid flashing red	Upgrading software
Flashing red and orange	Identify mode. Lets you identify a 1000AP from the management interface

1000AP diagram



1. Mounting cavity. Use the mounting cavity to mount the 1000AP to a wall or ceiling. Attach the supplied mounting bracket to a flat surface and slide the 1000AP's mounting cavity over the bracket to lock it into place. For more information, see *Mounting the 1000AP* on page 7.

2. Power port. Use the power port to connect the supplied DC 12v adapter to the 1000AP.

3. OUT port and indicator. Use the *OUT* port to connect another 1000AP if installing in a 'daisy-chain' configuration.

4. IN port and indicator. Use the *IN* port to connect to the Genos server directly. You may also use it to connect an Ethernet switch or hub, or to another 1000AP's *OUT* port if installing in a 'daisy-chain' configuration. See *Connecting the cables* on page 9 for more information.

5. LED indicator. The LED indicator shows the 1000AP's status. It is also used to 'identify' the 1000AP. See the sections on *Using Identify mode* on page 14 and *Reading the LED* on page 15 for more information.

Contact information

Visit www.red-m.com/support to obtain technical support and information about support contract purchase.

Regulatory information

The following regulatory statements apply to the Red-M 1000AP access point.

North America

By attaching the **FCC** mark to this product, we confirm:

This equipment complies with Part 15 of the 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 undesirable operation.

To conform with FCC rules regarding RF exposure, this equipment should be installed a minimum of 20 cm away from any personnel.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

This device has been designed to operate with an antenna that has a maximum gain of 0 dB. Antennae that have a higher gain are strictly prohibited as per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

To prevent radio interference to the licensed service in Canada, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Europe (EEA)

This product is designed to connect to "Bluetooth" compatible radio interfaces using the 2.4 GHz frequency band in all EEA Member States with the exception of France where the use of the following frequencies is restricted:

2.4000 - 2.4460 GHz - Use Excluded - Military Band

2.4540 - 2.4835 GHz - Limited to indoor video applications

[Member States of the EEA are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Liechtenstein, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.]

EC Declaration of Conformity

By attaching the  mark to this product, we

Red-M
Neptune House, Mercury Park, Wycombe Lane, Wooburn Green,
Buckinghamshire, HP10 0HH, United Kingdom

declare under our sole responsibility that the following product:

Model: 1000AP Access Point

is in conformity with the provisions of Council Directive 1999/5/EC on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity, based on compliance with the following relevant harmonised standards:

EN 60950
EN 300 328-2
EN 301 489-17

Name: C Mayne

Position: VP, R & D and Business Management.

Signature: 
On behalf of Red-M

Date: 10th May 2002

Power supply information

English

CAUTION: Only use this product with a power source that meets the "Limited Power Source" requirements of IEC 60950 or equivalent safety standards. Use the power supply provided (if applicable) or contact Red-M for a list of suitable power sources.

Dansk

ADVARSEL: Dette produkt må kun anvendes sammen med strømkilder, der opfylder kravene vedrørende "Limited Power Source" i IEC 60950 eller tilsvarende sikkerhedsstandarder. Anvend den medfølgende strømforsyning (hvis muligt), eller kontakt Red-M og få en liste over godkendte strømkilder.

Deutsch

WARNUNG: Verwenden Sie dieses Produkt nur mit einer Stromquelle, die die Anforderungen bezüglich "begrenzter Stromquellen" gemäß IEC 60950 oder entsprechender Sicherheitsnormen erfüllt. Verwenden Sie das im Lieferumfang enthaltene Netzteil (sofern zutreffend), oder fordern Sie bei Red-M eine Liste der geeigneten Stromquellen an.

Español

PRECAUCIÓN: Emplee este producto únicamente con una fuente de alimentación que cumpla la norma de seguridad IEC 60950 de alimentación limitada, o equivalente. Utilice la fuente de alimentación suministrada, si es el caso, o consulte a Red-M para obtener una lista de fuentes de alimentación apropiadas.

Flemish

OPGELET: gebruik dit product enkel met een voedingsbron die voldoet aan de "Minimum voedingsbron"-vereisten van IEC 60950 of evenwaardige veiligheidsvoorschriften. Gebruik bijhorende voedingsbron (indien deze geschikt is) of neem contact op met RED-M voor een lijst van geschikte voedingsbronnen.

Français

ATTENTION: n'utilisez ce produit qu'avec une source d'énergie conforme à la norme IEC 60950 en matière de « source d'énergie limitée », ou autre norme de sécurité équivalente. Utilisez l'alimentation en courant fournie (si applicable) ou bien contactez Red-M pour obtenir une liste des sources d'énergie adéquates.

Íslenska

VARÚÐ: Notið þessa vöru eingöngu með aflgjafa sem stenst kröfur í kaflanum um "aflgjafa með takmarkað afl" í IEC 60950 (ÍST EN 60950) eða sambærilegra öryggisstaðla. Notið aflgjafann sem fylgir (ef viðeigandi) eða fáðið lista yfir nothæfa aflgjafa hjá umboðsaðila vörunnar.

Italiano

ATTENZIONE: Utilizzare questo prodotto solo con sorgenti di alimentazione che soddisfano i requisiti di sicurezza IEC 60950 o equivalenti. Utilizzare l'alimentatore fornito (ove applicabile) o contattare Red-M per ottenere un elenco delle sorgenti di alimentazione adeguate.

Nederlands

WAARSCHUWING: Gebruik dit product alleen met een voedingsbron die voldoet aan de "Minimum voedingsbron"-vereisten van IEC 60950 of evenwaardige veiligheidsvoorschriften. Gebruik de bijbehorende voedingsbron (indien van toepassing) of neem contact op met Red-M voor een lijst van geschikte voedingsbronnen.

Norsk

FORSIKTIG: Dette produktet skal bare brukes med en strømkilde som tilfredsstiller kravene til "Begrenset strømkilde" i IEC 60950 eller tilsvarende sikkerhetsstandard. Bruk den medfølgende strømforsyningen (hvis en slik finnes) eller kontakt Red-M for å få en oversikt over passende strømkilder.

Português

Advertência: Utilize este produto apenas com uma fonte de energia que respeite os requisitos definidos em "Fontes de Energia Limitadas" da norma IEC 60950 ou dos padrões de segurança equivalentes. Utilize a fonte de alimentação fornecida (se aplicável) ou contacte Red-M para obter uma lista de fontes adequadas.

Suomi

MUISTUTUS: Käytä tätä tuotetta vain sellaisen virtälähteen yhteydessä, joka täyttää standardin 60950 "rajoitetun virtälähteen" tai muiden vastaavien standardien asettamat turvallisuusvaatimukset. Käytä toimitettua virtälähdettä (jos asianmukaista) tai ota yhteys RedM:ään sopivien virtälähteiden luettelon saamiseksi.

Svensk

FÖRSIKTIGT! Denna produkt får bara användas med en effektkälla som uppfyller kraven för "Begränsad effektkälla" i IEC 60950 eller motsvarande säkerhetsnormer. Använd medföljande effektkälla (i förekommande fall) eller begär en lista över lämpliga effektkällor från Red-M.

Σλληνικά

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