IoT Q&A and Security Checklist

What Is IoT?

"Internet of Things" (or IoT) is the collective term used to describe the devices and equipment that are used to sense and control data and activities, and then connect to the internet to communicate their findings to other devices and systems.

In general, IoT devices are about automation; most do not need human involvement to do what they're designed to do (unlike PCs, smartphones, and tablets, which are not part of the IoT). Popular IoT products include fitness trackers, security systems, cameras, and home and convenience devices like WiFi-enabled thermostats, appliances, car systems, and monitoring devices.

How Big Is the IoT?

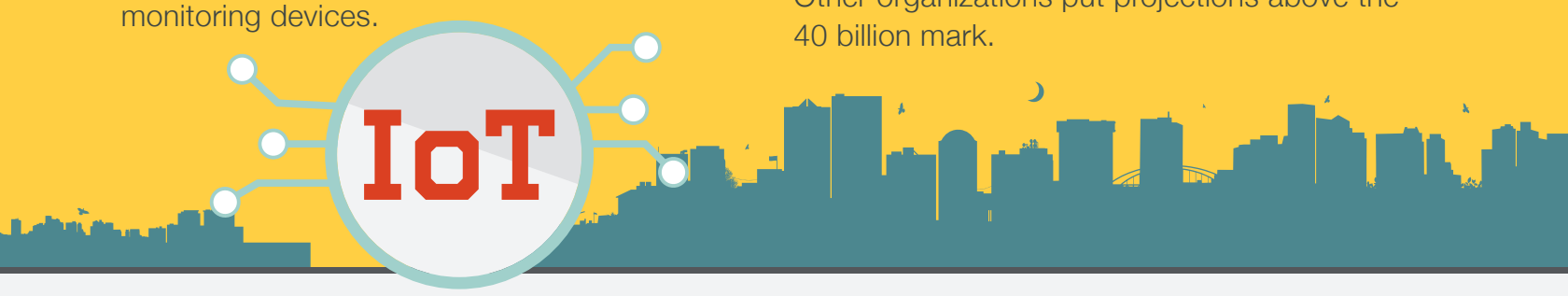
IoT devices number in the billions; Gartner Research estimated 8.4 billion connected devices were in use in 2017.

2017 » 8.4 billion

The number is naturally increasing — but there are conflicting projections on the rate of anticipated growth by 2020.

2020 » 20+ billion

Gartner estimates there will be 20.4 billion connected IoT devices by 2020, while statistics portal Statista anticipates 30.7 billion devices. Other organizations put projections above the 40 billion mark.



Are There Different Kinds of IoT Devices?

Yes, there are two main types of IoT products: one-way and two-way devices.

One-Way Communication Devices

Essentially, one-way devices track data and report over an internet connection with no "back and forth" — that is, communications move in one direction. Data can be stored in limited quantities on these kinds of devices.

Examples:

- GPS/distance trackers
- Fitness and medical monitors
- WiFi-enabled baby monitors

Two-Way Communication Devices

Two-way devices are more robust because of their interactivity; they allow for exchange of data in real time or near-real time. These more advanced devices, sensors, and systems can be controlled and configured remotely, and there is a possibility of significant data storage on these products.

Examples:

- Home security cameras and monitors
- Climate and lighting control systems
- Smart appliances

Checklist for Improving Your IoT Security

All Type of IoT Devices

- [ ] **Stick with known, reputable brands**
  These companies are more likely to prioritize security.
  Do your research before buying and evaluate your risk before using.
- [ ] **Change default passwords on new devices**
  Hackers can use default passwords to compromise your device.
  Refer to the manual, do an online search, or contact the manufacturer for advice.
- [ ] **Check for firmware and system updates on new devices**
  Even a brand new device could need a security update.
  Refer to the manual, do an online search, or contact the manufacturer for advice.
- [ ] **Apply updates regularly**
  Manufacturers patch bugs and flaws on an ongoing basis – and so should you.
  Sign up for automatic updates or software update alerts when possible.
- [ ] **Create strong account passwords for cloud controlled devices**
  Some devices are controlled via cloud services, so you need to be secure there as well.
  Pick a unique, hard-to-guess password or passphrase for each account.

Two-Way IoT Devices

- [ ] **Set up a guest WiFi network for IoT devices to connect to**
  Isolate your IoT devices from your home computers to reduce risk to important data. If you need advice, start with an online search for your WiFi router model. Many devices make it easy to set up a guest network.

General Network Security

- [ ] **Disable Universal Plug-and-Play (UPnP) functionality on your wireless router**
  Some IoT devices can leave your home firewall vulnerable to attack via UPnP.
  Unless you specifically need it for an IoT device, turn off UPnP.
  An online search can help you find advice for your specific model.
- [ ] **Update your home network security**
  If you've never adjusted the settings on your home WiFi network, you are vulnerable to basic attacks.
  Refer to our step-by-step online guide for easy-to-follow advice.

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