

Microsoft Office Productivity

Don't stress out over every cell: Let Excel's IF function be your eyes and ears

Business Skills

7 things you must do to turn your email messages into must-reads

Information Systems Protection

Keep rogue wireless clients off your wired network with the right topology

From the Editor

It's hot enough this summer so the last thing you need is Excel to make you sweat. Instead of poring over each cell and formula, let the IF function take the heat for you. We'll show you how.

Hate when you send out an important email and no one responds? Find out how to make your emails impossible to ignore with our 7 email tips. It's all inside the Business Skills article.

Finally, if you're faced with securing your wireless communications, you must check out the Information Systems Protection article. We'll explain why you should begin your security process at the network topology level.

MICROSOFT OFFICE PRODUCTIVITY

Don't stress out over every cell: Let Excel's IF function be your eyes and ears

Worksheet calculations aren't always as black and white as you might think. Sometimes, you'll need to include and exclude very specific data in a calculation. For example, when calculating your company's expected revenue and annual revenue, IF functions can automatically determine when you exceeded revenue expectations and when you didn't reach expectations. It can even calculate a portion of your revenue based on whether you were over or under the expected amount. Though you could pore over each individual cell, why not let Excel do it for you? We'll show you how to use the IF function to examine the revenue data shown in **Figure A**.

	A	B	C	D	E
1	Location	Expected Revenue	Actual Revenue	Status	Contribution
2	Alabama	\$ 34,589	\$ 31,825.43	Under	\$ -
3	Mississippi	\$ 39,617	\$ 41,995.67	Over	\$ 1,189.34
4	Georgia	\$ 32,472	\$ 35,774.78	Over	\$ 1,651.39
5	Florida	\$ 37,081	\$ 36,851.00	Under	\$ -

A We used the IF function to display conditional formula results in the Status and Contribution columns.

IF function syntax

Excel defines the IF function's syntax as follows:

=IF(logical_test,value_if_true,value_if_false)

Here's what each part of the IF function means:

- The logical_test argument is the condition you want to meet. You can create the logical_test argument using any of the logical operators shown in **Table A**.
- The value_if_true argument is the formula result Excel should display if the condition is met.

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Table A

Operator	Symbol
Less than	<
Less than or equal to	<=
Greater than	>
Greater than or equal to	>=
Equal to	=
Not equal to	<>

• The value_if_false argument is the formula result Excel should display if the condition isn't met.

You may find it simpler to build your IF functions using this simple-language scenario:

If X, then Y; otherwise Z.

Argument

An *argument* is one of the individual pieces of information that, when arranged together in an appropriate order, make up a formula.

Operator

An *operator* is a mathematical symbol, such as +, -, and =, that's used to perform a calculation.

Static vs. dynamic

A *static* value always stays the same until you change it yourself. A *dynamic* value changes automatically when the data it's connected to changes. For example, formula results are dynamic values. They're also often referred to as *calculated values*.

Empty text strings

An *empty text string* is simply back-to-back quotation marks, with nothing between them: "". You can use an empty text string to return a blank cell rather than a zero value when a condition is or isn't met.

Once you're able to verbalize the information that should take the place of X, Y, and Z, you can easily plug it into an IF formula like so:

=IF(X,Y,Z)

Put an IF function into practice

To learn how to pull an IF function together, let's step through some examples. We'll practice creating IF functions that return static values, formula results, zero values, and blank cells. To follow along, create the sample worksheet shown in **Figure A**, leaving cells D2 through E5 empty.

Tip: When you're creating a complicated IF formula, you can define complex arguments more easily using the Insert Function dialog box (Paste Function dialog box in Excel 2000). To use it, select the cell that should contain the IF formula, and then type =IF(). Next, click the Insert Function button on the Formula Bar (Edit Formula button in Excel 2000).

Return static values

Let's start with the easiest way to use an IF function—returning a static value, such as text. For example, we'll make the Status column show whether each location's actual revenue meets our expectations. We'll mark those that exceed expectations with *Over*, and we'll mark those that don't exceed expectations with *Under*.

To determine whether each location meets revenue expectations:

1. Put the scenario into simple language terms, as we suggest in the "IF function syntax" section. Our simple-language scenario is shown in the Simple language row in **Table B**.
2. Translate your simple-language scenario into a formula. The Formula row in **Table B** shows our translation.
3. To put this translation into action, enter the complete formula, =IF(C2>B2,"Over","Under"), in cell D2.

4. Copy the formula by selecting cell D2 and then dragging its Fill handle (the small, black square in the cell's lower-right corner) down to cell D5.

As you can see in **Figure A**, if the value in the Actual Revenue column is greater than the value in the Expected Revenue column, the formula returns the word *Over*; otherwise, it returns the value *Under*.

Note: When referring to static text strings in formulas, remember to enclose them in quotation marks.

Return formula results

When you want your IF formula to return the result of a specific calculation, you can use cell references and nested formulas as your formula's value_if_true and value_if_false arguments (i.e., its Y and Z arguments).

For example, let's create a more complex IF formula that determines the dollar amount each location should contribute to the rest of the company. If the region's status is over budget, then the region will contribute 50 percent of the over-budget revenue to the rest of the company; otherwise, the region should contribute nothing. **Table C** shows how to arrive at the formula using our simple-language approach.

Table B

	if	X	then	Y	otherwise	Z
Simple language	if	the actual revenue is greater than the expected revenue	then	Display <i>Over</i>	otherwise	display <i>Under</i>
Formula	=IF	(C2>B2	,	"Over"	,	"Under")

To use formulas and cell references in an IF statement:

1. Enter the complete formula, =IF(D2="Over",0.5*(C2-B2),), in cell E2.
2. Copy the formula by selecting cell E2 and dragging its Fill handle down to cell E5.

As you can see in **Figure A**, if the value in the Status column is *Over*, the formula returns 50 percent of the difference between the Actual Revenue and Expected Revenue columns; otherwise, it returns \$ -.

Note: If you haven't formatted the cells in your Contribution column as numbers, you'll find that Excel returns 0 rather than \$ - for locations that are under expected revenue.

Table C

	If	X	then	Y	otherwise	Z
Simple language	If	Status is <i>Over</i>	then	continue fifty percent of excess revenue	otherwise	contribute nothing
Formula	=IF	(D2="Over"	,	0.5*(C2-B2)	,)

Return zero values or blank cells

If you want your IF formula's value_if_true or value_if_false argument (i.e., its Y or Z argument) to return a zero value, you can simply leave the argument empty, as we did in the Contribution formula, which is broken down in Table C. However, you must still include the comma that precedes the argument.

Caution: If you don't include the comma that precedes the value_if_true argument (i.e., the Y argument), Excel misinterprets your formula and returns the value_if_false argument (i.e., the Z argument) instead. If you don't include the comma that precedes the value_if_false argument, Excel returns the logical expression *FALSE*.

What if you want your IF formula to display a blank cell when the condition is or isn't met? To return a blank cell instead of a zero value, you need to use an empty text string as the value_if_true or value_if_false (i.e., Y or Z argument). For instance, if you type

=IF(C2>B2,"Over","")

in cell D2, the Status column will display *Over* when a region is over budget, but it will display nothing when a region is on or under budget. 🌐

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7 things you must do to turn your email messages into must-reads

Most of us use email so frequently that we assume we'll get instant answers—until, that is, we're on the edge of our seats waiting for a critical response that's late in coming. However, with the right email formula, you can increase the chance that your recipient sits up and takes notice of your correspondence so you can get your answer and get on with your day. Refer to our example email in **Figure A** to see how we applied each tip.

1. Write a focused Subject line

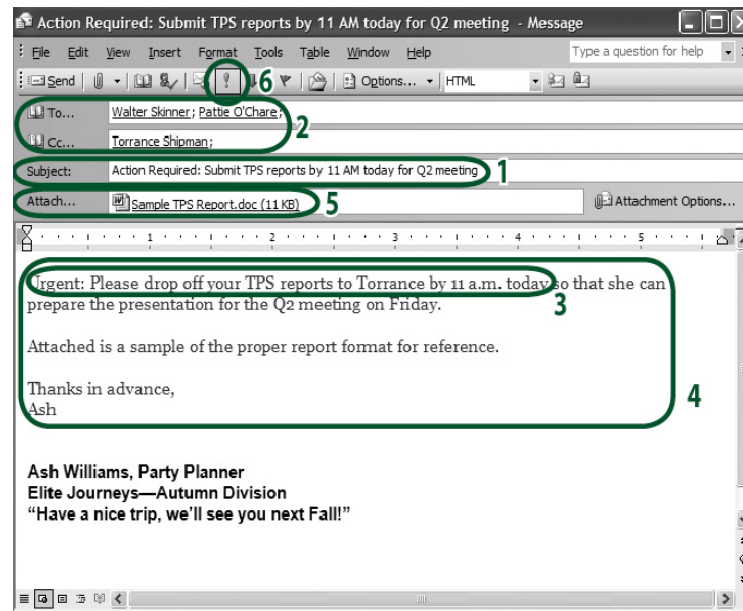
If the recipient of your email message can't immediately identify why your message is important to her or if it requires action, she may ignore it or set it aside. The Subject line is the first thing your recipient sees when your message arrives in her inbox and it's imperative that the text you use clearly communicates the action you desire. Ensure that your Subject line is:

- **Action-oriented.** Include words such as *Action Required* or *Please Respond Promptly*.
- **Descriptive.** If the email relates to a specific project, make sure that's clear in the Subject line, e.g., *Today's client presentation*.
- **Clear.** Include action verbs that communicate exactly what action you want the recipient to take, for example, *Please phone Fern*.

- **Deadline-inclusive.** Include the action's deadline in the Subject text. For example, *SoftTech briefing due by 4 p.m. today*.

2. Send the message to proper recipients only

We're willing to bet that if you had a nickel for each email message you received that



A Every email you send should be crystal-clear and to the point—don't save the practice for just when you're trying to elicit urgency.

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didn't directly apply to you, you'd be a wealthy Outlook power user indeed. Send your email messages to only relevant recipients, using the following guidelines:

- Include only those who must complete the action you requested on the Subject line.
- Ensure that your message directly relates to the recipients' responsibilities.
- Don't worry about updating non-essential recipients; you can fill in others later, after your issue is resolved, by forwarding the final thread in a separate email.

3. Write a clear opening sentence

The first sentence or phrase of your email message should clearly state its purpose so your recipient knows immediately what the email is about. Keep in mind the following:

- State the results you want from the recipient in the first paragraph—better yet, in the first few words, if

possible. Your recipient can instantly assess how the email relates to him and why it's important.

- Declare whether the action you need is time-sensitive in your first sentence so your recipient can decide where your message lands on his priority list.
- Keep it short. The more succinct the message, the easier your reader can process it. Some recipients may use PDAs or email-enabled cell phones—a brief message displays best on a small screen.

4. Use the message body to get results

Ensure that the body of your message outlines precisely what action you want the recipients to take. Consider the following guidelines:

- To achieve a fast response, mention how the action you want the recipient to take affects your next step. For example: *Please send me your monthly budget by the end of the day so I can submit it by tomorrow's deadline.*
- Specifying the type of action you want the recipient to take allows him to read the email and act right away, leaving little room for misinterpretation. We describe some sample phrases in **Table A**.

5. Include all relevant documents

Ensure that you attach all relevant documents to provide recipients with all the information they need to complete

an action or respond successfully to your request. Supply the information up front so your recipients don't have to ask you for it, whether it's a supporting document or a website link. For instance, if you want recipients to fill out a form, attach a sample copy of the form that shows the proper way to fill it out, as well as a blank form.

6. Mark your message as urgent

Outlook offers a few ways to indicate that your message is important or needs urgent attention. These icons, flags, and receipts are visible before the recipient even opens your email.

We strongly suggest that you use just one of these methods and use it judiciously for the strongest effect. They quickly lose impact if you use too many or too often, like the boy who cried wolf.

- **Importance icon.** Click the icon on the toolbar, as we have in our example email, or click the Options button on the email's toolbar and select High from the Importance dropdown list and click Close.
- **Message flag.** Click the Flag For Follow Up toolbar button, fill in the appropriate information in the associated dialog box, and click OK to set a follow-up flag for your message.
- **Read receipt.** Click the Options button on the email toolbar and select to request a read receipt for your email.

7. Read your message before sending it

Before sending your message to its recipients, ask yourself the following questions to ensure that your message is clear and purposeful:

- Did I state my desired action?
- Are my supporting documents attached?
- Is my Subject line clear and to the point?

Table A

Action	Description	Example
Act	The recipient needs to perform the action described in your email.	<i>Please clarify line four of the briefing.</i>
Respond	The recipient needs to provide you with the specific information you requested.	<i>Let me know if you're available to meet today at 2 p.m.</i>
Read only	The recipient only needs to read your message and doesn't need to respond.	<i>Please read the agenda for today's meeting.</i>
FYI	The recipient need only file the message for future reference.	<i>Attached is your signed vacation request form.</i>

- Will my recipients have additional questions after reading this message?
 - Did I run spell checker to ensure a message free from grammatical errors?
- For an example of a well-crafted email message that's sure to both capture your recipient's attention and cause him to take action in a timely fashion, see our email in **Figure A**. Consider using our tips in all your emails to create efficient and effective communications. 🌐

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Keep rogue wireless clients off your wired network with the right topology

When presented with the task of securing an organization's wireless communications, most network administrators typically focus on practices such as MAC address filtering, authentication methods, and encryption technologies like WEP or WPA. While these practices are all part and parcel of the process, there are also steps you can take at the network topology level. In fact, because there are often inherent incompatibilities between certain wireless security methods and specific operating system platforms, it makes sense to start at the most basic level of your network—its topology. You can then build your software solutions on top of your physical network layout. In this article, we'll discuss three common topologies you should consider, depending on your specific security requirements.

Manage a bridged wireless access point

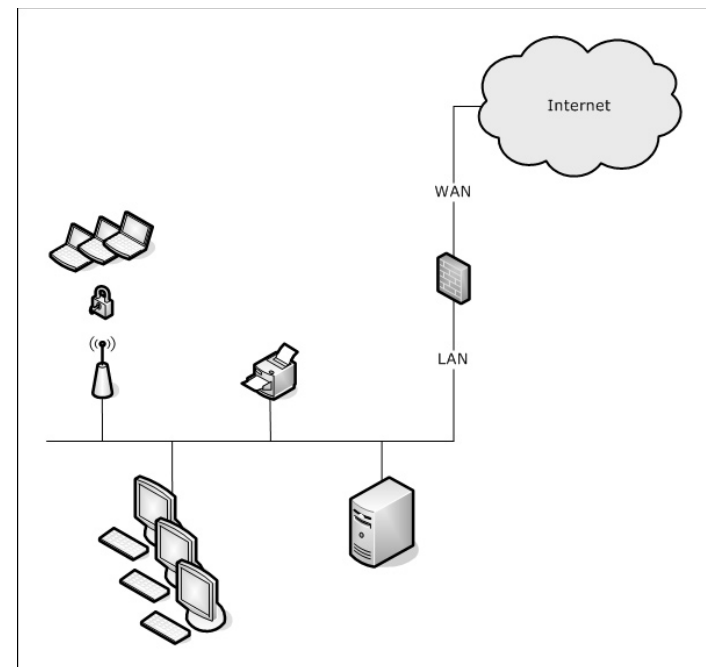
Most DSL/broadband routers, also known as internet gateway devices, include a WAN port that connects your internal network to the public internet and a LAN port that connects to a switch on your internal network, as shown in **Figure A**. If the router also contains an integrated wireless access point (WAP) or if you install a WAP as a separate device and connect it to your primary switch, the security of your wired network is at risk for these reasons:

- The router's firewall blocks unsolicited traffic arriving at the WAN interface but not traffic arriving at the WAP's wireless interface.

- The WAP's wireless interface is typically bridged to its wired interface, creating essentially a single logical network for both wired and wireless clients.

As a result of these behaviors, any rogue wireless client that can associate with the WAP and obtain a valid IP address from your local DHCP server becomes a valid node on your LAN. So, if your topology is similar to the one described here, you need to implement a multi-layered security plan that includes all of the following:

- Hiding the SSID to limit your WLAN's exposure to rogue clients.
- Filtering MAC addresses to restrict access to your WLAN to known clients.
- Implementing WEP and preferably WPA to support authentication and encryption.



A In this topology, any wireless client (inside or outside the organization) can associate with your WAP.

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- 2810 Fundamentals of Network Security
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Manage a DMZ-hosted wireless access point

In contrast to their ease of use from a client's perspective, wireless network are often considerably more difficult to manage than are wired networks. This is due partly to differences in the way OEMs implement the so-called Wi-Fi standards, and partly due to different capabilities built into the devices themselves. For example, a wireless router and a wireless adapter from the same manufacturer are more likely to work together seamlessly than devices from different manufacturers.

Even if compatibility isn't an issue, setting up and maintaining a multi-tiered wireless security model can be very time-consuming. Furthermore, configuring security on a single WAP to meet the needs of both trusted and untrusted clients presents its own set of challenges. For example, if you've secured your WAP with WPA but a visiting client's wireless interface supports only WEP and he needs internet access from your location, the client won't be able to connect via your network.

Because WAPs are so inexpensive these days, you can save a considerable amount of administrative time by simply setting

up two discrete wireless networks, as shown in **Figure B**. In this topology, your internal wireless network remains secured while your external wireless network is either totally unsecured or only partially secured. This allows you to maintain granular control over the security of your internal network without having to re-configure it or implement a less secure setup just to accommodate untrusted clients.

By design, you want the unsecured WAP to accommodate untrusted clients with a minimum of administrative overhead. To that end, you can essentially leave the network totally open. If you try to make it too secure, it can quickly become an administrative nightmare and defeat its purpose. As long as it's on its own isolated subnet, as shown in our topology, wireless clients associating with it can't browse your internal wired network for potentially shared resources.

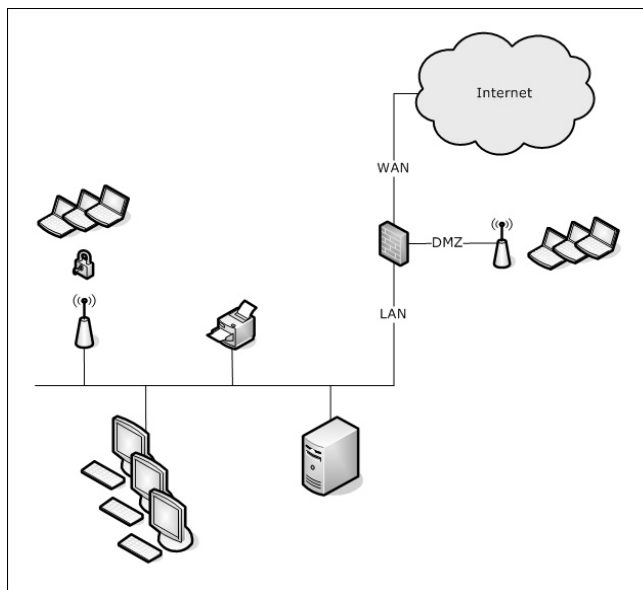
A key component to hosting an unsecured wireless access point is

how you physically connect it to your network. If your router has a Demilitarized Zone (DMZ) interface, you're all set because you can assign the interface to a distinct LAN segment, as shown in **Figure C**. In this example, your LAN segment is on the 192.168.10.0/24 network while your DMZ segment is on the 192.168.20.0/24 segment. As you'll discover later, the router's firewall can block traffic attempting to traverse segments.

Manage a dedicated WLAN

In contrast to consumer-level routers, which bridge the wireless and wired interfaces, business-level routers often provide a separate WLAN interface.

As shown in **Figure D**, this allows you to create a wireless network that's separate and distinct from a bridged WAP or from a WAP installed in a DMZ. As shown in **Figure E**, you can see that the WLAN interface resides on its own



B In this topology, each WAP is secured to support different types of clients (internal vs. external).

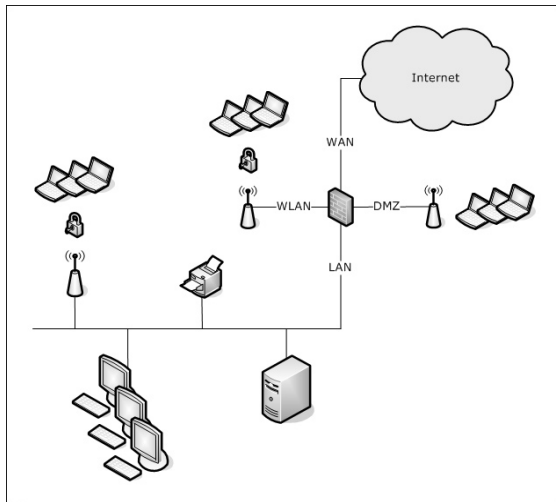
Interface	Status	IP Address	Subnet Mask
WAN	10M/Half	72.226.203.98	255.255.240.0
+ LAN	100M/Full	192.168.10.1	255.255.255.0
+ DMZ	100M/Full	192.168.20.1	255.255.255.0
+ WLAN	54M	192.168.30.1	255.255.255.0

C Because this router has separate physical interfaces, you can manage the LAN segments independently.

subnet (192.168.30.0/24), distinct from the LAN and DMZ interfaces.

With all three interfaces (LAN, DMZ, and WLAN) on distinct Ethernet segments, you can use the router's firewall rules to stipulate the direction in which traffic is allowed to travel. If

you examine the default firewall rules shown in **Figure E**, for example, you can see that traffic originating on any local interface is permitted to access the WAN port but that traffic between the local interfaces is selectively restricted. 🌐



D In this topology, each WAP is on a separate wired segment (LAN, DMZ, and WLAN) and the firewall manages communication across physical segments.

Packet Direction	Default Action
LAN to LAN / ZyWALL	Permit
LAN to WAN	Permit
LAN to DMZ	Permit
LAN to WLAN	Permit
WAN to LAN	Drop
WAN to WAN / ZyWALL	Drop
WAN to DMZ	Permit
WAN to WLAN	Drop
DMZ to LAN	Drop
DMZ to WAN	Permit
DMZ to DMZ / ZyWALL	Drop
DMZ to WLAN	Drop
WLAN to LAN	Drop
WLAN to WAN	Permit
WLAN to DMZ	Drop
WLAN to WLAN / ZyWALL	Drop

E Each firewall rule specifically allows or denies traffic passing across network boundaries.



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