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From the Editor

Excel's EDATE function doesn't always give you the flexibility you need when you're coming up with expiration dates. We'll show you an alternative that might work better.

When you need to connect between two locations, such as a main office and a second branch, a virtual private network (VPN) can do the job. We'll discuss how to use hardware at each end of your VPN tunnel.

Adding a drop-shadow to your website's image can slow down your site's load time and cause problems when you need to edit the image. We'll show you how to use CSS styles for drop-shadows that work without these drawbacks.

MICROSOFT OFFICE PRODUCTIVITY

Calculate expiration dates when Excel's EDATE function disappoints you

Unfortunately, EDATE is only wired to count in one-month increments. However, you often expect Excel to calculate expiration dates in terms of individual days. Depending on the result you're looking for, you can use the WORKDAY function or even simple addition.

EDATE only deals in months

EDATE's greatest asset lies in its ability to always return a due date on the same day of the month — for example, your 6-month contract that begins on February 23 will end on August 23 despite the mix of 28-, 30-, and 31-day months that lie between the start and end dates. To prove our point, let's attempt to calculate an expiration date that's 45 days, or 1 ½ months, after the start date.

Tip: A notable exception to EDATE always returning a due date on the same day of the month as the start date, of course, is when a date doesn't exist. You'll never find that your expiration date has been set for the imaginary June 31, for example. Instead, the expiration date would be June 30.

Install the Analysis Toolpak

In order to use EDATE, you'll need access to the Analysis Toolpak. Here's how to get it:

1. Select Tools | Add-Ins from the menu bar.
2. In the Add-Ins Available list box, select the Analysis ToolPak check box.
3. Click OK, and follow any further instructions Excel displays.

	A	B	C	D
1	Start Date	EDATE	WORKDAY	Addition
2	1/3/2006	2/3/2006		
3	2/15/2006	3/15/2006		
4	4/28/2006	5/28/2006		
5	5/31/2006	6/30/2006		
6				

A EDATE can only calculate expiration dates in 1-month intervals.

Related Courses

- Excel 2007 - Level 1
- Excel 2007 - Level 2
- Excel 2007 - Level 3

To test EDATE's ability to calculate in days:

1. Create a sample worksheet based on the one shown in **Figure A** (row 1 and column A only).
2. In cell B2, type `=EDATE(A2,1.5)`, and then press [Enter].



3. Drag the Fill handle down to copy your formula through cell B5. Your results should resemble those shown in **Figure A**.

As you can see, EDATE returns expiration dates that fall one month after the start date, instead of 1 ½ months.

Calculate weekdays, minus the holidays

You can use the WORKDAY function to count a specific number of workdays from a given date. We'll even show you how to account for holidays and other days off from work.

Explore the WORKDAY function's syntax

The basic parts of a WORKDAY function are:

`=WORKDAY(start_date,days,holidays)`

Here's the purpose of each part:

- The `start_date` element refers to the date your calculation is based on.
- The `days` element refers to the number of days you'd like to calculate before or after `start_date`. If you enter a negative number, your result will fall before `start_date`, and if you enter a positive number, it will fall after.
- The `holidays` element lets you list any days off that you don't want counted toward the result.

To calculate an expiration date:

1. In cell C2, type `=WORKDAY(A2,45,)`.
2. Drag the Fill handle down to copy your formula through cell C5.

As you can see in **Figure B**, WORKDAY supplies the correct expiration dates.

Incorporate vacation days in your function

Using the vacation days we've added to the worksheet in cells G2:G5, we can

	A	B	C	D
1	Start Date	EDATE	WORKDAY	Addition
2	1/3/2006	2/3/2006	3/7/2006	
3	2/15/2006	3/15/2006	4/19/2006	
4	4/28/2006	5/28/2006	6/30/2006	
5	5/31/2006	6/30/2006	8/2/2006	
6				

B The WORKDAY function calculates expiration dates based on days, rather than months.

ensure that WORKDAY excludes the days we aren't in the office.

1. Update the function in C2 so that it reads `=WORKDAY(A2,45,G$2:G$5)`, as shown in **Figure C**.

Note: We used absolute references for G2:G5 so they wouldn't automatically change when we filled the formula down through cells C3:C5.

How to exclude vacation days

In the section "Incorporate vacation days in your function" we excluded vacation days from our workday count by inserting the cell references of those cells that contained our vacation days in the WORKDAY function. You can also do this by including the actual dates in your WORKDAY function, as we show here:

`=WORKDAY(A2,45,"1/16/2006")`

However, if you need to exclude more than one vacation day, you'll need to place the vacation days in an array constant, as we show here:

`=WORKDAY(A2,45,{"1/16/2006","2/20/2006","4/14/2006","5/29/2006"})`

As you can tell from the above equation, an array constant is used when you don't want to place each date in a separate cell in your worksheet.

The most foolproof method of excluding holidays from your WORKDAY functions is using cell references because they'll update the formula automatically if you need to make changes. However, you do have some alternatives.

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- Drag the Fill handle down to copy your formula through cell C5.

Leverage the simplicity of addition

WORKDAY is great for handling things like project deadlines, since you wouldn't want to include a weekend in this kind of deadline. However, you often need an expiration date for something like a

rental period, which includes weekends and holidays. You can solve this problem and keep things simple by just adding the number of days to your start date.

To calculate an expiration date with addition:

- Place the insertion point in cell D2 and type =A2+45.

- Drag the Fill handle down to copy your formula through cell D5. This procedure adds 45 days, irrespective of weekends and holidays, to your start dates, as shown in **Figure D**.

Adapt for Excel 2007

To install the Analysis Toolpak in Excel 2007, click the Office button and click the Excel Options button. Select Add-Ins on the left and choose Excel Add-ins from the Manage dropdown list. Click Go. Excel displays the Add-Ins dialog box you see in earlier versions.

The other techniques in this article work the same way in Excel 2007 as they do in earlier versions.

	A	B	C	D	E	F	G
1	Start Date	EDATE	WORKDAY	Addition		Holidays	
2	1/3/2006	2/3/2006	3/9/2006			Martin Luther King, Jr. Day	1/16/2006
3	2/15/2006	3/15/2006	4/21/2006			Presidents Day	2/20/2006
4	4/28/2006	5/28/2006	7/3/2006			Good Friday	4/14/2006
5	5/31/2006	6/30/2006	8/2/2006			Memorial Day	5/29/2006

C You can create absolute references to cells that display vacation days to insert them in your WORKDAY function.

Microsoft Excel - CalculateDate.xls

File Edit View Insert Format Tools Data Window

D2 =A2+45

	A	B	C	D
1	Start Date	EDATE	WORKDAY	Addition
2	1/3/2006	2/3/2006	3/9/2006	2/17/2006
3	2/15/2006	3/15/2006	4/21/2006	4/1/2006
4	4/28/2006	5/28/2006	7/3/2006	6/12/2006
5	5/31/2006	6/30/2006	8/2/2006	7/15/2006

D Adding 45 to your start date is a simple way to calculate expiration dates.



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Save time later by verifying VPN tunnel operation internally prior to rollout

Organizations often need to connect disparate networks, such as their primary business location and a branch office. By creating a virtual private network between these locations, they can save the expense of investing costly leased lines. While there are several different ways to create a virtual private network, this article focuses on using hardware routers that can serve as VPN endpoints. In particular, we'll focus on the IP settings you need to make on both ends of the VPN tunnel.

A typical LAN-to-LAN VPN

When you create a virtual network, you need to configure three general classes of settings: authentication settings, encryption settings, and IP settings. Among these, IP settings are arguably the easiest to configure, so that's a reasonably good place to start. Once you've mapped out the IP address spaced used on the LANs at both locations, you can configure the VPN gateways themselves. And finally, once you know the VPN tunnel can be created, you can turn your attention to authentication and encryption.

For the purpose of this article, we'll work with the VPN gateway topology. We've intentionally set up the VPN tunnel over a private network segment, so we can test the tunnel prior to rollout. In particular, this topology has the following characteristics:

- The two private LANs (10.0.100.0/24 and 10.0.200.0/24) are necessarily on discrete subnets, as indicated by unique values in the third octet of the network address.
- The local IP address of each IPSec router is 10.0.x.1, which also serves as the respective LAN's default gateway/router address.
- The global IP address of each IPSec router is 192.168.10.x; prior to rollout, you replace these addresses with real public addresses.
- The VPN tunnel runs across the 192.168.10.0/24 network for testing purposes only; after rollout, it runs across the public internet.
- Each private LAN is known as the local network; the private LAN at the opposite end of the tunnel is known as the *remote network*.

IPSec in brief

As illustrated in our topology, the routers we're using are IPSec routers. An acronym for IP Security, *IPSec* is a collection of standardized cryptographic techniques that provide confidentiality, data integrity, and authentication at the IP layer.

At the foundation of IPSec is a concept known as a *Security Association (SA)*. You can think of an SA as a contract between the two endpoints of a VPN tunnel; the contract specifies the security parameters (keys and algorithms) the two endpoints agree on using. An SA is built from two distinct protocols — one that handles encryption and one that handles authentication, as described here:

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- Cisco® Troubleshooting and Maintaining Cisco® IP Networks (TSHOOT)

- **Encapsulating Security Payload (ESP)**. Includes support for encryption algorithms, such as Data Encryption Standard (DES), Triple DES, and Advanced Encryption Standard (AES).

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- **Authentication Header (AH).** Includes support for authentication algorithms, such as Message Digest 5 (MD5) and Secure Hash Algorithm (SHA1).

Once the two endpoints agree on which encryption and authentication algorithms to use, they can establish a communication session. Each session is managed by an Internet Key Exchange (IKE), which occurs at two levels: the gateway level and the network level. In the upcoming tasks, you'll see these levels implemented as gateway and network policies, respectively.

Define a gateway policy

On each router, you need to create a gateway policy for the connection between the two private LANs. In essence, a gateway policy is a rule that defines the endpoints of the VPN tunnel — one endpoint is the local router and the other endpoint is the remote router.

When you define the gateway policy, you also need to establish an authentication method. Typically, this

is either a pre-shared key or a certificate. Additionally, you may need to specify a local and a remote ID, which is usually an IP address, a fully qualified domain name, or an email address.

And finally, you need to establish the parameters of the Internet Key Exchange (IKE) proposal. These settings include the negotiation mode (main or aggressive), the encryption algorithm (DES, 3DES, or AES), the authentication algorithm (MD5 or SHA1), and the key group (DH1 or DH2).

We'll focus exclusively on IP address management in this article, instead of discussing authentication and encryption. For now, just use identical settings on both the local and the remote router.

To define a gateway policy at the main office:

1. Create a policy named Remote Office Gateway, as shown in **Figure A**.
2. Specify the global IP address of the router at the main office as My Address.

3. Specify the global IP address of the router at the remote office as the Remote Gateway Address.
4. Specify the authentication method you want to use.
5. Specify the desired IKE proposal method.

To define a gateway policy at the remote office:

1. Create a policy named Main Office Gateway.
2. Specify the global IP address of the router at the remote office as My Address.
3. Specify the global IP address of the router at the main office as the Remote Gateway Address.
4. Select the authentication method you want to use.
5. Select the desired IKE proposal method.

Define a network policy

After you define the gateway policy, you need to define a network policy for each private LAN. A network policy describes the parts of the local and remote networks that are accessible through the VPN tunnel. You can specify a particular IP address, a range of addresses, or an entire subnet. You then associate the network policy with a particular gateway policy.

When you define the network policy, you also specify the IPSec proposal methods to use. These settings include the encapsulation mode (tunnel or transport), the active protocol (ESP and AH), and the same encryption and authentication algorithms described earlier for the gateway policy. Again, we'll postpone a detailed discussion of these items for another issue. For now, you can just use identical settings on both the local and the remote router.

To define a network policy at the main office:

1. Create a network policy named Remote Office Network.
2. Associate the network policy with the Remote Office Gateway policy.
3. Specify the IP addresses you want to make available on the local network.
4. Specify the IP addresses you want to make on the remote network.

The screenshot shows a configuration window for a gateway policy named 'Remote Office Gateway'. The 'Property' section includes a 'Name' field with the value 'Remote Office Gateway' and a checkbox for 'NAT Traversal' which is unchecked. The 'Gateway Policy Information' section lists three items: 'My ZyWALL' (selected with a radio button), 'My Address' (192.168.10.10), and 'Remote Gateway Address' (192.168.10.20). The 'My Address' field has a note '(Domain Name or IP Address)' and a dropdown menu set to 'None' with '(See DDNS)' next to it.

A

The main office creates a gateway to the remote office.

5. Select the appropriate IPSec proposal methods.

To define a network policy at the remote office:

1. Create a network policy named Main Office Network, as shown in **Figure B**.
2. Associate the network policy with the Main Office Gateway policy.
3. Specify the IP addresses you want to make available on the local network.
4. Specify the IP addresses you want to make available on the remote network.

5. Select the appropriate IPSec proposal methods.

Test your setup

After you configure the gateway and network policies, take some time to view the configuration summary on both the local and the remote routers. For example, **Figure C** shows the policies in place on the router at the main office while **Figure D** shows the policies in place on the router at the remote office.

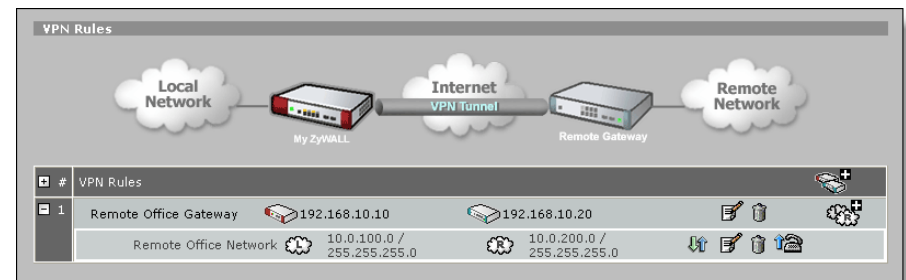
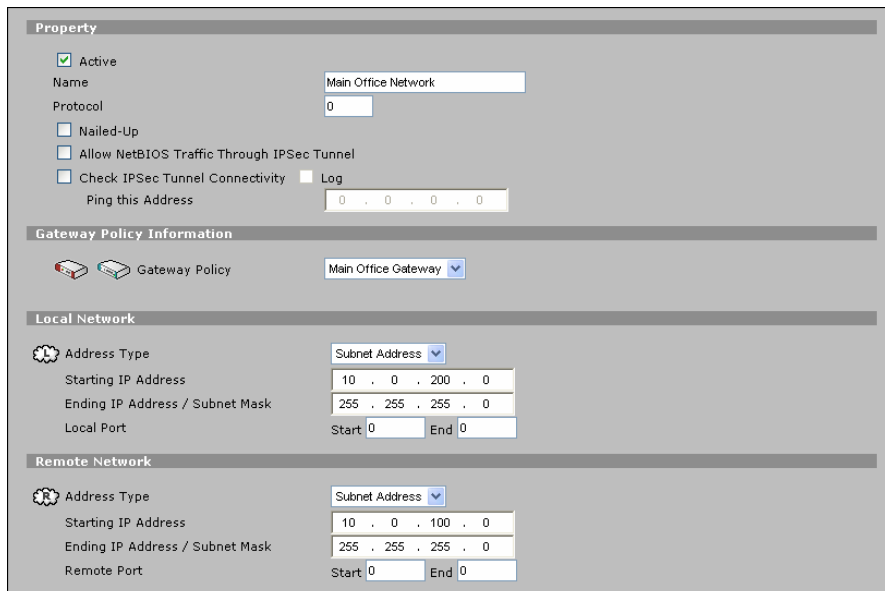
Once you're satisfied with your settings, you can test communication between the two private networks by opening the VPN tunnel. The exact

procedure varies by router; this particular unit has a Dial button for this purpose on the configuration summary page.

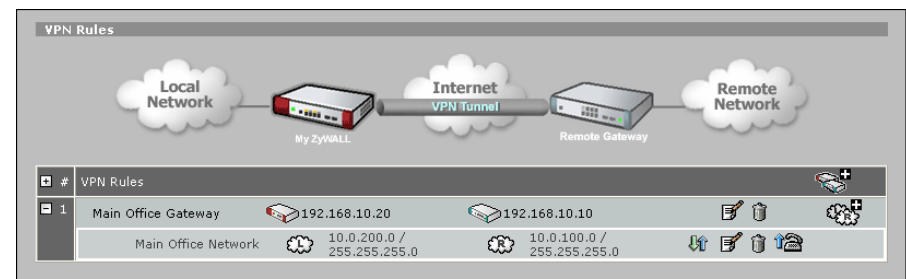
To verify connectivity:

1. On one router at a time, open the VPN tunnel.
2. Wait for the connection to be established.

3. If the connection is successful, you know that the tunnel can be created; if necessary, examine the log files for points of failure.
4. From a workstation on one network, ping a workstation on the other network.
5. Trace the route from a workstation on one network to a workstation on the other network.



C Verify the main office has a gateway and network policy for the remote office.



D Verify the remote office has a gateway and network policy for the main office.

B The Main Office Network policy is associated with the Main Office Gateway policy.

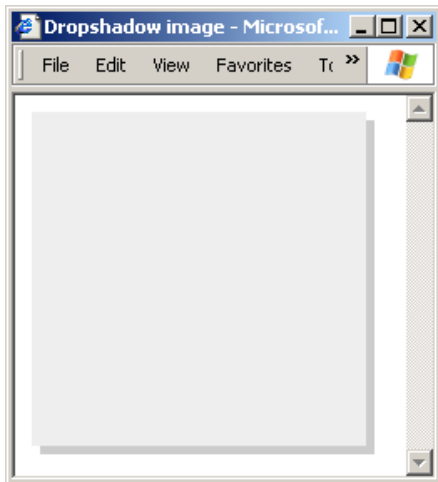
Cut the bloat: Replace drop-shadow images with CSS styles

While background image drop shadows are standard web practice, they do have certain drawbacks. For instance, they take longer to download and may require you to redo the image when you make changes to your site. Fortunately, CSS provides the perfect solution to create drop shadows similar to the little work of modern art shown in [Figure A](#).

The key to positioning property

Here's how to produce a shadow effect:

1. Create two boxes with `<div>` tags.
2. Set `background-color` to a light color for one box, and set it to a darker shade for the other.



A With a little CSS positioning, drop-shadow images become a thing of the past.

3. Put the darker box behind the lighter one, but offset it 5 pixels or so below and to the right. To see how this works, create an HTML file using the code in [Listing A](#). For our initial example, we've set the `position` property to `absolute`, so the `top` and `left` properties for both boxes are considered in relation to their parent element (in our case, that's the browser window, since there's nothing else on the page).

Using `absolute` positioning, as we've done here, gives you maximum

control over each box, so you can easily force the boxes to overlap by a specified amount. For example, in [Listing A](#) the `top` and `left` properties for the second box are only 5 pixels higher than they are for the first box, so the boxes must overlap by 5 pixels. Notice that when one element overlaps the other, the second one covers up the first by default.

If you absolutely need the `<div>` tag for the `LightBox` box to go first in the code (instead of placing it after the `DarkBox <div>` as we show here),

you can still force the `LightBox` to be on top. Simply add `z-index:1` to the `LightBox` style and `z-index:0` to the `DarkBox` style. Sibling elements with higher `z-index` values end up in front. Therefore, since 1 is greater than 0, setting the `z-index` property this way puts the `LightBox` box on top.

Nest elements for improved positioning

One potential problem with the absolute positioning approach in [Listing A](#) is

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Listing A:

Code showing the second <div> in front of the first

```
<!DOCTYPE HTML PUBLIC
  "-//W3C//DTD HTML 4.01 Strict//EN">
<html><head><title>Dropshadow image</title>
<style type="text/css">
  .LightBox {position:absolute;
```

```
top:10px;
left:10px;
height:200px;
width:200px;
background-color:#EEEEEE; }
```

```
.DarkBox {
  position:absolute;
  top:15px;
  left:15px;
```

```
height:200px;
width:200px;
background-color:#CCCCCC; }
</style></head>
```

```
<body>
  <div class="DarkBox"></div>
  <div class="LightBox"></div>
</body></html>
```

that it can complicate matters if you want your box to flow alongside other elements on your page. Without absolute positioning, you could put several boxes on the page, and the browser would figure out where to put them — whereas specifying `position: absolute` puts the responsibility on you to manage exactly where the boxes should go. As a consequence, you may find elements of your page getting hidden behind your box.

Of course, that's perfect if you're using your box for a pseudo popup. But, if you don't want that effect, you may find yourself making *everything* absolute, or fiddling with padding and margins to compensate — not the best choices.

Another potential problem is that you have to remember to change the `top` and `left` values for both boxes. Suppose you want to set these properties through JavaScript. Having to set them for both a box *and* its shadow can add complexity to your code.

So, as an alternative, nest one `<div>` inside the other, like this:

```
<div class="DarkBox">
<div class="LightBox"></div></div>
```

When you do so, any `top`, `left`, `bottom`, or `right` properties for the inside `<div>` are considered relative to the outer `<div>`. This works whether the inside `<div>` has `relative` or `absolute` positioning, since the outer `<div>` is its parent.

As a result, you don't need to worry about mucking with the `top`, `left`, `bottom`, or `right` properties for both `<div>` elements whenever you want to move your box. You can just position one box, and the other one moves along with it. Finally, this approach frees us to use whatever positioning style we need for the outer `<div>` as well (i.e., `absolute` or `relative`), based on how we want it to relate to the rest of the page.

One important rule to remember

At this point, you may have wondered why we had to nest the `LightBox` box inside its shadow (the `DarkBox` box) instead of vice versa. We did so because the inside element always ends up on top, so the box we want as the shadow must be on the outside — i.e., it must contain the other box. This is a little backward from what you might think, because it means that if you want to move your box to some other part of the page, you'll have to reposition the shadow.

Unfortunately, this is true even if you try to force the inside `<div>` to the back using the `z-index` property. As a consequence, if you want to change your elements dynamically with JavaScript, you'll have to remember which `<div>` to refer to — e.g., the `LightBox <div>` to change text, or the `DarkBox <div>` to change position. 🌐

Absolute children only obey specified parents

From reading the CSS2 specification, you may think that if a containing `<div>` has `absolute` positioning, then the browser no longer considers it the nested element's parent. After all, `absolute` positioning removes an element from the document flow. However, if you read carefully, you'll find that as long as you assign either `absolute` or `relative` positioning to an element, it can function as a parent.

Consider a `<div>` nested inside a `<div>`, nested inside another `<div>`. Make them all different sizes and colors so you can see what's going on. If you specify either `absolute` or `relative` for the outermost `<div>`, and `absolute` for the innermost `<div>` — but nothing for the `<div>` in between — then the innermost `<div>` will get its position from the outermost.



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