PowerShell Operators

TRAINSIGNAL

THE GLOBAL LEADER IN PROFESSIONAL COMPUTER TRAINING

Comparison Operators

- "How does something compare to something else?"
- Expression must come out as True or False
- PowerShell is not cAsEsEnsitIve unless you make it

```
PS C:\> Help about_comparison_operators
```


Comparison Operators

Operator	Description	Example
-eq (-ne)	Equal (Not Equal)	$a –eq 8
-gt	Greater than	10 –gt $b
-ge	Greater than or equal	123 –ge 321
-lt	Less than	$a –lt $b
-le	Less than or equal to	$a –le $c
-Like (-NotLike)	Wildcard string comparison	$name –like "*shell"
-Match (-NotMatch)	Regular expression comparison	$name –match "shell$"
-Contains (-NotContains)	Does an array contain a value?	$name –contains "jeff"
-In (-NotIn)	Is a value in an array	"jeff" –in $name

String comparisons can be made case sensitive (-ceq, -cne, -clike)

Arithmetic Operators

Same legacy operators you've always used
Use parentheses to control precedence

Operator	Description	Example
*	Multiplication	$a * 3
/	Division	$size / 1024
+	Addition	$a + $b
-	Minus (or negation)	$size - $used
%	Modulo (remainder)	21%7

Avoid using + sign to concatenate

```
PS C:\> Help about_arithemetic_operators
```


Logical Operators

- Perform a logical comparison
- Entire expression is either True or False
- Using parentheses helps keep things straight

```
PS C:\> Help about_logical_operators
```


Logical Operators

Operator	Description	Example
-And	All parts of the expression must be true	(4 –gt 1) –AND (10 –lt 100) True
-Or	Any part of the expression must be true	(4 –gt 99) –OR (10 –lt 100) True
-Xor	Logical exclusive or. True when one expression is True and one is False	(4 –gt 1) –XOR (10 –lt 100) False
-Not (!)	Logical Not	-Not (10 –ge 9) False

Assignment Operators

- Assign a value or values to a variable
- Change the value of a variable
- Value doesn't have to be numeric

```
PS C:\> Help about_assignment_operators
```


Assignment Operators

Operator	Description	Example
=	Assign a value	$a = 1
+=	Add a new value to an existing value	$a+=5 Adds 5 to $a and update $a Same as $a = $a+5
-=	Subtract a value from an existing value	$a-=5 Subtract 5 from $a and update $a Same as $a = $a -5
*=	Multiply a value from an existing value	$a*=3 Same as $a = $a *3
/=	Divide a value from an existing value	$a/=2 Same as $a = $a /2
++	Increase the value by 1	$a++
--	Decrease the value by 1	$a--

Type Operators

PowerShell is all about the objects

These operators work with object types

Operator	Description	Example
Is	Test if an object IS a certain type. Returns True or False	$i=3 $i –is [int]
IsNot	Test if an object IS NOT a certain type. Returns True or False	$i –isnot [string]
As	Force PowerShell to treat one type as another. Known as *coercion*.	"12/25" –as [datetime]

Common Types: [Int32] [Double] [String] [DateTime]

Special Operators

Operator	Description	Example
&	Call (run) a string. No parameter parsing.	$c="netstat" &$c
..	Range of numbers	5..15
::	Static .NET Member	[math]::pi

Number "Shortcuts"
- xKB, xMB, xGB, xTB, xPB
- X is the number of units (e.g. 5MB)
- Handy for formatting bytes into a more meaningful value

```
PS C:\> 3GB
3221225472
PS C:\> $size/1MB
1224.0986328125
```


Split and Join

Useful for string parsing
- Don't use for CSV files…there are better methods

There is also string method for split

Don't concatenate with + sign

Depending on situation –Join might be a better solution

```
PS C:\> help about_split
PS C:\> help about_join
```


Split and Join

Split
- <string> -split <delimiter>
- Default delimiter is the space
- Can split on a regular expression pattern
- Creates an array of strings
- Split into substrings
- `PS C:\> $data = $line -split ":"`

Join
- -join <string[]>
- <string[]> -join <delimiter>
- Default delimiter is nothing
- `PS C:\>  "PowerShell","3.0","is","awesome" -join " "`

Operator Demonstration

Lab

1. What is 23049564 in megabytes?

2. Save numbers 1 through 10 as a variable. Test if 77 is in the variable. Then test if the variable contains 5.

3. Split the string "alice|bob|carol|david" on the |. (Hint this is normally a regular expression character)

4. How do you think you would write a string of 40 asterisk (*) characters?