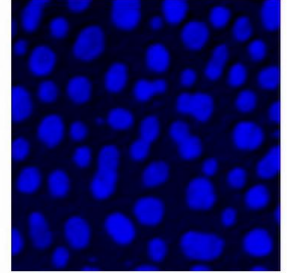
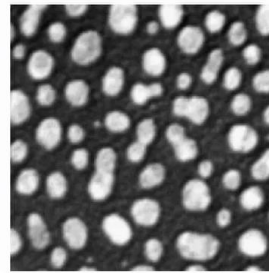


What is a Variable ?



run("Blue");

Hi! In this video we'll quickly cover the variables that exist in the ImageJ macro language, and the available operators. To define what is a variable, let's take an example. We have an image, the recorder is started, and if I modify the Look Up Table from gray to red, the corresponding command appears in the recorder window. If I change to another color, blue, the command is slightly modified. We have a piece of code that can vary. So It can be replaced by a variable.

Notes

Summary

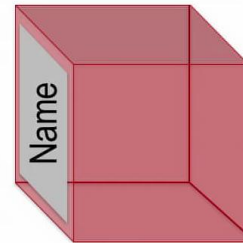


0m 05s

Two Types Of Variable



Variable

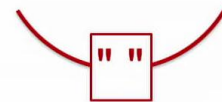


- Number

- myVariable = 2

- String

- myVariable = "2"



A variable is just small box, defined by a name and that can contain information. Let's use a meaningful name, here 'color', and assign a content, here the word "Red", using the equal sign. The line `run(color);` is equivalent to `run("Red");` Now if I change the content, to the word Blue, using the equal sign again, The line `run(color);` is equivalent to `run("Blue");` In the ImageJ macro language, there are 2 types of variable: Number and String. The difference between the two? String are surrounded by quotation marks.

Notes

Summary



0m 41s



- Number

- + : addition
- - : subtraction
- * : multiplication
- / : division

- String

- + : string concatenation

We have at our disposal some simple operators to modify Number: Addition, Subtraction, Multiplication and Division. And we can use the + sign to concatenate Strings. What a strange word! What is String concatenation ?

Notes

Summary



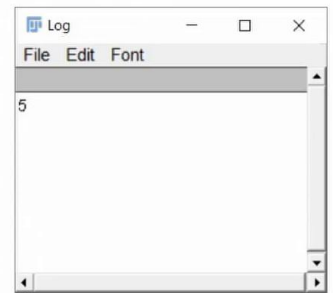
1m 28s

Operators



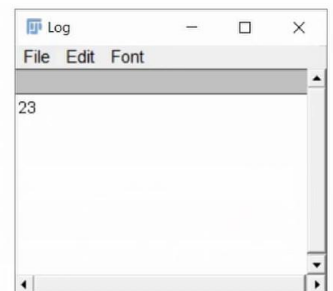
```
1 a = 2 ;  
2 b = 3 ;  
3  
4 print(a + b);
```

Addition



```
1 a = "2" ;  
2 b = "3" ;  
3  
4 print(a + b);
```

Concatenation



Let's have an example Here, we have two variables, a and b. a = the integer 2; b = the integer 3. I can print into the log window the addition a+b, 2+3 = 5. If the two variables are Strings (look at the quotation marks), the result is a concatenation. String 2 concatenated with the String 3 = String "23" The concatenation will be very useful when we'll replace some parameters of the ImageJ plugin or ImageJ Function by corresponding variables. Oli will explain this to you.

Notes

Summary



1m 44s

Operators

Operator	Prec.	Description	Operator	Prec.	Description
++	1	pre or post increment	^	2	bitwise XOR
--	1	pre or post decrement	<<, >>	2	left shift, right shift
-	1	unary minus	+	3	addition or string concatenation
!	1	boolean complement	-	3	subtraction
~	1	bitwise complement	<, <=	4	less than, less than or equal
*	2	multiplication	>, >=	4	greater than, greater than or equal
/	2	division	==, !=	4	equal, not equal
%	2	remainder	&&	5	boolean AND
&	2	bitwise AND		5	boolean OR
	2	bitwise OR	=	6	assignment

Of course, we also have more complex operators at our disposal. We'll see them in more details, later, in the course dealing with conditional statements.

Notes

Summary

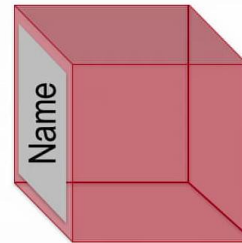


2m 28s

Two Types Of Variable (+ Boolean)



Variable



- Number
 - myVariable = 2
- String
 - myVariable = "2"
- Boolean
 - myVariable = true OR myVariable = false

They use a special type of variable that are either true or false, the Boolean.

Notes

Summary



2m 38s

Conclusion



- Only 2 types of variable, " "
 - Number
 - "String"
 - Boolean
- Good Practice
 - Prefer a **meaningful name** to define a **variable** :
 - **pixelWidth** instead of **p**
 - **cellRadius** instead of **r**

That's all for the variable. we saw the 2 types of variable (plus that Boolean also exist) And as good a practice, please consider using meaningful name for you variable. Trust me. It'll make your life easier when you come back to your code, after a few months. Bye!

Notes

Summary



2m 45s