

APM: Variable Assign

Variable assign best practice

Username / Domain Management

get username

image-1615964871694.png

`session.logon.last.username`

extract CN from certificate subject and set it in username variable

```
set subject [split [mcget {session.ssl.cert.subject}] ",="];
foreach {name value} $subject {
  if {[string trim $name] equals "CN"} {
    return [string trim $value];
  }
}
```

`session.logon.last.username`

combine username and domain variables

```
expr { "[mcget {session.logon.last.domain}]\\"[mcget {session.logon.last.username}]" }
```

`session.ad.last.attr.userPrincipalName`

Get the UPN when using AD-Auth. This variable is filled out with the UPN from the AD and can be used in the VPE.

remove UPN from session.logon.last.username:

```
expr { [string range [mcget {session.logon.last.username}] 0 [expr [string first "@" [mcget {session.logon.last.username}] 0] -1] ] }
```

`session.logon.last.ntdomain`

extract NT domain name from logon name

```
if { [mcget {session.logon.last.username}] contains "\\" } {  
    set username [string tolower [mcget {session.logon.last.logonname}]];  
    return [string range $username 0 [expr {[string first "\\" $username] -1} ]];  
} else {  
    return {}  
}
```

one-line code

```
expr {[set username [string tolower [mcget {session.logon.last.logonname}]]] contains "\\" ? [string range  
$username 0 [expr {[string first "\\" $username] -1} ] ] : "" }
```

session.logon.last.domain

static assignment from ntdomain

```
switch [string tolower [mcget {session.logon.last.ntdomain}]] {  
    "domain1" { return "domain1.local" }  
    "domain2" { return "domain2.local" }  
    default { return "default.local" }  
}
```

session.logon.last.username

Extract username name from logonname (full username from logon page even if split domain from username is checked)

```
set username [string trim [mcget {session.logon.last.logonname}]];  
if { $username contains "\\" } {  
    return [string range $username [expr {[string first "\\" $username] +1} ] end ];  
} else { return $username }
```

session.logon.last.upn

Extract UPN value from Certificate X509Extension

```
set extension [string tolower [mcget {session.ssl.cert.x509extension}]];  
return [string range $extension [expr {[string first "othername:upn<" $extension] +14} ] [expr {[string last ">"  
$extension] -1} ]];
```

Session / Timeout Management

session.inactivity_timeout

Change inactivity session timeout based on a checkbox on the logon page (logon variable trusted)

```
if { [mcget {session.logon.last.trusted}] == 1 } { return {5400} } else { return {1800} }
```

one-line code (5400 seconds if condition before ? success, 1800 seconds else)

```
expr { [mcget {session.logon.last.trusted}] == 1 ? {5400} : {1800} }
```

session.inactivity_timeout

Change inactivity session timeout based on client type (iOS, Android and WindowsPhone : half of inactivity timeout configured in profile parameters)

```
expr { [mcget {session.client.platform}] == "WindowsPhone" || [mcget {session.client.platform}] == "Android" || [mcget {session.client.platform}] == "iOS" ? [mcget {session.inactivity_timeout}]/2 : [mcget {session.inactivity_timeout}] }
```

session.max_session_timeout

force to close the session à 17:00

```
expr { [clock scan "17:00"] - [mcget {session.user.starttime}] }
```

session.max_session_timeout

After a AD query which retrieve attribute logonHours, force to close the session when user at the end of allowed logon hours

```
set maximumSessionSeconds 604800
if {[set logonHours [mcget {session.ad.last.attr.logonHours}]] != "" && $logonHours != "FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF"} {
    #convert string to binary string
    binary scan [binary format H* $logonHours] b* logon_hours_binary_string
    # evaluate the number of seconds from last sunday
    set time_from_sunday [expr {[clock seconds] - [clock scan "last sunday"]}];
    # search in string next hours with 0 value
    set current_index [expr {$time_from_sunday / 3600}];
    # convert the index to number of seconds from last sunday
```

```
if {[set next_denied_index [string first 0 $logon_hours_binary_string$logon_hours_binary_string
$current_index]] == $current_index } {return 0}

# evaluate number on seconds to disconnect time

return [expr { $next_denied_index*3600 - $time_from_sunday}]

} else { return $maximumSessionSeconds}
```

Windows Info

session.windows_info_os.last.fqdn

search and return FQDN hostname in computer names list after **windows Info** Box

```
foreach x [split [mcget {session.windows_info_os.last.computer}] "|"] {
    if { $x ends_with ".f5demo.lab" } {
        return $x
    }
}
```

session.windows_info_os.last.computer_name

search FQDN hostname in computer names list after **windows Info** Box, then return shortname (without domain name)

```
foreach x [split [mcget {session.windows_info_os.last.computer}] "|"] {
    if { $x ends_with ".f5demo.lab" } {
        return [lindex [split $x "."] 0]
    }
}
```

Machine Cert

To allow machine certificate revocation validation, add a variable assign with 2 following variables before OSCP or CRLDP boxes.

session.ssl.cert.whole

store machine certificate as it was user certificate

```
expr {[mcget {session.check_machinecert.last.cert.cert}]}
```

session.ssl.cert.certissuer

store machine certificate issuer as it was user certificate issuer

```
expr {[mcget {session.check_machinecert.last.cert.issuer}]}
```

HTTP auth returned cookie parsing

session.custom.http_auth_mycookie

extract from HTTP auth cookie list the cookie value of mycookie

```
expr { [lindex [regexp -inline {mycookie=([^;\\r]*)} [mcget session.http.last.response_cookie]] 1] }
```

replace portal or network access Webtop by full webtop if unsupported resource are assigned

Webtop can be:

- Portal webtop : define an internal web server as home page
- Network access Webtop : start automatically Network access when connected
- Full Webtop : display all assigned ressources in one page hosted on the F5.
Some customers want to assign different webtop based on assigned ressources.
- one portal ressource only -> portal webtop
- one Network access ressource only -> Network Access ressource
- more than one portal ressource -> Full webtop
- more than one Network access ressource -> Full webtop
- RDP, Application tunnel, SAML ressources assigned -> Full Webtop

In Advanced ressource assign, the last assigned webtop is applied to the session. If the user is assigned non portal ressource (ex : RDP) and portal webtop, he will not be allowed to connect.

session.assigned.webtop

this code code is used if portal or network access webtop are assigned and number of resources is supported only with full webtop

```
set fullwt /Common/wt-Full;
set wt [mcget {session.assigned.webtop}];
set pa [llength [mcget {session.assigned.resources.pa}]];
set at [llength [mcget {session.assigned.resources.at}]];
set na [llength [mcget {session.assigned.resources.na}]];
set rd [llength [mcget {session.assigned.resources.rd}]];
set saml [llength [mcget {session.assigned.resources.saml}]];
if { $rd || $at || $saml || ([expr { $pa + $na }] > 1) } {set wt $fullwt};
unset fullwt;
```

```
unset pa;
unset at;
unset na;
unset rd;
unset saml;
return $wt;
```

one-line code. Don't forget to replace "/Common/wt-Full" with your own webtop full in expression.

```
expr { [length [concat [mcget {session.assigned.resources.rd}] [mcget {session.assigned.resources.at}]
[mcget {session.assigned.resources.atsaml}]]] || [length [concat [mcget {session.assigned.resources.pa}]
[mcget {session.assigned.resources.na}]]] >1 ? "/Common/wt-Full" : [mcget {session.assigned.webtop}] }
```

Same condition for Advanced resource Assign condition. This condition doesn't match with previous rules in the same Advanced resource assign. must be in a dedicated resource assign box.

```
expr { [length [concat [mcget {session.assigned.resources.rd}] [mcget {session.assigned.resources.at}]
[mcget {session.assigned.resources.atsaml}]]] || [length [concat [mcget {session.assigned.resources.pa}]
[mcget {session.assigned.resources.na}]]] >1 }
```

For Kerberos SSO

when working with Kerberos SSO, 2 variable sources must be set:

- username : must be equal to user sAMAccountName
 - domain : must be equal to user FQDN domain
- When working on access policy with multiple SSO method depending on the URI, Host header or some other parameters, you may have conflict on default SSO variables.
- For example, for Exchange :
- activesync SSO profile is basic with username format is NTDOMAIN\username
 - Autodiscover SSP profile can be NTLM with
 - username format is username
 - domain format is NTDOMAIN
 - OWA SSO profile can be kerberos with
 - username : must be equal to user sAMAccountName
 - domain : must be equal to user FQDN domain like DOMAIN.LOCAL (different than NT Domain)
- default SSO variables are :
- session.sso.token.last.username
 - session.sso.token.last.password
 - session.logon.last.domain

to support multiple SSO on the same Access policy, I recommend to set new variables based on previous AD Query

session.krbssso.username

```
expr {[mcget {session.ad.last.attr.sAMAccountName}]}
```

session.krbssso.domain

```
expr {[mcget {session.ad.last.actualdomain}]}
```

Links

Thank you for this: <https://devcentral.f5.com/s/articles/apm-variable-assign-examples-1107>

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