ADOPTCTX	COMPAT	USERSRC	8.0.0.0 SLES 11	8.0.0.2 800 SLES 11	8.0.0.3 800/802 SLES 11	8.0.0.4 800/802 SLES 11	8.0.0.5 800/802 RHEL 6	8.0.0.5 800 EARLYADOPT	9.0.0.0RHEL 7.2	9.0.0.0 Win 10	9.0.0.0 Win 10 EARLYADOPT
CHLAUTH DISABLED											
NO	NO	N/A	CSPUSER if blank	CSPUSER if blank	CDUSER if blank	CDUSER if blank	CSPUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank
NO	YES	N/A	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank
YES	NO	N/A	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER
YES	YES	N/A	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER
ADDRESSMAP											
NO	NO	CHL	CSPUSER if blank	CSPUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank
NO	YES	CHL	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank
NO	NO	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP
NO	YES	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP
YES	NO	CHL	CSPUSER if blank	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER
YES	YES	CHL	CSPUSER if blank	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER
YES	NO	MAP	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER
YES	YES	MAP	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER
USERMAP											
NO	NO	CHL-CD	IGNORED	IGNORED	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank
NO	YES	CHL-CD	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED
NO	NO	CHL-CSP	CSPUSER if blank	CSPUSER if blank	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED
NO	YES	CHL-CSP	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank
NO	NO	MAP-CD	IGNORED	IGNORED	MAP	MAP	MAP	MAP	MAP	MAP	MAP
NO	YES	MAP-CD	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED
NO	NO	MAP-CSP	MAP	MAP	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED
NO	YES	MAP-CSP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP
NO	NO	NOACCESS-CD	IGNORED	IGNORED	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK
NO	YES	NOACCESS-CD	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED
NO	NO	NOACCESS-CSP	BLOCK	BLOCK	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED
NO	YES	NOACCESS-CSP	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	IGNORED
YES	NO	CHL-CD	IGNORED	IGNORED	CSPUSER	CSPUSER	CSPUSER Neither can be NOACCESS	IGNORED	CSPUSER Neither can be NOACCESS	CSPUSER Neither can be NOACCESS	IGNORED
YES	YES	CHL-CD	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	CSPUSER
YES	NO	CHL-CSP	CSPUSER	CSPUSER	IGNORED	IGNORED	CSPUSER Neither can be NOACCESS	CSPUSER	CSPUSER Neither can be NOACCESS	CSPUSER Neither can be NOACCESS	CSPUSER
YES	YES	CHL-CSP	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	IGNORED
YES	NO	MAP-CD	IGNORED	IGNORED	IGNORED	CSPUSER	CSPUSER Neither can be NOACCESS	IGNORED	CSPUSER Neither can be NOACCESS	CSPUSER Neither can be NOACCESS	IGNORED
YES	YES	MAP-CD	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	CSPUSER
YES	NO	MAP-CSP	CSPUSER	CSPUSER	IGNORED	IGNORED	CSPUSER Neither can be NOACCESS	CSPUSER	CSPUSER Neither can be NOACCESS	CSPUSER Neither can be NOACCESS	CSPUSER
YES	YES	MAP-CSP	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	IGNORED
YES	NO	NOACCESS-CD	IGNORED	IGNORED	BLOCK	BLOCK	BLOCK	IGNORED	BLOCK	BLOCK	IGNORED
YES	YES	NOACCESS-CD	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	IGNORED	BLOCK
YES	NO	NOACCESS-CSP	BLOCK	BLOCK	IGNORED	IGNORED	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK
YES	YES	NOACCESS-CSP	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK	BLOCK
SSLPEERMAP											
NO	NO	CHL	CSPUSER if blank	CSPUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank	CDUSER if blank
NO	YES	CHL	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank	CSPUSER if blank
NO	NO	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP
NO	YES	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP	MAP
YES	NO	CHL	CSPUSER if blank	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER
YES	YES	CHL	CSPUSER if blank	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER
YES	NO	MAP	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER
YES	YES	MAP	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER	CSPUSER

Methodology for testing

For the Linux machines, a suite of scripts was created to initialize and manage the MQ configurations. This ensured that the testing environment would be identical in all respects other than the control variables. The scripts were tested on a sandbox image before deploying to a clean Linux image for use.

Once MQ v8 was installed and tested all queue managers were deleted. Next, 5 additional instances of the MQ v8 VM were cloned to hold Fix Packs 8.0.0.1 through 8.0.0.5. The matching Fix Pack was then installed on each of the clones. No Fix Packs between 8.0.0.0 and the target level were applied. The queue manager for testing was then defined on each host. The result was that each queue manager had been created at the target release and Fix Pack and had never been upgraded. Although this is atypical compared to common practice, the intent was to eliminate as many uncontrolled variables as possible.

A single queue manager was created on each of the images and provisioned with six SVRCNN channels corresponding to each combination of CHLAUTH rule type and COMPAT setting. That resulted in two channels per CHLAUTH rule type where one had COMPAT(YES) and the other had COMPAT(NO). This allowed all combinations of rules and COMPAT values to be tested without changing the channel definition or the Explorer Connection Details information between tests.

A matching set of CHLAUTH rules was created that corresponded to each of the defined channels. In the case of USERMAP rules, one set each was created for the two diffferent User IDs that were presented (CD and CSP).

Run-time scripts were used to quickly toggle the queue manager's settings between known and consistent states. One pair of scripts toggled ADOPTCTX. Another toggled the MCAUSER of the channel definitions between blank and *NOBODY. Two other scripts toggled the CHLAUTH rules between USERSRC(CHL) and USERSRC(MAP).

MQ Explorer ran as the mqm ID in Linux or as an administrator ID in Windows. All of the Explorer connection definitions specified a User ID other than the one running Explorer. This ensured that two user IDs would be presented to the queue manager in test cases that could use them both.

Three sets of user ID pairs was created, with a pair for each type of CHLAUTH rule (MAP, CHL and NOACCESS). One ID in the pair was used for rules mapping the CD user and the other mapped the CSP user. This provided visual confirmation in the runnning channel status as to which of the IDs in the connection request was used by the queue manager to map to a CHLAUTH rule.

Each VM was then run through the battery of tests and the results recorded. In each case where behavior changed across maintenance releases, the tests were re-run against both releases to confirm the initial results.

Where multiple CMDLEVEL settings were tested, the methodology was to test first at the lowest CMDLEVEL, then increased to the highest CMDLEVEL and retested. Not all combinations of CMDLEVEL have been tested as of this writing.

Notes	
Environment	
Host	Testing was performed in VMWare-hosted virtual machines running Linux and physical machines running Windows, the specific versions of which are noted in the test results.
Password	All password checking was based on the AUTHINFO IDPWOS type. No tests were performed at this time on either LDAP- or PAM-based validation.
FixPack 1	ID and password validation was unsuccessful under Fix Pack 8.0.0.1 on all platforms tested. To eliminate environental drift as a possible cause, Fix Pack 1 was backed out and password validation under MQ v8.0.0.0 was tested on the same VM. After establishing a known-good configuration under v8.0.0.0 Fix Pack 8.0.0.1 was re-applied without changing any settings on the queue manager or MQ Explorer. Under both SUSE and Red Hat with MQ 8.0.0.1 IDPWOS checking failed. Note that password validation using either PAM or LDAP was not tested under MQ v8.0.0.1 as of this writing.
MQ Explorer	The version of MQ Explorer matched the version and Fix Pack of MQ in all cases except for Fix Pack 8.0.0.5. This Fix Pack under Linux deletes both the Dropins and the Plugins directories under MQ Explorer. No method was found to restore plugin functionality so in that instance the Explorer RPM package was reverted to 8.0.0.0 so that event message parsing in SupportPac MS0P would be available.

Definitions of Terms		
Section Headings		
	CHLAUTH DISABLED	To observe the interaction between the channel's MCAUSER attribute and password validation when the queue manager's CHLAUTH attribute is set to 'DISABLED'.
	ADDRESSMAP	To test the CHLAUTH rule type that maps the remote source IP address of the connection request to an MCAUSER value.
	USERMAP	To test the CHLAUTH rule type that maps the user ID presented in the connection request to an MCAUSER value. There are two different user ID fields possible in a connection request and these are broken out in the 'COMPAT' control variable, described in the next section.
	SSLPEERMAP	To test the CHLAUTH rule type that maps the Distinguished Name fields in the client certificate presented in the connection request to an MCAUSER value.
Major Control variables		
	ADOPTCTX	Yes/No. Value of the queue manager's ADOPTCTX attribute
	COMPAT	Yes/No. This is the 'User identification compatibility mode' setting in MQ Explorer's remote connection details panel. There are two possible User ID values presented to the queue manager in an MQ client connetion request. The ID that the process runs as is passed in the MQCNO data structure (Connection Options) by default. This may be overridden by code or an exit. A second ID can be provided along with a password in the MQCSP (Connection Security Parameters) data structure. When MQ Explorer's Compatibility Mode setting is enabled (checked) the User ID configured in Explorer is placed into both the MQCNO and the MQCSP data structures and the queue manager sees only one User ID. When this setting is disabled (unchecked) Explorer will pass two ID values when Explorer's process ID differs from the configured User ID that is submitted for password checking. See CLNT/CSP below.
	USERSRC	Multiple values, see below. This is the value of the CHLAUTH rule's USERSRC attribute.
CD/CSP Modifiers		

	USERSRC field and test results	USERMAP rules take action based on the User ID that is presented in the connection request, if any. In cases where two User IDs are present the rule may consider one or the other. The CD modifier indicates the User ID that is set by default as a function of the MQ client in the MQCD structure. The CSP modifier indicates the ID in the MQCSP data structure. Note: Although USERMAP rules may consider either of the ID fields, passwords are always checked against the ID represented here as MQCSP.

USERSRC Values		
	CHL-CD	`USERSRC(CHANNEL)  MCAUSER(User ID in MQCNO)`
	CHL-CSP	`USERSRC(CHANNEL)  MCAUSER(User ID in MQCSP)`
	MAP-CD	`USERSRC(MAP)  MCAUSER(User ID in MQCNO)`
	MAP-CSP	`USERSRC(MAP)  MCAUSER(User ID in MQCSP)`
	NOACCESS-CD	`USERSRC(NOACCESS)  MCAUSER(User ID in MQCNO)`
	NOACCESS-CSP	`USERSRC(NOACCESS)  MCAUSER(User ID in MQCSP)`

Results		
		The observed behavior of the channels to a connection request based on the settings of the various control variables. Except where noted, the channel's MCAUSER value does not affect the outcome.
	BLOCK	The connection request is refused.
	CD	The running channel's MCAUSER value is the ID from the MQCNO.
	CSP	The running channel's MCAUSER value is the ID from the MQCSP.
	CDUSER if blank	The running channel's MCAUSER value is from the channel definition or is the ID from the MQCNO if the channel's MCAUSER is blank.
	CSPUSER if blank	The running channel's MCAUSER value is from the channel definition or is the ID from the MQCSP if the channel's MCAUSER is blank.
	IGNORED	This rule has no affect. This is expected for example when a USERMAP rule specifies the value from the MQCD User ID and ADOPTCTX(YES) is set since in this case it is the MQCSP User ID that is relevant.
	MAP	The running channel's MCAUSER value is the MCAUSER value specified in the mapping rule.

Version History		
10/28/2016	T.Rob	Corrected copy-paste error in rows 5-6, columns J-L. These formerly indicated CD User would be used and that MCAUSER had to be blank.