Total IFTA Compliance Platform

MCS-150 Exception Engine

Technical Specification

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Purpose of This Document

This document defines the complete technical specification for the MCS-150 Exception Engine within the Total IFTA Compliance Platform. It covers all MCS-150-specific exception types, their detection logic, severity classifications, threshold values, user interface behavior, resolution paths, and escalation rules.

The MCS-150 is the FMCSA Operating Authority biennial update — one of the most catastrophically consequential compliance filings a motor carrier faces. Missing the biennial MCS-150 update can result in the deactivation of a carrier's USDOT number, immediate loss of operating authority, daily civil penalties up to $1,000 per day (maximum $10,000 per violation), and mandatory out-of-service orders at roadside inspections. The MCS-150 exception engine is designed to ensure no carrier on the platform ever misses this filing.

Unlike IFTA, IRP, or 2290 — which have universal or carrier-specific but predictable deadlines — the MCS-150 due date is unique to each carrier and derived from their USDOT number. The platform must calculate, track, and enforce this obligation individually for every carrier.

1. MCS-150 Background & Due Date Logic

Before exception logic can be applied, the platform must correctly calculate each carrier's unique MCS-150 due date. This section defines the calculation rules.

1.1 Due Date Calculation Rule

The MCS-150 biennial update due date is determined by the carrier's USDOT number using the following formula:

- The second-to-last digit of the USDOT number determines the filing year: odd digit = odd years (2025, 2027, etc.), even digit = even years (2026, 2028, etc.)
- The last digit of the USDOT number determines the filing month: 1 = January, 2 = February, 3 = March, 4 = April, 5 = May, 6 = June, 7 = July, 8 = August, 9 = September, 0 = October
- November and December have NO MCS-150 filings — no USDOT numbers end in digits that map to these months
- The filing is due by the last day of the carrier's designated birth month in their designated year

Example: USDOT# 1234567 — second-to-last digit is 6 (even), last digit is 7 (July). This carrier files in July of even years. Due date: July 31, 2026, then July 31, 2028, and so on.

Database field: mcs150_due_month, mcs150_due_year, mcs150_due_date (auto-calculated from usdot_number)

1.2 Additional Filing Triggers

Beyond the biennial cycle, an MCS-150 update is also required within 30 days of any of the following business changes:

- Change of company name or DBA
- Change of principal address
- Change of mailing address
- Change of phone number or email address
- Change in type of operation (e.g., for-hire to private)
- Change in cargo type
- Change in number of vehicles
- Change in number of drivers
- Change in safety contact or authorized signatory

These change-triggered filings must be tracked separately from the biennial cycle. The platform should flag any recorded business profile change and prompt the carrier to file an interim MCS-150 update within 30 days.

2. Severity Level Definitions

All MCS-150 exceptions follow the same four-level severity framework used across the compliance platform.

CRITICAL	Action is blocked. Exception must be resolved before the carrier's compliance record can be certified as current. Operating authority is at immediate risk.
HIGH	Filing deadline is approaching or a business change has triggered a mandatory update. Carrier or administrator must acknowledge and provide written confirmation before the exception clears.
MEDIUM	Data quality warning or informational flag that requires attention but does not immediately threaten operating authority. No acknowledgment required.
INFO	Background compliance awareness. Displayed in the carrier dashboard. Does not interrupt any workflow.

3. Critical Exceptions — Action Blocked

The following exceptions indicate an immediate threat to the carrier's operating authority. The system blocks compliance certification and displays a prominent alert on the carrier dashboard until the exception is resolved.

Exception Name	Field(s)	Threshold / Trigger	UI Behavior	Resolution Path
MCS-150 Overdue — Filing Past Due Date	mcs150_due_date, mcs150_last_filed_date, current_date	current_date > mcs150_due_date AND mcs150_last_filed_date < mcs150_due_date	Full-page red alert on carrier dashboard. Message: 'Your MCS-150 biennial update is OVERDUE as of [date]. Your USDOT number is at risk of deactivation. File immediately at safer.fmcsa.dot.gov.' Compliance certificate blocked.	Carrier files MCS-150 immediately via FMCSA Portal. Platform records filing date on confirmation.
USDOT Number Deactivated	usdot_status	usdot_status = 'inactive' OR 'deactivated'	Full-page red alert. Message: 'Your USDOT number has been deactivated by FMCSA. Vehicles operating under this number are out of compliance and subject to immediate enforcement action.' All filing modules blocked.	Carrier contacts FMCSA to reinstate USDOT. Platform re-validates status via FMCSA data feed.
Business Change Recorded — 30-Day Window Expired	profile_change_date, mcs150_change_filed_date, current_date	current_date > (profile_change_date + 30 days) AND mcs150_change_filed_date = null	Red banner. Message: 'A business profile change was recorded on [date]. The 30-day window to file an MCS-150 update has expired. File immediately to avoid penalties.' Compliance certificate blocked.	Carrier files interim MCS-150 update. Platform records filing confirmation.
USDOT Number Not on File	usdot_number	usdot_number = null or empty	Red alert on company profile setup. Message: 'No USDOT number on file. MCS-150 due date cannot be calculated and compliance cannot be tracked without this field.' Action blocked.	Carrier enters USDOT number in company profile. System auto-calculates due date.

Exception Name	Field(s)	Threshold / Trigger	UI Behavior	Resolution Path
MCS-150 Due Date Cannot Be Calculated	usdot_number, mcs150_due_date	usdot_number present but mcs150_due_date = null (calculation failure)	Red alert. Message: 'MCS-150 due date could not be calculated from USDOT# [number]. Please verify the USDOT number is correct.' Action blocked.	Carrier verifies USDOT number. Administrator manually sets due date if needed.

4. High Exceptions — Acknowledgment Required

The following exceptions do not immediately block operations but require the carrier or administrator to explicitly review, acknowledge, and provide written confirmation before the exception clears. All acknowledgments are logged with timestamp, user ID, and entered reason.

Exception Name	Field(s)	Threshold / Trigger	UI Behavior	Resolution Path
MCS-150 Due Within 60 Days	mcs150_due_date, current_date, mcs150_last_filed_date	current_date >= (mcs150_due_date - 60 days) AND filing not initiated	Orange banner on dashboard. Message: 'Your MCS-150 biennial update is due on [date] — [X] days from today. File now at safer.fmcsa.dot.gov to avoid penalties and USDOT deactivation.' Acknowledgment required.	Carrier initiates filing or confirms date is noted. Override logged with timestamp.
Business Change Recorded — 30-Day Window Active	profile_change_date, mcs150_change_filed_date, current_date	A business profile field was updated AND mcs150_change_filed_date = null AND current_date <= (profile_change_date + 30 days)	Orange banner. Message: 'A business profile change was recorded on [date]. An MCS-150 update must be filed within 30 days ([X] days remaining).' Acknowledgment required.	Carrier files interim MCS-150 or confirms change is pending. Override logged.
MCS-150 Previously Filed Late	mcs150_last_filed_date, mcs150_prior_due_date	mcs150_last_filed_date > mcs150_prior_due_date	Orange flag on compliance history. Message: 'Your most recent MCS-150 was filed [X] days after its due date. Late filing history increases audit risk. Ensure the upcoming filing is completed on time.' Acknowledgment required.	Carrier acknowledges late filing history. Override logged.
USDOT Number Appears Invalid	usdot_number	usdot_number fails format validation OR FMCSA lookup returns no match	Orange alert on company profile. Message: 'The USDOT number on file does not appear to be valid. MCS-150 tracking may be inaccurate.'	Carrier verifies and corrects USDOT number. Override logged.

Exception Name	Field(s)	Threshold / Trigger	UI Behavior	Resolution Path
			Acknowledgment required.	
Carrier Has Multiple USDOT Numbers on File	usdot_number_list[]	More than one USDOT number associated with same carrier account	Orange alert. Message: 'Multiple USDOT numbers are on file for this carrier. Each USDOT number has its own independent MCS-150 filing obligation and due date. Verify all are being tracked.' Acknowledgment required.	Carrier confirms all USDOT numbers are accounted for. Platform creates separate MCS-150 tracking record per number. Override logged.
Operating Authority Type Changed	operation_type_current, operation_type_prior	operation_type changed (e.g., for-hire to private or vice versa)	Orange banner. Message: 'A change in operation type was recorded. This triggers a mandatory MCS-150 update within 30 days. Please verify the update has been or will be filed.' Acknowledgment required.	Carrier confirms MCS-150 update is being filed. 30-day tracking window activated. Override logged.
Fleet Size Change Exceeds Threshold	vehicle_count_current, vehicle_count_prior	vehicle count changes by > 25% vs. prior MCS-150 filing	Orange flag. Message: 'Your fleet size has changed significantly since your last MCS-150 filing. FMCSA requires updated vehicle counts on your MCS-150 record. Verify your next filing reflects current fleet size.' Acknowledgment required.	Carrier confirms fleet count will be updated at next filing or files interim update. Override logged.
Driver Count Change Exceeds Threshold	driver_count_current, driver_count_prior	driver count changes by > 25% vs. prior MCS-150 filing	Orange flag. Message: 'Your driver count has changed significantly since your last MCS-150 filing. FMCSA requires updated driver counts on your MCS-150 record.'	Carrier confirms driver count will be updated at next filing or files interim update. Override logged.

Exception Name	Field(s)	Threshold / Trigger	UI Behavior	Resolution Path
			Acknowledgment required.	

5. Medium Exceptions — Informational Warning

The following exceptions display a warning in the carrier dashboard but do not require acknowledgment. They are logged automatically and visible in the carrier's compliance history.

Exception Name	Field(s)	Threshold / Trigger	UI Behavior	Resolution Path
MCS-150 Due Within 90 Days	mcs150_due_date, current_date	current_date >= (mcs150_due_date - 90 days) AND current_date < (mcs150_due_date - 60 days)	Yellow reminder on dashboard. Message: 'Your MCS-150 biennial update is due on [date] — approximately [X] days from now. Begin preparing to file.'	Carrier notes reminder. No action required. Escalates to HIGH at 60 days.
Last Filed Date More Than 2 Years Ago	mcs150_last_filed_date, current_date	current_date > (mcs150_last_filed_date + 730 days)	Yellow flag. Message: 'No MCS-150 filing has been recorded in the platform for more than 2 years. Verify your filing history is complete and up to date.'	Carrier confirms filing records. No action required to proceed.
Authorized Signatory Not on File	authorized_signatory	authorized_signatory = null or empty	Yellow flag on company profile. Message: 'No authorized signatory is on file. This field is required to file an MCS-150 update. Please add an authorized signatory to the company profile.'	Carrier adds authorized signatory. No action required to proceed.
Company Name Mismatch vs. FMCSA Record	company_name_platform, company_name_fmcsa	Names differ by more than minor formatting	Yellow flag. Message: 'The company name in the platform does not match the name on file with FMCSA. Verify which is correct and update as needed.'	Carrier reviews and corrects. No action required to proceed.
Principal Address Not Verified	principal_address, address_verified	address_verified = false OR address_verified_date > 180 days ago	Yellow flag. Message: 'The principal address on file has not been recently	Carrier verifies address. No action required to proceed.

Exception Name	Field(s)	Threshold / Trigger	UI Behavior	Resolution Path
			verified against FMCSA records. Confirm the address matches your current FMCSA registration.'	
Cargo Type Changed in Platform	cargo_type_current, cargo_type_prior_filing	cargo_type updated in platform AND differs from last MCS-150 record	Yellow flag. Message: 'The cargo type on file in the platform has changed since your last MCS-150 filing. If this reflects an actual operational change, an MCS-150 update may be required.'	Carrier reviews. If change is real, 30-day update window is triggered. No action required otherwise.
No MCS-150 History on File	mcs150_filing_history[]	Zero MCS-150 filing records in system	Yellow banner. Message: 'No MCS-150 filing history has been entered for this carrier. Upload or enter your filing history so the platform can track your biennial cycle accurately.'	Carrier enters filing history. No action required to proceed.

6. Informational Exceptions — Compliance Dashboard

The following conditions are displayed in the carrier's compliance dashboard for awareness and audit preparedness. They do not appear in any filing workflow and do not block any action.

Exception Name	Field(s)	Threshold / Trigger	UI Behavior	Resolution Path
MCS-150 Filing Recorded — Next Due Date Set	mcs150_last_filed_date, mcs150_next_due_date	A new MCS-150 filing is recorded and next due date is calculated	Dashboard notice: 'MCS-150 update recorded on [date]. Your next biennial filing is due by [date].'	No action required. System auto-sets next due date.
MCS-150 Due Date More Than 90 Days Away	mcs150_due_date, current_date	current_date < (mcs150_due_date - 90 days)	Dashboard display: 'Next MCS-150 due: [date] — [X] days away.' No alert styling.	No action required. Escalates to MEDIUM at 90-day threshold.
Business Change Recorded — Within 30-Day Window	profile_change_date, days_remaining	Change logged AND current_date <= (profile_change_date + 30 days) AND mcs150_change_filed	Dashboard notice: 'Business profile change recorded on [date]. MCS-150 update filed on [date]. 30-day requirement satisfied.'	No action required.
FMCSA Safety Rating on File	fmcsa_safety_rating, safety_rating_date	safety_rating present in carrier profile	Dashboard display showing current FMCSA safety rating and date last updated. Informational reference only.	No action required. Updated via FMCSA data sync.
MCS-150 Filing Month Reminder — 120 Days Out	mcs150_due_date, current_date	current_date = first day of month that is 4 months before due month	Dashboard calendar reminder: 'Your MCS-150 filing month is [month]. Mark your calendar and prepare to file.'	No action required. Escalation chain begins at 90 days.
Operating Authority Status Verified Active	usdot_status, usdot_verified_date	usdot_status = 'active' AND verified within last 30 days	Dashboard green status indicator: 'USDOT# [number] — Active. Last verified [date].'	No action required. System re-verifies on configurable schedule.

7. Escalation Rules

The following rules govern automatic escalation of MCS-150 exceptions from a lower severity level to a higher one based on time proximity to the filing deadline or the occurrence of triggering business events.

7.1 Time-Based Escalation — Biennial Filing

Exception	Info Fires At	Escalates to HIGH At	Escalation Condition
MCS-150 Biennial Due Date	120 days before due date	60 days before due date	No filing initiated
MCS-150 Biennial Due Date	60 days before due date	Due date passes	Still no filing recorded
MCS-150 Biennial Due Date	Due date passes	Immediately on due date	Escalates to CRITICAL — overdue

7.2 Event-Based Escalation — Business Changes

Exception	Info Fires At	Escalates to HIGH At	Escalation Condition
Business Change Recorded	Immediately on change	Day 1 of 30-day window	MCS-150 update not filed
Business Change Recorded	Day 1 of 30-day window	Day 31 (window expired)	Escalates to CRITICAL — overdue
Fleet/Driver Count Change	Change recorded	If > 25% change	Triggers HIGH acknowledgment

7.3 Audit Trail Requirements

Every exception acknowledged or overridden at the High level must generate an immutable audit log entry containing the following fields:

- exception_id — unique identifier for the exception instance
- carrier_id — carrier account associated with the MCS-150 record
- usdot_number — the specific USDOT number the exception applies to
- user_id — user who acknowledged the exception
- user_name — full name of acknowledging user
- timestamp — UTC datetime of acknowledgment

- exception_type — exception code from the master exception list
- severity_at_time — severity level at the time of acknowledgment
- reason_entered — free-text explanation entered by the user (required, minimum 20 characters)
- mcs150_due_date — the due date associated with the exception
- days_until_due — days remaining at time of acknowledgment

Audit log entries are read-only once created and cannot be edited or deleted by any user role including system administrator.

8. Configurable Threshold Reference

The following thresholds are configurable at the platform level by a system administrator. Default values are shown below.

Parameter	Default Value	Allowable Range	Notes
MCS-150 Early Reminder — INFO	120 days	90 – 180 days	First dashboard reminder fires
MCS-150 Reminder — MEDIUM	90 days	60 – 120 days	Yellow warning fires
MCS-150 Reminder — HIGH	60 days	30 – 90 days	Orange acknowledgment required
MCS-150 Overdue — CRITICAL	0 days	Non-configurable	Immediately on due date if not filed
Business Change — HIGH Window	30 days	Non-configurable	FMCSA mandated 30-day rule
Business Change — CRITICAL	Day 31	Non-configurable	Window expired without filing
Fleet Size Change Threshold	25%	10% – 40%	Triggers HIGH acknowledgment
Driver Count Change Threshold	25%	10% – 40%	Triggers HIGH acknowledgment
USDOT Verification Frequency	30 days	7 – 90 days	How often platform re-checks FMCSA status
Address Verification Age	180 days	90 – 365 days	Triggers MEDIUM if unverified longer
Late Filing History — HIGH Threshold	1+ late filing	Non-configurable	Any late filing triggers HIGH flag
Reason Text Minimum Length	20 chars	10 – 100 chars	Required for HIGH acknowledgment

9. UI Behavior Summary

9.1 Carrier Compliance Dashboard

- A dedicated MCS-150 compliance card is displayed on every carrier's dashboard showing: current USDOT status (active/inactive), next filing due date, days until due, last filed date, and any active exceptions.
- CRITICAL exceptions display as a full-width red banner at the top of the dashboard with a direct link to the FMCSA portal. All other module actions are blocked.
- HIGH exceptions display as an orange banner with an acknowledgment button. Filing and renewal actions in other modules remain available but the MCS-150 card shows a prominent 'Action Required' indicator.
- MEDIUM exceptions display as yellow inline warnings within the MCS-150 compliance card. No workflow interruption.
- INFO items display as a clean status indicator — green when current, with the next due date prominently shown.

9.2 Business Change Tracking

- Any edit to the following company profile fields automatically triggers a business change event: company name, DBA, principal address, mailing address, phone, email, operation type, cargo type, vehicle count, driver count, authorized signatory.
- When a change event is triggered, the platform displays a prompt: 'This change may require an MCS-150 update within 30 days. We have started your 30-day compliance window.'
- A countdown timer showing days remaining in the 30-day window appears in the MCS-150 compliance card until either the update is filed or the window expires.
- If the carrier files an interim MCS-150 before day 30, the platform records the filing and clears the change event.

9.3 FMCSA Portal Integration

- Because MCS-150 is filed directly through the FMCSA SAFER portal (safer.fmcsa.dot.gov) at no charge, the platform does not submit the filing on the carrier's behalf.
- Instead, the platform provides a direct link to the FMCSA portal, pre-populates a filing checklist with the carrier's current data, and records the filing confirmation number once the carrier enters it after completing the filing.
- The platform updates the last_filed_date and calculates the next due date automatically when the confirmation number is recorded.

9.4 Acknowledgment Modal (HIGH)

- Lists each High exception with a plain-language description of the issue and the specific deadline or consequence involved.
- Each exception has a required free-text reason field (minimum 20 characters).

- Checkbox: 'I confirm I have reviewed the above and understand my MCS-150 obligations.'
- Submit is disabled until all reason fields are completed and checkbox is checked.
- On submit, acknowledgment is logged and the dashboard indicator updates to show 'Acknowledged — Action Pending.'

9.5 Notification Delivery

- CRITICAL exceptions: in-app full-page alert + immediate email to carrier administrator and all authorized contacts on file.
- HIGH exceptions (deadline-based): in-app notification + email at each escalation threshold (120 days, 90 days, 60 days).
- HIGH exceptions (business change): in-app notification + email immediately on change detection, then reminder at day 15 and day 25 of the 30-day window.
- MEDIUM and INFO: in-app dashboard only. No email unless carrier opts in to all compliance reminders.
- Cross-module alert: if a carrier's USDOT is deactivated, a CRITICAL alert is sent to every active module (IFTA, IRP, 2290) simultaneously since all compliance obligations are suspended.