# PIR - 29/03 Ecom orders not dropping in at Donington, Ollerton, Thorncliffe DC's for delivery date 30/03

# Digital&Tech Post Incident Review

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Incident/ Problem Reference: INC000090693741

Incident Date: 29/03/2025

PIR Date: 01/04/2025

**Author: Pavithra Vijayan** 

#### Attendees:

Jack Tye, Martin Coy, Andrei Adler, Jonathan Coltman, Anand Ashok, Vipin Kumar, Anand Asokan, Hisham Khalid, Karthick Kannan, Kunal Chichkar, Saiprasad Jakkula, Sharmiladevi Jayachandran, Elaine Hawthorn, Tamilselvan Kamalakaran, Aswin Kirubakaran, Vivek Kumar, Megha Manoj, Preethi Parthasarathy, Nirmal Poikaikumaran, Aravind Rajaveeraswamy, Dino Randhawa, Rajasekar Ravichandran, Ivan Sheldrake, Nilesh Singh, Nandakumar Sivalingam, Murali Srinivasan, Suresh Govindasamy, Pragadeesh Vasan, Gokula Krishnan

Technical Owner: Vipin/Kunal

PIR Reviewer: Andrie Adler/ Martin Cov

# 1. Incident Summary:

On 29/03 around 06:30- All Ecomm DC's (Castle Donington, Ollerton and Brands) highlighted that there were no orders in WMS visible for the delivery date of 30/03, due to which the DC's were unable to process the orders of 30th delivery date. As part of mitigation, at 10:00 the global order propositions were moved to +24 hours for Donington DC to prevent live orders from being placed, to minimize customer mis-promises.

**Note**: Stoke DC (one of the Ecomm DC) was not impacted as it processes only the standard orders and no NDD (next day delivery) service.

Once MIM, was engaged a list of orders with a promised date of 30th was extracted by 13:38, 29/03 with the help of C&H fulfilment team and was shared to the respective DC's.

Based on the list, the orders ID's of 30/03 were reconciled with WMS and OMS and it was identified that around 10K orders have an incorrect delivery date of 31/03 instead of 30/03 resulting in the issue. DCs were advised to pull forward the orders from 31/03 and were asked to process the impacted orders to prevent the customer miss-promises for the orders already placed and to mitigate the incorrect delivery date issue for live orders a decision was made to modify (decrease) the ordering cut-off time and carrier cut-off time by 1 hour, so that the live orders being placed for 30th delivery date can pick up the correct delivery date in WMS.

#### Impact:

- Approximately 10k orders across all the Ecomm DCs (CD, Ollerton and Brands) were reflecting incorrect delivery date (31/03) instead of 30/03 (Mother's day). To prevent customer miss promises, DC colleagues were advised to pull forward the orders as a workaround to process these impacted orders.
- Also to reduce further customer impact, order proposition was moved to +24 hours to mitigate customer miss promises, due to which customers were unable to place orders for delivery date 30/03 between 10:00 and 16:45.
- Customers were unable to place orders for 30/03 delivery date between 20:00 and 21:00, as the customer ordering cut-off
  was reduced by an hour in order to restore the services (workaround applied by Tech). The overall impact caused by the
  incident is ~£472k.

# 2. Incident Chronology:

- 07:38 CD Flow room has highlighted issues with incorrect delivery dates for the orders of 30/03.
- 10:00 A decision has been made by the CD OPs team to do a Global prop movement for Donington as the order volume was high.
- 12:15 The incident severity was raised to a Sev1 and MIM bridge was invoked.
- 12:35 CD IT updated that for CD, for some orders, the delivery date is with an additional of 1 hour for 30th delivery date
- 12:48 The Ollerton team also reported that they have not seen any orders with the 30th March on for C&C or NDD.
- 13:00 Overall impacted orders count received from C&H .com fulfilment team. We have around 10K orders across the 3 DC's to be impacted (which has picked up incorrect delivery date of 31/03 instead of 30/03)
- 12:51 Brands (Thorncliffe), Ollerton and CD have pulled forward all the orders for 30/03 and have started processing.
- 13:13 OMS updated that the orders will be sent with an additional hour, waiting for the OMS development team to confirm the same
- 13:20 WMS team suggested to amend the ordering cut off time
- 13:35 The calendar for 30th is about to be switched off for Brands and Ollerton until the issue is fixed
- 13:52 Existing Cut off time for Ecom DC's

REGION	EDC		OLLERTON		THORNCLIFFE	
REGION	CC	NDD	CC	NDD	CC	NDD
UK	9PM	7PM	4PM	4PM	9PM	7PM
IE	9PM	10AM			9PM	10AM
NI	3:30AM	12PM	3:30AM	12PM	3:30AM	12PM
OTHER	8PM	7PM	4PM	4PM	8PM	6PM
SCT	12PM	7PM	12PM	12PM	11:30AM	7PM

- 14:00 It has been agreed to set the carrier cut off time to 2230 across all the DC's for 30/03 (Initially it was 23:30)
- 14:10 Carrier cut off time has been set to 2230 across all the DC's for 30/03
- 14:13 It has been agreed to switch ON the calendar date for 30th for Ollerton (CC & NDD) to test if the orders are dropping in
- 14:21 Ollerton calendar is switched on for 30th Validations in progress.
- 14:30 We are still seeing the issue with the delivery date (it still shows as 31/03). Further investigations are underway.
- 15:50 OMS has modified the cut-off from 22:30 to 21:30 after which we are seeing the right data in WMS.
- 15:50 Ollerton: Warehouse cutoff time 16:00 (NDD &CC); order processing time 1 hr; Carrier cut-off time 21:30
- 16:01 Thorncliffe (Waiting for confirmation from Vivek after informing the site)-.
  - <u>Original Cut-off time</u> Warehouse ordering cutoff time 21:00 (NDD & CC) ; order processing time 1 hr ; Carrier cut-off time 22:30
  - Changed to: Warehouse cutoff time 20:00 (NDD & CC); order processing time -1 hr; Carrier cut-off time 21:30
- 16:02 CD (Waiting for confirmation from Vivek after informing the site)
  - Original Cut-off time Warehouse cutoff time 21:00 (NDD & CC); order processing time 1 hr; Carrier cut-off time 22:30
  - Changed to: Warehouse cutoff time 20:00 (NDD & CC); order processing time 1 hr; Carrier cut-off time 21:30
- 16:34 For Brands DC, OMS has modified the ordering cut-off from 21:00 to 20:00.
- 16:41 The calendar date for 30/03 ordering was enabled for Brands DC.

16:47 Brands receiving the orders with delivery date as 30/03 in WMS

16:44- The calendar date for 30/03 ordering was enabled for CD.

16:52 CD receiving the orders with delivery date as 30/03 in WMS

#### 30/03

10:29 Ollerton back to BAU, order and carrier cutoff for NDD and NDD Store delivery changed from 21:30 to 22:30

10:40 System validations done for Ollerton

10:42 changes to be done for Thorncliffe - Order cut-off post was changed from 19 to 20

10:43 CD gave confirmation to change the parameters.

10:43 Carrier cut-off was changed for Brands DC to 22:30 and changes made for all other working days from 23:30 to 22:30 ( as agreed with relevant parties from C&H operations )

10:55 As discussed on the call, Carrier cut-off was reverted to 23:30 so that we can make the system back to BAU (system as in before the incident)

11:00 Systems validations complete for Brands

11:02 Ordering cut-off was changed from 19:00 to 20:00 for CD

11:04 Carrier cut-off was change from 21:30 to 23:30

11:11 System validations completed

#### 3. Incident Resolution

A workaround was applied by reducing the customer ordering and carrier cut-off times by an hour across all the Ecomm DC's in the Order Management System (OMS), so that the orders being placed on the website for 30/03 will reflect correctly in WMS i.e. delivery date of 30/03 instead of 31/03.

#### Context:

Usually, the delivery date of an order placed on Website, is calculated based on the below parameters:

- Ordering cut-off + Processing time (currently 1 hour)
- Carrier cut-off + Lead time (currently 24 hours)

Note: The carrier cut off should always be greater than ordering cutoff time + Processing time

#### **Before the recovery:**

In OMS:

Ordering cut-off: 2025-03-29 21:00 + Processing time: 1 hour = 2025-03-29 22:00 Ordering Cut off in OMS

Carrier cut-off: 2025-03-29 **22:00** + Lead time: 24 hours = Delivery date: 2025-03-30 22:30:00 +1hr= **2025-03-30 23:30:00** (30/03)

In WMS:

Received from OMS= 2025-03-30 22:30 +1hr = **2025-03-30 23:30:00** => <u>WMS</u> = 2025-03-30 23:30+1hr= **2025-03-31 00:30** (31/03)

#### After mitigation:

In OMS

**Ordering cut-off:** 2025-03-29 **20:00** + **Processing time:** 1 hour = 2025-03-29 21:00 Ordering Cut off in OMS

Carrier cut-off: 2025-03-29 21:00 + Lead time: 24 hours = Delivery date: 2025-03-30T 21:30:00 +01:00 = 2025-03-30 22:30:00 (30/03)

In WMS:

Received from OMS= 2025-03-30 21:30 +01:00 = **2025-03-30 22:30:00** => **WMS** = 2025-03-30 22:30+01:00 = **2025-03-30 23:00 (30/03)** 

\*Ordering cut-off time: The cut-off time by when you need to place an order to ensure its processed and potentially delivered by a specific date or time (ideally for Same day delivery/Next day delivery)

\*Processing time: Time taken for the DC to process the order

\*Carrier Cut-off: The deadline by which a shipment must be delivered to a carrier for it to be included in the next scheduled transport

\*Carrier lead time: The time it takes for a carrier to pick up, transport, and deliver a shipment from the DC to the customer.

<u>Note</u>: All these Cut-off are decided by the C&H operations hub based on various factors like business requirement, DC colleague's capability, order inflow etc.

### 4. Root Cause

#### Detailed view of RCA:

From the analysis, the impacted orders are "the orders placed before the clock change (until 29/03 23:59) for the delivery date after clock change (30/03)" i.e (order placed in GMT but to be delivered in BST). For all these orders, the delivery date is derived based on different logic (addition of an hour to the delivery date) in OMS and WMS to accommodate the time zone change.

The hypothesis is that there was a configuration change in carrier Lead time from 16 hours to 24 hours, made by the C&H operations business and the expectation is irrespective of Lead time changes made by the business, both OMS and WMS systems should be able to handle the lead time change without impacting the delivery date.

<u>Note</u>: The carrier lead time config changes made by the C&H fulfillment business operations team could not be identified due to insufficient logs.

To accommodate the clock, change i.e. from GMT to BST, both OMS and WMS add a +1 hour automatically to delivery date/time for all the customer orders placed during summer i.e. April to October. However, during this clock change, the delivery dates were incorrect in WMS as the carrier lead time was changed in OMS from 16 hours to 24 hours.

And as per the PIR conversations, WMS Oracle DB is expected to save and capture the time stamp sent by OMS as it is and not to modify the timezone, however this needs further investigations to understand the database logic (database time zone settings) for which an action has been agreed to analyze and to provide a solution for the additional time conversion.

**Note**: The same delivery date format is sent to other consumers by OMS, and no issues were reported from KNAPP WMS (Bradford) and 3*rd* Party DC.

<u>Sample of delivery date calculation in OMS</u> - For order placed on 29th Mar,

Ordering cut-off: 2025-03-29 21:00 + Processing time: 1 hour = 2025-03-29 22:00 Ordering Cut off in OMS

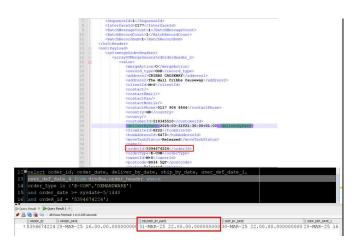
Carrier cut-off: 2025-03-29 22:30 + Lead time: 24 hours = Delivery date: 2025-03-30T 22:30:00 +01:00 = 2025-03-30T 23:30:00 (BST time converted in OMS) Final Delivery date (30/03)

( Kumar, Vipin ) - To update the snip of OMS time conversion

<u>Sample of delivery date calculation in WMS:</u> The same order when sent from OMS to WMS database (oracle) It converts the timestamp again to BST by adding another hour to the time stamp.

Received from OMS= 2025-03-30T 22:30 +01:00 = **2025-03-30T 23:30:00** => <u>WMS</u> = 2025-03-30T 23:30+01:00 = **2025-03-31T 00:30** (31/03)

Example of WMS XML depicting the delivery date format:



#### Additional aspects of investigations:

- 1. **Do we have to consider removing the timezone conversion in OMS**? The same delivery date format is being sent to other consumers (Knapp WMS and various 3rd party DC like HHP, MM Colours, Flamingo, Slickstitch) and no issues were reported from KNAPP WMS (Bradford) and 3rd Party DC with the clock change and delivery date. If changes are to be made in OMS, it will impact other consumers aswell. However, we have an action to review the data interfaces and to assess the possibility of eliminating the time stamp details and retaining only the date format, prior to sending the information to the WMS to prevent any confusion regarding the delivery date.
- 2. **Do we think the change in DDU software could have been a trigger**? As per the discussions so far, we do not think DDU to be cause because few Ecomm DC's were in new DDU WMS during the last clock change period and no issues were encountered last year. Therefore, we have ruled this out.
- 3. Why cant we control the business Lead time change? Business lead time is inherently variable and cannot be confined, as it adapts to evolving business needs. It is essential to improve our systems to effectively manage these changes in lead time. While changes in lead time have occurred multiple times and they do not consistently affect delivery dates; issues primarily arise during the summer clock change.
  - *Note*: During the last spring clock change in October 2024, the carrier lead time was 24 hours. However, systems were able to handle the time conversion as it was a -1, it did not impact the delivery date.
- 4. Were we aware of the increase in carrier Lead time and what preventive action was taken? OMS was aware of the 24 hours carrier lead time and as a proactive measure and also as part of clock change readiness, OMS has reduced the carrier cut-off time from 23:30 to 22:30 a week before to 30/03. However, we did not anticipate the time conversion behavior in WMS which led to the incident.
- 5. How do we prevent the issue from reoccurring during the next clock change? Both OMS and WMS have agreed on actions to address and mitigate the issues related to timezone conversion and we believe that implementing design or configuration changes within the systems will be a long-term solution. In the interim, this actions will be added to the clock change readiness plan and will be tracked and actioned on priority before the next clock change.

# 5. Findings

Refer to the key insights and conclusions drawn from the incident analysis - what went well/what went wrong highlighting gaps, failures, or inefficiencies.

#### 5.1. Observability -

<u>WMS</u>: we have relevant alerts in place to identify order failures within WMS however in this scenario, there were no order failures but rather orders were with incorrect delivery date. An action has been agreed to set-up an alert to notify the drop in order volume for a specific delivery date.

Also, there is a <u>cross-functional dashboard</u> that depicts the DN message flow however it is not expected to capture the change in delivery date (incorrect date)

<u>DC perspective</u>: There is a PowerBI dashboard where DC ops can fetch the orderwell report, which facilitated the identification of the issue that was subsequently reported to the technical teams by the DC.

#### 5.2. Technical Challenges -

The emergence of this new scenario during the clock change posed a significant challenge in identifying a technical resolution during the MIM bridge. Upon further investigations, OMS suggested a recovery mechanism to modify the ordering cut-off and carrier cut-off time to mitigate the impact. For the future instances, it has been agreed to update the OMS run book with the recovery steps for quick mitigations.

#### 5.3. MIM involvement & impact assessment -

There was a delay in the MIM engagement process due to improper impact assessment.

On the day of the incident, Donington DC had highlighted that there is a drop in orders for the delivery date of 30th, however, as a workaround DC was advised to pull forward the orders from 31/03 to process. But since there was a significant volume of orders to be pulled forwarded and to prevent the customer miss-promises, the global proposition was moved to +24 hrs. Even after the prop Movement, MIM was not involved. Later after considering the sensitivity of the delivery date (30/03) Mother's day, the incident was raised as a sev1 to MIM.

It has been agreed with the teams to involve MIM on a timely basis, for right communication and quick recovery.

#### Impact assessment:

Though there was a power BI dashboard managed by the C&H fulfilment team which gives the list of orders placed for a specific delivery date, DC's wise. There was a slight delay in the complete impact assessment due to inadequate understanding of the incident. However, once the data was shared by the team, it was quickly passed to the DC's to pull-forward the orders.

Also, though we agreed to get the list of all the impacted orders for the future dates (31st,1st and 2nd), However, due to insufficient follow-up and traction, we were unable to fully address the overall impact of the incident. As a lesson learnt, we have decided to evaluate the end-to-end impacts and to develop a complete comprehensive plan to ensure complete recovery.

#### 5.4. Incident handling/ stakeholder management -

After the initiation of the MIM bridge, a conflict arose between OMS and WMS regarding accountability, diverting attention from the recovery efforts. It is essential for product teams to prioritize operational stability and recovery over unnecessary conflicts and the same has been communicated to the product teams.

#### 5.5. Business Communication -

Business comms were sent on time once the incident was escalated as a severity 1. There were no challenges with it, also the Loop component was kept updated with all the information regarding the recovery and next steps.

#### 5.6. Supplier Engagement -

There was no supplier involvement during the incident.

# **Mitigation Actions:**

Agree actions for each of the findings to prevent recurrence, strengthen system reliability & stability, and improve response efficiency for future incidents

	<b>■</b> Action	<b>■ Owner</b>	Due Date	<b>≡</b> Remarks	Action Category
1	Analyse Oracle DB timezone setting within JDA (WMS).	Chichkar, Kunal  JACOB  KUZHIVELI  JACOB, JISHIN	(Fri, Apr 18, 2025)	WMS and Oracle DBA team to collaborate and analyze the feasibility to save the time stamp received from OMS and not to change it again to BST.	Solution & Recovery

2	Review the SFI interface (Std fulfilment interface) between OMS and Mulesoft/WMS to pre-empt future issues	Andrei / Suresh	(Fri, May 30, 2025)	Based on the analysis, decisions can be made to remove the shipment date or to remove the time from the delivery date as only the date is relevant, however action requires deeper analysis.	Avoidance
3	Explore the feasibility to set- up an alert to notify the drop in order volume for a specific delivery date.	Chichkar, Kunal /WMS team	(Fri, Apr 18, 2025)		Problem Identification & Alerting
4	Ensure we do not have the same issue during the next clock change	All - OMS/WMS		There will be an action added as part of the clock change readiness for both OMS and WMS to validate all the cut-off time and Lead time before the clock change and necessary actions will be taken before the clock change.	Problem Avoidance
5	Ensure MIM is engaged on a timely manner as soon as DC's see a significant impact.	All - DC service Leads	Tue, Apr 1, 2025	It has been agreed to loop in MIM as soon as we see a significant increase in impact.	Incident Handling/ Stakeholder Management
	Before moving the proposition, an assessment needs to be performed on the impact- by comparing the lost sales due to prop move vs avoiding CFR.	All - DC service Leads	(Tue, Apr 15, 2025)		Solution & Recovery
,	OMS to update their runbook with the recovery steps taken during the incident for future reference.		(Tue, Apr 8, 2025)		Solution & Recovery

Perform an end-to-end impact assessment and ensure we have right actions captured to mitigate the overall impact before resolving the incident	MIM and product teams	Tue, Apr 1, 2025	During the incident, the first priority was to mitigate the impact for orders with the delivery date of 30/03. However, we failed to analyze and track the future orders that were impacted due to the same scenario. This is a lesson learnt, during any recurrence of such incidents in future, this actions will be addressed before setting the incident to resolved.	Impact assessment
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Please refer to Major\_ Significant and Key Incident Tracker v1.0.xlsx for progress updates on Mitigations