

API MANUAL

N-OPS & CREW

VERSION 22.5

2023-01-04

NAVBLUE

AN AIRBUS COMPANY

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1. General

CHAPTER 01

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1.1. Revisions

2016-02-16	1.3.0	- Initial document
2016-09-20	1.4.9	- Changes to GetFlights: <ul style="list-style-type: none"> o ProjectCodes added to FlightRequestData. Setting this to true will return any Project codes assigned to the flight. - SetRosterData added with support for Check In and Check Out times. SetRosterDesignator function will be removed in the future.
2016-09-27	1.4.11	- Changes to GetRosters: <ul style="list-style-type: none"> o FilterId/FilterName can be a HumanResourceFilter RosterFilterId/RosterFilterName has been added so it's possible to filter on both Crew and Activities. o Times added to RosterRequestData Setting this to true will return various times related to the roster activity such as Check in and Check out.
2016-09-27	1.4.12	- Changes to GetRosters: <ul style="list-style-type: none"> o ReferenceActivity added to RosterRequestFilter
2017-01-09	1.4.13	- SetCrewDocument added - SetRoster added - Changes to GetRosters: <ul style="list-style-type: none"> o Notes added to RosterRequestData - User Rights added to all API calls. API users need "Read" rights to use Get functions and "Edit" rights to use Set functions. It is also possible to select a Filter to limit the result. API function - User right - Filter type GetCrews - HRE/HumanResources - Human resource filter GetRosters - HRE/HumanResources - Human resource filter GetRosters - HRE/Roster Filter - Roster filter GetFlights - SCH/Schedules - Leg filter GetSchedules - SCH/Schedules - Leg filter SetCrewDocument - HRE/HumanResources - Human resource filter SetFlightData - SCH/Schedules - Leg filter SetRoster - HRE/HumanResources - Human resource filter

		SetRosterData - HRE/HumanResources - Human resource filter SetRosterDesignator - HRE/HumanResources - Human resource filter
2017-03-10	1.4.15	<ul style="list-style-type: none"> - Changes to GetCrews <ul style="list-style-type: none"> o OnlyActiveCrew and OnlyActiveRecords have been added to Crew Request Filter. Setting OnlyActiveCrew to true will only return crew with valid Base and Rank/Qual compared to ReferenceDate o Setting OnlyActiveRecords to true will only return sub data (Addresses, Phones etc) that are valid compared to ReferenceDate and marked as Active. o Bases, Ranks, Qualifications, SpecialRoles and Contracts have been added o Active, ValidFrom and ValidTo attributes have been added to Addresses, Phones, Emails, Documents (only Active attribute), Bases, Ranks, Qualifications, SpecialRoles and Contracts fields. - Changes to GetRosters <ul style="list-style-type: none"> o Manual Duty Start and Manual Duty End have been added to RosterActivity/Times. - Bug fixes <ul style="list-style-type: none"> o UTC diff is now set correctly on Reference activities o Country is now set correctly on Crew/Address/Country fields o Middle name is now set correctly on Crew o Uniqueld is now set correctly on Aircraft o Filters are now working correctly in GetCrews request
2017-08-01	1.4.15.16	<ul style="list-style-type: none"> - SetCrew added
2017-10-06	2.0	<ul style="list-style-type: none"> - GetAccumulatedValues added - Changes to GetMainenances <ul style="list-style-type: none"> o Uniqueld has been added (note that this is used in combination with MaintenanceType) o MaintenanceType has been added, valid values are MAINTENANCE and VEHICLEREFERENCEACTIVITY - Changes to GetRosters <ul style="list-style-type: none"> o A new request filter has been added; OnlyActive. Setting it to true will only include "Active" crew members, setting it to false will include all crew members. - Bug fixes

		<ul style="list-style-type: none"> o GetVersion is now returning correct version o GetRoster is now returning correct crew Base. If a crew member is changing base in the requested period both bases will be returned, separated with a comma.
2018-06-25	2.1	<ul style="list-style-type: none"> - SetUser added - SetMaintenance added - SetAircraftData added - GetPairings added - DeleteMaintenance added - Changes to SetCrew - SocialSecurityNumber has been added - SpecialRoles have been added - Changes to SetFlightData - Improved algorithm for finding Leg according to ValidFrom/ReferenceDate (for overmidnight flights) - Changes to SetRoster - Speed up function for longer periods - ActivityType.GROUND has been changed to ActivityType.REFERENCEACTIVITY - Changes to SetCrewDocument - Active has been added - Bug fixes: <ul style="list-style-type: none"> - GetFlights is now returning delay codes - GetAccumulatedValues is now returning calculated negative values - SetRoster, SetRosterDesignator and SetRosterData are now calculating correct period -
2019-01-24	2.2	<ul style="list-style-type: none"> - Added 'Total' value for CompartmentLoad in 'GetFlights'. - Added ASMReasons field for GetFlights function. - added 'ScheduleDepartureAirport' and 'ScheduleArrivalAirport' to the 'GetFlights' request. - CarryIn/CarryOut activities fixed for PBS import. - Added GetAircrafts SetAircraftData (to update MEL List)
2019-04-24	2.3	<ul style="list-style-type: none"> - 'Credit' field has been changed to so it's visible in both 'PairingActivity' and 'RosterActivity' ('GetPairings' and 'GetRosters')
2019-08-28	2.4	<ul style="list-style-type: none"> - Added "Landings" - Number of landings added to "VoyageReport" element. - Added "PADAmount" - Number of PADs added to "PassengerPerClass" element.

		<ul style="list-style-type: none"> - Added "DataElementIdentifiers" to "GetSchedule" function. Used to display RoundTrip data. Enable by setting "DataElementIdentifiers = true" in "ScheduleRequestData". - Added "AircraftConfig", "AircraftOwner", "CockpitCrewOwner", "CabinCrewEmployer" to "Schedule" element in "GetSchedule" function. - Added "Type" and "CrewType" to "Crew" element in "GetCrews" and "GetRosters". Enable "CrewType" by setting "CrewType = true" in "CrewRequestData". - "FlightPlan" added in "SetFlightData". "Callsign", "Route" and "EstimatedElapsedTime" can be set using this function.
2019-11-28	19.8	<ul style="list-style-type: none"> - AuthenticateUser added - DeleteRosters added - "Gate" added to "Airport" elements in "GetFlights" and "SetFlightData" - "Stand" added to "Airport" elements in "GetFlights" and "SetFlightData" - "CO2" added to "Flight" elements "GetFlights" - "CreatedAt" added to "Crew" elements - "ModifiedAt" added to "Crew" elements - "ActivityType" included "UNKOWN" now corrected to "UNKNOWN" - "MaintenanceType" added to "MaintenanceRequestFilter" - "MaintenanceType" included "UNKOWN" now corrected to "UNKNOWN" - "RosterType" included "UNKOWN" now corrected to "UNKNOWN" - "Uniqueld" has been added to "SetFlightData" to uniquely identify a flight leg. - "Airports" has been added to "SetFlightData" to be able to set "Gate" and/or "Stand" -
2020-01-24	19.10	<ul style="list-style-type: none"> - "Comment" has been added to "GetRosters" and "GetPairings"
2020-03-30	20.2	<ul style="list-style-type: none"> - "Jumpseaters" added to FlightRequestData - "Complement" added to "Flight" elements in "GetFlights" - "Jumpseaters" added to "Flight" elements in "GetFlights" - "FuelData" added to "Flight" elements in "GetFlights" - "NickName" added to "Aircraft" elements in "GetFlights", "GetAircrafts" and "GetMaintenances" - "Name" added to "Aircraft" elements in "GetFlights", "GetAircrafts" and "GetMaintenances"

		<ul style="list-style-type: none"> - "CruisingSpeedLevel" added to "Flightplan" elements in "GetFlights" - GetConfigurationData added
2020-06-05	20.4	<ul style="list-style-type: none"> - "Revision" added to "Crew" elements. - "GetCrewRevisions" added. - "SetCrewRevision" added. - "SetExternalCrew" added.
2020-07-17	20.6	<ul style="list-style-type: none"> - "HOTEL_INFO" added to "ConfigurationType" in "GetConfigurationData". - "HotelInfos" added to "ConfigurationData". - "HotelInfoFilter" added to "ConfigurationDataFilter". - "GetAirports" added. - The following has been added to "Airport": LocalName, SlotLevel, DaylightSavingTimes, Timezones, SlotLevels, StationFacilities. - The following has been added to "RosterActivity": Code, TrainingSession, HotelDetail - The following has been added to "RosterRequestData": TrainingSessions, HotelDetails - "Times" added to "SetRosterData" to allow to set any time to a Roster activity. This should be used instead of "RosterTime". - UniqueID in GetRosters has changed to return the RosterID instead of PublishedRosterID, please note that this affects historical GetRosters queries. Please contact Support if there is a need for a historical translation table.
2020-10-21	20.8	<ul style="list-style-type: none"> - UniqueID change from int to string in BasicRequestFilter, note that this field is used in almost all Get functions. - TimeChanges added to Timezone and DaylightSavingTime used in GetAirports - ExternalReferenceId added to MinimumEquipment and Maintenance used in GetAircrafts and GetMaintenances, and SetMaintenance - RefUniqueID and CrewOnBoard added to RosterActivity, used in GetRosters - UniqueID added to TrainingSession used in GetRosters - HotelPickup added as PickupFrom and PickupTo in HotelDetail used in GetRosters - Credit added to Pairing used in GetPairings - ArrivalDelay1, ArrivalDelay2, ReturnToRampDelay1, ReturnToRampDelay2, ForcedReturnDelay1, ForcedReturnDelay2, DivertDelay1 and DivertDelay2 added to Delays used in GetFlights

		<ul style="list-style-type: none"> - CrewNumber added to CrewRequestFilter used in GetCrews - CrewOnBoard added to RosterRequestData used in GetRosters - GetHotelBookings added - CREW_COMPLEMENT and REFERENCE_ACTIVITY added to GetConfigurationData - CrewComplementFilter and ReferenceActivityFilter added to ConfigurationDataFilter - CrewComplements and ReferenceActivities added to ConfigurationData
2020-01-14	20.10	<ul style="list-style-type: none"> - No changes
2021-03-30	21.2	<ul style="list-style-type: none"> - UniqueId added to SetRosterData. This can be used to update a specific roster activity if FlightNumber/Callsign/FlightDate/DepartureAirport/ArrivalAirport cannot be used, or for non-flight activities. - DeadHeadBookingNumber added to SetRosterData - DeadHeadBookingNumber added to RosterActivity - DetailedStatus added to FlightRequestData used in GetFlights. This can be used to retrieve all statuses related to a flight. - DetailedStatuses added to Flights used in GetFlights
2021-06-07	21.4	<ul style="list-style-type: none"> - PairingName added to RosterActivity - AIRCRAFT_TYPE added to GetConfigurationData - AircraftTypes added to ConfigurationData - AircraftTypeFilter added to ConfigurationDataFilter - ReasonCategoryFiter renamed to ReasonCategoryFilter
2021-09-06	21.6	<ul style="list-style-type: none"> - GetRosterTransactions added - RosterTransactions added to Crew - State added to Address - DocumentName added to Document - Seniority added to SetCrew
2021-10-11	21.8	<ul style="list-style-type: none"> - GetUsers added - LegalExceptions added to SetRosterData
2022-01-21	21.10	<ul style="list-style-type: none"> - PROJECT added to GetConfigurationData - TRANSACTION_CODE added to GetConfigurationData - IROPSParentId added to Flight
2022-04-13	22.2	<ul style="list-style-type: none"> - Desk added to Flight in GetFlights and SetFlightData - DateOfEmployment and DateOfBirth added to CrewRequestData in GetCrews - PairingStart and PairingEnd added to RosterActivity in GetRosterTransactions and GetRosters - Active attribute added to GetConfigurationData

		<ul style="list-style-type: none">- Project- TransactionCode- Reason- ReasonCategory- CrewComplement <p>- AircraftInstance added to AircraftType in GetConfigurationData</p>
2023-01-04	22.5	<ul style="list-style-type: none">- AircraftNotes added to SetAircraftData- AircraftNotes added to GetAircrafts- Historical Bases and Availabilities added to GetConfigurationData (AIRCRAFT_TYPE)

1.2. Overview

N-OC API is a WSDL/SOAP based interface that can be used to read and insert data to the N-OC system.

The N-OC API is ideal for 3rd party integrations.

1.3. API Functions

1.3.A. Authenticate User

This function can be used to authenticate a N-OC user.

Username & Password is the user with API access. SystemUser & SystemPassword is the user to check.

User right (Read): SYSM/Users

1.3.B. DeleteMaintenance

This function can be used to remove existing VehicleReferenceActivity.

User right (Delete): VEH/Vehicle Reference Activity

1.3.C. DeleteRosters

This function can be used to remove a REFERENCEACTIVITY from a Roster.

User right (Delete): HRE/Roster Filter

1.3.D. GetAccumulatedValues

Returns accumulated values ("legality") for Human Resource (Crew) or Vehicle (Aircraft).

FilterId/FilterName can be a Human Resource or Vehicle Filter from N-OC.

RemoveEmpty (optional) defines if empty values shall be sent in response.

Labels defines list of labels to collect, can be e.g. "BLH", "Duty" or aggregate like "BLH, Duty"

AggregateDays (optional) defines aggregate days to calculate, if not defined - response is splitted into 1-day periods, if passed "-1" - entire "From" - "To" is calculated

Type defines type of data to collect; currently two values are available: HumanResource and Vehicle

User right (Read): HRE/Accumulated Values

1.3.E. GetAircrafts

Returns the Aircraft available in N-OC, with options to return MELs and Aircraft notes.

User right (Read): VEH/VehicleResource

1.3.F. GetAirports

Returns the Airports available in N-OC.

User right (Read): PLAC/Stations

1.3.G. GetCrewRevisions

Returns all current revisions for a crew member.

User right (Read): HRE/Revision

1.3.H. GetConfigurationData

Returns basic data available in N-OC, the following "Configuration Types" are currently supported: AIRCRAFT_TYPE, CREW_COMPLEMENT, HOTEL_INFO, REASON, PROJECT, REASON_CATEGORY, REFERENCE_ACTIVITY, TRANSACTION_CODE.

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:api="http://raido.aviolinx.com/api/">
  <soapenv:Header/>
  <soapenv:Body>
    <api:GetConfigurationData>
      <api:Username></api:Username>
      <api>Password></api>Password>
      <api:ConfigurationRequestData>
        <api:Type>REASON</api:Type>
      </api:ConfigurationRequestData>
      <api:ConfigurationDataFilter>
        <api:ReasonFilter>
          <api:Code>AD</api:Code>
        </api:ReasonFilter>
      </api:ConfigurationDataFilter>
    </api:GetConfigurationData>
  </soapenv:Body>
</soapenv:Envelope>
```

1.3.I. GetCrews

Returns Crew data from N-OC.

FilterId/FilterName can be a Human Resource Filter from N-OC.

Uniqueld can be a single Human Resource id, if not set all Human Resources will be returned.

Addresses, Phones, Emails and Documents can be included in response if needed.

User right (Read): HRE/HumanResources

1.3.J. GetFlights

Returns flight leg information from N-OC.

FilterId/FilterName can be a Leg Filter from N-OC.

Aircraft, Airports, ASMReasons , ScheduleDepartureAirport ,

ScheduleArrivalAirport,CrewOnBoards, Delays, Flightplan, Fuels, Loads, CompartmentLoad

Totals, Notes and Times can be included in response if needed.

User right (Read): SCH/Schedules

1.3.K. GetMaintenances

Returns Maintenance activates from N-OC.

1.3.L. GetPairings

Returns Pairings activates from N-OC.

1.3.M. GetRosters

Returns roster data for crew members.

FilterId/FilterName can be a Human Resource Filter from N-OC.

RosterFilterId/RosterFilterName can be a Roster Activity Filter from N-OC.

Uniqueld can be a single Human Resource id, if not set all Human Resources will be returned.

User right (Read): HRE/HumanResources, HRE/Roster Filter

1.3.N. GetRosterTransactions

Returns roster transactions for crew members.

FilterId/FilterName can be a Human Resource Filter from N-OC.

From/To is the period where you have the roster activities, this can be the roster period or any custom period.

TransactionFrom/To is the period where the roster transaction (create, modify, delete, publish) occurred, the idea is to have a short period here and query the function often to keep the client system in sync.

Uniqueld can be a single Human Resource id, if not set all Human Resources will be returned.

In the reply you will find two status fields in each transaction: IsOriginal & IsReleased

IsOriginal is true only for the activities that were on the roster at roster publication. This is the original published roster.

IsReleased is true for the activities that have been created/changed/deleted on or after the roster has been published. Changes to a published roster.

User right (Read): HRE/HumanResources, HRE/Roster Filter

1.3.O. GetSchedules

Returns Flight Schedule data (SSIM).

FilterId/FilterName can be a Leg Filter from N-OC.

User right (Read): SCH/Schedules

1.3.P. GetUsers

Returns N-OC users

User right (Read): SYSM/Users

1.3.Q. GetVersion

Returns the version number of the API

1.3.R. Ping

Tests the connection to the API

1.3.S. SetAircraftData

This function can be used to update Aircraft properties.

User right (Edit): VEH/Vehicles

Attention: for the time being only MinimumEquipmentList and AircraftNotes update is supported

1.3.T. SetCrew

Creates or Modifies a crew member.

1.3.U. SetCrewDocument

Updates one or several documents for a crew member.

Below is a sample call that updates the SEC Expiry date and PASS Number and Expiry date for crew member ABC.

CrewNumber and Document/Code are mandatory. If the document does not exist a new document will be created.

User right (Edit): HRE/HumanResources

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:api="http://raido.aviolinx.com/api/">
  <soapenv:Header/>
  <soapenv:Body>
    <api:SetCrewDocument>
      <api:Username> </api:Username>
      <api>Password> </api>Password>
      <api:CrewNumber>ABC</api:CrewNumber>
      <api:Documents>
        <api:Document>
          <api:Code>SEC</api:Code>
          <api:Expiry>2025-05-24T00:00:00</api:Expiry>
        </api:Document>
        <api:Document>
          <api:Code>PASS</api:Code>
          <api:Number>ABC123456</api:Number>
          <api:Expiry>2025-05-24T00:00:00</api:Expiry>
        </api:Document>
      </api:Documents>
    </api:SetCrewDocument>
```

```
</soapenv:Body>  
</soapenv:Envelope>
```

1.3.V.SetCrewRevision

Confirms revisions for a crew member.

User right (Edit): HRE/Revision

SetExternalCrew

If N-OC is configured without crew rosters it is possible to set Crew on board data using this method.

User right (Create or Edit): HRE/Crew On Board

1.3.W. SetMaintenance

This function can be used to insert and update VehicleReferenceActivity.

User right (Edit): VEH/Vehicle Reference Activity

Attention: for the time being only MaintenanceType.VEHICLEREFERENCEACTIVITY is supported.

1.3.X. SetFlightData

This function can be used to insert and update flight leg data.

User right (Edit): SCH/Schedules

Time Types

ActualBlockOff

ActualBlockOffCOR

ActualBlockOn

ActualEngineOff

ActualEngineOn

ActualStartTaxiFromGate

ActualTakeOff

ActualTouchDown

ApproachStarted

CrusingStarted

EstimatedBlockOff

EstimatedBlockOn

EstimatedStartTaxiFromGate

EstimatedTakeOff

EstimatedTouchDown

ETOPSEntry

ETOPSExit

EurocontrolCTOT

EurocontrolEOBT

Movementafterpushback

NextInfo
PassengerEndTime
PassengerStartTime
PushBackStarted
ReclearanceInfo
Return_From_Airborne
Return_To_Ramp
SELCALConfirmed
TaxiToGateEnd
TSAT
VoyageBlockOff
VoyageBlockOn
VoyageEngineOff
VoyageEngineOn
VoyageTakeOff
VoyageTouchDown

Fuel Types

Defuel
FuelArrival
Fuelburn
FuelOnboard
MaintenanceConsumption
MaxWeightForZeroFuelWeight
RampWeight
Remaining
TakeOffFuel
TripFuel
Uplift
ZeroFuelWeight

Fuel Sources

BatchImport
FlightPlan
FMM
LoadSheet
ManualEdit
MVT
VoyageReport

Fuel Units

Gallons
Kgs
Lbs

Litres
Tons

Fuel Density units

Kg/m3
Kg/l
Kg/usg

1.3.Y. SetRoster

Inserts one or several activities to a crew member's roster. Currently only Ground activities are supported.

The activity will be inserted as "unactioned" if it is in a published roster.

UniqueId, StartLocalTimeDiff, EndLocalTimeDiff, StartBaseTimeDiff, EndBaseTimeDiff, AssignedRank, RosterDesignator, LegalException fields are not currently used.

User right (Edit): HRE/HumanResources

```
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:api="http://raido.aviolinx.com/api/">
  <soapenv:Header/>
  <soapenv:Body>
    <api:SetRoster>
      <api:Username></api:Username>
      <api>Password></api>Password>
      <api:CrewNumber>ABC</api:CrewNumber>
      <api:RosterActivities>
        <api:RosterActivity>
          <api:ActivityType>GROUND</api:ActivityType>
          <api:ActivityCode>DGR</api:ActivityCode>
          <api:StartAirportCode>ARN</api:StartAirportCode>
          <api:EndAirportCode>ARN</api:EndAirportCode>
          <api:Start>2016-11-01T10:00:00</api:Start>
          <api:End>2016-11-01T12:00:00</api:End>
        </api:RosterActivity>
        <api:RosterActivity>
          <api:ActivityType>GROUND</api:ActivityType>
          <api:ActivityCode>CBT</api:ActivityCode>
          <api:StartAirportCode>ARN</api:StartAirportCode>
          <api:EndAirportCode>ARN</api:EndAirportCode>
          <api:Start>2016-11-01T13:00:00</api:Start>
          <api:End>2016-11-01T15:00:00</api:End>
        </api:RosterActivity>
      </api:RosterActivities>
    </api:SetRoster>
  </soapenv:Body>
</soapenv:Envelope>
```

PBS import:

When calling SetRosters() we have two options to control what we should with existing activities N-OC.

- Override
 - o All activities are removed for the period specified in the XML data to the API. Possible to set CarryIn/CarryOut options in the XML data, typically keep carry-in and remove carry-out.
 - o By defining a filter (Roster or Roster block) it's possible to keep activities and/or pairings and ignore them in the XML data.
 - o With override we can import multiple solutions for the same period, as long as we get the same crew members in the first and second XML data.

- Merge
 - o Activities are not removed for the period specified in the XML data to the API. Carry-in and carry-out options are ignored.
 - o All XML data will be imported "on top of" the existing rosters in N-OC except if start, end and activity code are the same. In this case we keep the original activity in N-OC and ignore the one in the XML data.
 - o Merge can't be used to re-import data for the same period.

We recommend to we use the first option with a roster filter covering all training activities (and other activities that should be kept in N-OC and ignored in the XML data). It is important to keep this filter up to date.

You can try this by doing the following:

Add some test activities to an unpublished crew roster in February.

Create a roster filter that matches those activities.

Update the "RosterImportMode" to Override and "Exclude Roster Filter" to the newly created filter.

Call the SetRosters API with the same crew members and period as in step 1.

Check N-OC to see that the original activities are still there.

1.3.Z.SetRosterData

This function can be used to insert and update the following Roster data:

RosterDesignators and Check In/Out times.

User right (Edit): HRE/HumanResources

Time types:

ActualCheckIn

ActualCheckOut

CalculatedCheckIn

CalculatedCheckOut

CalculatedUnionCheckIn

CalculatedUnionCheckOut
DutyStart
DutyEnd
ManualCheckIn
ManualCheckOut
RestBeforeStart
RestBeforeEnd
RestAfterStart
RestAfterEnd
TripStart
TripEnd
UnionCheckIn
UnionCheckOut
ManualDutyStart
ManualDutyEnd
LastOnChoxUTC

1.3.AA. SetRosterDesignator

This function will be removed, please use SetRosterData.

User right (Edit): HRE/HumanResources

1.3.BB. SetUser

This function can be used to insert and update a new N-OC user.

User right (Edit): SYSM/Users

1.4. Samples

Please contact NAVBLUE Support if you need any sample code.
The latest WSDL can be found at <https://<your N-OC url>/raidoapi/raidoapi.asmx?WSDL> or by contacting NAVBLUE Support.