Evidenční číslo smlouvy ČNB: 92-196-19

Smlouva

o dodání a implementaci automatického hlasového systému

uzavřená podle § 1746 odst. 2 a § 2358 a násl. zákona č. 89/2012 Sb., občanský zákoník, ve znění pozdějších předpisů (dále jen „občanský zákoník“),
mezi:

Českou národní bankou
Na Příkopě 28
115 03 Praha 1
zastoupenou: Ing. Milanem Zirnsákem, ředitelem sekce informatiky
a
Ing. Zdeňkem Viriusem, ředitelem sekce správní
IČO: 48136450
DIČ: CZ48136450

(dále jen „objednatel“)

a

T-Mobile Czech Republic a.s.
Tomíčkova 2144/1, 148 00 Praha 4
Zastoupenou: Ing. Petrem Malimánkem - Business & Public Sales Director, na základě pověření, uvedeného v příloze č. 5 této smlouvy
a
Ing. Petrem Žáčkem - Manažerem prodeje segmentu bankovnictví a financí, na základě pověření, uvedeného v příloze č. 5 této smlouvy
č. účtu: 19-2271190247/0100
IČ: 64949681
DIČ: CZ64949681
(dále jen „poskytovatel“)

Článek I
Předmět smlouvy

1. Předmětem plnění je instalace software a poskytnutí licencí pro provoz a obsluhu automatického hlasového systému (dále jen „IVR“), vše dle specifikace uvedené v příloze č. 1 této smlouvy s tím, že IVR musí splňovat všechny funkční požadavky dle přílohy č. 2 této smlouvy.

2. Předmětem plnění je dále povinnost poskytovatele zajistit poskytování podpory software výrobcem tohoto software, a to v plném rozsahu poskytovaném výrobcem software, který musí zahrnovat poskytování aktualizací (upgrade, patch), oprav chyb instalovaného software (fix) nebo oprav nastavení.

[redacted]

Č. zákazníka: 10712553 Č. kontraktu: 40101304627_1_1; TS 40101310229_1_1
DocType: KAS; SubType: PC; Kód dokumentu: 1c7

[redacted]

[illegible]

3. V rámci instalace software podle této smlouvy se poskytovatel zavazuje rovněž integrovat IVR na místě plnění samém do prostředí objednatele, vč. virtuálního prostředí objednatele, popsaného v příloze č. 2 této smlouvy.
4. Součástí plnění podle odstavce 1 je školení dvou administrátorů objednatele v rozsahu 8 hodin pro každého na práci s editorem skriptů, administraci, reporting a řešení častých problémů a předání uživatelské a administrátorské dokumentace v českém nebo anglickém jazyce. Software musí být poskytnut v aktuální verzi a musí být plně funkční vzhledem k poskytnutým systémovým prostředkům podle přílohy č. 2 této smlouvy.
5. Po celou dobu trvání smlouvy musí být poskytovatel certifikovaným partnerem výrobce software, k němuž jsou poskytovány licence podle odst. 1, není-li sám poskytovatel v konkrétním případě výrobcem software nebo osobou takovým výrobcem ovládanou ve smyslu § 74 zákona č. 90/2012 Sb., o obchodních společnostech a družstvech (zákon o obchodních korporacích), ve znění pozdějších předpisů, za předpokladu že osoba ovládaná má předmět podnikání odpovídající předmětu plnění dle této smlouvy.
6. Objednatel se zavazuje za poskytnutá plnění hradit ceny dle čl. IV této smlouvy.

Článek II
Lhůta, místo a předání plnění

1. Poskytovatel se zavazuje **do 10 pracovních dnů** ode dne účinnosti smlouvy předat funkční IVR. Po předání IVR, dokumentace software a provedení zaškolení administrátorů bude sepsán předávací protokol, který podepíší pověřené osoby smluvních stran.
2. Místem plnění je budova ústředí ČNB na adrese Na Příkopě 28, 115 03 Praha 1.

Článek III
Pověřené osoby smluvních stran

1. Pověřenými osobami smluvních stran jsou:

   za objednatele:
   Ing. Filip Burget, tel. č.: 224 413 999, e-mail: filip.burget@cnb.cz;
   Ing. Lukáš Brus, tel. č.: 224 412 565, e-mail: lukas.brus@cnb.cz;
   za poskytovatele:
   Ing. Lukáš Marhoul, tel.: 724 095 710 e-mail: lukas.marhoul@t-mobile.cz;
   Ing. Martin Šupka, tel.: 777 208 638 e-mail: martin.supka@t-mobile.cz.

2. V případě změny v osobě nebo údajích uvedených v odst. 1 tohoto článku jsou smluvní strany povinny nahlásit změnu následující pracovní den po provedení změny na e-mailové adresy pověřených osob druhé smluvní strany. Změna osob je účinná dnem jejího oznámení druhé smluvní straně, a to bez povinnosti uzavírat dodatek k této smlouvě.

Článek IV
Cena plnění a platební podmínky

1. Ceny za plnění dle této smlouvy jsou uvedeny v příloze č. 3 této smlouvy – Cenová tabulka.
2. Poskytovatel je oprávněn vystavit daňový doklad na úhradu ceny IVR nejdříve v den podpisu předávacího protokolu podle čl. II odst. 1.
3. Cena za zajišťování podpory podle čl. I odst. 2 bude hrazena ročně předem. První daňový doklad je poskytovatel oprávněn vystavit nejdříve v den podpisu předávacího protokolu podle čl. II odst. 1 a každý následující rok pak na základě daňového dokladu, který je poskytovatel oprávněn vystavit nejdříve v den ročního výročí podpisu předávacího protokolu.
4. K cenám podle této smlouvy bude připočtena daň z přidané hodnoty v sazbě platné k datu uskutečnění zdanitelného plnění. Ceny zahrnují veškeré náklady poskytovatele spojené s plněním podle této smlouvy.
5. Doklad k úhradě (fakturu) zašle poskytovatel elektronicky jako přílohu e-mailové zprávy na adresu faktury@cnb.cz ve formátu ISDOC. Pokud není možné vytvořit doklad ve formátu ISDOC, je možné zasílat jej ve formátu PDF. V jedné e-mailové zprávě smí být pouze jeden doklad k úhradě. Mimo vlastní doklad k úhradě může být přílohou e-mailové zprávy jedna až sedm příloh k dokladu ve formátech PDF, DOC, DOCX, XLS, XLSX. Přijaty budou i doklady k úhradě v jiném formátu, který bude v souladu s evropským standardem elektronické faktury. Nebude-li možné zaslat doklad k úhradě elektronicky, zašle jej poskytovatel v analogové formě na adresu:

   Česká národní banka
   sekce rozpočtu a účetnictví
   odbor účetnictví
   Na Příkopě 28
   115 03 Praha 1
6. Doklad k úhradě bude obsahovat údaje podle § 435 občanského zákoníku a bankovní účet, na který má být placeno a který je uveden v záhlaví této smlouvy nebo který byl později aktualizován poskytovatelem (dále jen „určený účet"). Daňový doklad bude nadto obsahovat náležitosti stanovené v zákoně o dani z přidané hodnoty. Nezbytnou náležitostí každého dokladu je také číslo této smlouvy (ve formátu ISDOC v poli ID ve skupině Contract References). Pokud doklad bude postrádat některou ze stanovených náležitostí nebo bude obsahovat chybné údaje, je objednatel oprávněn jej vrátit poskytovateli, a to až do lhůty splatnosti. Nová lhůta splatnosti začíná běžet dnem doručení bezvadného dokladu.
7. V případě, že bude v dokladu k úhradě uveden jiný než určený účet, je pověřený pracovník poskytovatele povinen na základě výzvy objednatele sdělit na e-mailovou adresu, ze které byla výzva odeslána, zda má být zaplaceno na bankovní účet uvedený v dokladu, nebo na určený účet. V tomto případě se doklad k úhradě nevrací s tím, že lhůta splatnosti začíná běžet až dnem doručení sdělení poskytovatele podle předchozí věty.
8. Splatnost dokladu k úhradě je 14 dnů od doručení objednateli. Povinnost zaplatit je splněna odepsáním příslušné částky z účtu objednatele ve prospěch účtu poskytovatele.

9. Smluvní strany se ve smyslu ustanovení § 1991 občanského zákoníku dohodly, že je objednatel oprávněn započíst jakoukoli svou peněžitou pohledávku za poskytovatelem, ať splatnou či nesplatnou, oproti jakékoli peněžité pohledávce poskytovatele za objednatelem, ať splatné či nesplatné.

Článek V
Licenční ujednání

1. Poskytovatel poskytuje objednateli nevýhradní, časově a teritoriálně neomezené oprávnění k výkonu práva užívat software poskytnutý podle této smlouvy (licence) a k jeho aktualizacím. Licence jsou poskytnuty okamžikem podpisu předávacího protokolu podle čl. II odst. 1 této smlouvy nebo poskytnutím aktualizace.
2. Objednatel není povinen licence využít ani zčásti.
3. Poskytovatel prohlašuje, že je právo dle odstavce 1 tohoto článku oprávněn poskytnout a že na něm neváznou žádná práva třetích osob, která by poskytnutí bránila, jinak odpovídá za škodu tím způsobenou.

Článek VI
Smluvní pokuty, úrok z prodlení

1. V případě prodlení poskytovatele ve lhůtě pro podle čl. II odst. 1, je objednatel oprávněn účtovat poskytovateli smluvní pokutu ve výši 500 Kč za každý pracovní den prodlení.
2. Nezajistí-li poskytovatel objednateli podporu podle čl. I odst. 2, je objednatel oprávněn účtovat poskytovateli smluvní pokutu ve výši 200 Kč za každý den, po který není podpora zajištěna.
3. V případě prodlení objednatele s úhradou daňového dokladu je poskytovatel oprávněn požadovat úrok z prodlení podle nařízení vlády č. 351/2013 Sb.
4. Smluvní pokuta a úrok z prodlení jsou splatné do 14 dnů od doručení platebního dokladu povinné smluvní straně. Povinnost zaplatit je splněna odepsáním příslušné částky z účtu povinného ve prospěch účtu oprávněného.
5. Smluvní pokutou není dotčeno právo na náhradu škody v plné výši.

Článek VII
Trvání smlouvy, ukončení smlouvy, odstoupení od smlouvy

1. Tato smlouva se v případě podpory podle č. I odst. 2 uzavírá na dobu neurčitou s výpovědní dobou 6 měsíců, smlouva však neskončí před uplynutí období, na které byla již cena podpory podle 2 hrazena.
2. V případě, že některá ze smluvních stran podstatným způsobem poruší smluvní povinnost vyplývající pro ni z této smlouvy, je druhá smluvní strana oprávněna od smlouvy odstoupit.
3. Odstoupení od smlouvy je účinné doručením písemného oznámení o odstoupení druhé smluvní straně.
4. Za podstatné porušení smluvní povinnosti se zejména považuje:

a) ze strany poskytovatele:

- prodlení ve lhůtě podle čl. II odst. 1 delší než 30 pracovních dnů;

b) ze strany objednatele:

- prodlení s úhradou daňového dokladu delší než 30 dnů.

5. Odstoupením od smlouvy nezaniká nárok smluvních stran na smluvní pokuty dle čl. VI, ani nárok na náhradu škody.

Článek VIII
Další ujednání

1. Poskytovatel se zavazuje zajistit, že jeho pracovníci, jakož i jiné osoby, které se budou podílet na plnění dle této smlouvy, zachovají mlčenlivost o všech skutečnostech, se kterými se po dobu plnění smlouvy seznámí a které nejsou veřejně dostupné. Uvádění plnění dle této smlouvy poskytovatelem jako referenční zakázky tímto není dotčeno, vyjma případu, že by objednatel od této smlouvy odstoupil.
2. Závazek mlčenlivosti trvá i po skončení plnění podle této smlouvy.
3. Poskytovatel se zavazuje v plném rozsahu dodržovat bezpečnostní požadavky objednatele, které jsou uvedeny v příloze č. 4 této smlouvy.
4. Použije-li poskytovatel při své činnosti poddodavatele, nahradí škodu jím způsobenou stejně, jako by ji způsobil sám.

Článek IX
Uveřejnění smlouvy a skutečně uhrazené ceny

1. Poskytovatel si je vědom zákonné povinnosti objednatele uveřejnit na svém profilu tuto smlouvu včetně všech jejích případných změn a dodatků, a výši skutečně uhrazené ceny za plnění této smlouvy.
2. Profilem objednatele je elektronický nástroj, prostřednictvím kterého objednatel, jako veřejný zadavatel dle zákona č. 134/2016 Sb., o zadávání veřejných zakázek, ve znění pozdějších předpisů (dále jen „zákon"), uveřejňuje informace a dokumenty ke svým veřejným zakázkám způsobem, který umožňuje neomezený a přímý dálkový přístup, přičemž profilem objednatele v době uzavření této smlouvy je https://ezak.cnb.cz/.
3. Povinnost uveřejňování dle tohoto článku je objednateli uložena § 219 zákona.
4. Uveřejnění bude provedeno dle zákona a příslušného prováděcího předpisu k zákonu.

Článek X
Závěrečná ustanovení

1. Smlouva nabývá platnosti a účinnosti dnem jejího podpisu poslední ze smluvních stran.
2. Veškerá komunikace při plnění této smlouvy bude probíhat v českém jazyce, nedohodnou-li se pověřené osoby smluvních stran jinak.
3. Smlouva může být měněna a doplňována pouze formou písemných vzestupně číslovaných dodatků podepsaných oprávněnými zástupci obou smluvních stran, není-li ve smlouvě stanoveno jinak.

[redacted]

4. Závazkový vztah založený touto smlouvou se řídí českým právním řádem, zejména občanským zákoníkem a dále rovněž příslušnými ustanoveními zákona č. 121/2000 Sb., o právu autorském, o právech souvisejících s právem autorským a o změně některých zákonů (autorský zákon), ve znění pozdějších předpisů.
5. Smlouva je vyhotovena ve čtyřech vyhotoveních s platností originálu, z nichž objednatel obdrží dvě a poskytovatel dvě vyhotovení.

Přílohy: č. 1 – Technická specifikace IVR

č. 2 – Funkční požadavky a popis stávajícího stavu objednatele

č. 3 – Cenová tabulka

č. 4 – Bezpečnostní požadavky ČNB

č. 5 – Pověření

V Praze dne: - 6 -12- 2019 .....

Za objednatele:

[redacted]

.....

Ing. Milan Zirnsák
ředitel sekce informatiky

[redacted]

..[redacted].....

Ing. Zdeněk Virius
ředitel sekce správní

ČESKÁ NÁRODNÍ BANKA
Na Příkopě 28, 115 03 Praha 1
48

V PRAZE dne: 04 -12- 2019 .....

[redacted]

Za poskytovatele:

[redacted]

Ing. Petr Malimánek
Business & Public Sales Director

[redacted]

Ing. Petr Žáček
Manažer prodeje segmentu bankovnictví a financí

T-Mobile Czech Republic a.s.
Tomíčkova 2144/1
148 00 Praha 4
030

Příloha č. 1

Technická specifikace IVR

Pro naplnění požadavků objednatele, bylo navrženo řešení CCX 12.0 bundle, které zahrnuje s 20-ti IVR porty i 10 Premium agent licencí, které je možné využít pro nasazení menšího kontaktní centra (využití funkcionalit kontaktního centra včetně plnohodnotné fronty a CCX reportů).
CCX 12.0 SW bude instalovaný ve virtuálním prostředí objednatele. Součástí nabídky je také podpora výrobce Cisco (SWSS). CCX 12.0 je kompatibilní s UCM 11.5 (viz. Unified CCX Software Compatibility Matrix).

Součástí nabídky je následující konfigurace:

Popis		Počet
CCX-12-SYS-K9	CCX 12.0 System	1
CCX-12-LIC-K9	CCX 12.0 New Licenses	1
CCX-12-N-P-LIC	CCX 12.0 PRE Seat Qty 1 LICENSE ONLY	10
CON-ECMU-CCNX12LN	SWSS UPGRADES CCX 12.0 PRE Seat Qty 1 LICENSE ONLY	10
CCX-12-P-SVR-LIC	CCX 12.0 NEW PRE Server License	1
CCX-12-PAK	CCX 12 autoexpanded PAK	1
CCX-CUIC-PREM	License for Cisco Unified Intelligence Center Premium	1
CON-ECMU-CCX12L9I	SWSS UPGRADES CCX 12.0 New Licenses	1
CCX-12-SYS-K9	CCX 12.0 System	1
CCX-12-MED-K9	CCX 12.0 Media	1
CCX-12MEDIAKIT-K9	Qty 1 CCX Media Kit - NO LICENSES	1

Nabízené řešení je plně v souladu s požadavky objednatele popsané v Příloze č.2 – Funkční požadavky a popis stávajícího stavu objednatele. Dále je ke každému bodu potvrzeno, že nabízené řešení daný funkční požadavek splňuje.

Funkční požadavky objednatele

- IVR musí umožňovat nepřetržitý provoz,
- musí obsahovat nástroj (samostatný software na bázi editoru skriptů) pro tvorbu a editaci několika-úrovňových stromů automatizovaných ohlasů s minimálně devíti možnostmi ohlasů na každé úrovni a v každé nabídce,
- nástroj (editor skriptů) musí mít plně grafické prostředí, které k ovládání všech částí nevyžaduje znalost programovacího jazyka, ovládání musí být intuitivní,
- editor skriptů musí obsahovat validátor a debugging skriptu s popisem a umístěním případné chyby ve skriptu,
- IVR strom musí umožnit přímé přepojení na předem definované telefonní linky,
- strom musí mít možnost nastavení na základě podmínek (např. dle času či data),

- frontové ohlasy mají mít možnost oznámení počtu volajících ve frontě,

- v provozu musí IVR strom umožnit vstup do systému až pro 20 volajících v jednom okamžiku,

- systém musí pracovat s automatizovanými ohlasy typu wav, které budou dodány objednatelem,

- ohlasy bude možné přehrát opakovaně,

- IVR musí obsahovat monitoring poruch a chyb systému,

- musí obsahovat reporting statistických výstupů (graficky i textově) obsahujících počet volajících, délku trvání hovoru a případně informaci volbách zvolených volajícími ve stromu,

- musí být plně kompatibilní s vnitřním prostředím objednatele (IP telefonií značky Cisco) popsaným v bodu 2,

- IVR musí být do Cisco Unified Communications Manager napojen přes rozhraní CTI,

- pro budoucí rozvoj je požadována kompatibilita IVR s virtuálním prostředím VMware ve verzi 6.7.

Cisco Unified Contact Center Express 12.0(1) Data Sheet
https://www.cisco.com/c/en/us/products/collateral/customer-collaboration/unified-contactcenter-express/datasheet-c78-741746.html

Instalační průvodce (Getting Started) pro IP IVR 12.0
https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/cust_contact/contact_center/crs/express_12_0/install/guide/uccx_b_getting-started-ip-ivr-120.html

Unified CCX Software Compatibility Matrix pro 12.0 (1)
https://www.cisco.com/c/en/us/td/docs/voice_ip_comm/cust_contact/contact_center/crs/express_compatibility/matrix/uccxcompat12_0_1.html

Cena za instalaci a konfiguraci dodávaného SW, která je uvedena v cenové tabulce, odpovídá požadavkům objednatele (funkčnímu rozsahu), které jsou specifikované v Příloze č.2 - Funkční požadavky a popis stávajícího stavu objednatele.

co Unified Contact Center Express 12.0(1) Data
ieet

pdated: August 24, 2019

Product overview

The Cisco® Unified Contact Center Express (CCX) product line helps businesses and organizations deliver a connected digital experience, enabling you to provide contextual, continuous, and capability-rich journeys for your customers, across time and channels. This easy-to-deploy and easy-to-use solution supports up to 400 agents and is designed for midmarket companies or enterprise branch offices. Secure and highly available, it supports powerful agent-based services and fully integrated self-service applications, including Automatic Call Distributor (ACD), Interactive Voice Response (IVR), Computer Telephony Integration (CTI), and digital channels including email and chat.

Cisco Unified CCX helps deliver each of your contacts to the right agent the first time. It enables this accuracy with sophisticated business rules for inbound and outbound voice, email, web chat, and customer interaction management. Cisco Unified CCX also offers numerous agent and desktop services and can scale to larger, more demanding environments.

You can choose from two Cisco Unified CCX packages, Enhanced and Premium, to better match solution functions with your customer contact interaction management requirements. The Cisco Unified CCX solution is tightly integrated with Cisco Unified Communications Manager, Cisco Business Edition 6000 (BE6000), and Cisco Business Edition 7000 (BE7000).

Table 1 lists the features and benefits of Cisco Unified Contact Center Express 12.0(1)

Table 1. Cisco Unified Contact Center Express features and benefits

Feature	Benefits
Agent capabilities and benefits	

Cisco Finesse® desktop	• Cisco Finesse desktop is a next-generation agent and supervisor desktop for Cisco Customer Journey solutions embedded with Cisco Contact Center Express. • It provides easy access to the applications and information required by your customer service organization through a customizable web-based interface. • Cisco Finesse desktop, which has a refreshed user experience in 12.0, offers an intuitive, easy-to-use desktop design to help improve the performance and satisfaction of customer care representatives, enabling quality customer service. • The embedded Cisco Finesse desktop supports inbound and outbound contact center functions. Core features include: ◦ Customizable agent and supervisor desktop layout ◦ Blended agents: inbound and outbound capability ◦ Call control ◦ Customizable logo and heading ◦ Multisession web chat ◦ Email ◦ Live data reporting gadgets ◦ Phonebook ◦ E.164 support ◦ Pop-over to view selective call-relevant information prior to answering a call ◦ Agent call history and state history gadgets ◦ Selection of multiple wrap-up reasons for voice, email, and chat channels
Context service enabled	• Context Service is a cloud-based omnichannel service that provides storage, tagging, and management of the data from interactions between businesses or organizations and their customers. • The context and history that the service provides helps customer care agents better understand and respond to customer needs. • More information about Context Service is available at **https://cisco.com/go/contextservice**.
Home agents	• This feature provides flexibility for agents to use their Public-Switched-Telephone-Network (PSTN) phone devices to accept, transfer, conference, and disconnect calls, while Cisco Unified CCX manages the agent interactions. • Home agents use the Cisco Unified Communications Manager infrastructure with extend and connect functions along with a Jabber® client in extend mode to set their own remote device.
Computer telephony integration	Cisco Finesse Desktop • The ready-to-use Cisco Finesse Desktop Call Control gadget provides screen pop information with complete customer information. • Access to Customer-Relationship-Management (CRM) information is achieved by: ◦ Creating gadgets in house or through a third-party developer, to "pop" information from CRM databases ◦ Using HTTP workflows to "pop" any web-based CRM solution such as Salesforce.com into a gadget on the agent desktop.

Interactive voice response and self-service	• This feature provides an integrated, ready-to-use IVR solution including an IVR queue point, custom call treatment, arbitrarily deep voice menus, custom voice prompts, and the ability to process customer phone-keypad presses through Dual-Tone Multifrequency (DTMF) processing to make routing decisions or to present a screen pop to the agent. Advanced IVR ports, available with Unified CCX Premium licenses, enable database integration. • Adding advanced self-service technologies such as Automatic Speech Recognition (ASR), Text To Speech (TTS), and VoiceXML is supported.
Desktop chat	• The Desktop Chat feature, which is available via a gadget within Finesse, enables agents to chat with other agents, supervisors as well as experts outside the contact center.

Management capabilities and benefits

Supervisor features	• Advanced Supervisor Capabilities allow supervisors to manage queues, business hours, prompts and outbound campaigns enabling them to optimize contact center efficiency. • The ability to monitor critical performance metrics allows managers to coach, train, and encourage agent behavior so that agents can consistently perform their job functions and process calls efficiently. • The ability to chat with individual members or the entire team using desktop chat allows supervisors to coach agents, resolve problems, and instantly communicate business changes. • Supervisors can send broadcast messages to their teams using the Team Messages feature. • Supervisors can view active call details of an agent call in progress. • Supervisors can silently monitor inbound and outbound calls to listen for coaching opportunities. • They can interrupt an agent's call using Barge In to interact with both the caller and the agent to help resolve a concern. • Supervisors can remove an agent from a call using the Intercept feature, so the supervisor and caller can complete the call on their own while the agent handles another customer request. • Supervisors can change an agent's state from their desktops in a situation where agents may forget to make themselves available to take calls after a break, or neglect to log out when they are away from their workstations for an extended period. • Supervisors can log out missing agents or make unintentionally idle agents ready to take calls. They can change an agent's skill profile in real time, so they can manage their agent teams and support contact center management objectives. • Calls can be recorded using Workforce Optimization recording solutions, and supervisors can play back conversations using gadgets available on their desktop.

Workflows	• The Cisco Finesse desktop web administration allows easy configuration of complex screen pop actions using the Cisco Finesse HTTP and REST APIs. • Administrators can easily set up workflows for voice and digital channels in Cisco Finesse using the logic-based, intuitive interface to provide improved service and reduce handle times. Cisco Finesse workflows can trigger two actions: REST API calls and browser-based screen pops. • Any system that supports REST APIs or has applications that work in a standard web browser will work with the Cisco Finesse desktop.
Administration	• Web-based administration provides a run-anywhere, enterprise-wide point of control for single- or multisite contact centers. • Cisco Unified CCX transparently integrates information from Cisco Unified Communications Manager and integrates with the Cisco Unified Communications Manager web-based administration to provide cross access and a common interface. • Administration for the Cisco Finesse desktop is also integrated into the Cisco Unified CCX administration. • Administration allows a wide range of real-time reporting statistics across all activity within the contact center, regardless of agent or supervisor location and for all calls in process.
Integrated service-creation environments	• Cisco Unified CCX offers a service-creation and scripting environment for mapping business rules to call-flow behavior and call treatments. • A visual editor environment provides a simple, drag-and-drop, easy-to-understand interface for building powerful, custom, business-communication applications.
Workforce optimization: advanced quality management	• Manage personnel efficiently to deliver consistent customer service that matches your business goals with workforce management. • Align compliance and quality goals with call recording and quality management. • Cisco Finesse Search and Play Gadget allow agents to play interactions and earn gamification badges for quality and adherence. It gives supervisors visibility to agent badges earned, allowing them to apply the right peer coaching at the right time for the right agents. • This feature is available with Cisco Unified CCX Enhanced and Premium versions.

Advanced workforce management	• This feature provides planning enhancements to allow supervisors to create hiring plans based on staffing needs, time to hire, and attrition. • Capacity plans produce reports to identify resource needs over an established timeframe. • Budgetary plans establish basic budgetary estimates over a defined timeframe. • Dynamic scheduling aligns the agent's scheduling desires with the staffing needs of the business. • These strategic planning tools are easy to use and administer, and they allow schedulers to remain in control and ensure optimal staffing levels. • For complete details regarding Cisco Unified Workforce Optimization, please refer to the data sheet at: https://www.cisco.com/en/US/products/ps8293/products_data_sheets_list.html.

Multichannel options

Email	• Email enables contact centers to queue and route email messages to skilled agents, helping balance email and call-handling activities. Agent email is available with Exchange, Office 365, and Gmail. • Integrated into the agent desktop, the email feature requires integration with a Cisco SocialMiner® server.
Web chat	• Web chat provides multisession chat capabilities for managing customer interactions through company websites. • Integrated into the agent desktop, web chat requires integration with a Cisco SocialMiner server. • You can blend voice and chat operations with the ability to allocate or not allocate chat contacts while an agent is on a voice call, and conversely for improved resource usage. • Group chat enables an agent to bring in an expert from another queue into the chat and optionally transfer the chat. • New chat bubble that enables better experiences and easier administration to push changes to the business website. • Customers can originate chats with the business using Facebook Messenger, which can be handled by the agent on their familiar Cisco Finesse Chat and Email gadget. • Post-chat surveys and reporting; download of chat transcript in HTML format
Outbound dialing	• This feature offers direct preview, progressive, and predictive outbound dialing with Cisco Finesse desktop, as well as outbound IVR capabilities. • It can help you build campaigns to use preview dialing that is integrated with inbound calls to provide a blended inbound/outbound solution. • It enables agents to serve both inbound calls and outbound campaign tasks when the inbound queue is empty, allowing for the most efficient use of

agent resources for both inbound calls and outbound campaigns.

Product functions and system capabilities

Routing capabilities	• These capabilities offer call-routing behaviors based on conditional events, such as time of day, day of week, or holiday routing, as well as the ability to specify service levels, move contacts between agent groups, and reprioritize contacts in the queue based on your business rules. • These capabilities facilitate categorization and prioritization of customer contacts in a way that best meets your business requirements. • A wide range of routing logic that can accurately target and selectively route different classes of contacts, or even single out individual contacts for customized, prioritized routing treatment, is supported. • These capabilities help ensure that each contact is routed to the right agent at the right location the first time to maximize resolution on the first call.
Next-generation reporting	• Next-generation reporting provides historical, Live Data, and dashboards with flexible presentation options using Cisco Unified Intelligence Center. • Existing out-of-the-box reports allow you to view historical and Live Data reports, or view custom reports based on the information you want to track. • In addition, the ability to report on service levels, thresholds, alerts, and short- and long-term views allows supervisors to create even more comprehensive reports. • Off-box Cisco Unified Intelligence Center can accommodate multiple data sources and allows creation of custom reports, providing greater flexibility.
Open systems	• This feature allows you to take full advantage of industry-standard hardware platforms to enable the benefits of many software functions at a modest hardware cost. • The open architecture of the system, which includes an Open Database Connectivity (ODBC)-compliant database as well as Java interfaces for CTI applications, can integrate with existing contact center solutions, preserving investments in traditional systems and providing a platform for future applications.
Redundant high availability	• High-availability redundancy is supported for dual-server cluster deployments, including support for automatic failover of inbound voice ACD, IVR, and desktop services. • Database replication and failover are supported, as well as load-balanced redundancy for historical reporting and on-demand recording. • High availability over the WAN (HAoWAN) is supported.
Single sign-on	• Single Sign-On (SSO) permits the Cisco administrator, reporting user, supervisors, or agents to sign on only once with a username and password to gain access to all of their Cisco browser-based applications and services within a single browser instance. Cisco administrators can manage all users from a common directory and enforce password policies for all users consistently.

Appliance model	• Appliance model supports deployment only in a virtualized system. • Appliance model is a secure, resilient, and robust model that is less complex and provides for faster installs, easier upgrades, and less-frequent patching. • Remote deployment, operation, and support reduce the need for onsite support, potentially shortening maintenance cycles and reducing overall downtime.
Scalability	• Scalability provides a multichannel contact-center-in-a-box for up to 400 agents. • Dual-server clusters provide redundant high availability.
Security	• Cisco Unified CCX supports Security-Enhanced Linux (SELinux), an integrated Linux OS feature that provides access-control policies for a secure system.
IPv6	• Cisco Unified CCX supports IPv6 with a dual-stack capability.
Simplified deployment	• Integration with Cisco Prime™ deployment includes fresh install and upgrades, hostname change, and IP address change.
Virtualization	• Virtualization requires deployment as an application on a virtual machine on the VMware platform running on the Cisco Unified Computing System™ (Cisco UCS®) or specification-based hardware. • It allows Cisco Unified CCX to be part of a virtualized deployment where multiple Cisco Unified Communications applications can be deployed on the same server. • Consolidating servers through virtualization results in significant cost savings and reduction in Total Cost of Ownership (TCO). • For more details about the hardware requirements, VMware requirements, supported VMware features, virtual-machine sizing, and best practices for this deployment, please visit: https://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/cisco-collaboration-virtualization.html

Licensing

Each Cisco Unified Contact Center Express seat provides optimal flexibility in your contact center by offering full licensing to use the seat as either an agent or a supervisor seat. Enhanced and Premium agent seats can be either workstation or Cisco Unified IP Phone-based agent stations. Each seat provides full licensing for Cisco Finesse desktop and Cisco Finesse IP Phone Agent. With the Enhanced and

Premium versions, even if a workstation failure occurs, an agent is fully licensed to continue working through the Cisco Finesse IP Phone Agent.

Ordering information

Cisco Unified CCX can be ordered using either the perpetual licenses or subscription licenses using Flex. The ordering guides are available at https://www.cisco.com/c/en/us/partners/tools/collaboration-ordering-guides.html

Upgrades

Upgrades from prior releases to Cisco Unified Contact Center Express 12.0 can be accomplished with a valid Cisco Unified Communications Software Support Service (SWSS) contract or by ordering an a la carte upgrade.

Cisco Unified Contact Center Express 12.0 features and specifications

For complete details about the feature packaging and system capacities, please refer to the design guide available at:
https://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_implementation_design_guides_list.html.

For details regarding Release 12.0, please refer to the release notes at:
https://www.cisco.com/en/US/products/sw/custcosw/ps1846/prod_release_notes_list.html.

Summary

Cisco Unified Contact Center Express offers an integrated, full-featured solution for managing customer contacts involving voice, email, and chat while retaining all the benefits of fully converged Cisco Unified Communications deployment. It delivers sophisticated multichannel contact routing, management, and administration features for departmental, enterprise branch office, or small to medium-sized enterprise customer care needs.

Cisco Unified Contact Center Express offers ease of installation, configuration, and application hosting, as well as reduced business application integration complexity, ease of agent administration, increased agent flexibility, and network hosting efficiencies. With all these features, Cisco Unified Contact Center Express continues the evolution toward a true customer interaction network.

Cisco Services

Adapt to market changes while increasing productivity, improving competitive advantage, and delivering a rich-media experience across any workspace.

The combined strengths of Cisco and our partners provide a portfolio of services that can help you prepare your infrastructure for future changes aligning to long-term business goals. Together we create innovative, network-centric architecture solutions resulting in a scalable and responsive foundation that can help you realize the full value of your IT and communication investment.

For more information about Cisco Unified Contact Center Services, please visit https://www.cisco.com/go/uccservices.

o Capital

xible payment solutions to help you achieve your objectives

co Capital makes it easier to get the right technology to achieve your objectives, enable business nsformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. Learn more.

For more information

For more information about the Cisco Unified Contact Center Express, visit https://www.cisco.com/go/uccx or contact your local Cisco account representative.

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Chapter: Preface

Chapter Contents

- Change History
- Audience
- Organization
- Conventions
- Related Documentation
- Documentation and Support
- Documentation Feedback

Change History

This table lists changes made to this guide. Most recent changes appear at the top.

Change	See	Date
Initial Release of Document for Release 12.0(1)		January 2019

Audience

System installers and administrators or anyone who installs or configures a Unified IP IVR telephony system.

Organization

Section	Title	Description
Part 1	Unified IP IVR Overview	An overview of both products.
Chapter 1	About Unified IP IVR	A description of both products summarizing what is supported in each.
Chapter 2	Features Enabled for Each Product by Product Licensing	A comparative list of all the Unified CCX features enabled for each product by product licensing.
Chapter 3	Unified IP IVR Architecture	An overview with sample deployment models of Unified IP IVR architecture.
Chapter 4	Basic Call and Contact Flow Concepts	Unified IP IVR concepts, call and contact flows, and configuration dependencies.
Part 2	Setting up Unified IP IVR with Unified CM	How to install and configure Unified IP IVR independent of a Cisco Unified CCE system.

Section	Title	Description
Chapter 5	**Install and Configure Unified CM for Unified IP IVR**	How to install and configure Unified CM for Unified IP IVR.
Chapter 6	**Unified IP IVR Installation and Configuration**	How to install and configure Unified IP IVR.
Chapter 7	**Deployment of Sample Script aa.aef**	How to deploy a sample Unified IP IVR script.
Part 3	**Setting up Unified IP IVR with Unified CCE**	Everything you should be aware of when you install and configure Unified IP IVR within a Unified CCE system.
Chapter 8	**Install and Configure Unified IP IVR for Unified CCE**	How to install and configure Unified IP IVR for Unified CCE.
Chapter 9	**Unified ICME for Unified CCE Installation and Configuration**	How to install and configure Unified ICME for Unified CCE.
Chapter 10	**How to Deploy the Sample Script BasicQ.aef**	How to deploy a sample Unified IP IVR script in Unified CCE.
Chapter 11	**Unified IP IVR Management**	About managing prompts, grammars, documents, and Unified CCX datastores.

Conventions

This manual uses the following conventions.

Convention	Description
boldface font	Boldface font is used to indicate commands, such as user entries, keys, buttons, and folder and submenu names. For example: • Choose **Edit** > **Find** • Click **Finish.**
italic font	Italic font is used to indicate the following: • To introduce a new term. Example: A *skill group* is a collection of agents who share similar skills. • For emphasis. Example: *Do not* use the numerical naming convention. • An argument for which you must supply values. Example: IF (*condition, true-value, false-value*) • A book title. Example: See the *Cisco Unified Contact Center Express Installation Guide*.
window font	Window font, such as Courier, is used for the following: • Text as it appears in code or information that the system displays. Example: `<html><title> Cisco Systems,Inc. </title> </html>` • File names. Example: tserver.properties. • Directory paths. Example: C:\Program Files\Adobe

Convention	Description
string	Nonquoted sets of characters (strings) appear in regular font. Do not use quotation marks around a string or the string will include the quotation marks.
[ ]	Optional elements appear in square brackets.
{ x | y | z }	Alternative keywords are grouped in braces and separated by vertical bars.
[x | y | z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
< >	Angle brackets are used to indicate the following: • For arguments where the context does not allow italic, such as ASCII output. • A character string that the user enters but that does not appear on the window such as a password.
^	The key labeled Control is represented in screen displays by the symbol ^. For example, the screen instruction to hold down the Control key while you press the D key appears as ^D.

Related Documentation

This section lists:

- The main index pages listing Cisco Customer Contact documentation available on the web.
- Other related web documentation and resources.

The following web addresses can give you additional information to that provided in this guide on Unified IP IVR.

Note The web addresses referenced in this guide were accurate at the time this guide was written but may change. If an address does not work, visit Cisco.com and search for the related document at the Search prompt.

Table 1. Main Index Pages Listing Customer Contact Documentation Available on the Web

For information on ...	See ...
Voice and Unified Communications	Voice and Unified Communications
Cisco Unified CM	Cisco Unified Communications Manager
Cisco Customer Contact Software	Cisco Customer Contact Software
Cisco Unified CCX (Unified CCX)	Cisco Unified Contact Center Express
Cisco Unified CCE	Cisco Unified Contact Center Enterprise

Table 2. Other Related Web Documentation and Resources

For ...	See ...
Cisco Unified IP Phones 7900 series	Cisco Unified IP Phones 7900 Series
Unified IP IVR descriptions, datasheets, case studies, and other documents	Cisco IP Interactive Voice Response
How to plan, design, implement, operate, and optimize a Unified Contact Center Telephony System	IP Telephony and Cisco Unified Contact Center Enterprise technologies at Steps to Success

For ...	See ...
How to design a Unified IP IVR system	Solution Reference Network Design (SRND) guides at **Cisco Unified Contact Center Express Design Guides**
How to deploy a Unified IP IVR system	**Training Resources IP Communications Training**
How to install and/or upgrade a Unified IP IVR system	Cisco Unified Contact Center Express Installation Guide at **Cisco Unified Contact Center Express Install and Upgrade Guides**
How to develop and program Unified CCX Scripts	Cisco Unified Contact Center Express Scripting and Development Series manuals at **https://developer.cisco.com/site/express-scripting/documentation/**
How to configure and administer a Unified IP IVR system without Unified CCE	Cisco Unified Contact Center Express Operating System Administration Guide at **Cisco Unified Contact Center Express Configuration Guides**
How to install, configure, and maintain a Unified IP IVR system with Unified CCE	Cisco IP Contact Center Installation and Configuration Guide at **Cisco Unified Contact Center Enterprise**
How to troubleshoot your Unified IP IVR system	**Cisco IP Interactive Voice Response Troubleshoot and Alerts**
Technical Support	**Technical Support & Documentation** **Technical Support Overview** **Cisco IP Interactive Voice Response** **Cisco Unified Contact Center Express** **Cisco Unified Contact Center Enterprise**
Release Notes, Technical Notes, and Field Notices	**Cisco Unified Contact Center Express Troubleshooting TechNotes** **Cisco Unified Contact Center Express Field Notices** **Cisco Unified Contact Center Enterprise Troubleshoot and Alerts**
Interoperability Information	**Interoperability Systems Support Resources**
Unified IP IVR, and Unified CCE test data. The previous product names (IP IVR, and IPCC Enterprise) might still be used with this test data.	**Systems Test Release Set Documentation**

Documentation and Support

To download documentation, submit a service request, and find additional information, see *What's New in Cisco Product Documentation* at **https://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html**.

You can also subscribe to the *What's New in Cisco Product Documentation* RSS feed to deliver updates directly to an RSS reader on your desktop. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.

Documentation Feedback

To provide your feedback for this document, send an email to

contactcenterproducts_docfeedback@cisco.com

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Updated: January 30, 2019

Chapter: About Unified IP IVR

Chapter Contents

This chapter contains the following:

- **Product Names**
- **Summary Description of Unified IP IVR**
- **More than One Unified CCX Product Installed on a Server**
- **Unified IP IVR Features Supported in Each Product**
- **Unified IP IVR Package Description**
- **Unified IP IVR Feature Summary**
- **Unified CCX Subsystems that Unified IP IVR Supports**
- **Sample Default Unified IP IVR Scripts**

Product Names

The following product name conventions are used in this guide:

- Cisco Unified IP IVR is abbreviated as Unified IP IVR.
- Cisco Unified Communications Manager is abbreviated as Unified CM.
- Cisco Unified Contact Center Express is abbreviated as Unified CCX.
- Cisco Unified Intelligent Contact Management Enterprise is abbreviated as Unified ICME.

Summary Description of Unified IP IVR

The Unified IP IVR (Interactive Voice Response) is a Unified CCX product package that provides IP call queuing and IP intelligent voice response functionality for a contact center.

The Unified IP IVR uses the script editor and it can be configured to play static or dynamic prompts, to offer menus to callers, queue a call, play music, and so on.

More than One Unified CCX Product Installed on a Server

All Unified CCX product packages are mutually exclusive. This means that only one of them can be installed at any point in time on a Unified CCX server. If multiple licenses are installed, then priority is given to the package with the highest number at the left in the following list:

1. Unified IP IVR
2.
3. Unified CCX Enhanced
4. Unified CCX Premium

Unified IP IVR Features Supported in Each Product

The following table lists the Unified CCX features supported in each product.

Table 1. Supported Features

Feature	Unified IP IVR
Hardware configuration	Cisco UCS and Cisco approved partner servers
Software configuration	Client-server software
Vendor systems	Unified CM 8.x, Unified CM 9.x
Operating systems	Runs on Unified Communication Operating System (Red Hat Enterprise Linux)
Maximum number of CTI ports per server	400
CTI (Computer Telephony Integration) option	Included
Email	Included
Database	Included
Read data from HTTP and XMLpages	Included
MRCP ASR/TTS	Optional using Media Resource Control Protocol (MRCP)-order from a 3rd party vendor For the currently supported MRCP ASR/TTS vendors, see the current at **https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-device-support-tables-list.html.**
Play messages to callers–music	Included using Unified CM Music On Hold server or .wav file
Play messages to callers–prompts	Included using .wav file
Play messages to callers–combine prompts, music and messages	Included and fully customizable
Capture and process caller Dual Tone Multifrequency (DTMF) input	Included and fully customizable
Capture and process caller DTMF input under VXML control	Included
Automated attendant support	Included and fully customizable

Feature	Unified IP IVR
All languages	Included, if installed.
Inbound HTTP request	Included
Historical reporting	Included, but limited to Unified IP IVR reports From Unified CCX 10.0(1), access the Historical reports using Unified Intelligence Center. Historical Reporting Client (HRC) is not available.
Custom scripting using Unified CCX Drag and Drop Editor	Included. Has full editing features. All types of applications including ICM, Busy, and RNA are available.
JTAPI Telephony triggers	Included
HTTP triggers	Included
Conditional routing (time of day, day of week, custom variables, and so on.)	Included
Overflow, interflow, intraflow routing	Included
Run defined workflow using HTTP request	Included
Integrated self-service application support	Included

Note To check for the current versions of the preceding software supported by your version of Unified IP IVR, see the at **https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-device-support-tables-list.html.**

Unified IP IVR Package Description

The following table summarizes the description of the Unified IP IVR package

Table 2. Comparative Descriptions

Product Package	Available Licensed Components	Purpose
Unified IP IVR	• Unified IP IVR Server Software (required) • Unified IP IVR Ports (at least one is a must) • Automatic Speech Recognition (obtained through a separate Vendor) • Text To Speech (obtained through a separate Vendor) • VoiceXML	Allows contact-center applications to handle "typical" questions by letting callers interact directly with back-end databases without agent intervention. This includes integration with Unified CCE if needed. This also includes three subsystems and three corresponding editor pallets: • The HTTP subsystem (which enables both incoming and outgoing HTTP support) • Outgoing email support • Database support

Note Three basic Historical Reports (IVR Traffic Analysis Report, IVR Application Performance Analysis Report and the Detailed Call by Call CCDR Report) are available with both packages without needing a separate license. All supported Unified CCX languages are included in both packages; it is up to you to install the languages you want.

Unified IP IVR Feature Summary

Unified IP IVR software is a multimedia (voice, data, web) IP-enabled interactive voice response solution that automates call handling by autonomously interacting with contacts.

Using Unified IP IVR, you can create applications to do the following:

- Interpret voice data (as well as keyboard data).
- Translate text to speech.
- Send and respond to HTTP requests.
- Send email.
- Enable Unified CCX to interact directly with back-end databases through ODBC (Open Database Connectivity) support without agent intervention.
- Unified IP IVR applications have ODBC support. Unified IP IVR applications can access Microsoft Structured Query Language (SQL) servers and Oracle, Sybase, and IBM DB2 databases.

Note To check for the current versions of the preceding software supported by your version of Unified IP IVR, see the at **https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-device-support-tables-list.html**.

Unified CCX Subsystems that Unified IP IVR Supports

Unified IP IVR supports the following subsystems:

Table 3. Subsystems Supported by Unified IP IVR

Subsystem Type	Purpose
MRCP Automatic Speech Recognition (ASR) • ASR Server Software (Required) • ASR ports (at least one is required) The number of ASR ports should be less than or equal to the number of IVR ports. If there are more ASR ports than IVR ports, then the excess ports are automatically disabled.	Allows a script to respond to voice input in addition to DTMF (Dual Tone Multi-Frequency), the signal to the telephone company that is generated when you press a key on a telephone keypad. This allows a caller to verbally convey information to the system for processing instead of pressing keys on a touch-tone telephone.

Subsystem Type	Purpose
MRCP Text To Speech (TTS) • TTS Server Software (Required) • TTS Ports (at least one is required)	Composes voice prompts that are generated in real time from text, such as speaking the words in the text of an email message. TTS is primarily used to convey information obtained from a database or other source that is non-repetitive. Examples of such information include name and address verification. Repetitive information, such as numbers comprising an account balance, normally is not conveyed using TTS. Although text to speech technology has improved greatly since its inception, the tone still sounds mechanical. So it is best used only when the information possibilities make wave file generation impossible.
EMail	Adds components to the Unified CCX Engine that allows it to send email messages.
Database	Handles the connections between the Unified CCX server and the enterprise database. Also provides Open Database Connectivity (ODBC) support. See *Compatibility Information* for the latest versions of the database software that are supported at **https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-device-support-tables-list.html.**
Inbound HTTP Request	Adds components to the Unified CCX Engine that allow it to respond to HTTP requests.
Voice Browser	Manages Voice Browser functionality.

Sample Default Unified IP IVR Scripts

The following table describes the sample Unified IP IVR scripts automatically included with your Unified IP IVR system.

Table 4. Sample Default Unified IP IVR Scripts

Sample Script Template	Description
Auto Attendant	Allows a caller to call an agent by entering an extension number or the first few characters of an associated username. If ASR is enabled, the caller may simply speak the extension or the user name.
Spoken Name Upload	Enables Unified CM users to call in, authenticate their identities, and replace their spoken names with newly recorded announcements on their telephones
Voice Browser	Uses ASR functionality to allow a caller to access information from VoiceXML-enabled web sites.

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Updated: January 30, 2019

Chapter: Features Enabled for Each Product by Product Licensing

Chapter Contents

The following sections describe the various features separately enabled by product licensing for Unified IP IVR.

For a list of all features enabled by Unified CCX licensing for all Unified CCX products, see the *Cisco Unified Contact Center Express Administration and Operations Guide* .

This chapter contains the following:

- **Cisco Unified Contact Center Administration Menus Enabled by Product Licensing**
- **Prompt, Spoken Name Upload, and Plug-In Options Enabled by Product Licensing**
- **Cisco Unified CCX Subsystems Enabled by Product Licensing**
- **Application Types Enabled by Product Licensing**
- **Editor Steps Enabled by Product Licensing**
- **Historical Reports Enabled by Product Licensing**
- **Real-Time Reports Enabled by Product Licensing**

Cisco Unified Contact Center Administration Menus Enabled by Product Licensing

The word **Included** in the following table means that the related menu item is enabled for the product in that column.

Table 1. Administration Menus Enabled by Product Licensing

Unified CCX Administrator Main Menu	Menu Items	Unified IP IVR
System	Cisco Unified CM Configuration	Included
	Control Center	Included
	Datastore Control Center	Included
	System Parameters	Included
	Custom File Configuration	Included
	Alarm and Tracing	Included

Unified CCX Administrator Main Menu	Menu Items	Unified IP IVR
	Tracing	Included
	Logout	Included
Applications	Application Management	Included
	Script Management	Included
	Prompt Management	Included
	Grammar Management	Included
	Document Management	Included
	AAR Management	Included
Subsystems	Cisco Unified CM Telephony	Included
	ICM	Included
	Database	Included
	HTTP	Included
	eMail	Included
	Cisco Media	Included
	MRCP ASR/TTS	Included
Tools	Plug-ins	Included
	Real-Time Reporting	Included
	Historical Reporting	Included
	User Management	Included
	Password Management	Included
Help	Contents and Index	Included
	For this Page	Included
	Troubleshooting Tips	Included
	Cisco Unified CCX Documentation on Cisco.com	Included
	About	Included

Prompt, Spoken Name Upload, and Plug-In Options Enabled by Product Licensing

The following table lists the availability of Unified CCX options not listed in the preceding menu list.

Table 2. Prompt, Spoken Name Upload, Plug-In Options Enabled by Product Licensing

Option	Unified IP IVR
Prompt Management	Included
Spoken Name Upload	Included
Plugin Editor	Included
Plugin - HR Client(1)	Included

Cisco Unified CCX Subsystems Enabled by Product Licensing

Table 3. Subsystems Enabled by Product Licensing

Subsystem	Unified IP IVR	MRCP ASR (Add on)	MRCP TTS (Add on)
Application	Included	not applicable	not applicable
ASR	Included	Yes	not applicable
Cisco Media Termination	Included	not applicable	not applicable
Core Reporting	Included	not applicable	not applicable
Database	Included	not applicable	not applicable
eMail	Included	not applicable	not applicable
Enterprise Server Data	Not Available	not applicable	not applicable
HTTP	Included	not applicable	not applicable
ICM	Included		Yes
JTAPI Telephony	Included	not applicable	not applicable
Resource Manager and Cisco Media	Included	not applicable	not applicable
TTS	Included	not applicable	Included
Voice Browser (VB)	Included	The Voice Browser subsystem is available only if MRCP ASR is enabled.	not applicable

Application Types Enabled by Product Licensing

Table 4. Application Types Enabled by Product Licensing

Application Type	Unified IP IVR
Cisco Script Application	Included
Busy	Included
Ring No Answer	Included
ICM Post Routing	Included
ICM Translation Routing	Included

Editor Steps Enabled by Product Licensing

The following table lists the Unified IP IVR packages with the Step Editor steps enabled in each.

Table 5. Editor Steps Enabled by Product Licensing

Unified CCX Script Step	Unified IP IVR
General[1]	Included
Session	Included
Contact	Included
Call Contact[2]	Included
Email Contact	Included
HTTP Contact	Included
Media	Included
User	Included
Prompt	Included
Grammar	Included
Document	Included
Database	Included
ACD	Not Available
Intelligent Contact Management (ICM)	Included
CM Telephony	Included

[1] The "Get Reporting Statistic" step is not available in Unified IP IVR.

[2] The "Place Call" step is not available to Unified IP IVR.

Historical Reports Enabled by Product Licensing

From Unified CCX 10.0(1), access the Historical reports using Unified Intelligence Center. Historical Reporting Client (HRC) is not available.

The following table lists the historical reports that come with Unified IP IVR.

Table 6. Historical Reports Enabled by Product Licensing

Report Name	Report Description
Application Performance Analysis Report	Summary information about calls received by each Unified IP IVR application.
Detailed Call by Call CCDR Report	Detailed information about each call received by the Unified IP IVR system.
Traffic Analysis Report	Summary information about calls received by the Unified IP IVR system during each day in the report range.

Real-Time Reports Enabled by Product Licensing

The following table lists the real-time reports that come with Unified IP IVR.

7. Real-Time Reports Enabled by Product Licensing

Report Name	Report Description
Application Administration	Displays Overall Application Engine Activity.
Application Activity	Monitors Activity by Application.
Application Task	Monitors Activity by Task.

For how to run real-time reports and for full description of the preceding reports, see the *Cisco Unified Contact Center Express Administration and Operations Guide* .

Getting Started with IP IVR Guide, Release 12.0

Updated: January 30, 2019

Chapter: Unified IP IVR Architecture

Chapter Contents

This chapter briefly describes the deployment models that you can use with Unified IP IVR.

The following are brief descriptions of key items for a Unified IP IVR deployment:

- **Voice Gateway**: Connects the Unified Communications network to the Public Switched Telephone Network (PSTN) and to other private telephone systems. You must purchase gateways separately. Both inbound and outbound calls to the PSTN travel through the gateway.
- **Unified CM**: Provides the features that are required to implement IP phones, manages gateways, and directs Voice over IP traffic to the Unified CCX system. You must purchase Unified CM separately.
- **Unified IP IVR**: Contains the Unified CCX Engine that runs Unified IP IVR.
- The following optional, dedicated servers for a Unified IP IVR deployment:
  - **MRCP TTS**: A dedicated, vendor-specific server that converts text into speech and plays it back to the caller.
  - **MRCP ASR**: A dedicated, vendor-specific server that performs real-time ASR.

Note For the currently supported MRCP ASR/TTS vendors, see the current *Unified CCX Compatibility* at **https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-device-support-tables-list.html**.

This chapter contains the following:

- **Available Deployment Models**
- **Standalone Deployment**
- **Cisco Unified Contact Center Enterprise Deployment**
- **Services From Partners**
- **Support Services**

Available Deployment Models

Unified IP IVR can be deployed in your IP network on any Cisco approved virtual servers.

The following four figures illustrate the different ways you might deploy Unified IP IVR:

- The first two figures show how you can deploy Unified IP IVR, without Unified CCE.

- The second two figures show how you can deploy Unified IP IVR with Unified CCE.

For more information on Unified IP IVR deployment models, see the design guide for Unified Customer Contact Express, which includes information for *Unified IP IVR Design Guides* at **https://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_implementation_design_guides_list.ht**

Standalone Deployment

The following Unified IP IVR deployment models show Unified IP IVR deployed apart from Unified CCE.

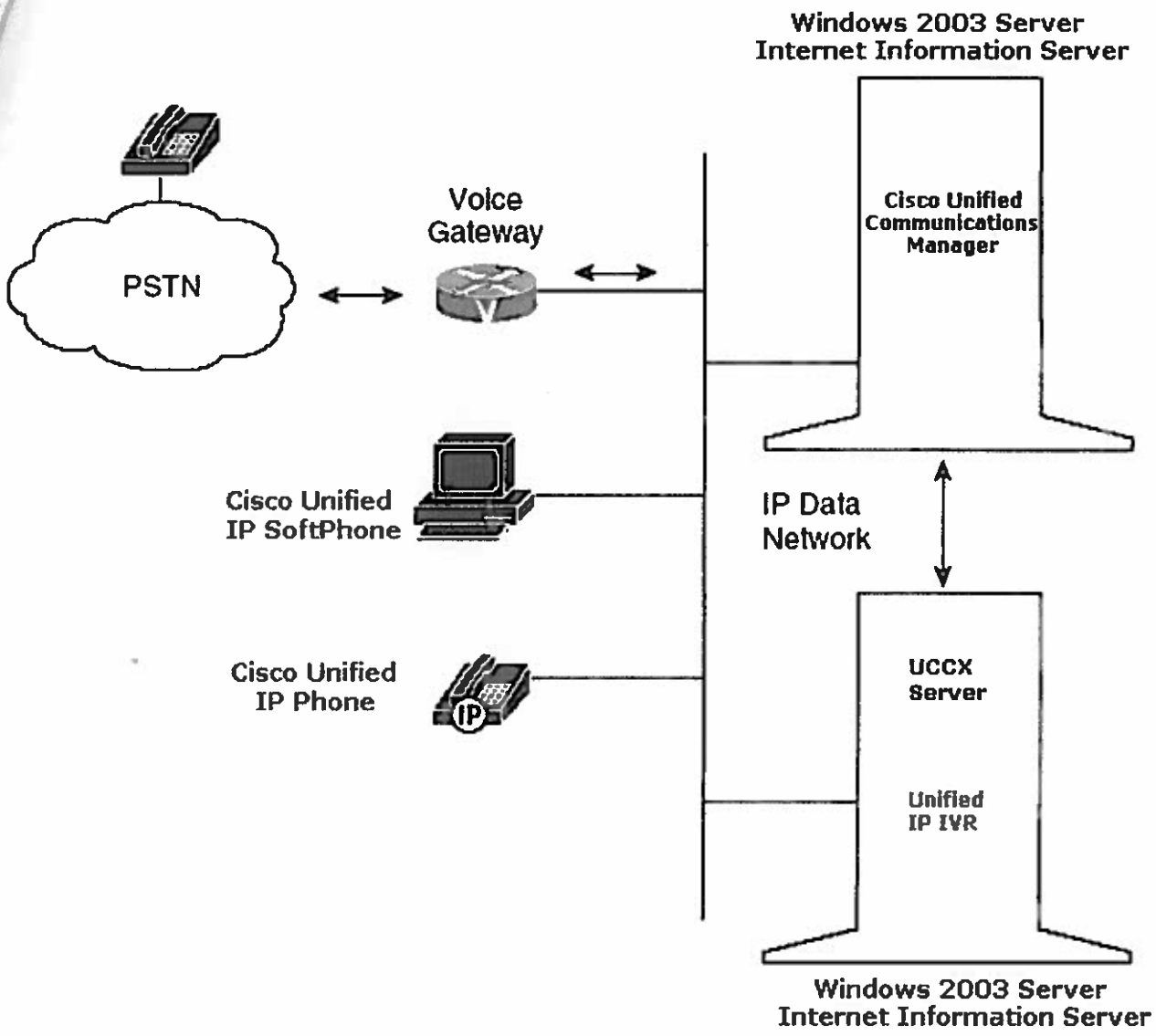
The following figure shows Unified IP IVR installed on a separate server. The following are brief descriptions of key items in the figure:

- **Gateway.** Connects the enterprise Unified Communications network to the Public Switched Telephone Network (PSTN) and to other private telephone systems such as Public Branch Exchange (PBX). You purchase gateways separately. Both voice and web correspondence travel through the gateway.
- **Unified CM Server**. Provides the features that are required to implement IP phones, manage gateways, provides failover and redundancy service for the telephony system, and directs voice over IP traffic to the Cisco Unified Contact Center Express system. You must purchase Unified CM separately.

Note Unified IP IVR and CM have to be installed on separate servers.

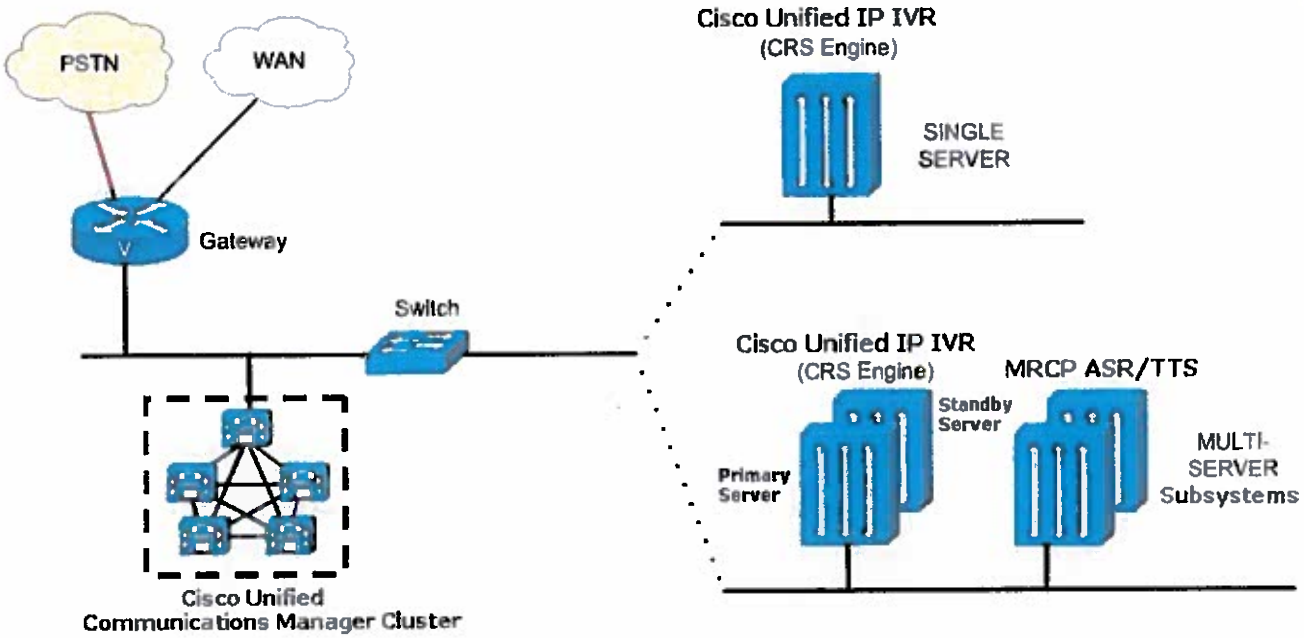
- **Cisco Unified CCX Server**. Contains the Unified CCX Engine that runs Unified IP IVR.

Figure 1. Unified IP IVR Architecture Without Unified CCE



The figure below shows how you can deploy Unified IP IVR apart from Unified CCE. This figure expands the focus to a Unified CM cluster and depicts the possibility of having a single Unified CCX server with optional ASR and TTS servers.

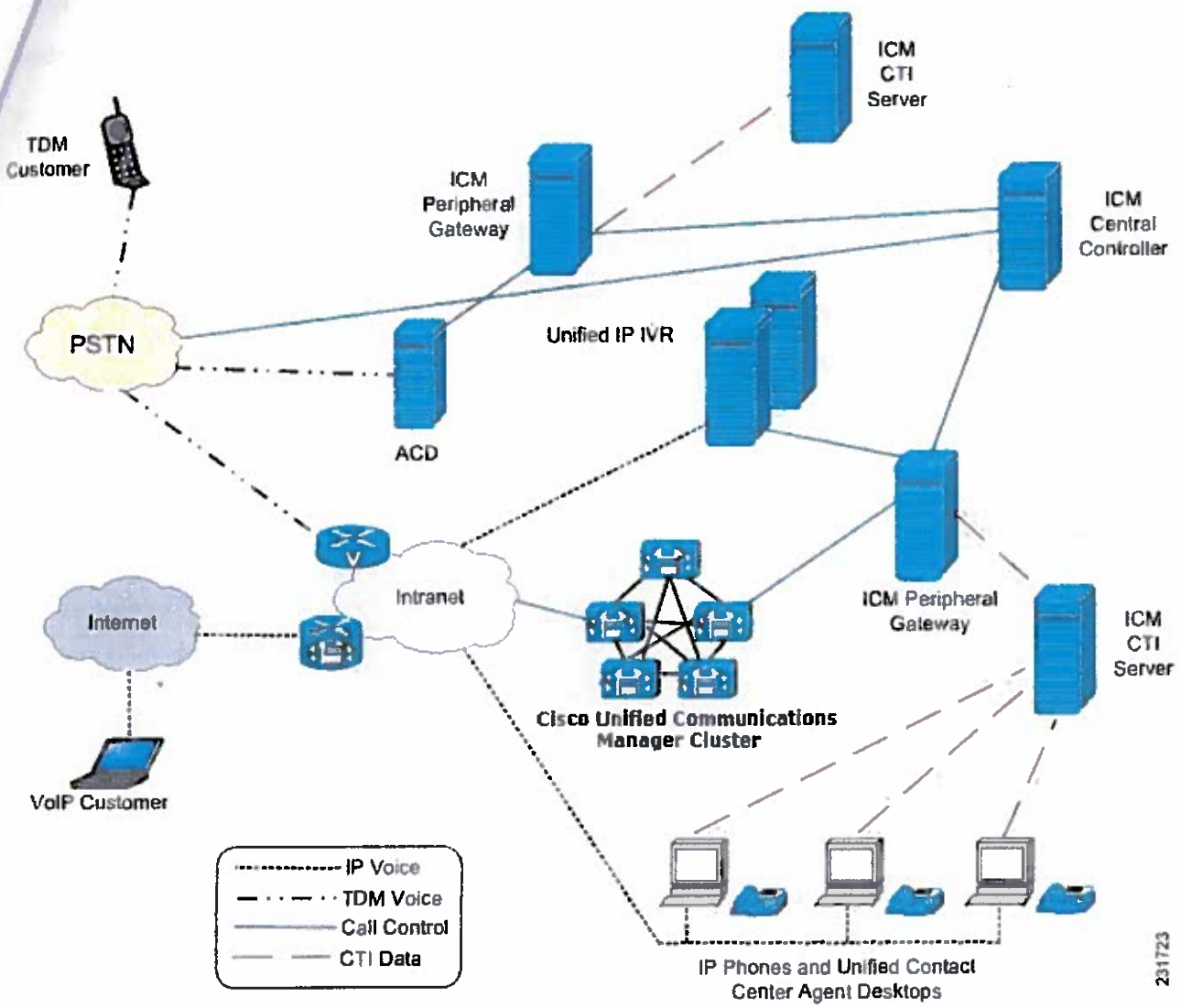
Figure 2. Standalone Deployment Model for Unified IP IVR



Cisco Unified Contact Center Enterprise Deployment

The following figure shows how one or more Unified IP IVR servers fit into an Unified CCE system.

Figure 3. A Unified Deployment Model within Unified CCE

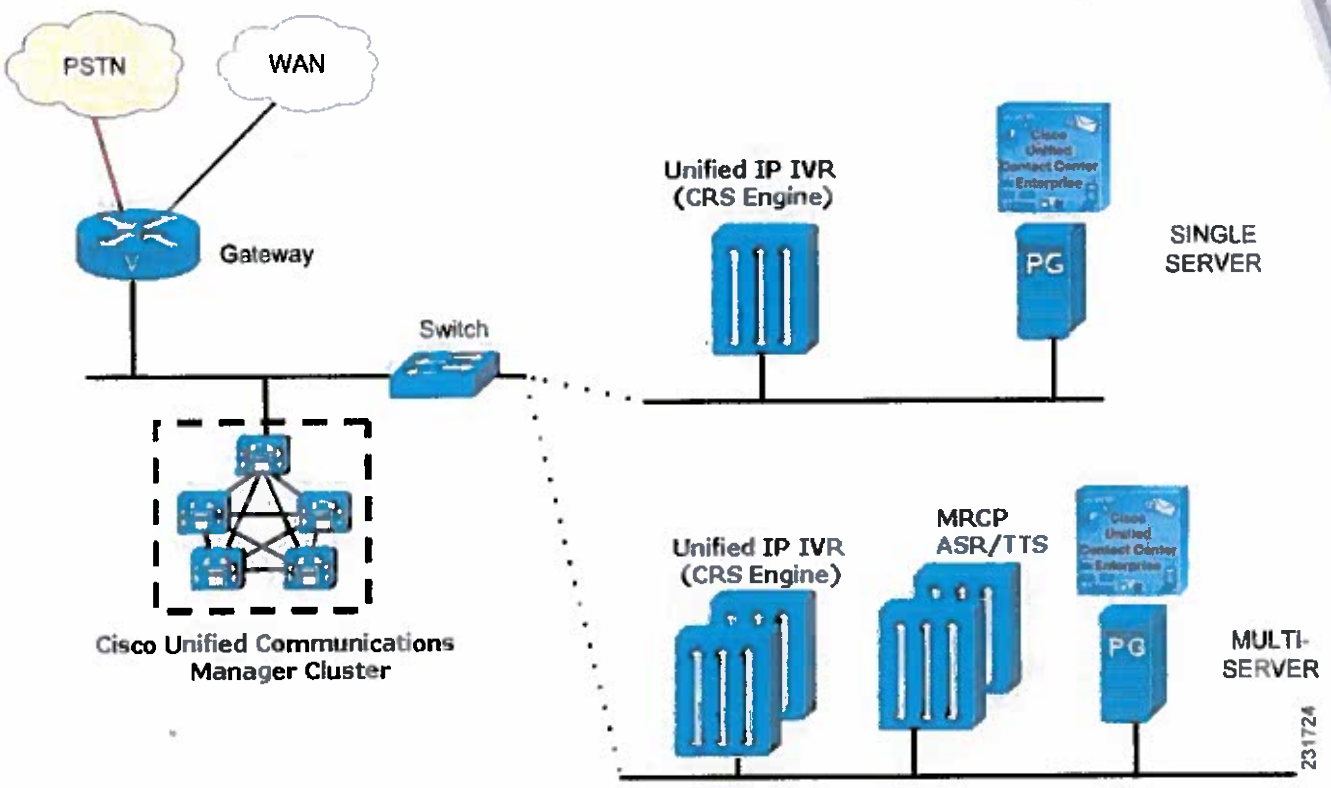


The following figure shows a Unified CCE deployment model, but focuses on the Unified CM, Unified IP IVR, and Unified CCE servers. In a Unified CCE system, there is the Unified CM server or servers, the Unified CCX server or servers, optional Unified CCX subsystem servers such as MRCP ASR or MRCP TTS servers, and the Unified CCE servers.

Note The optional MRCP ASR and TTS software cannot be on the same server as the Unified CCX engine and is 3rd party software, not Cisco software.

Unified IP IVR supports high availability failover between two Unified CCX servers but not between a cluster of servers. You can also deploy multiple Unified CCX servers (with Unified IP IVR) and let Unified CCE manage the load balancing and failover between them. If one of the IVRs fails, the Unified CCE system will detect the failure, stop sending calls to the failed system, and instead send those calls to other Unified IP IVRs.

Figure 4. A Unified CCE Deployment Model for Unified IP IVR



Services From Partners

Ordering from a Cisco-authorized online partner provides convenience for those customers that know which products best fit their needs and require immediate delivery. If your needs require onsite design, installation and ongoing support, a local reseller in your area could provide those value-added services. There are multiple places to order Cisco products online. Customers with Direct Purchasing agreements can order direct from Cisco. There are also numerous channel partners that transact e-commerce on their website for Cisco products. A full list of global Cisco Partners can be found on **Cisco's Partner Locator** website. Customers at small and medium sized business who want the convenience of online ordering can use Cisco's Online Partners.

Support Services

Depending on individual operational, maintenance, and network level requirements, each installation has unique support requirements throughout the network life cycle of planning, designing, implementing, operating, and optimizing a network.

A full list of the Cisco support services available to you can be found at **Voice and IP Communications Services**.

tting Started with IP IVR Guide, Release 12.0

ated: January 30, 2019

hapter: Basic Call and Contact Flow Concepts

hapter Contents

This chapter contains the following:

- Relationships Between Tasks, Sessions, Contacts, and Channels
- Frequently Asked Questions about CM Telephony Call Flow Outside Unified CCE
- HTTP Contact Flow Outside of Unified CCE
- Summary of Unified IP IVR Contact Flow Outside of Unified CCE
- Important Unified CM Configuration Dependencies
- How Calls Go through the Unified CCE System
- Debugging Problems in the Unified IP IVR System
- Important Unified ICME Configuration Dependencies

Relationships Between Tasks, Sessions, Contacts, and Channels

When installing and configuring Unified IP IVR, you must understand the concepts, call flows, and configuration dependencies explained in this section:

- **Task**: The Unified CCX receives the incoming call/contact signal on a *Trigger*, which is then assigned an *Application*. The application can be a workflow application, a CM Telephony application, (and in a Unified CCE system) an ICM Translation Routing application or an ICM Post-Routing application. When the Unified CCX accepts the contact, the application starts an application task. The application task in turn invokes an instance of a script associated with the application.

- **Session:** A session tracks *Contacts* as they move around the system. This enables information to be shar among contacts that are related to the same session.

  When a contact is received (inbound) or initiated (outbound), the Unified CCX checks to see if an existing session already exists with that contact's Implementation ID. The Implementation ID is the Unified CM Global CallID plus the Unified CM node (GCID/<node>). If a session already exists for the contact, the Unified CCX associates it with that session. If there is no session for the contact, the Unified CCX automatically creates one.

  After the contact ends, the session remains idle in memory for a default period of 30 minutes before being automatically deleted.

- **Contact.** A contact can be a *Call*, an *HTTP request*, or an *email*. A contact carries attributes such as creation time, state, language, and so on.

- **Channel**. Each type of contact can have various channel types associated with it. Channels are allocated and associated with contacts as needed and are used to support performing actions on contacts.

  Different types of channels are allocated based on the type of contact and the type of dialogue that needs to be supported between the Unified CCX and the Contact. For example, a CM Telephony call that is presented to Unified CCX will be connected to a CTI Port. To support the call control event transfer, a Call Control channel is allocated.

  If the Trigger is associated to a Primary and or Secondary Dialogue Group, depending on the type, a Media Channel or an MRCP channel will be allocated.

  If an application is triggered by an HTTP Trigger, an HTTP Control Channel will be allocated.

Frequently Asked Questions about CM Telephony Call Flow Outside Unified CCE

When deploying your system, you should understand the following about call flows and the Unified CM configuration dependencies that can impact call flow:

- *How is a call presented to the Unified CCX system?*

  Through the Caller, and then the CTI Route Point. An incoming call is given to the Unified CCX system on a *Trigger*, which is also called a *CTI Route Point*. The trigger signals the Unified CCX system through CM Telephony that there is an incoming call.

  Unified CCX rejects the call if the *Max Session* limit has been hit for the Trigger or the Application to which the trigger is assigned.

  If there are available sessions, based on the *Call Control Group* assigned to the trigger, Unified CCX searches for an available CTI Port to receive the call. If it finds an available port, it sends a request to Unified CM through CM Telephony/CTI requesting that the caller be rerouted from the CTI Route Point to the CTI Port.

  The calling party is a GW (for a call from the PSTN) or an IP Phone (for an internal call into the system).

- *How does the Unified CCX system determine which CTI Port to use?*

  A Unified CCX *Application* requires a *Trigger*. The trigger type determines whether or not a port will be required.

  There are two types of triggers: CM Telephony and HTTP.

  - If an application is started by dialing a phone number, it must have a *CM Telephony Trigger*.
  - If an application is started by entering a URL, it must have an *HTTP Trigger*.

    If an application is triggered by calling a CM Telephony Trigger:

    1. The Unified CCX system looks for an available CTI Port in the *CM Telephony Call Control Group* assigned to the Trigger.

2. Unified CCX then requests the Unified CM to Redirect the caller to the desired *CTI Port*.
3. The call is presented to the CTI Port.
4. Unified CCX accepts the call on the CTI Port, the call rings on the CTI Port, and a Unified CCX script decides how to handle the call.

- *Why does the CM Telephony Trigger need to have Primary and or Secondary Dialogue Groups assigned to it?*

  For the Unified CCX system to establish a media connection to a caller, Unified CCX must allocate a *Media Channel* for that call. When Unified CCX accepts a call on a CTI Port, it looks for an available Media Channel in the *Primary Dialog Group*. If there are none available, it will look for an available channel in the *Secondary Dialogue Group*.

- *What are the Unified CCX script call control choices?*

  The call control step choices are:

  Accept. Answers the call and establishes a media connection. This is based on the Primary and Secondary Dialogue Groups assigned to the Trigger. It can be either CMT (Cisco Media Termination) or ASR (Automatic Speech Recognition).

  Reject. Rejects the call and returns it to Unified CM without answering it.

  Terminate. Disconnects the Contact.

  Redirect. Requests that Unified CM reroute the caller to another destination.

- *How are Redirects done?*

  Redirects can be done in several ways:

  - When Unified CCX requests that a caller be rerouted from a CTI Route Point to a CTI Port.
  - When a Unified CCX script executes a Call Redirect step
  - In Unified CCE, when a Unified ICME system sends a *Connect* request to the Unified CCX system to send a queued call to a destination label.

    Once the Unified CCX system requests a Redirect and Unified CM accepts it, the redirecting CTI Port is released and returned to the idle port list.

HTTP Contact Flow Outside of Unified CCE

When an HTTP request is presented to Unified CCX:

1. The HTTP trigger is assigned to an application.
2. When the URL trigger is hit, an application task is started.
3. The application is assigned to a script and the script starts.
4. An HTTP control channel is allocated.
5. The script performs steps on the triggering contact.

Possible step choices are:

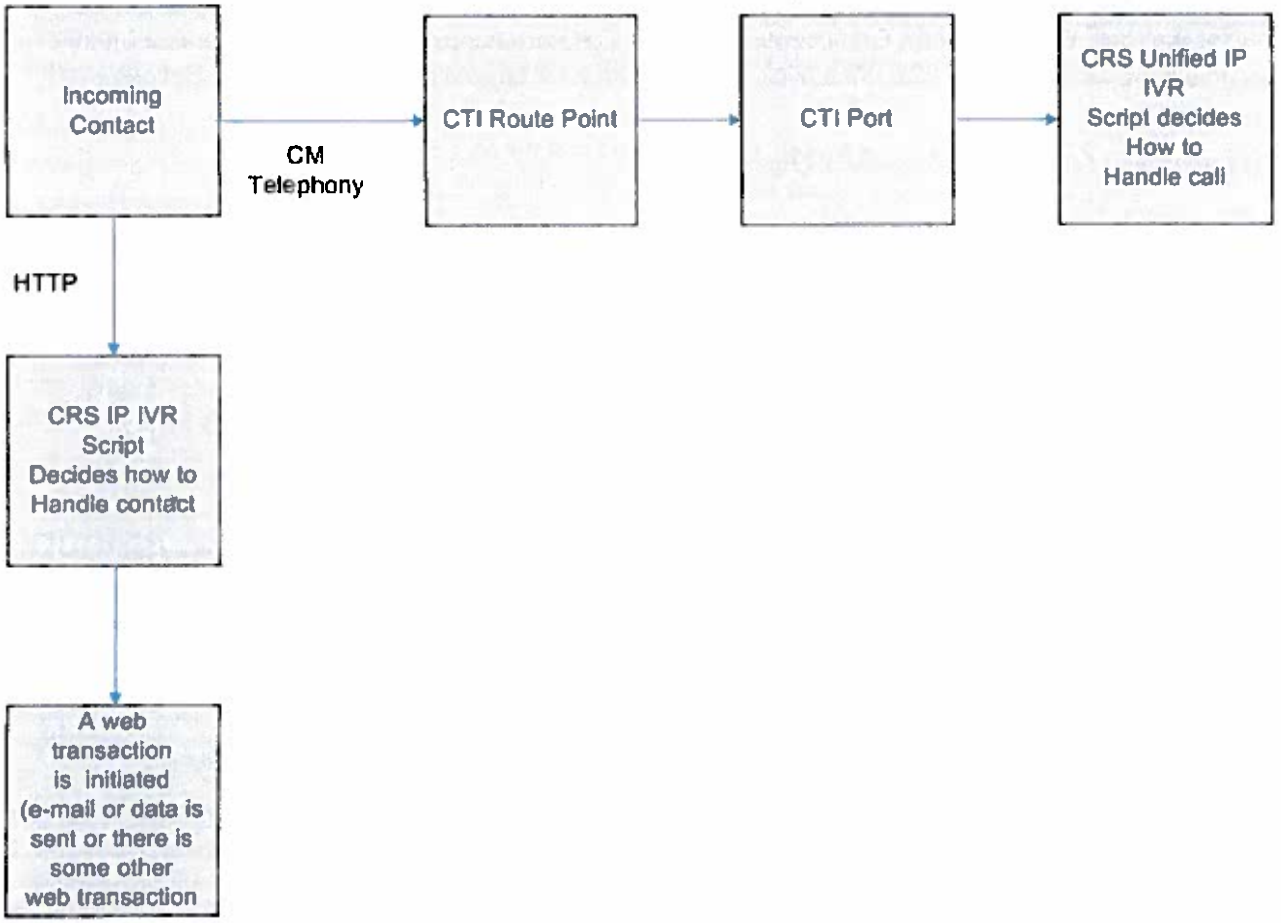
- **Get HTTP contact information.** Obtain Header Information, Parameters, Cookies and Environment Attributes and assign them to local variables.
- **Send a response.** Send a Document Object as a response to the calling browser.
- **Send a JSP reply.** Send a response to the calling browser based on a JSP template. This step allows for the mapping of local variables to keywords in the template.

- **HTTP redirect**. Allows a calling browser to be redirected to a different URL.

Summary of Unified IP IVR Contact Flow Outside of Unified CCE

The figure below shows a simplified block diagram of a contact flow outside of Unified CCE.

Figure 1. Basic Contact Flow Outside of Unified CCE



The following are the steps a call or contact takes within a Unified IP IVR system with Unified CM but without Unified CCE:

1. The caller dials the desired phone number or enters a Web address.
2. Unified CCX receives the contact signal at the phone number trigger point or the Web address trigger point.
3. Unified CCX determines which CTI port to take the contact on and sends a Redirect Request to CTI in the Unified CM to send the contact to the port:
   - If the contact is a call, then the Unified CCX system looks for a CTI port in the CM Telephony Call Control Group assigned to the trigger (the phone number).
   - If the contact is a Web connection, then the Unified CCX system looks for a CTI port in the HTTP Control Group assigned to the trigger (the URL).
4. Unified CM sends the contact to the specified CTI port.
5. The caller is presented to Unified CCX on the CTI port.
6. Unified CCX accepts the call.
7. Unified CCX starts an application that executes a CCX script.
8. The script determines how to handle the call:

Unified CCX script can Redirect the call (for example, when no agents are available). Or, the Unified CCX script can answer the call with the Accept step.

If the Unified CCX script answers the call and the trigger has been assigned a Dialog Group, Unified CCX establishes a media connection with the caller.

Important Unified CM Configuration Dependencies

Unified CM is a software ACD that distributes calls. The Unified IP IVR software tells Unified CM how to distribute calls. For both products to work together correctly, you should therefore understand how calls are set up when you configure the Unified CM devices.

You should be aware of the following:

- **Repository Datastore.** The IDs resides on the Unified CCX server in the MSDE or SQL2K database. It holds the prompts, grammars, documents, and scripts used by the system.
- **CTI Ports and Route Points.** When configuring Unified CCX in the Unified CCX Administration web page, you must enter the information that Unified CCX uses to configure CTI Ports and Route Points in Unified CM.
- **CM Telephony User.** When configuring Unified CCX, you define a CM Telephony User Prefix that is used to create the CM Telephony User in the Unified CM.
- **Redirects.** Redirects are performed when a call comes and the call is sent from the route point to the designated CTI port (in this case, the redirect takes place internally as part of the protocol), when a Unified CCX script executes a call Redirect step, or when a Unified ICME system sends a Connect request to the Unified CCX system to send a queued call to a destination label.

  When the Redirect is performed, if the Unified CM destination is available, the call is immediately sent to the Unified CM and released from the CTI Port.
- **Destination.** A Redirect will fail if the destination is not available.
- **Redirect Calling Search Space.** Unlike the redirect that the Route Point does to the CTI Port (which is not configurable), the CSS used for a redirect for a call that is already established on a CTI Port is indeed controlled by the Redirect Calling Search Space parameter in the Call Control Group config.
- **Calling Search Space.** Calling search spaces (CSS) determine the partitions that calling devices, including IP phones, SIP phones, and gateways, can search when attempting to complete a call. A collection of partitions are searched to determine how a dialed number must be routed. The CSS for the device and the CSS for the directory number get used together. The directory number CSS takes precedence over the device CSS.

  See *Cisco Unified Communications Manager Maintain and Operate Guides* for more information.
- **Device Regions.** Regions determine the maximum bandwidth codec that is allowed for calls both intra- and inter-region, not the codec itself. In the case of the Unified CCX servers CTI Ports, if the connection to calling or called device cannot be made at the Unified CCX servers installed bandwidth, then a Transcoder channel must be available.

  Warning If you install Unified CCX with the default codec (G.711), your region configuration must allow calls into the region assigned to the CTI Ports at G.711. Otherwise, calls across the WAN are forced to G.729 in the region configuration, which causes the call to fail if there are no hardware transcoding resources properly configured and available.

  See **Regions Configuration** for more information.
- **Device Locations.** In the event that one or more of the devices are in a location, if sufficient bandwidth is not available, the requested call-control operation will fail.

  See **Location Configuration** for more information.

- **Media Connections.** Media connections to the Unified CCX system are either all G.711 or all G.729. This means that the Unified CM region configuration must allow for connections between devices and the Unifie CCX server CTI Ports with the appropriate Codec. If not, then Transcoder channels MUST be configured and available. You do this at the appropriate matching Codec at Unified CCX installation time.
- **Connection path device (Codec).** When you create a region, you specify the codec that can be used for calls between devices within that region, and between that region and other regions. The system uses regions also for applications that only support a specific codec; for example, an application that only uses G.711.

How Calls Go through the Unified CCE System

This section describes the following:

- Call Flow Control
- Two Ways of Configuring Unified IP IVR with Unified ICME
- Post-routed Call Flow Scenario
- Translation-Routed Call Flow Scenario
- ICM Subsystem
- Service Control interface
- Labels -
- VRU Scripts
- Expanded Call Variables
- Script Parameter Separatorss
- Call Flow Control
- Two Ways of Configuring Unified IP IVR with Unified ICME
- Post-routed Call Flow Scenario
- Translation-Routed Call Flow Scenario
- ICM Subsystem
- Service Control interface
- Labels
- VRU Scripts
- Expanded Call Variables
- Script Parameter Separators

Call Flow Control

The Unified ICME system is a major component of the Unified CCE system. Unified ICME provides a central control system that directs calls to various human and automated systems, such as Integrated Voice Response (IVRs) units [also called Voice Response Units (VRUs)] and Automatic Call Distribution (ACD) systems.

Unified CCX scripts can direct calls based on various criteria, such as time of day or the availability of subsystems. When used with Unified ICME in a Translation Routing or Post Routing Application, the Unified IP IVR system does not make decisions as to what script to run. Instead, Unified ICME controls the call treatment by issuing RUN_VRU_SCRIPT commands to Unified IP IVR system. These RUN_VRU_SCRIPT commands tell Unified IP IVR which Unified CCX script to run.

ICM scripts use four different commands to interact with the Unified IP IVR system:

- Connect - To connect the call. The Unified ICME system sends the connect message with a label to instruct the Unified IP IVR system where to direct the call.

- Release - To hang up a call.
- RUN_VRU_SCRIPT - To run an ICM VRU script on the Unified IP IVR system.
- Cancel - To cancel the ICM VRU script currently running.

Two Ways of Configuring Unified IP IVR with Unified ICME

When integrated in a Unified CCE environment, Unified CCX can be used in two different ways depending on the call flow.

You can define your Applications as either post-routing or translation-routing applications.

- **Post Routing**. If the calls will first traverse through the Unified IP IVR and then through Unified CCE, it is considered a Post-Routing scenario. In this type of call flow, Unified CCE is notified of the call by Unified CCX. The ICM script will not start until Unified CCX requests instructions from Unified CCE after the Unified CCX Initial Script ends (if one is configured).

  An example would be when a caller is prompted by Unified CCX for some information that is intended for subsequent delivery to a Unified CCE Agent.

- **Translation Routing**. If Unified CCE first has control of the call and it needs to flow through the Unified IP IVR, it is considered a Translation-Routing scenario. In this type of call flow, the call is under Unified CCE script control when arriving at Unified CCX.

  Examples of this call flow are when you have to queue a caller or if you use the Unified IP IVR for menu based (CED) routing.

Note The Unified ICME system and the Unified CCX system together form the Unified CCE system. In a Unified CCE environment, the Unified ICME software is the *primary controller* of all calls. The Unified CCE queuing is done through the Unified CM and Unified CCX software. The agent assigned by the software to handle a call can be defined in either the Unified CM database or the Unified ICME database.

Post-routed Call Flow Scenario

This scenario represents a call that is queued in the Unified IP IVR system through Post Routing until an agent becomes available.

In a post-routed call flow:

1. The caller dials the desired phone number (an application Trigger that is a Unified CCX Route Point).
2. The trigger is linked to a Post-Routing application with a default Unified CCX script.
3. The call is presented to the Unified CCX system.
   a. The Unified CCX system looks for a CTI port in the CM Telephony Call Control Group assigned to the trigger (the phone number).
   b. The Unified CCX system determines which CTI Port to take the call on and sends a redirect request to Unified CM through the CM Telephony protocol.

      If no ports are free, the caller hears a "fast busy" until there is a free port to take the call.
   c. Unified CM sends the caller to the specified CTI Port.
   d. The caller is presented to the Unified CCX system on the CTI Port.
   e. The default Unified CCX script linked to the application is run.
4. The Unified CCX script then determines what to do next:

a. In most post-routing cases, the script will welcome the caller and collect some information from the cal be sent over to the Unified ICME system.

b. The script maps this data using the Set Unified ICME data step.

c. The script ends with the End step.

5. Since this is a post-routing application, once the End step is reached, the Unified CCX system requests instruction from the Unified ICME system.

   This instruction is a route request with the VRU peripheral as the routing client and the Unified CCX Route Point as the DN.

6. The Unified ICME system will have an ICM script configured to run for this routing client DN. After it is notified of the call, the Unified ICME system runs the ICM script.

7. The ICM script will determine how to handle the call and will instruct the Unified CCX system accordingly.

   ICM scripts are composed of many different call-handling steps, including the following four commands it can send to the Unified CCX system-connect, Release, Run VRU Script, and Cancel.

8. The Unified CCX system responds to the commands from the Unified ICME system until the Unified ICME system signals that the call is complete.

   For example, the ICM script could send a Run VRU Script request to the Unified IP IVR system, instructing the Unified IP IVR system to run a script that plays music and thanks the caller for their patience. When an agent becomes available, the Unified ICME system sends a Cancel request and the Unified IP IVR system stops running the current script.

   The Unified ICME system then sends a Connect command with a Normal label that indicates the extension of the free agent. The Unified CCX system then checks the VRU Script Name variable to determine if it needs to run a PreConnect script. The Unified CCX system routes the call to the agent indicated in the Normal label.

Translation-Routed Call Flow Scenario

This scenario represents a call that is queued in the Unified IP IVR through Translation Routing until an agent becomes available.

In a translation-route call flow:

1. The caller dials the desired phone number (an application Trigger that is a Unified ICME Route Point).

2. The call is presented to the Unified ICME system.

3. An ICM script is started. Based on the ICM script logic, the caller is queued for a group of agents. If none are available, the caller is queued in the Unified IP IVR as follows:

   a. The caller is translation routed to the Unified IP IVR by the PG (the ICM Peripheral Gateway) sending a redirect request to CTI through CM Telephony. The destination is a Unified CCX Translation Route Point (Trigger).

      The Unified ICME system sends along with the call additional information associated with the call, including a reserved DNIS value, a trunk group, a label for the PG, and instructions for further processing.

   b. The call is presented to the Unified CCX system on the trigger.

   c. The Unified CCX system looks for a CTI port in the CM Telephony Call Control Group assigned to the trigger (the phone number).

   d. The Unified CCX system determines which CTI Port to take the call on and sends a redirect request to through CM Telephony.

   e. The Unified CM sends the caller to the specified CTI Port.

   f. The caller is presented to the Unified CCX system on the CTI Port.

4. The Unified CCX system accepts the call, starts a session with the ICM PG, and sends a REQUEST_INSTRUCTION request.
5. The ICM script then determines what to do next. In most cases, it sends a RUN_VRU_SCRIPT request to the Unified CCX system.
6. The Unified CCX system maps the requested VRU script name to a Unified CCX Script based on the VRU Script configuration in the Unified CCX system.
7. The Unified CCX script then determines how to handle the call. A call can either be redirected or answered with the accept step.
8. If the Unified CCX script answers the call, and the trigger has been assigned a Dialogue Group, it establishes a media connection with the caller. At this point the Unified CCX system can interact with the caller as desired.
9. When the script ends, it sends a RUN_SCRIPT_ RESULT message back to the Unified ICME system. The ICM script determines what to do next. Typically another RUN_SCRIPT_REQUEST events is sent. This continues until an agent becomes available to take the call.
10. Once an agent becomes available, the Unified ICME system sends a CANCEL message to the Unified CCX system.
11. The Unified CCX system terminates the running script.
12. The Unified ICME system then sends a CONNECT message that includes the Agent's extension as the Label.
13. The Unified CCX system then redirects the caller to the agent's extension.

ICM Subsystem

The ICM subsystem of the Unified CCX system allows Unified IP IVR to interact with the ICM system. The ICM subsystem of Unified CCX uses a proprietary protocol to communicate with the ICM PG.

When using the ICM subsystem, you should understand:

- **Service Control interface**
- **Labels**
- **VRU Scripts**
- **Expanded Call Variables**
- **Script Parameter Separators**

Service Control interface

The Service Control interface allows the Unified ICME system to provide call-processing instructions to the Unified IP IVR system. It also provides the Unified ICME system with event reports indicating changes in call state.

The Service Control Interface is enabled from the Unified CCX ICM subsystem configuration web page.

Labels

The Service Control interface supports four label types:

- Normal

  The Normal label is a character string that encodes the instructions for routing the call. It contains either a directory number to which the Unified IP IVR system should route the call or the name of a .wav file representing an announcement.

  If you configure the Unified IP IVR system to send an announcement, the Unified IP IVR system plays the .wav file, pauses for two seconds, and repeats the .wav file followed by the two second pause three additional times. Then it pauses 8 seconds and plays a fast busy signal until the caller hangs up.

- Busy

  The Busy label indicates that the caller should receive a busy treatment. Unless you set up a Busy label port group to handle the call, the Unified IP IVR system generates a simulated busy signal from a .wav file until the caller hangs up.

- Ring No Answer

  The Ring No Answer (RNA) label indicates that the caller should receive an RNA treatment. Unless you set up a Ring No Answer label port group to handle the call, the Unified IP IVR system generates a simulated ringing sound from a .wav file until the caller hangs up.

- Default

  The Default label indicates that the Unified IP IVR system should run the default script.

VRU Scripts

The scripts that control Unified IP IVR calls have a VRU Script name in the Unified ICME system that must be properly mapped to a Unified CCX script name (.aef file) in the Unified CCX system. This mapping is done from the Unified CCX ICM subsystem configuration web page.

Expanded Call Variables

Data is passed back and forth between the Unified ICME system and the Unified CCX scripts using *Expanded Call Variables*. There are 10 default variables available, but others can be configured. Since these variables are used globally throughout the system, they are considered to be premium and should only be used when necessary. Expanded Call Variables are configured both in the Unified ICME system and in the Unified CCX system. In the Unified CCX system, they are configured from the Unified CCX ICM subsystem configuration web page.

Script Parameter Separators

One function that can prove useful is the ability to use the Unified ICME RUN_SCRIPT node with a name that includes parameter separators. The Parameter Separator is defined from the Unified CCX ICM subsystem configuration web page. By default it is the | (pipe) symbol.

One example of its usefulness is if you have one main script. Within that script, you can have multiple branches that would execute based on the value of a parameter that is passed by the Unified ICME system.

Example

Configuration data:

- Cisco Unified CCX Script name = testscript.aef
- VRU Script name = *testscript* ICM VRU Scripts
- Run VRU Script node in Unified ICME = testscript|100

Get ICM Data step in script testscript.aef:

- Field Name: VRU Script Name
- Token Index: 1
- Decoding Type: String
- Local Variable: param1 (of type string)

In the preceding example of a script parameter separator, the script variable *param1* will contain the first parameter (after the |) In this case, that would be 100. This example allows the variable *param1* to be tested and for the script to take the desired branch based on its value. The benefit is that only one VRU Script needs to be defined in the Unified CCX system, and you do not have to use any other variables as parameters to determine which branch to take in the script.

When you use parameter separators in Unified CCX, the Unified ICME script name must include the parameter as part of its name. If you want to pass a different parameter like "testscript|200" then you need to configure another VRU script on the Unified ICME system and name it testscript|200.

For more information on script parameters, see the *Cisco Unified Contact Center Express Editor Step Reference Guide* and the *Cisco Unified Contact Center Express Getting Started with Scripts*.

Debugging Problems in the Unified IP IVR System

The SS_TEL or SS_SIP (Telephony subsystems) debug traces can be used to debug the CM Telephony aspect of a call.

When debugging Unified ICME problems in the Unified IP IVR system, turn on the ICM related debugs. The Unified CCX LIB_ICM (ICM library) and the SS_ICM (ICM subsystem) show the Unified ICME events messaging. Use the *Cisco Unified Contact Center Express Solutions Servicing and Troubleshooting Guide* for instructions on how to interpret the messages and how to use Trace.

Important Unified ICME Configuration Dependencies

When configuring your Unified IP IVR system in an Unified CCE environment, you need to be aware of the following:

- The DNs (*Dialed Numbers*) of the Route Points, that is, the triggers that you configure in the Unified CCX system are used in the Unified ICME system as *Translation Route DNIS*'. As such, it is critical that these DNs match the Translation Route DNIS' you configure in ICM. If you fail to do this, Translation Routing will not work and calls will be dropped.

  For example, if your Translation Route DNIS pool has DNIS' 5000, 5001, 5002, and 5003 in it, then you must create four Route Points, each with one of those numbers as the DN of the Route Point.

  So, your configuration might look like this (the names are up to you, but the DNs are mandatory):

  - TRRoutePoint1 - DN 5000
  - TRRoutePoint2 - DN 5001
  - TRRoutePoint3 - DN 5002
  - TRRoutePoint4 - DN 5003
- The *CTI port group number IDs* in Unified CCX must have the same numbers as the *peripheral trunk group numbers* in the Unified ICME system.
- It is imperative that the *script name* referenced in your Unified ICME Run External Script node matches what is configured in the VRU Script List configuration in the ICM Subsystem on Unified CCX.

Figure 2. The Script Name Referenced in your ICM Run External Script Node

In order to eliminate any confusion, name the Unified CCX script exactly the same in all places.

Consider the example BasicQ.aef script provided with your Unified CCX server. Obviously, this is the script n by which Unified CCX will know the script. However, you can refer to this script in a Run External Script node i Unified ICME by whatever name you want. The VRU Script List configuration in Unified CCX Application Administration application is where you couple the ICM External Script name with the Unified CCX script name.

Figure 3. Matching the ICM Script Name with the Unified CCX Script Name

- The VRU Script Name column on the left is the name that Unified ICME will refer to when calling the script and the Script column on the right is the file name of the Unified CCX script you want to run when Unified ICME calls the script mentioned in the VRU Script Name column.
- As you can imagine, if you refer to these scripts by different names in Unified ICME and Unified CCX, it can become confusing when it comes time to troubleshoot. Thus keep these names exactly the same. This way there is no ambiguity as to what script you are referring to.
- The *VRU connection port numbers* in Unified CCX must be the same as the *VRU connection port numbers* in the Unified ICME system.
- Any *enterprise ECC (Expanded Call Context) variables* must be defined on both sides of the system (in Unified IP IVR and in Unified ICME software).

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Chapter: Install and Configure Unified CM for Unified IP IVR

Chapter Contents

This section describes how to install and configure Unified CM for Unified IP IVR.

This section contains the following:

- **About Unified CM**
- **Unified CM Install**
- **Configure Unified CM**
- **Unified CM Configuration Checklist**

About Unified CM

Unified CM:

- Provide features for which organizations have traditionally used PBX systems. Unified CM uses open standards, such as TCP/IP, H.323 standards for packet-based multimedia communications systems, and Media Gateway Control Protocol (MGCP).
- Allow deployment of voice applications and the integration of telephony systems with Intranet applications.

Unified CM Install

Follow the step-by-step installation instructions for Unified CM included in the *Installing Cisco Unified Communications Manager Guide*. See *Cisco Unified Communications Manager Install and Upgrade Guides*.

There are no Unified CCE specific installation prerequisites or instructions for Unified CM. You can find the guide and the other guides mentioned at the *Cisco Unified Communications Manager Install and Upgrade* website.

Once Unified CM installation is complete, configure Unified CM as described in the next section.

Prior to proceeding with configuration, ensure that:

- By using the System option in the Cisco Unified CM menu selection from the Unified CCX Administration web page, verify that Unified CM has been created on a Unified CM server.
- By using Unified CM Administration and the Cisco Unified Serviceability Administration, verify that all the services required by Unified CM are running.
- If you are planning on using the Unified CM BAT (Bulk Administration Tool), you can run it by choosing Bulk Administration from the Unified CM Administration menu.
- By using the Unified CM User Management web page, identify the users in the Unified CM directory that will be assigned administration privileges in Unified CCX. If these users do not exist in the Unified CM directory, then you must create those users in Unified CM.

Note Write down in a notebook the Unified CM directory information since you will need it for the Unified IVR installation. If you keep configuration information that is used more than once in a check list notebook, then it will be easier to enter the correct configuration information when it is needed.

Related Documentation

Installing Cisco Unified Communications Manager

Cisco Unified Communications Manager Bulk Administration Guide

Cisco Unified Communications Manager Administration Guide

Cisco Unified Communications Manager Features and Service Guide

Cisco Unified Communications Manager System Guide

Cisco Unified Contact Center Express Operations Guide

Configure Unified CM

For instructions on configuring Unified CM, see the configuration instructions in the *Cisco Unified Communications Manager Administration Guide.*

Most of the Unified CM configuration tasks are done by using Cisco Unified Communications Manager Administration. The administration program is accessed from a PC by using a web browser.

Procedure

Enter: **https://<Communications Manager_servername>/ccmadmin**

Unified CM Configuration Checklist

When configuring Unified CM, complete the tasks described in the following table to configure Unified CM for use with Unified IP IVR.

Procedure

Task	Purpose
1.Create Unified CM users that will later be assigned administrative privileges in the Unified CCX Administration software.	Provides a user account for Unified IP IVR to connect with Unified CM. You will need to remember the user IDs and passwords for when you install and configure Unified IP IVR. The user ID should not be longer than 31 alphanumeric characters. Although a user ID in Unified CM can contain up to 128 alphanumeric characters, in a Unified CCX system, a user ID can be no longer than 31 alphanumeric characters. User Configuration window See also the *Cisco Unified Communications Manager Administration Guide*, "*End User Configuration* " chapter. From the Unified CM Administration page menu bar, select **User** > **Management** > **End User**.

	Purpose
2. Configure the Unified CM Group for the devices or use the default.	Specifies the Unified CM group to provide redundancy and to assign to devices in this device pool. Unified CM Group Configuration window See also the *Cisco Unified Communications Manager Administration Guide*, "*Cisco Unified Communication Manager Group Configuration*" chapter.
3. Configure the appropriate Regions for the sites.	Specifies the codecs to be used by calls between devices in that region and other regions. Region Configuration window See also the *Cisco Unified Communications Manager Administration Guide*, "*Region Configuration*" chapter. From the Unified CM Administration page menu bar, select **System** > **Region** and then click the **Add New** link.
4. Configure the Locations for the sites.	Implements Call Admission Control which regulates voice quality by limiting the available bandwidth for calls. Location Configuration window See also the *Cisco Unified Communications Manager Administration Guide*, "*Location Configuration*" chapter.
5. Configure the device pool with the previously configured Regions.	Specifies the voice codec to be used for calls in the regions with the devices. **Device Pool Configuration** window See also the *Cisco Unified Communications Manager Administration Guide*, *Device Pool Configuration* chapter. From the Unified CM Administration page menu bar, select **Device** > **Phone** and then either find a configured phone or click the **Add New** link. Choose the device pool from the Phone Configuration web page.

Task	Purpose
6. Configure the phones individually in Unified CM with the correct directory numbers or configure them with the Unified CM BAT tool. For Bulk Configuration, associate the Device Pool with the Phone Configuration.	Specifies a unique dialable phone number for each phone. Also, defines characteristics for devices, such as region, date/time group, failover behavior, and others. You must set the configuration on each IP phone so that it can locate and connect to Unified CM. This procedure varies by site according to the customer's network configuration. Phone Configuration window or BAT See also the *Cisco Unified Communications Manager Administration Guide*, "*Cisco Unified IP Phone Configuration*" section. From the Unified CM Administration page menu bar, select **Device** > **Phone** and then click the **Add New** link. Next select your phone type and click **Next** and continue to follow the instructions, filling in the required information in the Phone Configuration window. Add the phone number and a directory number to the phone number, and then configure the DN (Dialed Number).

- Check Phone Configuration in Unified CM

Check Phone Configuration in Unified CM

Procedure

Step 1 Using a Web browser, open **Unified CM Administration**.

This URL is commonly: https://<Communications Manager_servername>/ccmadmin

Step 2 From the Device menu, select **Phone.**

Step 3 In the Find and List Phones page, make sure the last text box is blank and click **Find**.

This will list all the IP phones connected to your system plus the CTI ports and Call Control groups automatically created in Unified CM when you configured the Unified CCX Application.

Getting Started with IP IVR Guide, Release 12.0

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Chapter: Unified IP IVR Installation and Configuration

Chapter Contents

After you have configured Unified CM, install and configure Unified IP IVR.

This section contains the following:

- **Cisco IP IVR Installation**
- **Unified IP IVR Configuration**
- **Unified IP IVR Configuration Checklist**
- **Unified IP IVR Application Configuration Checklist**

Cisco IP IVR Installation

To install Unified IP IVR, you must install Unified CCX and select the Unified IP IVR product package during the installation.

The Unified CCX installation procedure contains two steps:

1. **Installation**: Loads the Unified CCX software onto your system. At this time, you select the deployment type (Unified CM) and a language.
2. **Server Setup**: After you install Unified CCX, you use the Unified CCX Administration web application to perform the initial system setup.
3. **Server Setup**: Enables the specific Unified CCX components that will run on a particular server. Also determines if a server will function as a standby server for high availability. This procedure is done for each Unified CCX node in a cluster, including the one on which you perform the cluster setup.

Once these installation and setup procedures are done, you will have access to the complete set of Unified CCX Administration features that are licensed for your Unified CCX product.

For installation instructions, including the planning of your Unified IP IVR installation, a pre-installation check list, and an installation and setup check list, see the *Cisco Unified Contact Center Express Install and Upgrade Guide* at the **Install and Upgrade Guides**.

Unified IP IVR Configuration

After you install and perform the initial set up of Unified IP IVR, use the Unified CCX Administration web interface to perform a variety of additional set up and configuration tasks.

These tasks include:

- Configuring Unified CCX to work with Unified CM
- Configuring the required subsystems

- Configuring Unified CCX for Unified IP IVR

You can access the Unified CCX Administration web interface from a server on which Unified CCX is installed or from a client system with access to your network.

From a web browser on any computer in your network, enter the following URL: *http://servername/AppAdmin* where *servername* is the host name or IP address of the Unified CCX node.

For detailed instructions about configuring Unified CCX and Unified IP IVR, see the *Cisco Unified Contact Center Express Administration and Operations Guide* at **https://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_installation_and_configuration_guides_list.html**. The procedure locations referenced in the table are found in the administration guide.

See the **https://www.cisco.com/en/US/products/sw/custcosw/ps1846/tsd_products_support_series_home.html** for the latest Unified CCX documentation.

Unified IP IVR Configuration Checklist

Do the following tasks in the given order.

Table 1. Unified IP IVR Configuration Checklist

Task	Purpose and Notes	Configuration Location	Procedure Location
1. Configure the JTAPI subsystem on Unified CCX.	The Unified CCX Engine uses the JTAPI subsystem to send and receive calls from Unified CM.	JTAPI Configuration web page From the Unified CCX Administration web page menu bar, select **Subsystems** > **JTAPI**. Then select **JTAPI provider** in the option list on the left.	*Configuring a JTAPI Provider* section in the *Cisco Unified Contact Center Express Administration and Operations Guide*.
	For the JTAPI Provider configuration, select the IP address(es) or hostname(s) of one of the Available CTI Manager machines. The Available CTI Managers list box lists all the available CTI Managers that are in the Unified CM cluster. The primary provider is the first value in the list of selected CTI managers in the cluster, and the secondary provider is the second (also the last) value in the list of CTI selected managers in the cluster. There cannot be more than two selected CTI Managers for JTAPI Provider Configuration. The User Prefix is used by Unified CCX to create the Application User in Unified CM that controls the Route Points and CTI Ports. Make sure the users (<User prefix> +"_"+,nodeid) are NOT defined in Unified CM. On clicking **OK**, JTAPI users are created in the Unified CM. Depending on how many Unified CCX engines are enabled in the cluster, those many JTAPI users are created. In an IP IVR system installed independently of Unified CCX, you do not need to configure the RmCm subsystem. That configuration is shown here only to show you what you would have to configure next if your IP IVR system were installed as a part of Unified CCX.		

Task	Purpose and Notes	Configuration Location	Procedure Location
2. Provision a JTAPI Call Control Group.	The Unified CCX system uses JTAPI call control groups to pool together a series of CTI ports, which the system uses to serve calls as they arrive at the Unified CCX server. Unified CCX automatically adds the needed CTI ports port assignments and the specified call control groups to the Unified CM database when you click **Update**.	JTAPI Call Control Group Configuration web page From the Unified CCX Administration web page menu bar, select **Subsystems** > **JTAPI**. Then select **JTAPI Call Control Group** in the option list on the left.	*Provisioning JTAPI Call Control Groups* section in the *Cisco Unified Contact Center Administration and Operations Guide*.
3. Check to make sure the JTAPI information in Unified CCX and Unified CM is synchronized. If it is not synchronized, resynchronize it.	Makes sure the JTAPI configuration data entered in Unified CM through Unified CCX is synchronized with the JTAPI configuration data in Unified CM for every server in both the Unified CM cluster and the Unified CCX cluster. The check and Synchronize option generates a report describing the status of JTAPI information (JTAPI Users, Port Groups, and Triggers).	The JTAPI Resynchronize dialog box From the Unified CCX Administration web page menu bar, select **Subsystems** > **JTAPI**. Then select **Resynchronize** in the option list on the left.	*Provisioning JTAPI Call Control Groups* section in the *Cisco Unified Contact Center Express Administration and Operations Guide*.
4. Provision the Cisco Media Termination Subsystem.	Specifies the media you need for your system. The Unified CCX server uses the Real-Time Transport Protocol (RTP) to send and receive media packets over the IP network. To ensure that the Unified CCX can communicate with your Cisco Unified Communications system, you need to configure the RTP ports that the Unified CCX Engine will use to send and receive RTP data.	Cisco Media Termination Dialog Group Configuration web page From the Unified CCX Administration web page menu bar, select **Subsystems** > **Cisco Media** and then in the upper, right corner of the window, click the **Add a New CMT Dialog Control Group** link.	*Provisioning the Cisco Media Subsystem* section in the *Cisco Unified Contact Center Express Administration and Operations Guide*.

Task	Purpose and Notes	Configuration Location	Procedure Locatio
	You can choose different types of media, from a simple type of media capable of supporting prompts and DTMF (Cisco Media Termination) to a more complex and rich type of media capable of supporting speech recognition. It is even possible to provision calls without media. Because of the media capabilities, you must provision media manually. Each call requires both a CTI port and a media channel for the system to be backward compatible or to support media interactions. Media resources are licensed and sold as IVR ports so you can provision more channels than you are licensed for and, at run-time, licensing will be enforced to prevent the system accepting calls, as this would violate your licensing agreements.		
5. Provision and configure any other Unified CCX subsystems that you will use.	Expands the functionality of your Unified IP IVR system.	This task includes the following three tasks and depends on whether or not you have bought licenses for subsystems and have installed them when you installed Unified CCX.	*Provisioning ASR and TTS* section in the *Cisco Unified Contact Center Express Administration and Operations Guide*.
5.1 Provision an MRCP Automated Speech Recognition (ASR) subsystem. (optional)	Allows users to navigate through a menu of options by speaking instead of pressing keys on a touch-tone telephone.	MRCP ASR Configuration web page In the Unified CCX Administration web page, select **Subsystems** > **MRCP ASR**.	
	The MRCP ASR software is optional and requires a vendor license. The License is the number of MRCP ASR port licenses purchased from the ASR vendor. For the currently supported MRCP ASR vendors, see the current **Unified CCX Compatibility Matrix**. To configure an MRCP ASR server or a dialog group, click the **MRCP ASR Servers** or **MRCP ASR Dialog Groups** respectively in the column on the left of the web page. The Unified CCX system uses the Media subsystem of the Unified CCX Engine to configure Cisco Media Termination (CMT) dialog groups that can be used to handle simple Dual-Tone Multi-Frequency (DTMF) based dialog interactions with customers. A dialog group is a pool of dialog channels in which each channel is used to perform dialog interactions with a caller. This step involves the configuration of your: • MRCP ASR Providers • MRCP ASR Servers • MRCP ASR Dialog Groups		

Task	Purpose and Notes	Configuration Location	Procedure Location
5.2 Provision an MRCP Text-to-Speech (TTS) subsystem. (optional)	Converts text (UNICODE) into spoken words in order to provide a user with information or to prompt a user to respond to an action.	MRCP TTS Configuration web page In the Unified CCX Administration web page, select **Subsystems** > **MRCP TTS**, click **Add MRCP TTS Provider**, link, fill in the information required and click **Add.**	*Provisioning ASR and TTS* section in the *Cisco Unified Contact Center Express Administration and Operations Guide.*
	The MRCP TTS software is optional and requires a vendor license. For the currently supported MRCP TTS vendors, see the current **Unified CCX Compatibility Matrix**. To configure an MRCP TTS server or default gender, click on the **MRCP TTS Servers** or the **MRCP TTS Default Genders** in the column on the left of the web page. This step involves the configuration of your: • MRCP TTS Providers • MRCP TTS Servers • MRCP TTS Default Genders		
5.3 Provision the HTTP subsystem. (optional)	Enables Unified IP IVR applications to respond to requests from a variety of web clients, including computers and IP phones. If you are not using HTTP applications, you do not need to provision the HTTP subsystem.	HTTP Trigger Configuration web page From the Unified CCX Administration menu bar, choose **Subsystems** > **HTTP**, and click the **Add a New HTTP Trigger** link, fill in the information required and click **Add.**	*Provisioning the HTTP Subsystem* section in the *Cisco Unified Contact Center Express Administration and Operations Guide.*

Task	Purpose and Notes	Configuration Location	Procedure Location
5.4 Provision the database subsystem. (optional)	Enables Unified CCX applications to interact with database servers in order to make database information accessible to contacts. For example, if you want customers to be able to dial in to automatically get account information, you would need this subsystem. The database subsystem is optional. If you are not using Unified CCX applications that require access to databases, you do not need to provision the Database subsystem.	The ODBC Data Source Administrator window and the Enterprise Database Subsystem Configuration web page This involves two procedures: • On the script server, select **Start** > **Programs** > **Administrative Tools** > **Data Sources (ODBC)**. • From the Unified CCX Administration menu bar, select **Subsystems** > **Database**, • and in the Database Subsystem Configuration web page, click **Add a New Datasource**.	*Provisioning the Database Subsystem* section in the *Cisco Unified Contact Center Express Administration and Operations Guide*.
5.5 Provision the email subsystem. (optional)	Communicates with your email server and enables your Unified IP IVR applications to create and send email.	From the Unified CCX Administration menu bar, select **Subsystems** > **eMail**.	*Provisioning the eMail Subsystem* section in the *Cisco Unified Contact Center Express Administration and Operations Guide*.
	The email subsystem is optional. If you are not using email applications, you do not need to provision the eMail subsystem. Once you configure email functionality, the Unified CCX scripts created with the email steps will function correctly. The email configuration identifies the default email address and server to be used for sending email (including e-pages and faxes) and for receiving acknowledgments: • A Mail Server is a fully-qualified email server name. For example: server.domain.com) • An eMail Address is an existing fully qualified email address for the administrative account. For Example.administrator@domain.com		

Task	Purpose and Notes	Configuration Location	Procedure Location
6. Start the Application Engine	The Application Engine is the execution vehicle for Unified IP IVR scripts. The application engine runs when you install Unified CCX. However, you need to restart the engine after you configure your subsystems.	Unified CCX Control Center web page From Unified CCX Administration menu bar, select **System** > **Control Center**. Then click **Component Activation**. Finally, on the Component Activation page, select all your components and click **Update.**	*Starting, Stopping, and Restarting Unified CCX Services* section in the *Cisco Unified Contact Center Express Administration and Operations Guide.*
7. Install and configure the applications that you will use with Unified CCX (as needed).	Enable the Unified IP IVR applications you want.	This task is subdivided into 5 tasks summarized in the following Unified CCX *Application Configuration Check List.*	See **Unified IP IVR Application Configuration Checklist.** For instructions for how to use a specific web page, from the menu bar, select **Help** > **For this page.**

Unified IP IVR Application Configuration Checklist

Unified IP IVR applications require Unified IP IVR scripts. For instructions on creating and editing scripts see the Cisco Unified Contact Center Express Script Developer Series documentation at the **Cisco Unified Contact Center Express End-User Guides for the latest Unified CCX documentation.**

To configure your applications for Unified IP IVR, do the following tasks in the given order.

Table 2. Unified IP IVR Application Configuration Checklist

Task	Purpose and Notes	Configuration Location	Procedure Location
1. If needed, edit the script that your Unified CCX application will use.	To customize the script for your needs. By double clicking on an uploaded script listed in the Unified CCX Script Management page, you can open the script with the Unified CCX Editor.	Unified CCX Script Editor (for creating or editing scripts) and Unified CCX Administration web pages	*Managing Scripts, Prompts, Grammars, and Documents* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* .
	See also the Unified CCX Script Developer Series documentation: • *Volume 1, Getting Started with Cisco Unified CCX Scripting* • *Volume 2, Cisco Unified CCX Editor Reference* • *Volume 3, Cisco Unified CCX Expression Language Reference* These three PDF documents contain the same information that is in the Unified CCX Editor online help, only in PDF format, rather than HTML format. If you are customizing the Cisco Unified CM AutoAttendant, you should see the customization procedure in the . You can access this guide through the **Unified CM documentation web page.**		

Task	Purpose and Notes	Configuration Location	Procedure Location
2. If needed, create or customize any prompts that your Unified CCX script will use.	Through Unified CCX Administration Media Configuration, you can modify the prompts that your script uses. You can also upload spoken names for each person in the organization, so callers receive spoken names rather than, for example, spelled-out names when the automated attendant is asking the caller to confirm which party they want.	Unified CCX Prompt Management web page From the menu bar in the Unified CCX Administration web page, select **Applications** > **Prompt Management.**	*Managing Scripts, Prompts, Grammars, and Documents* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* .
	Some notes on Prompts • The Cisco Unified CM AutoAttendant, for example, comes with a prerecorded, generic welcome prompt. You should record your own welcome prompt to customize your automated attendant for the specific role that it is to fulfill for your organization. • You can use any sound recording software to record your prompts if the software can save the prompt in the required file format. You can record a different welcome prompt for each instance of your script application that you create. • You can record your prompts by using Microsoft Sound Recorder. Save each prompt as a .wav file in CCITT (mu-law) 8-kHz, 8-bit, mono format. You must have a microphone and speakers on your system to use the software.		
3. Upload the script.	To put the needed scripts in the Unified CCX repository so that they are available for use in a Unified CCX application.	Unified CCX Script Management web page From the Unified CCX Administration menu bar, select **Applications** > **Script Management.** In the Script Management page, click **Upload New Scripts**. Then in the **Explorer User Prompt** dialog box, type in the script name in expression format.	*Uploading a Script* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* . If you have questions when on a Unified CCX Administration web page, from the menu bar, select the **Help** > **For this page.**
4. Upload any prompts needed for the script.	For customized or language specific prompts	Unified CCX Prompt Management web page From the Unified CCX Administration menu bar, select **Applications** > **Prompt Management.** Then in the Prompt Management page, click **Upload New Prompts.**	*Uploading prompts* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* .

Task	Purpose and Notes	Configuration Location	Procedure Location
5. Add the application.	To perform a telephony task through Unified CCX, you need a Unified CCX application. Adding an application involves giving it a name, assigning it a script, and defining any application variables. An example application that comes with Unified IP IVR is the **Cisco Unified CM AutoAttendant.** The script for the Cisco Unified CM AutoAttendant is aa.aef.	Unified CCX Application Configuration web page From the Unified CCX Administration web page menu bar, select **Applications** > **Application Management** and then in the upper, right corner of the window, click the **Add New Application** link. Next, Under Application Type, select **Cisco Script Application** and click **Next.**	*Configure a Cisco Script Application* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* .
6. Give the application a name and assign the script to the application.	To make the application available for use.	Unified CCX Script Application web page	*Configure a Cisco Script Application* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* .
7. Customize the application parameters. If you are using a Cisco supplied script, you might also want to customize the application prompts. For example, you can record and upload your own prompts as previously explained in this check list.	On the Application page, if there are variables, you can customize the application by the definitions (values) you give the variables. The variables are the parameters you specify on the application web page in the Unified CCX Administration tool.	Unified CCX Cisco Script Application web page	*Configure a Cisco Script Application* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* .
8. Add the Application Trigger.	Enable the application to respond to JTAPI calls and/or HTTP requests. When you configure JTAPI triggers, you need to specify the CTI Route Point attributes used by the trigger. For example, device pool, location, and voice mail profile.	Unified CCX Add Application Triggers web page	See the online help for that web page. Also see *Add Application Triggers* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* .

Task	Purpose and Notes	Configuration Location	Procedure Location
	Some Configuration Specifics 1. From the Unified CCX Administration web page, select **Applications** > **Application Management.** 2. In the Application Configuration web page, Click the name of your new application. 3. In the Cisco Script Application web page for your new application, the **Add New Trigger** link. 4. In the pop-up window, select the trigger type and click **Next**. 5. Enter the trigger phone number or web address and the other configuration information that you need.		
9. Test the application.	Make sure the application works. Before the Unified IP IVR system can receive calls, the Unified CCX engine must be running.	From one of your phones, phone the number specified by the trigger. Or if you have an HTTP trigger, from your computer, email the specified web address.	Your application specific documentation.

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Chapter: Deployment of Sample Script aa.aef

Chapter Contents

Since the Cisco Unified CM AutoAttendant is an application and a script that comes by default in Unified IP IVR, making sure that it works is a good way to test your system. The Cisco Unified CM AutoAttendant script is the AutoAttendant script template that is installed by default with your system.

For instructions on creating or modifying an IP IVR script, see **Creating a Basic IVR Script**.

This section contains the following:

- **Cisco Unified CM AutoAttendant Overview**
- **Configure the Cisco Unified CM AutoAttendant Application (aa.aef)**
- **Test Your System and the Cisco Unified CM AutoAttendant Application**

Cisco Unified CM AutoAttendant Overview

The Cisco Unified CM AutoAttendant works with Unified CM to receive calls on specific telephone extensions. The software interacts with the caller and allows the caller to search for and select the extension of the party (in your organization) that the caller is trying to reach.

The Cisco Unified CM AutoAttendant does the following:

- Answers a call.
- Plays a user-configurable welcome prompt.

Plays a main menu prompt that asks the caller to perform one of three actions:

- Press 0 for the operator.

  Press 1 to enter an extension number.

  Press 2 to spell by name.

  If the caller chooses to spell by name (option 2), the system compares the letters that are entered with the names that are configured to the available extensions.

- If a match exists, the system announces a transfer to the matched user and waits for up to two seconds for the caller to press any DTMF key to stop the transfer. If the caller does not stop the transfer, the system performs an explicit confirmation: it prompts the user for confirmation of the name and transfers the call to that user's primary extension.

  If more than one match occurs, the system prompts the caller to choose the correct extension.

  If too many matches occur, the system prompts the caller to enter more characters.

  When the caller has specified the destination, the system transfers the call.

- If the line is busy or not in service, the system informs the caller accordingly and replays the main menu prompt.

Configure the Cisco Unified CM AutoAttendant Application (aa.aef)

Follow the instructions for configuring a Unified IP IVR application in **Unified IP IVR Installation and Configuration**, and for the application, choose the Cisco Unified CM AutoAttendant. Configure both a telephone number that can be dialed and a name that can be dialed.

For further information on how to configure and how to customize the Cisco Unified CM AutoAttendant, see the chapter on the AutoAttendant in the .

Example configuration data:

- AutoAttendant Number: 5000
- Telephones: 7001 and 7002
- Agent: tjones (Tom Jones)
- Tom Jones phone: 7002

Test Your System and the Cisco Unified CM AutoAttendant Application

Verify that your system and the Cisco Unified CM AutoAttendant application work.

Procedure

Step 1 Select one of the phone numbers you have configured in the Unified CM and dial that phone number to see if you get the correct phone. If you get the correct phone, Unified CM is working.

Step 2 On one of your IP phones, phone the AutoAttendant number you have created (for example: 5000).

You should get the welcome prompt. If you do, then the AutoAttendant is working.

Step 3 If you have associated a person with a phone (in the example case, Tom Jones), dial the AutoAttendant number and then at the prompt, type in the person's name (in our example, tjones).

The phone (for example, 7002) you associated with the name (for example, Tom Jones) should ring.

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Chapter: Install and Configure Unified IP IVR for Unified CCE

Chapter Contents

This section describes how to install and configure Unified IP IVR for a Unified CCE system.

This section contains the following:

- **Unified IP IVR in a Unified CCE System**
- **Unified IP IVR for Unified CCE Installation**
- **Check List for Configuring Unified IP IVR in a Unified CCE System**
- **Important Unified IP IVR Dependency Check List**

Unified IP IVR in a Unified CCE System

In a Unified CCE system, you can use Unified IP IVR to extract and parse web-based content and present the data to customers using a telephony or an HTTP interface.

Unified IP IVR communicates with Unified ICME software by way of the Service Control Interface (SCI) protocol.

Unified IP IVR for Unified CCE Installation

The procedure for installing Unified IP IVR for an Unified CCE system is the same as that for installing Unified IP IVR outside of an Unified CCE system.

Check List for Configuring Unified IP IVR in a Unified CCE System

After installation, in addition to the configuration tasks described in **Unified IP IVR Configuration Checklist**, complete the tasks described in the following table to configure Unified IP IVR for use in a Unified CCE environment. These tasks should be performed in the order listed.

Table 1. Checklist for Configuring Unified IP IVR for Unified CCE

Task	Purpose	Configuration Location	Procedure Location

Task	Purpose	Configuration Location	Procedure Location
1. Configure the ICM subsystem.	Allows the Unified IP IVR system to interact with Unified ICME software. Unified ICME software provides a central control system that directs calls to various human and automated systems. You must enable the *Service Control Interface* to use the ICM subsystem. The VRU Connection Port is the same number configured in the VRU Peripheral Interface Manager (PIM) on the Unified ICME system. This is the TCP/IP socket number to use for receiving messages from the Unified ICME system.	Unified CCX ICM Configuration web page In the Unified CCX Administration web page, select **Subsystems** > **ICM**.	Provisioning the ICM Subsystem *section* in the *Cisco Unified Contact Center Express Administration and Operations Guide* .
2. Create and upload Unified CCX VRU scripts.	Unified CCE uses Unified ICME Voice Response Unit (VRU) scripts to handle interactions with contacts. These scripts are loaded as applications on the Unified CCX Engine.	Unified CCX ICM Configuration web page After you create the script, in the Unified CCX Administration web page, select **Subsystems** > **ICM**. Then click **Add a New VRU Script**.	*Configuring ICM VRU Scripts* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* . For creating VRU scripts, see the *Cisco ICM/IP Contact Center Enterprise Edition Scripting and Media Routing Guide*.
	The script you configure in this step is the Unified CCX script to associate with the ICM VRU script. You can select the script from the drop-down list or click the Edit button to specify a new script. The VRU Script Name configured in this step must be the name of the VRU Script from the Property window of the Run VRU Script call. In other words, the Unified CCX file name configured here and the ICM VRU script file name must have the same name. All scripts under the \default directory are listed in the drop-down list of the Script field in the Cisco Script Application Configuration page. To specify a new script, click **Edit**, enter the script name in the dialog box, and click **OK**. The User Prompt dialog box closes, and the name you entered appears in the Script field. If you enter the script name as a file URL, enter the value with double backslashes (\\). For example, file://c:\\temp\\aa.aef. The Application Name is the filename of the script in the Unified CCX repository to run for this VRU Script Name. For example, SCRIPT[BasicQ.aef]. A script name is displayed only as an Expression starting in Unified CCX 4.5. The expression formats for different types of script are as follows: • SCRIPT[aa.aef] for User scripts • SSCRIPT[aa.aef] for System scripts • SCRIPT[FILE[C:\\Windows\aa.aef]] for File scripts • SCRIPT[URL[http://localhost/aa.aef]] for URL-based scripts		

Task	Purpose	Configuration Location	Procedure Location
3. Configure Unified IP IVR for ICM Translation Routing.	In translation routing, Unified ICME software receives the call, instead of the Unified IP IVR system, but then Unified ICME software routes the call to the Unified IP IVR for queuing.	Unified CCX ICM Translation Routing web page In Unified CCX Administration, select **Applications** > **Application Management**. Then click **Add a New Application**, select **ICM Translation Routing** and click **Next**.	*Configure an ICM Translation-Routing Application* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* .
	You must configure Cisco Unified ICME translation-routing applications when the Cisco IP IVR is used as a queue point in an contact center solution. Translation routing happens when a call is transferred from one peripheral to another. For example, the call could be transferred from a peripheral gateway to an IP IVR.		
4. Configure Unified IP IVR for ICM Post Routing.	In a Unified ICME post routing situation, the Unified CM receives the call and controls it. In this case, Unified IP IVR receives the call directly from the Unified CM and then requests instructions from the Unified ICME system.	Unified CCX ICM Post-Routing web page In Unified CCX Administration, select **Applications** > **Application Management**. Then click **Add a New Application**, select **ICM Post Routing** and click **Next**.	*Configure an ICM Post-Routing Application* section in the *Cisco Unified Contact Center Express Administration and Operations Guide* .
	If the agent is configured in the Unified ICME system, Unified CCX gets the routing information for the call from the Unified ICME system, and post routes it to the Unified ICME agent when that agent becomes available. This situation happens when any phone numbers that are configured in Unified CM as triggers are dialed. You do not have to configure both ICM post routing and ICM translation routing unless your configuration requires it.		

Important Unified IP IVR Dependency Check List

Before you install Unified ICME, list the values for all the Unified IP IVR configurations listed in the following table. You will need these for your Unified ICME configuration.

Unified CCX route points, group IDs, connection ports, and IVR script names must be the same as the corresponding Unified ICME route points, trunk group numbers, connection ports, ICM VRU script, and enterprise ECC variable names.

The following table lists the configuration dependencies between Unified IP IVR and Unified ICME in a Unified CCE deployment. The items in the left column must be the same as the corresponding items in the right column.

Table 2. Unified IP IVR Dependency Check List

Unified IP IVR Configuration	Unified ICME Configuration
Unified CCX Route Points (DNIS and label for the translation route in the Unified ICME Configuration that maps the route point in Unified CCX)	ICM Translation Routing Route Points (DNIS and label)

Unified IP IVR Configuration	Unified ICME Configuration
CTI Port Group IDs	ICM peripheral trunk group numbers
VRU connection port	VRU connection port in the Unified ICME system
Unified CCX script names	ICM VRU Script names
Unified CCX enterprise ECC (Extended Call Context) variable names	ICM enterprise ECC variable names

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Chapter: Unified ICME for Unified CCE Installation and Configuration

Chapter Contents

Note Although you can install Unified ICME software before you install the Unified CM and Cisco Unified CCX (Unified IP IVR) software, this guide places Unified ICME installation and configuration last. If by chance you have installed Unified ICME software in your contact center first, you should be aware of all the configuration dependencies described in this guide when you configure each product.

For instructions on installing and configuring Unified ICME for use in a Unified CCE environment, see the *Cisco Unified Contact Center Enterprise Install and Upgrade Guides.*

This section contains the following:

- **About Unified ICME Software**
- **Unified ICME Dependencies in a Unified CCE System**
- **Configure the Unified ICME System for the Unified IP IVR System**
- **Unified ICME Documentation**

About Unified ICME Software

As part of Unified CCE, Unified ICME software provides ACD functionality including monitoring and control of agent states, routing and queuing of contacts, CTI capabilities, real-time data for agents and supervisors, and gathering real-time and historical data for reporting in the Unified CCE system.

The basic Unified ICME software for a Unified CCE system includes the following components: CallRouter, Logger, Peripheral Gateway with a Unified CM PIM and an Unified IP IVR PIM, CTI Server, and an Admin Workstation.

Unified ICME Dependencies in a Unified CCE System

Before installing and configuring Unified ICME for use with Unified IP IVR in a Unified CCE system, you must do the following.

- Install Unified CM.

  On the Cisco Unified Communications Manager, you must have:

  - Created a Unified CM PG user and associated the user with CTI Route Point(s) and CTI Port(s).
  - Enabled CTI for the Unified CM PG user.

- Install Unified IP IVR if your Unified CCE system will use Unified IP IVR.

  On the Unified IP IVR system, you must have:

- Configured one CTI Route Point for each post route number and/or one for each translation route DNIS.
- Configured the VRU Port Group.
- Configured the ICM subsystem.
- Predefined in the Unified CCX Editor any enterprise ECC variables and uploaded VRU scripts.
- Specified the VRU Connection Port.
- Configured translation routing on the Unified IP IVR system.

Configure the Unified ICME System for the Unified IP IVR System

To enable the Unified ICME to communicate with the Unified IP IVR system, you must:

- Add an ICM VRU PIM to an ICM VRU Peripheral Gateway.
- Add a Type 2 Network VRU in the ICM Configuration Manager and select this Network VRU in the Advanced tab of the VRU PIM configuration.
- Define the necessary ICM Labels.
- Create separate ICM call types for Unified IP IVR applications and queuing applications (not essential, but a good practice).
- Define ICM Expanded Call Variables.
- Configure Announcements.
- Define ICM VRU Scripts.
- Configure an ICM Service for Translation Routing.
- Configure an ICM Service for Post Routing.

For complete instructions on configuring Unified ICME for use in a Unified CCE Environment, see the appropriate installation and configuration guide for the software version you have at **Cisco Unified Contact Center Enterprise Install and Upgrade Guides**.

- **Ensure Unified IP IVR PG is Configured Correctly**

Ensure Unified IP IVR PG is Configured Correctly

There may be cases when a call is not queued, but instead sent to the agent directly (via the LAA Select node) from Unified IP IVR. You must ensure the Unified IP IVR PG is configured correctly to ensure that such a call is considered answered at the Unified IP IVR service rather than abandoned.

Procedure

Step 1 In the ICM Configuration Manager, select **Tools > Explorer Tools > PG Explorer**.

Step 2 Click **Retrieve.**

Step 3 Select the IP IVR peripheral.

Step 4 In Configuration Parameter, insert `/ASSUME_ANSWERED`.

Step 5 Click **Save.**

Unified ICME Documentation

Planning and step-by-step installation instructions for Unified ICME are included in the documentation located at **Cisco Unified Contact Center Enterprise Install and Upgrade Guides**.

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hapter: How to Deploy the Sample Script BasicQ.aef

hapter Contents

Note If you have installed Unified IP IVR, you can also test your Unified CCE system with the Cisco Unified CM AutoAttendant (aa.aef). See **Deployment of Sample Script aa.aef**. The BasicQ.aef script works with Unified IP IVR.

This section contains the following:

- **How Unified CCX Scripts Work in a Unified CCE System**
- **BasicQ.aef Script Example**
- **Configure BasicQ.aef**
- **Test Your Deployment**

How Unified CCX Scripts Work in a Unified CCE System

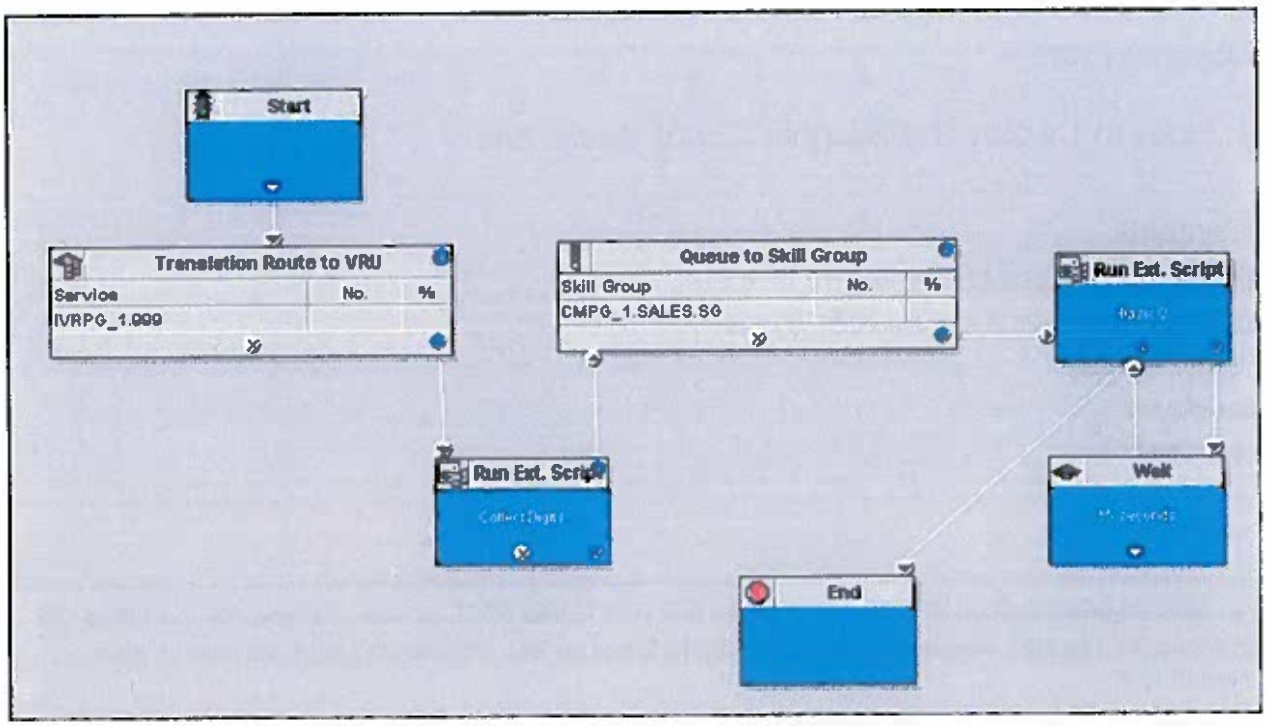
In a Unified CCE system, the Unified CCX system uses the ICM subsystem, which manages call distribution across sites and call-processing environments.

The Unified CCX system is a queue and call-control*point* within the Enterprise system that the Unified ICME system manages. The Unified ICME system manages the queuing and call control.

Cisco User to User (UU) scripts, which the BasicQ.aef script is, do not handle complete calls, but provides different call-handling instructions to be executed sequentially by the Unified CCX server. For example, VRU scripts may play a prompt or acquire dual tone multi-frequency (DTMF) values.

The following example ICM VRU script runs two different Unified CCX scripts, *CollectDigits* and *BasicQ*, that provide two different call-handling steps in the ICM VRU script.

Figure 1. Example ICM VRU Script



ICM VRU scripts run when the Unified ICME system sends a Run VRU Script request to the Unified CCX system using a Run External Script node in an ICM script. However, before the Unified ICME system can run a VRU script, you must have configured the Unified CCX script that the VRU script is to run, uploaded it to the Unified CCX Repository, and mapped it to the ICM VRU script.

For related Unified CCX Contact Center documentation, see *Cisco Unified Contact Center Express Documentation*.

For related Unified CCE documentation, see *Cisco Unified Contact Center Enterprise Documentation*.

See Also

Cisco Unified Contact Center Express Scripting Series: Volume 1, Getting Started Developing Scripts

Cisco Unified Contact Center Express Scripting Series: Volume 2, Editor Step Reference

Cisco Unified Contact Center Express Scripting Series: Volume 3, Expression Language Reference

Cisco Unified Contact Center Express Administration Guide

Cisco Unified Contact Center Express Installation and Upgrade Guide

Cisco Unified Contact Center Enterprise Installation and Configuration Guide

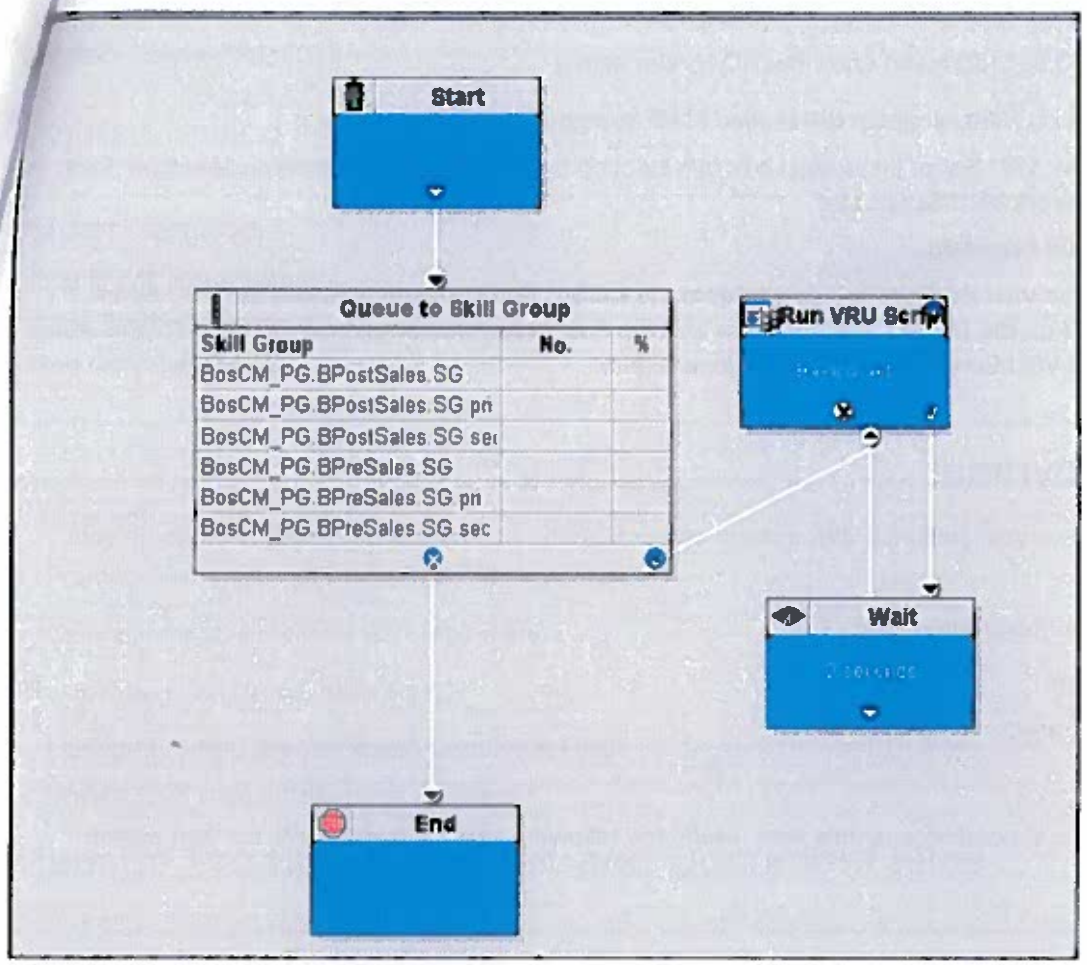
BasicQ.aef Script Example

The Unified CCX BasicQ script, BasicQ.aef, is a default Unified CCX script for a Unified CCE environment that Cisco provides for the *queue treatment* part of an enterprise call flow. The script plays several prompts, (and puts the call on hold), looping through the prompts until an agent phone becomes free and the Unified ICME system can route the call to the agent. This script has no variables defined.

The Unified CCX system accepts the call with the Accept step. Next, it plays the ICMStayOnline.wav file using the Play Prompt step, then puts the call on hold for 30 seconds using the Call Hold and Delay steps. The script uses the Call UnHold step to take the call off hold, plays the ICMWait4NextAvail.wav file, and then puts the call back on hold for another 60 seconds. This sequence repeats until a cancel and then a connect are sent to connect the call through the Unified ICME system to an available agent or the call is released.

The figure below shows an example ICM VRU script. The diagram illustrates how the example script calls the Unified CCX BasicQ.aef script as a function in the ICM script.

Figure 2. Example ICM BasicQ VRU Script



Configure BasicQ.aef

For instructions on configuring Unified IP IVR, see the *Cisco Unified Contact Center Express Administration and Operations Guide* at:
https://www.cisco.com/en/US/products/sw/custcosw/ps1846/products_installation_and_configuration_guides_list.html.

For instructions on installing and configuring Unified ICME for use in a Unified CCE environment, see the *Cisco Unified Contact Center Enterprise Install and Upgrade Guides*.

To configure the BasicQ.aef script, do the following.

Procedure

Step 1 Configure a port group and a trigger for ICM translation routing.

Go to the Unified CCX Administration CM Telephony Call Control Group Configuration web page by selecting **Subsystems** > **CM Telephony**.

Step 2 Upload the Unified CCX BasicQ script.

Go to the Unified CCX Administration Script Management web page by selecting **Application** > **Script Management** and then click **Upload new Scripts**.

Step 3 Create the Unified CCX application, BasicQ.

Go to the Unified CCX Administration Application Configuration web page by selecting **Applications** > **Application Management** and then click **Add a New Application**.

Step 4 Add the BasicQ ICM VRU script.

Go to the Unified CCX Administration ICM Configuration web page by selecting **Subsystems** > **ICM**. Then click **ICM VRU Scripts** and next click **Add a new VRU Script.**

Select the BasicQ.aef script and enter BasicQ for the name.

Step 5 Configure the BasicQ VRU script in the Unified ICME system.

Go to the Network VRU Script List dialog box by selecting from the**ICM Configuration Manager Tools** > **List Tools** > **Network VRU Script List**.

Click **Retrieve** and then **Add**.

Make sure that the VRU Script Name you enter in the Unified ICME system matches the VRU Script Name configured on the Unified IP IVR system and the Enterprise Name matches the name of the script called in the Run VRU Script call in the ICM Script Editor.

Test Your Deployment

Select the target number for your Unified IP IVR system and two phone numbers and an agent number in your system.

The following is example configuration data:

- Dial Number (DN): 3000
- Telephones: 9501 and 9502
- Agent Number: 24

Using your own data or the preceding example data, verify the following sequence of events for your system:

Procedure

Step 1 A caller dials 3000 from phone 9501.

Step 2 The caller listens to Unified IP IVR play BasicQ music. BasicQ is the name of the VRU script.

Step 3 Agent 24 logs in to phone 9502 using Cisco Finesse Desktop.

Step 4 The state for Agents 24 changes to the ready state.

Step 5 The IP IVR music stops.

Step 6 Agent 24 gets a screen pop on the Agent Desktop along with a phone ring.

Step 7 The caller can then hang up or the Agent can drop the call through Cisco Finesse Desktop software.

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Chapter: Unified IP IVR Management

Chapter Contents

When you have provisioned the telephony and media resources, the Unified IP IVR system, additional subsystems (if required) and configured the Cisco script applications, then you can manage the following files:

- Prompt, Grammar, and Document Files
- Central datastore, Unified CCX repository

This chapter contains the following:

- **Manage Prompt, Grammar, and Document Files**
- **Unified CCX Datastores**

Manage Prompt, Grammar, and Document Files

Unified CCX applications might use auxiliary files that interact with callers, such as scripts, pre-recorded prompts, grammars, and custom Java classes. Depending on each implementation, Unified CCX applications use some or all of the following file types:

- **Prompts.** Many applications make use of pre-recorded prompts, stored as .wav files, which are played back to callers in order to provide information and elicit caller response.
- **Grammars.** The Unified CCX system uses specific grammars when recognizing and responding to caller response to prompts. A grammar is a specific set of all possible spoken phrases and/or DTMF digits to be recognized by Unified CCX applications and acted upon during run time.
- **Documents.** Documents might consist of .txt, .doc, .jsp, or .html files. Documents can also include custom classes and Java Archive (JAR) files that allow you to customize the performance of your Unified CCX system. Several system-level prompt, grammar, and document files are loaded during Unified CCX installation. However, any file you create needs to be made available to the Unified CCX engine before a Unified CCX application can use them. This is done through the Unified CCX cluster's repository detester, where the prompt, grammar, and document files are created, stored, and updated.

Note The Unified CCX Server local disk prompt, grammar, and document files are synchronized with the central repository during Unified CCX engine startup and during run-time when the Repository detester is modified. For more information, refer to the *Cisco Unified Contact Center Express Administration and Operations Guide* .

Unified CCX Datastores

Datastores are components that allow you to manage and monitor historical, repository, and configuration data in the Unified CCX cluster.

The Datastore Control Center allows you to configure and manage the following data in the cluster:

- Historical records

- Repository data, such as prompts, grammars and documents
- Configuration data for historical reporting

Access the Datastore Control Center by selecting **Applications** > **Datastore Control** from the Unified CCX administration menu bar.

You can use the Datastore Control Center to obtain an overview of the datastores in the cluster and their relationships, manage the datastore read/write access, monitor and control the replication agents (only available for agent, historical, and repository datastores), and activate the Publisher.

Note For more information, refer to the *Cisco Unified Contact Center Express Administration and Operations Guide* .

d CCX Software Compatibility Matrix for 12.0(1)

d: December 20, 2018

ed CCX Software Compatibility Matrix for 12.0(1)

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Unified CCX and IP IVR

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Unified CCX and Unified IP IVR	Supported Unified UCCX and Unified IP IVR Upgrade Paths(FN 1,2)	Standalone Unified Intelligence Center	APIs
12.0(1) 12.0.1.1000-24	10.5(1)SU1 10.6(1) 10.6(1)SU1 10.6(1)SU2 10.6(1)SU3 11.0(1) 11.0(1)SU1 11.5(1) 11.5(1)SU1 11.6(1) 11.6(2)	12.0(1)	CTI API 13 14 15 16 17 For Unified CCX configuration APIs and Finesse APIs, see the *Cisco Unified Contact Center Express Developer Guide*, located at: **https://developer.cisco.com/site/contact-center-express/**.

(FN 1) The upgrade is also supported from any of the Engineering Specials of all the mentioned Unified CCX versions.
(FN 2) The Unified CCX consists of the coresident Unified Intelligence Center and Finesse.

Solution Products and Components

(top)

Cisco Unified Communications Manager and Business Edition 6000 and 7000(FN 1)	Gateways for Outbound Agent and IVR(FN 2,4)	Cisco SocialMiner	Cisco Prime Collaboration	Cisco Instant Messaging and Presence (IM&P)(FN 5)

11.x	12.x			Prime Deployment	Prime Assurance	
11.0(1) 11.0(1a) 11.5(1)	12.0(1) 12.5(1)	Router Series 29XX 39XX 43XX 44XX Cisco IOS(FN 3) 15.5(2)M 15.5(3)M 15.5(3)S(FN 4)	12.0(1)	10.5(1) 10.6(1) 11.0(1) 11.5(1) 11.6(1)	10.5(1) 10.6(1) 11.5(1) 11.6(1)	12.5(1)

(FN 1) If the corresponding release version of the Unified CM is supported then all corresonding Service Update (SU) and Engineering Special releases are also supported.
(FN 2) Outbound Agent (Predictive and Progressive) and Outbound IVR are supported only on IOS versions that incorporate Call Progress Analysis. For information on Call Progress Analysis, see **http://www.cisco.com/en/US/tech/tk652/tk701/tech_tech_notes_list.html**.
(FN 3) CUBE is supported with the SIP Outbound Dialer and CPA; supported versions of CUBE are ISR Pi27 15.5(2) and Pi28 15.5(3) and later.
(FN 4) Unified CCX Agent and IVR Outbound supports E1 R2 signaling on ISR Gateway 4451 with IOS version 15.5(3)S and later.
(FN 5) Desktop chat requires IM&P 12.5(1) and Unified CM 12.5(1).

Workforce Optimization Compatibility

(top)

Unified CCX	Cisco Unified Communications Manager	Compliance Recording/Quality Management/Advanced Quality Management(FN 1,2)	Workforce Management (WFM)(FN 3)
12.0(1)	10.5(1) 10.5(2) 11.0(1) 11.5(1) 12.0(1)	10.0(1) 10.5(1) 11.0(1) 11.5(1)	10.0(1) 10.5(1) 11.0(1) 11.5(1)

(FN 1) Compliance Recording/Quality Management/Advanced Quality Management (CR/QM/AQM) are 32-bit applications.
a. Support for the application client operation on Windows 7 64-bit machines is through WoW64 emulator mode.
b. Desktop-based monitoring and recording is not supported in WoW64 mode.
(FN 2) Cisco QM has direct dependencies upon Cisco Unified Communications Manager for CTI and SIP events. Therefore, QM compatibility with Unified CM is limited to the current Unified CM version at the time of release and at least one prior version. Previous versions of QM are not generally updated for compatibility with new versions of Unified CM. Therefore, when you plan an upgrade, consult the appropriate QM Installation Guide for Unified CM compatibility. See footnote on individual QM versions to identify the Unified Communications Manager versions that are supported by that QM.
(FN 3) All associated Service Updates are supported with compatible versions of WFM.

Hardware and Virtualization

(top)

For information about UC Virtualization Supported Hardware, see
http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/collaboration-virtualization-hardware.html

For information about Unified Communications in a Virtualized Environment, see
http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/cisco-collaboration-virtualization.html

For information about Virtualization for Cisco Unified Contact Center Express, see
http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/virtualization-cisco-unified-contact-center-express.html

For information about Virtualization for Cisco SocialMiner, see
http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/virtualization-cisco-socialminer.html

For information about Virtualization for Cisco Unified Intelligence Center, see
http://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/uc_system/virtualization/virtualization-cisco-unified-intelligence-center.html

Third-Party Software

(top)

ASR and TTS

(top)

MRCP	VXML	Speech Servers
		Nuance
1.0	2.0	Nuance Speech Server 6.2.x, 6.5.x, 7.0.2 Recognizer 10.2.x, 10.5.x, 11.0.1 Vocalizer 6.0.x, 6.2.x, 7.1.6 Nuance License Manager 11.7, 11.14.3 Nuance Management Station 5.5.1(FN 1), 6.0.1

Latest version of the ASR-TTS packages recommended by Nuance can be used. See **http://network.nuance.com/portal/server.pt**. Using the latest Nuance packages will not impact the integration functionality between Unified CCX and Nuance until there is any major change by Nuance in the underlying design.

customer should maintain the compatibility among different ASR-TTS packages as suggested by Nuance.

Version 9.0 and later versions should use OSR 3.1.x as the Grammar Variant. Nuance 8.5 and older versions continue using "Nuance" as the r Variant.

Nuance Management Station 5.5.1 requires Nuance Speech Server 6.5.x, Recognizer 10.5.x, Vocalizer 6.2.x, and Nuance License Manager 11.7.

board Reporting (top)

ed CCX supports wallboard reporting. Obtain the wallboard from a Cisco-approved vendor from Cisco Marketplace: **https://marketplace.cisco.com/**.

nterprise Database (top)

Oracle 12c R1
Oracle 11g R2
Sybase Adaptive Server 12
IBM DB2 8.2, 10.5
MS SQL Server 2008
MS SQL Server 2012
MS SQL Server 2014
MS SQL Server 2016

Note: Unified CCX connection to external databases has been qualified only for non encrypted connections and hence is not supported with encryption.

Enterprise Database for Unified Intelligence Center (top)

MS SQL Server 2008
MS SQL Server 2012
MS SQL Server 2014
Informix Database Server 12.10.UC5W1X7(UC7X3)

Microsoft Exchange Server for Email (top)

Microsoft Exchange Server 2010(FN 1) - Enterprise Edition
Microsoft Exchange Server 2013(FN 2) - Enterprise and Standard Edition
Microsoft Exchange Server 2016 - Enterprise and Standard Edition

(FN 1) Microsoft Exchange Server 2010 does not have built-in support for TLS version 1.1 or 1.2. Contact Microsoft support for details. To continue using Exchange 2010, use the CLI command to enable TLS version 1.0 as the minimum version in the client (Cisco SocialMiner).
(FN 2) Download and install the latest cumulative update (Cumulative Update 15 for Microsoft Exchange Server 2013 (KB3197044) or higher) to support TLS version 1.2.

Cloud Based Email Services (top)

Office 365
Gmail

Supported Single Sign-On Identity Providers (top)

Microsoft AD FS (Active Directory Federation Services)	2.0, 2.1, 3.0, and 4.0
PingFederate	8.2.2.0
OpenAM	10.0.1
Shibboleth	3.3.0
F5	13.0

Cisco Identity Service supports the above listed Identity Providers (IdPs) and any other IdPs that comply to generic SAML 2.0 authentication as per the considerations described in the Unified CCX Solution Design Guide located at: **https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-implementation-design-guides-list.html**.

Supported Browsers (top)

	Internet Explorer 11 Native Mode	Firefox 52 Extended Support Release (ESR) and higher ESR	Chrome 60 and higher	Microsoft Edge 41.16299.15.0 and higher
Unified CCX Administration	Yes	Yes	Yes	Yes
Cisco Finesse(FN 1)	Yes	Yes	Yes	Yes

Cisco Unified Intelligence Center	Yes	Yes	Yes	Yes
Cisco Unified Intelligence Center (Live Data Gadgets)	Yes	Yes	Yes	Yes
Cisco SocialMiner Administration	Yes	Yes	Yes	Yes
Cisco Identity Service Administration	Yes	Yes	Yes	Yes

(FN 1) The supported resolution for the Finesse desktop is 1366 x 768 or higher.

Real Time Reporting Tool is not a browser based application. It is a Java based application.

Transport Layer Security

(top)

Unified CCX 12.0(1) and its components by default support Transport Layer Security (TLS) 1.2 for both incoming and outgoing connections. To change the TLS version to a minimum version (TLS 1.0 or 1.1) of a server or a client, use the CLI commands as documented in the Cisco Unified CCX Administration and Operations Guide available at, **https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-installation-and-configuration-guides-list.html**

Client Operating System

(top)

	Windows 8	Windows 8.1	Windows 10	Chromebook	Red Hat Enterprise Linux v6	Mac OS X	Android	Al Sr
Editor(FN 1)	No	Yes	Yes	No	No	No	No	
Finesse	No	No	Yes	Yes	No	Yes 10.10 10.11	No	
Mobility Devices Support for Mobile Skill Manager(FN 2)	No	No	No	No	No	No	Yes 4.4	

(FN 1) The Windows User launching the Cisco Unified CCX Editor must be a part of the Windows Administrator Group.
(FN 2) The Mobile Skill Manager is being deprecated from the release 12.0(1) onward.

Note:

1. For information on Jabber Client Operating System, refer to the specific versions of **Jabber Release Notes**.
2. Real Time Monitoring Tool is not supported on Windows 2012 server. The supported operating systems are listed below:

Windows 8

Windows 10

Linux with KDE or GNOME client

Desktop Virtualization

(top)

Cisco Finesse
VMware View 5.x
Horizon View 6.x, 7.x
Citrix XenDesktop 7.x

The Cisco Unified Intelligence Center and Cisco Unified Contact Center Express Administration are not supported on virtual desktops.

Application Virtualization

(top)

Cisco Finesse
Citrix XenApp 7.x

Endpoint Devices

(top)

SCCP Phones

(top)

Cisco Unified IP Phones for Cisco Finesse IP Phone Agent	Cisco Unified IP Phones for Cisco Finesse(FN 2)
Cisco IP Communicator(FN 1)	Cisco IP Communicator(FN 1)
	Cisco IP Phone 6921(FN 3)
	Cisco IP Phone 6941(FN 3)
	Cisco IP Phone 6945
	Cisco IP Phone 7911G
	Cisco IP Phone 7925G
	Cisco IP Phone 7941G
	Cisco IP Phone 7942G
	Cisco IP Phone 7945G
	Cisco IP Phone 7961G
	Cisco IP Phone 7962G

	Cisco IP Phone 7965G
	Cisco IP Phone 7975

For supported Cisco IP Communicator (SCCP) versions, see Cisco Unified Communications Manager Software Compatibility Matrix, available at: www.cisco.com/en/US/products/sw/voicesw/ps556/products_device_support_tables_list.html.
) All Cisco Finesse phones support BiB.
)) Supported on Phone Firmware Version 8.5.2 and later versions.

P Phones

(top)

Cisco Unified IP Phones for Cisco Finesse IP Phone Agent(FN 4,8)	Cisco Unified IP Phones for Cisco Finesse(FN 1,2)
Cisco IP Phone 7811(FN6)	Cisco IP Phone 6941
Cisco IP Phone 7821(FN6)	Cisco IP Phone 6961
Cisco IP Phone 7841(FN6)	Cisco IP Phone 7811
Cisco IP Phone 7861 (FN6)	Cisco IP Phone 7821
Cisco IP Phone 8811	Cisco IP Phone 7841
Cisco IP Phone 8821	Cisco IP Phone 7861
Cisco IP Phone 8841	Cisco IP Phone 7911G
Cisco IP Phone 8845	Cisco IP Phone 7941G
Cisco IP Phone 8851	Cisco IP Phone 7942
Cisco IP Phone 8861	Cisco IP Phone 7925G
Cisco IP Phone 8865	Cisco IP Phone 7942G
	Cisco IP Phone 7945G
	Cisco IP Phone 7961G-GE
	Cisco IP Phone 7962G
	Cisco IP Phone 7965G
	Cisco IP Phone 7975G
	Cisco IP Phone 8811
	Cisco IP Phone 8821
	Cisco IP Phone 8841
	Cisco IP Phone 8845
	Cisco IP Phone 8851
	Cisco IP Phone 8861
	Cisco IP Phone 8865
	Cisco IP Phone 8961
	Cisco IP Phone 9951
	Cisco IP Phone 9971
	Cisco Jabber (FN3) - Versions 9.6, 10.6.1,11.0, 11.5, 11.9, 12.0(FN7), 12.5, 12.6
	Cisco IP Phone DX80(FN5)
	Cisco IP Phone DX650

(FN 1) All Cisco Finesse phones support BiB.
(FN 2) Cisco Finesse supports with caveats mentioned in Cisco Finesse section of the *Release Notes for Unified Contact Center Express Solution*, located at: http://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-express/products-release-notes-list.html
(FN 3) For Home Agent with Extend and Connect, set Jabber to Extend Mode so that the agents can select or edit the remote destination number.
Note: The Cisco Mobile Supervisor application is withdrawn from the Cisco App Store. Cisco does not provide support for Cisco Mobile Supervisor deployments.
(FN 4) All the Cisco IP Phones for Cisco Finesse IP Phone Agent currently do not support the Simplified New Call UI.
(FN 5) Telepresence CE software does not support Transfer or Conference operations from Finesse.
(FN 6) If Cisco Finesse IPPA agents use 78xx series phone, you must either disable the Cisco Finesse IPPA Inactivity Timeout feature or increase the timeout to be within the range of 120 seconds to one day (86400 seconds), so that the agent does not get logged out of Cisco Finesse IPPA even if the agent is on any other screen.
(FN 7) Cisco Jabber as an agent phone now supports Multiline (ACD and non-ACD). This is applicable for versions 12.0 and above.
(FN 8) Cisco Finesse IP Phone Agent is not supported over Mobile and Remote Access (MRA).

Endpoints for Remote Agents

(top)

Cisco Expressway	8.7.1(FN 1)

(FN 1) This version of Cisco Expressway does not support BiB and thus the contact center cannot achieve silent monitoring and recording functionalities. For any caveats and release specific information in Cisco Expressway see, http://www.cisco.com/c/en/us/support/unified-communications/expressway-series/products-release-notes-list.html

Platform

(top)

Internal Unified CCX Database (IDS)	Transport Layer Security (TLS)	Tomcat	Open SSL	CentOS	JDK Version

Informix IDS 12.10.UC9W1	1.0 1.1 1.2	Tomcat 7.0.85	1.0.1e-fips	6.8	OpenJDK 1.7.0_101

Supported Languages

(top)

	ASR Grammar for Workflow Steps	IP Phone Agent Supported Languages	Unified Intelligence Center(FN 3)	Unified CCX Administration	Finesse	IVR Prompts	SocialMiner	TTS	VXML Grammar	Workforce Management	Q Mana
Arabic	No	No	No	No	No	Yes	No	Dependent on software provided by the TTS vendor	Dependent on software provided by the MRCP vendor	No	I
Canadian French	Yes	No	No	No	No	Yes	Yes			No	I
Cantonese	No	No	No	No	No	No	No			No	I
Cantonese HongKong	No	No	No	No	No	Yes	No			No	I
Chinese	No	No	No	No	No	No	No			No	I
Czech	No	No	Yes	No	Yes	Yes	No			No	I
Danish	No	Yes	Yes	No	Yes	Yes	Yes			Yes	Y
Dutch	No	Yes	Yes	No	Yes	Yes	Yes			Yes	Y
English	Yes (GB, US)	Yes	Yes (US)	Yes	Yes	Yes (AU, CA, GB, US)	Yes			Yes	Y
Finnish	No	Yes	Yes	No	Yes	Yes	Yes			No	I
French	Yes	Yes	Yes	No	Yes	Yes	Yes			Yes	Y
German	Yes	Yes	Yes	No	Yes	Yes	Yes			Yes	Y
Hebrew	No	No	No	No	No	Yes (IL)	No			No	I
Hungarian	No	No	Yes	No	Yes	Yes	No			No	I
Italian	Yes	Yes	Yes	No	Yes	Yes	Yes			Yes	Y
Japanese	Yes	Yes	Yes	No	Yes	Yes	Yes(FN 1)			No	Y
Korean	No	Yes	Yes	No	Yes	Yes	Yes(FN 1)			No	Y
Malay	No	No	No	No	No	Yes	No			No	I
Chinese Mandarin	No	No	No	No	No	Yes and also Mandarin (Taiwan)	Yes(FN 1) and also in Taiwan(FN 1)			No	I
Norwegian	No	Yes	Yes	No	Yes	Yes	Yes			No	I
Polish	No	Yes	Yes	No	Yes	Yes	Yes			No	I
Portuguese	No	Yes	Yes and also in Portuguese(Brazilian)	No	Yes	Yes (Brazilian)	Yes (Brazilian)			Yes (Brazilian)	Y (Bra
Russian	No	Yes	Yes	No	Yes	Yes	Yes			No	Y
Simplified Chinese	No	Yes	Yes	No	Yes	No	No			No	Y
Spanish	Yes (CO, ES, MX)	Yes	Yes	No	Yes	Yes (CO, ES, MX, US)	Yes			Yes	Y
Swedish	No	Yes	Yes	No	Yes	Yes	Yes			Yes	Y
Thai	No	No	No	No	No	Yes	No			No	I
Traditional Chinese	No	Yes	Yes	No	Yes	No	No			No	Y
Turkish	No	Yes	Yes	No	Yes	Yes	Yes			No	I
Serbian	No	No	Yes	No	Yes	No	No			No	I
Croatian	No	No	Yes	No	Yes	No	No			No	I
Bulgarian	No	No	Yes	No	Yes	No	No			No	I
Romanian	No	No	Yes	No	Yes	No	No			No	I
Slovenian	No	No	Yes	No	Yes	No	No			No	I
Slovakian	No	No	Yes	No	Yes	No	No			No	I
Catalan	No	No	Yes	No	Yes	No	No			No	I

(FN 1) Finesse IPPA supports all languages currently supported by Finesse provided that the phones support UTF.
(FN 2) Cisco Unified Intelligence Center uses the browser locale to display the Date & Time format in the filter page. If Unified Intelligence Center does not support the browser locale language, then the locale selected in the Unified Intelligence Center application is used.

Expert Mobile

(top)

For information on Cisco Remote Expert Mobile, see the Cisco Contact Center Solutions and Unified Communications Manager Solution Configuration Guide for Remote Expert Mobile.

iOS Device Support for REM

(top)

Devices	Models
iPad	iPad Air, iPad Air 2, iPad 2, iPad 3rd Generation, iPad 4th Generation
iPad Mini	iPad Mini, iPad Mini with Retina Display, iPad Mini 3, iPad Mini 4
iPhone	iPhone 4S, iPhone 5, iPhone 5C, iPhone 5s, iPhone 6, iPhone 6 Plus, iPhone 7, iPhone 7 Plus, iPhone 8, iPhone 8 Plus, iPhone X
iPod Touch	iPod Touch 5th Generation

Additional Notes:

Devices must be running iOS 7 or later.

Android Device Support for REM

(top)

Android Vendors	Models
Samsung	Galaxy S4, S4 Mini, S5, S5 Mini, S6, S7 Galaxy Note III (or newer) Galaxy Tab S, Tab 4 (8.4" and 10.1")
Google	Nexus 5, 6, 7, 9, and 10, Pixel, Pixel XL
LG	G2, Optimus G3
Motorola	Moto G
HTC	One M7, M8, One Max
HP	Slate 7, 8, and 10

Additional Notes:

Devices must be running Android version 4.1.2 or later (Jellybean, KitKat, Lollipop, Marshmallow, Nougat).

Not all devices have been tested, but the above are known to work.

The quality of sent and received video may be poorer on low-specification Android devices. This is especially true if the device is trying to send and receive full HD video. In such a scenario the device can become overloaded.

Jabber System Requirements for REM Agents

(top)

System Requirement	Jabber for Windows and Finesse Agent Desktop	Jabber for Mac and Finesse Agent Desktop
Operating System	Microsoft Windows 7 SP1 or later: 32 and 64 bit Microsoft Windows 8.x: 32 and 64 bit Windows 10: 32-bit and 64-bit	Apple OS X Mountain Lion 10.8.1 or later Apple OS X Mavericks 10.9 or later Apple OS X Yosemite 10.10 or later
Installed RAM	4 GB	4GB
Free physical memory	2 GB	2 GB
Free disk space	1 GB	1 GB
CPU speed and type	4th Generation Intel Core i3 or later	1.6-GHz dual-core Intel Core i5 or later on the following hardware: Mac Pro MacBook Pro (including Retina Display models) MacBook MacBook Air iMac Mac mini
GPU	DirectX 11 on Microsoft Windows 7	N/A
I/O ports	USB 2.0 for USB camera and audio devices	USB 2.0 for USB camera and audio devices
Screen resolution	For Finesse clients, the minimum supported screen resolution is 1024x768.	For Finesse clients, the minimum supported screen resolution is 1024x768.

Browser Support for REM Customers

(top)

Browser	Supported Version	Verified Against	Plug-in Required	Platform / Operating System
Google Chrome	48+	59	No	Windows OSX Linux Chromebook Android

Mozilla Firefox	45+ ESR	54	No	Windows OSX Linux
Microsoft Internet Explorer	11	11	Yes	Windows
Apple Safari	8+	10.1.2	Yes	OSX iOS
Microsoft Edge	20.10240+	38, 40	No	Windows 10 Co-browsing only support from 20.10240 (EdgeHTML 12.10240). Voice and Video support from 40.15063 (EdgeHTML 15.15063).
Opera	28+	46	No	Windows OSX Linux

Note:

- To support Chrome v72+, REM 11.6(1) ES15 must be installed.

(top)

Mobile Browser Support for REM Customers

Browser	Supported Version	Verified Against	Plug-In Required	Platform / Operating System
Google Chrome	48+	62	No	Android co-browsing only
Apple Safari	8+	10.1.2, 11.0	No	iOS co-browsing only

Příloha č. 2

Funkční požadavky a popis stávajícího stavu objednatele

1. Funkční požadavky objednatele

- IVR musí umožňovat nepřetržitý provoz,
- musí obsahovat nástroj (samostatný software na bázi editoru skriptů) pro tvorbu a editaci několikaúrovňových stromů automatizovaných ohlasů s minimálně devíti možnostmi ohlasů na každé úrovni a v každé nabídce,
- nástroj (editor skriptů) musí mít plně grafické prostředí, které k ovládání všech částí nevyžaduje znalost programovacího jazyka, ovládání musí být intuitivní,
- editor skriptů musí obsahovat validátor a debugging skriptu s popisem a umístěním případné chyby ve skriptu,
- IVR strom musí umožnit přímé přepojení na předem definované telefonní linky,
- strom musí mít možnost nastavení na základě podmínek (např. dle času či data),
- frontové ohlasy mají mít možnost oznámení počtu volajících ve frontě,
- v provozu musí IVR strom umožnit vstup do systému až pro 20 volajících v jednom okamžiku,
- systém musí pracovat s automatizovanými ohlasy typu wav, které budou dodány objednatelem,
- ohlasy bude možné přehrát opakovaně,
- IVR musí obsahovat monitoring poruch a chyb systému,
- musí obsahovat reporting statistických výstupů (graficky i textově) obsahujících počet volajících, délku trvání hovoru a případně informaci volbách zvolených volajícími ve stromu,
- musí být plně kompatibilní s vnitřním prostředím objednatele (IP telefonií značky Cisco) popsaným v bodu 2,
- IVR musí být do Cisco Unified Communications Manager napojen přes rozhraní CTI,
- pro budoucí rozvoj je požadována kompatibilita IVR s virtuálním prostředím VMware ve verzi 6.7.

2. Popis stávajícího stavu objednatele

Objednatel provozuje dva servery Cisco Unified Communications Manager ve verzi 11.5, které jsou fyzicky umístěny v budovách objednatele a jsou připojeny do vnitřní síťové infrastruktury objednatele.

Z pohledu koncových zařízení aktuálně provozuje objednatel přibližně 280 Cisco IP telefonů (CP7841, CP7811, CP7960 a CP8845) pro přenos hlasu.

Objednatel provozuje virtuální prostředí VMware ve verzi 6.0.

3. Disponibilní systémové prostředky

Objednatel poskytne poskytovateli tyto systémové prostředky:

- diskový prostor o objemu 160 GB;
- výkon: 2 vCPU, 10 GB vRAM.

Příloha č. 3

Cenová tabulka		
Jednorázové platby		
Číslo položky	**Název a popis položky**	**Cena v Kč bez DPH**
1	Software pro obsluhu a provoz IVR dle čl. I odst. 1 návrhu smlouvy vč. licencí	208 430,00 Kč
2	Školení dvou administrátorů dle čl. I odst 4 návrhu smlouvy	22 850,00 Kč
3	Instalace software pro obsluhu a provoz IVR dle čl. I odst. 1 návrhu smlouvy včetně integrace IVR dle čl. I odst. 3 návrhu smlouvy	38 260,00 Kč
Cena za IVR celkem v Kč bez DPH		269 540,00 Kč
Opakující se platby		
Číslo položky	**Název a popis položky**	**Cena za 1 rok v Kč bez DPH**
4	Roční poplatek za podporu podle čl. I odst. 2 návrhu smlouvy	72 375,00

[redacted]

Příloha č. 4

Bezpečnostní požadavky ČNB

1. Poskytovatel odpovídá za to, že do objektů objednatele (dále jen „ČNB") budou vstupovat nebo vjíždět pouze ti jeho pracovníci, kteří jsou jmenovitě uvedeni v písemném seznamu schváleném ČNB (dále jen „seznam"). Tato povinnost se vztahuje i na posádky vozidel poskytovatele vjíždějících do garáží ČNB za účelem složení a naložení nákladu. Seznam poskytovatel předloží ČNB nejpozději den před zahájením prací.
2. Seznam bude obsahovat tyto položky: jméno, příjmení a číslo průkazu totožnosti každého z pracovníků poskytovatele. Poskytovatel se zavazuje zajistit, aby všichni jeho pracovníci uvedení v seznamu byli ještě před předložením seznamu ČNB proškoleni o podmínkách zpracování osobních údajů a o právech subjektů údajů ve smyslu obecného nařízení o ochraně osobních údajů - Nařízení Evropského parlamentu a Rady (EU) 2016/679 ze dne 27. dubna 2016 o ochraně fyzických osob v souvislosti se zpracováním osobních údajů a o volném pohybu těchto údajů a o zrušení směrnice 95/46/ES (dále jen „GDPR"). Poskytovatel se zejména zavazuje, že všichni jeho pracovníci uvedení v seznamu budou nejpozději do okamžiku předložení seznamu ČNB poučeni:
   a) o tom, že poskytovatel předá jejich osobní údaje v rozsahu: jméno, příjmení a číslo průkazu totožnosti České národní bance, sídlem Na Příkopě 28, Praha 1 v rámci plnění této smlouvy, a to za účelem ochrany práv a oprávněných zájmů ČNB (zajištění evidence osob vstupujících do budovy ČNB z důvodu ochrany majetku a osob a správy přístupového systému ČNB);
   b) o veškerých právech subjektu údajů, která mohou uplatnit vůči poskytovateli a ČNB, zejména o právu na přístup k osobním údajům, které jsou o nich zpracovávány, právu na námitku proti zpracování osobních údajů, právu požadovat nápravu situace, která je v rozporu s právními předpisy, a to zejména formou zastavení nakládání s osobními údaji, jejich opravou, doplněním či odstraněním, jakož i o právu podat stížnost k Úřadu pro ochranu osobních údajů.
3. Za poučení svých pracovníků ponese poskytovatel vůči ČNB následně odpovědnost. V případě nesplnění povinnosti podle bodu 2. nahradí poskytovatel újmu, která v souvislosti s uvedeným ČNB vznikne, a to včetně případné nemajetkové újmy vzniklé poškozením dobrého jména a dobré pověsti, újmy vzniklé v důsledku postihu pravomocně uloženého ČNB správním nebo jiným k tomu oprávněným orgánem veřejné moci a újmy vzniklé ČNB v důsledku úspěšného uplatnění práv pracovníků poskytovatele vůči ČNB.
4. Požadavky na případné doplňky a změny schváleného seznamu je nutno neprodleně oznámit ČNB. Případné doplňky a změny seznamu podléhají schválení ČNB. Osoby neschválené ČNB nemohou vstupovat do objektů ČNB, přičemž ČNB si vyhrazuje právo neuvádět důvody jejich neschválení.
5. Při příchodu do objektů ČNB pracovníci poskytovatele sdělí důvod vstupu, prokáží se osobním dokladem a podrobí se bezpečnostní kontrole. Osoby, které nejsou uvedeny v seznamu, nebudou do objektů ČNB vpuštěny.
6. Schválení pracovníci poskytovatele musí dbát pokynů bankovních policistů, které se týkají režimu vstupu, pohybu a vjezdu do objektu ČNB. Pracovníci poskytovatele budou do prostor ČNB vstupovat a v těchto prostorách se pohybovat v režimu návštěv, to znamená vždy pouze v doprovodu zaměstnance ČNB nebo zaměstnance referátu bankovní policie ČNB.
7. V případě mimořádné události se pracovníci poskytovatele musí řídit pokyny bankovních

policistů nebo dozorujícího zaměstnance ČNB, a dále instrukcemi vyhlašovanými vnitřním rozhlasem ČNB.

8. Pracovníci poskytovatele nesmí vnášet do prostor ČNB nebezpečné předměty, jako jsou střelné zbraně, výbušniny apod. O tom, co je či není nebezpečný předmět, rozhodují bankovní policisté v souladu s vnitřními předpisy ČNB.
9. ČNB si vyhrazuje právo nevpustit do objektů ČNB pracovníka poskytovatele, který je zjevně pod vlivem alkoholu, drog nebo jiné omamné látky.
10. Bez písemného povolení ČNB je zakázáno fotografování a pořizování videozáznamů z interiéru objektů ČNB.
11. Ve všech prostorech objektů ČNB je přísný zákaz kouření a používání otevřeného ohně. O povolení práce se zvýšeným požárním nebezpečím požádá poskytovatel písemnou formou vždy nejpozději jeden pracovní den před zahájením prací dozorujícího zaměstnance ČNB. Dále se pracovníci poskytovatele musí zdržet poškozování či odcizování majetku ČNB, a dále i jakéhokoli nevhodného chování vůči zaměstnancům a návštěvníkům ČNB.
12. Pracovníci poskytovatele uvedení v seznamu se musí před započetím výkonu práce v objektech ČNB seznámit, ve smyslu předpisů o požární ochraně, bezpečnosti a hygieně práce, se specifiky daných objektů ČNB (např. způsob vyhlášení požárního poplachu, určení ohlašovny požáru, seznámení s únikovými cestami, poplachovými směrnicemi, evakuačním plánem, umístěním věcných prostředků požární ochrany apod.). ČNB je oprávněna kdykoliv podrobit kontrole kterékoliv pracovníka poskytovatele uvedeného na seznamu ohledně dodržování těchto předpisů a ustanovení.

POVĚŘENÍ

Společnost T-Mobile Czech Republic a.s., se sídlem v Praze 4, Tomíčkova 2144/1, PSČ 149 00, IČ 64949681, (dále jen „Společnost") jednající prostřednictvím představenstva Společnosti tímto **p o v ě ř u j e** níže uvedeného zaměstnance

Ing. Petra MALIMÁNKA

[redacted]

aby za Společnost jednal a vykonával

- veškeré úkony, které souvisí se smlouvami o poskytování služeb elektronických komunikací služeb a o prodeji komunikačních zařízení a jejich příslušenství firemním zákazníkům a se smlouvami o zprostředkování anebo spolupráci při uzavírání uvedených smluv; zejména se jedná o uzavírání, změny a ukončování takových smluv
- veškeré úkony, které souvisí se smlouvami, které upravují komplexní řešení ProfiNet, prodej jakýchkoli nehlasových služeb a služeb s přidanou hodnotou anebo souvisí se smlouvami o spolupráci na Partnerském programu T-Mobile, které upravují podmínky pro vzájemnou spolupráci mezi Společností a jejími obchodními partnery při využití sítě T-Mobile pro poskytování služeb třetím osobám; zejména se jedná o uzavírání, změny a ukončování takových smluv
- veškeré úkony podle zákona o veřejných zakázkách, to znamená, aby podával nabídky a prováděl veškeré právní úkony ve veřejných zakázkách a výběrových řízeních, zejména svým čestným prohlášením prokazoval základní i další kvalifikační předpoklady pro plnění veřejné zakázky
- veškeré úkony, které souvisejí se smlouvami o propagaci Společnosti, s darovacími smlouvami a sponzoringovými smlouvami, u nichž výše plnění Společnosti nepřesahuje částku 300.000 Kč;zejména se jedná o uzavírání, změny a ukončování takových smluv
- veškeré úkony, které souvisí se smlouvami o propagaci třetích stran, zejména smluv o užívání reklamního prostoru Společnosti či rozesílání SMS či MMS s reklamou třetí strany. Jedná se především o uzavírání, změny a ukončování takových smluv, nepřevyšuje-li výše plnění z těchto smluv 3.000.000,- Kč.

Zmocněnec není oprávněn zmocnit ani jinak pověřit jinou osobu, aby místo něho jednala za Společnost, s výjimkou oprávnění ke zmocnění zaměstnanců Společnosti, aby místo pověřeného zaměstnance zastupovali Společnost při otevírání obálek, prohlídce místa plnění, nebo při ústním vysvětlení nabídky v termínech stanovených zadavateli veřejných zakázek v jednotlivých výběrových řízeních.

Podepisování pověřeného zaměstnance se děje tak, že k napsané nebo vytištěné obchodní firmě Společnosti či otisku razítka Společnosti připojí pověřený zaměstnanec svůj podpis.

V Praze dne 17. března 2016

[redacted]

Mark Klein
předseda představenstva

[redacted]

Martin Schlieker
člen představenstva

Toto pověření přijímám

[redacted]

Ing. Petr Malimánek

[redacted]

POVĚŘENÍ

Společnost T-Mobile Czech Republic a.s., se sídlem v Praze 4, Tomíčkova 2144/1, PSČ 148 00, IČ 64949681, (dále jen „Společnost") jednající prostřednictvím představenstva Společnosti tímto **pověřuje** níže uvedeného zaměstnance:

Ing. Petra ŽÁČKA

[redacted]

aby za Společnost jednal a vykonával:

- veškeré úkony, které souvisí s nabídkami a se smlouvami (zejména podávání nabídek a uzavírání, změny či ukončování smluv), které se týkají plnění Společnosti vůči svým zákazníkům, a to v oblasti:
  - poskytování služeb elektronických komunikací;
  - prodeje či pronájmu komunikačních zařízení a jejich příslušenství,
  - poskytování komplexního řešení ProfiNet nebo Firemní řešení;
  - prodeje jakýchkoli nehlasových služeb a služeb s přidanou hodnotou;
  - poskytování dalších ICT služeb a řešení, včetně služeb podpory takových řešení;
  - poskytování práv k užití software;
  - zachování důvěrnosti informací při poskytování plnění dle výše uvedených nabídek nebo smluv;
  - spolupráce s dodavateli při plnění dle výše uvedených nabídek nebo smluv.
- veškeré úkony podle zákona o veřejných zakázkách, to znamená, aby podával nabídky a prováděl veškeré právní úkony ve veřejných zakázkách a výběrových řízeních, zejména svým čestným prohlášením prokazoval základní i další kvalifikační předpoklady pro plnění veřejné zakázky,
- veškeré úkony v případě, kdy zadavatel dobrovolně zvolí aplikaci zákona o veřejných zakázkách, to znamená, aby podával nabídky a prováděl veškeré právní úkony v takových zakázkách a výběrových řízeních, zejména svým čestným prohlášením prokazoval základní i další kvalifikační předpoklady pro plnění zakázky

V Praze dne 12 -10- 2016

[redacted]

[redacted]

Toto pověření přijímám:

[redacted]

Ing. Petr Žáček

[redacted]

T-Mobile Czech Republic a.s.
Tomíčkova 2144/1
149 00 Praha 4
[redacted]81, DIČ CZ64949681

[redacted]

[redacted] NÁRODNÍ BANKA
Na Příkopě 28, 115 03 Praha 1